

Product description:
GSD-Property Map, Vector



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1 General description

This document describes how the GSD Property Map, Vector is structured on delivery. Its contents are well suited for graphical presentation in the scale area of 1:5,000 – 1:20,000.

The GSD Property Map is based on Lantmäteriet's basic geographical databases, where information has been collected with varying quality concerning positional accuracy, contents and updating.

The GSD Property Map, Vector consists of two parts: property division with property boundaries, administrative text, etc. and topography, which includes buildings, land types, roads and hydrography.

The GSD Property Map uses names that have been reviewed and established by Lantmäteriet as listed in the Place Names Register.

Information on ancient remains is found in the supplement product Plans, Regulations and Rights.

1.1 Contents

For an overall summary, refer to www.lantmateriet.se/sv/Kartor-och-geografisk-information/Kartor/Fastighetskartan/GSD-Fastighetskartan-vektor-/Innehall-i-GSD-Fastighetskartan-vektor/.

1.2 Geographic coverage

The whole of Sweden.

1.3 Coordinate system

Plane: SWEREF 99 TM

Height: RH 2000

For information on what other coordinate systems the product can be delivered with, refer to the Swedish document [Avgifter och leveransinformation](#) about fees and delivery information for Lantmäteriet geodata on Lantmäteriet's website.

2 Quality description

The quality marking is aimed at providing information on the quality of stored objects. Based on the method of measurement, the expected positional accuracy of the detail types has been included in the Property Map.

The objects in the database are stored with data that includes history and positional accuracy.

For more information about the various quality parameters used in the product description, refer to [HMK Ordlista](#) and [HMK Geodatakvalitet](#). For terms and definitions of these, refer to [termdatabasen Ekvator](#).

2.1 Purpose and utility

The GSD Property Map in vector format provides a good overview of real property division and can be combined with information from the Real Property Register. The Property Map is Lantmäteriet's most detailed map. Among other things, it contains buildings, land types, roads and real property boundaries. The vector format allows you to tailor the map to your own operations.

You can:

- add and link your own information to objects on the map
- integrate map data in your own system
- combine with information from the Real Property Register, such as details of owners, buildings, addresses and taxation values
- display information as required using the layer division.

2.2 Data capture

2.2.1 Lineage

Starting in the mid-1930s, the Economic maps were drawn up and the collection of data consisted of field work where features were measured using physical steps and drawn in by hand in different documents. This type of collection continued until 1977. The purpose of the survey was to obtain a reasonably nationwide set of maps to facilitate finding the correct documents in Lantmäteriet's cadastral archives. The geometric quality of the cadastral maps vary depending on when they were produced; older maps often lack a known coordinate system. Dimensions and angles for real property boundaries may instead be related to existing objects in the land (boundary stones, corners of buildings, etc.). There are some property boundaries that were last measured in the 19th century, especially in rural areas. Real property boundaries in more concentrated built-up areas built more recently are generally of better quality.

Between 1992 and 1997, the analogue information was digitized and a first digital version of basic data was created. The goal was to make a nationwide database reflecting the content of the Economic Map. The version was almost nationwide. The only area missing was the mountain areas in the north. The data set was supplemented and developed using better positional accuracy in the construction of Basic Geographical Data (GGD) in 1995-2004. The mountain areas were mapped in 2006-2012.

Field work is no longer carried out as it was in earlier methods. An important part of the work is quality control of the material obtained through collaboration agreements with municipalities, for example.

2.3 Maintenance

After the GGD was completed in 2004, the focus has been on improving the updating and accessibility of information. Updating of topographic objects takes place internally as well as in collaboration with the authorities or organizations responsible for each type of information.

Collection and updating at Lantmäteriet is now done by stereo-mapping using three-dimensional aerial photographs or screen digitizing by orthophoto.

Nationwide collaboration takes place for buildings, roads, power lines, NSL objects (national shoreline), conservation areas and military zones. To achieve completeness, however, supplements will be required through photogrammetric updating.

If updating does not take place through collaboration, data is added from aerial photographs.

Property boundaries are measured in conjunction with cadastral procedures. This may take place under municipal or state management. The boundaries may also be updated in connection with quality improvement measures.

2.3.1 Maintenance frequency

The date is noted when each object is stored or changed in the database.

Real property classification is updated continuously in conjunction with the creation of real property.

Topographic information is updated at varying intervals depending on the detail types. Periodic updating takes place internally at Lantmäteriet and more continuously in collaboration with other government agencies, municipalities and organizations. Collection of data at Lantmäteriet is done by interpretation of aerial stereo photographs and orthophoto. Updating in different areas is thus dependent on the image supply program, [bildförsörjningsprogrammet](#), and collaboration agreements with other parties.

There is also a current overview in PDF format, [aktuell översikt i PDF-format](#), containing data on the production plan, completeness and updating of the GSD Property Map, Vector on Lantmäteriet's website.

Read more in the sections on data capture, history and maintenance frequency for each layer in Chapter 5, and more detailed information on how Lantmäteriet manages geodata production and collaborates with other organizations in Chapter 6.

2.4 Data quality

2.4.1 Completeness

Completeness is related to the selection of each detail type. Refer to the sections that describe the layers included in the product description to learn more about the selection of each detail type. There are also some rules regarding generalization of information in the Property Map that restrict the number of items presented on the map.

The quality parameters for completeness are commission and omission. Since there are few measurements made of the completeness of objects included on the Property Map at Lantmäteriet, completeness is often referred to as very high, high, and low in the product description. The class of completeness that the different detail types fall into is assessed by personnel involved in the collection and updating of objects.

2.4.2 Logical consistency

Demands placed on the structures and geometrical positions of point objects, line objects and polygons must enable the easy creation of topology.

When storing objects in the Lantmäteriet database they are first checked for compliance with the established geometric and topological rules and that the information is consistent with OGC (Open Geospatial Consortium) requirements for geometries. Value quantities and detail types are also checked for validity before being stored in the database.

For objects included in the real property division, it is checked that they are located in the correct municipality and that the real property areas correspond to those in the Real Property Register.

Read more about logical consistency in the different layers in Chapters 5 and 6.

2.4.3 Thematic accuracy

The process for thematic classification of topographic data is reviewed in field studies. Classification is discussed on the basis of aerial image interpretation, which is compared with reality.

For more information on thematic accuracy refer to Chapters 5 and 6.

2.4.4 Positional accuracy

Information on positional accuracy depends on the measurement method, generalization and how distinct the object is.

Positional accuracy describes how well a given position corresponds to its real position in the land for an object positioned in relation to the principal coordinate system.

Geometrical requirements on positional accuracy depend on the objects' distinctness within a geographically limited area. Concrete objects have higher requirements than objects with diffuse boundaries in aerial image interpretation.

Read more about each detail type's positional accuracy in Chapters 5 and 6.

3 Contents of the delivery

3.1 Folder structure at delivery

3.1.1 Document

This folder is included in every delivery and contains those documents that describe the product.

3.1.2 Font

TrueType fonts are attached in the files *GSDFastk.ttf* or *GSDFk_Ml.ttf* depending on what format the data comes in and the file *Gsdsymbo.ttf*.

For Sami text to be presented correctly, fonts are attached in the *GSDTxt.ttf*, *GSDTxb.ttf*, *GSDTxtn.ttf*, *GSDTxtni.ttf* and *GSDTxnb.ttf* files.

3.1.3 fastighk

This folder contains one or more subfolders with data and a grid, *rutnat**, divided into 10 x 10 km squares. The grid has an attribute, RUTA, which contains the designation of the index square. Each subfolder contains data for the ordered area (such as data for a particular municipality, or a specific area defined by coordinates). In addition to the files with map information, this folder also contains a file in which all of the objects in each layer are listed.

3.1.4 arcgis (only with deliveries in Shape format)

If data is delivered in Shape format, this folder contains an LYR file.

3.2 File sets

3.2.1 Shape format

When delivered in Shape format there are five files per layer:

*.shp	Geometry file
*.dbf	Attribute file in dBase format.
*.shx	Index file
*.prj	Projection file
*.cpg	Encoder

A geometry index is not created for Shape files.

An attribute index is not created for Dbase files.

An encoder is required to display Swedish and Sami characters correctly.

Text files are also delivered in ArcInfo Coverage format:

*	ArcInfo Coverage with rendered text
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3.2.2 MapInfo format

When delivered in MapInfo format (tab) there are 4 files per layer:

*.tab	Main file/Table definitions
*.dat	Attribute file
*.map	Geometry file

*.id	Index file for graphic objects
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Neither geometry nor attribute indexes are created.

All empty fields (null) are given the value -9999 when data is transformed into MapInfo format.

3.3 Layering

When the GSD Property Map is delivered in Shape or MapInfo format, the information is divided into different layers according to geometry type and theme categories. The files are primarily named using this logic: the first letter indicates the theme (e.g. **a** for administrative information and **b** for buildings) and the second indicates geometry type (e.g. **l** for line, **p/s** for point/symbol and **t** for text). The second part of the name (after "_") is common to all files in a folder.

The set of attributes varies between the different layers and is described in detail in Chapters 5 and 6.

3.3.1 Layer content

In the column *Layer name*, the layer name/file name that the files had on delivery is given. XXXXX = sheet code/area name.

In the *Detail type* column, the alphanumeric code for the object is stated.

In the *Name* column, the detail type is stated in plain text.

In the *Description* column, the detail type is described more clearly. This is used for some attributes.

In the *Selection* column, limits for which objects are included in the map are described. This is not used for all attributes.

The attributes are described as follows:

In the *No.* column, a serial number is given for the layer's attributes.

In the *Attribute* column, the attribute's name is specified.

In the *Type* column, the type of data used, integer/decimal/character is specified.

In the *Length* column, the number of characters allocated to this field is specified.

In the *Description* column, a brief description of the attribute is given.

4 Layout and plotting of data

4.1 Distribution

All layers in the GSD Property Map are divided into 10 km squares, which improves drawing performance when plotting the data in each software program.

4.2 On-screen presentation

4.2.1 General

Rendering of the product is adapted to scales between 1: 5,000 - 1: 50,000.

The proposed drawing order of the layers is presented in Appendix 1. Best results for printing are obtained when both the MY layer and the ML layer are used.

Polygons

Topological polygon created real properties are delivered in a fully transparent portrayal that can be used in combination with other layers.

A comprehensive land polygon layer is presented in the MY layer. All marshland polygons are presented in the MS layer. Other land polygons, MA, MB, MO and MV, contain only subsets of MY.

Symbols

To obtain correct symbol presentation, TrueType font file GSDFastk.ttf/GSDFk_MI.ttf must be installed. When rendering symbols, the SRIKT attribute has been used to obtain the correct orientation.

Text

In plotting text, the attribute DETALJTYP determines the style and colour, while THOJD determines the size. Other attributes used are TJUST (insertion point) and TRIKT (orientation). Text strings are not plotted with spaced characters. This is only presented in the TSPARR attribute as a percentage of the amount of text delivered in relation to the original text. The point size of the text on the printed map is attached as information in the THOJD attribute. The register number and area number in the AX and AR layers have attribute text such as 5:2>2. On printed maps, the register number and area number are presented as a two-line text:

5:2
2

To identify 3D real property text, blocks and units are enclosed with backslashes (\) in the TEXT attribute in the AX and AR text layers. Examples of this are: \5\>2 or \29:1\>2. Real properties and joint properties with uncertain boundaries (see description under AI layer) have brackets around the register number, e.g. (2:4)>1. Real properties and joint properties that have come about through unofficial parcelling (see description under the AI layer) are presented with square brackets around the register number, e.g. [5:8]>11.

4.2.2 Shape format

All layers are rendered using the GSD Property Map default rendering on delivery. When using data in ArcMap, the rendering settings are stored in the LYR file in the arcgis folder.

In the LYR files it is possible to control whether an object is scaled when changing the program scale. This is already done in the LYR file included in the delivery. The LYR file also contains settings that indicate which layer will be presented within which scale interval (see Appendix 1).

Text is delivered partly as points with the text as attributes, and partly as rendered text in the ArcInfo Coverage format.

4.2.3 MapInfo format

The product comes with the GSD Property Map default rendering. This means that on delivery all objects in all layers contain the values of the properties that control which colour, size and shape they will be drawn with.

In order to rotate the symbols for re-drawing, MapInfo 4 or later versions must be used.

4.3 Installation of fonts

Regardless of what software is used, the attached fonts in the file *GSDFastk.ttf/GSDFk_Mi.ttf* must be installed via Control Panel-Fonts, in order to obtain the correct symbol presentation. The standard Windows font, *Arial*, is used for text.

5 Layer description and code list for real property classification

5.1 Real property classification

Lantmäteriets [Real Property Register](#) contains information on all real property in Sweden. One part of the Real Property Register is the digital Cadastral Index Map (DRK), which shows the following, in accordance with Section 37 of the Real Property Register Ordinance:

- subdivision into counties and municipalities (administrative classification)
- the extent of real property and joint property areas (real property classification)
- subdivision into civil parishes (historical classification).

The real property classification in the Property Map, Vector corresponds to the boundaries in the Cadastral Index Map. The real property boundaries in the Cadastral Index Map have been added over a long time period and have been created using widely varying methods. This means that the data have very disparate quality. There are boundaries in the countryside that originate from parcel formation in the mid-19th century. These boundaries may have a margin of error of several metres. Today we measure new real properties using satellite positioning, which may have an accuracy of a few centimetres. The real property division is suitable for use to obtain an overview of real properties relative to each other, but it is important to remember that the contents of the Cadastral Index Map do not have legal effect. It is the cadastral plan, together with decisions and minutes, which form the relevant legal documents. These documents are archived with Lantmäteriet.

If the real property division in the Property Map, Vector is to be used as an underlying document for actions or an authority decision requiring the most recent data and best positional accuracy, it is recommended to contact Lantmäteriet's customer centre to obtain access to cadastral plans etc. Refer to [Lantmäteriet's website](#) for more information.

The Property Map's subdivision of real property contains the following layers:

Administrative classification	Layer name
County (polygons)	AN
Municipality (polygons)	AK

Real property classification (polygons)	Layer name
Real properties and joint properties (polygons)	AY
Boundaries (lines)	AL
Identity points for polygons (points)	AI
Line-designated joint properties (lines)	AM
Point-designated real properties and joint properties (points)	AP
Real property boundary points (points)	AQ
Administrative symbols (points)	AS
Administrative name (text) (1:5,000 -1:20,000)	AT
Register and area numbers (text) (1:5,000 - 1:20,000)	AR

Real property classification (polygons)	Layer name
Register and area numbers and Administrative name (text) (up to 1: 2,000)	AX

Historical classification	Layer name
Civil parish (lines)	AO

Other	Layer name
Quality range for road names (polygons)	AG

5.1.1 Data capture

Lineage

Changes in administrative boundaries and real property division take place by authority decisions. The legal traceability of real properties is presented in the Real Property Register. The cadastral procedure is documented in detail in a document with an appurtenant cadastral plan.

The [Real Property Register](#) also contains changes, such as minor corrections or quality improvements. These are not recorded in a document. For boundary points, it is possible to trace quality improvements through the KVALFORB attribute; read also about positional accuracy below under the heading Data quality. Other changes are traced via the change date (ADAT).

In the product Property Map, Vector, the history of data collection and latest changes ensure traceability. The date of change for line and point objects (GDAT and ADAT) are presented here, as well as the method of measurement and the underlying documents used for data collection (METODPLAN).

The table below shows the values which may occur in the METODPLAN attribute.

Table 1

Code	Method type	Technique	Basis type for digitization
000	Unspecified	Unspecified	
100	Geodetic	Unspecified	
101	Geodetic	Total station	
102	Geodetic	GPS	
103	Geodetic	DGNSS	
104	Geodetic	Absolute GNSS	
107	Geodetic	Inertial technology	
108	Geodetic	Adjusted	
109	Geodetic	Network RTK	

Code	Method type	Technique	Basis type for digitization
110	Geodetic	Network DGNSS	
111	Geodetic	Static GNSS	
201	Photogrammetric	Analogue photogrammetry	
202	Photogrammetric	Analytical photogrammetry	
203	Photogrammetric	Digital photogrammetry – analogue camera	
204	Photogrammetric	Unspecified technology	
205	Photogrammetric	Digital photogrammetry – digital camera	
300	Digitization	Unspecified	Unspecified
310	Digitization	Table digitization	Unspecified
314	Digitization	Table digitization	Orthophoto
320	Digitization	Screen digitization	Unspecified
324	Digitization	Screen digitization	Orthophoto
330	Digitization	Scanning	Unspecified
500	Cartographic position	Unspecified	
600	Interpreted through JB 1:5		

5.1.2 Maintenance frequency

Real property classification in the Cadastral Index Map is continuously updated by Lantmäteriet and the municipal surveying authorities in connection with registration of real property. Updating of the Cadastral Index Map must be carried out not later than two days after a registration is made in the Real Property Register.

The storage of real property classification is updated every night. Real property classification in the Property Map, which is ordered via Lantmäteriet, is downloaded directly from this storage.

Data is updated once a week on Sundays at Lantmäteriet's collection point, [Geodataplatsen](#).

If you need to see a more up-to-date real property division, you can use Lantmäteriet's display service, [Fastighetsindelning Visning](#). The information is updated within two hours of the content in the Cadastral Index Map being updated.

There has been no update of localities since 2010. Changes are made by Statistics Sweden. When changes to data are made at Lantmäteriet, the change date attribute (ADAT) is updated.

5.1.3 Data quality

Completeness

Sweden's real property division is not completely analysed. This means that there are some areas that are only found in deeds and which are not presented in the Real Property Register.

There are also real properties and joint properties that are presented with incomplete (part of a polygon) or simplified geometry (point or line). Joint properties with line presentation are in the AM layer. Points are found in the AP layer.

There are areas which are not analysed, and thus have no information in the text part of the Real Property Register. These are presented on the map and have an identity. These include completely unanalysed areas and areas which are known to be joint properties but which have not been registered.

There are also older joint properties which are registered, but without any geometry. These are not included in the delivery.

Many boundary points are missing in the Cadastral Index Map. This applies in particular to older boundary points, which have not been stored in the database. These can be found in documents and old records. Work is under way to supplement the database, partly with boundary points from municipalities and partly by transforming older boundary points into the correct coordinate system. Completeness is thus being continuously improved.

Boundary points have an MTYP attribute, (marking type), which shows the type of marking on the ground. Around 35% of boundary points have this attribute.

Logical consistency

There may be deficiencies in logical consistency, i.e. the structure of the data is not correct. One example is gaps in real property division, which means that a correct polygon cannot be created. The result is multiple ID points within a polygon. Logical consistency is being checked and corrected continuously. Certain faults caused by a lack of synchronization between databases cannot be prevented, however. They are corrected within two days.

Boundary coordinates and coordinates of inflection points on the boundary line should match each other.

Thematic accuracy

A few errors may occur, such as a county boundary being incorrectly coded as a real property boundary, but in general the thematic accuracy is high.

Positional accuracy

Positional accuracy is stored in the form of a mean square error. The mean square error is stated with millimetre accuracy and refers to the positional accuracy in relation to the principal coordinate system, e.g. SWEREF 99 TM, in which it is presented. In cases where boundary points for a real property are correct in relation to each other, i.e., high internal positional accuracy, they may still be incorrect in relation to the principal coordinate system, i.e. lower external positional accuracy.

The mean square error is almost always calculated or estimated on the basis of the measurement methods used for data capture (METODPLAN). The value may be regarded as an assumed value for the measurement method used. The value may be better or worse, but gives some idea of the positional accuracy of boundaries and boundary points.

A value for positional accuracy is specified for all line and point objects. Exceptions are ID points and area objects that are created on the basis of boundary lines. If there are surveyed boundary points on the line, the boundary lines have been given a mean square error derived from these surveyed boundary points. The principle is that the mean square error of the lines originates from the surveyed boundary point which has the highest mean square error.

Every surveyed boundary point has information on positional accuracy in the form of a mean square error (XYFEL) in plane. The mean square error is derived from the measurement methods used in data capture; refer to section 5.1.1 in Data capture.

The KVALFORB attribute indicates whether a surveyed point has undergone quality improvement measures. In cadastral work, measurements are made where details included have high relative accuracy (internal accuracy). In cases where details are transformed or adapted to principal coordinate systems such as SWEREF 99 TM, external accuracy will be affected in most cases. A mean square error must then be estimated.

The whole area is undergoing quality improvement and new measurements with higher positional accuracy are being made for certain points (KVALFORB=1).). The remainder of the boundary points are then calculated from the transformational relationship given by the newly measured boundary points. The result of the calculation gives a basic mean square error (KVALFORB=2).

The cultivation boundary has a positional accuracy of about 50 m where it follows topography, the quality is higher where it follows watercourses or coincides with real property or district boundaries.

Requirements for object types' positional accuracy

Object type	Requirements for positional accuracy in plane (m)
Territorial sea limits	-
National boundary	5
County boundary	5
County boundary, 1:5	50
Municipal boundary	5
Municipal boundary, 1:5	50
Enclosing line for municipal boundary	-
Precinct district boundary	-
District boundary	5
District boundary, 1:5	50
Real property boundary	5
Real property boundary, 1:5	5

Object type	Requirements for positional accuracy in plane (m)
Real property shore	5
Enclosing line for real property division	-
Enclosing line for real property division 1:5	-
Civil parish name boundary (Gotland)	5
Civil parish name boundary (Gotland)	50
Boundary for three-dimensional space	-

5.1.4 AL Line layer with boundaries

Contains the same property division as in the Cadastral Index Map. Boundary lines are hierarchically coded from national boundaries to real property boundaries and form an area structure. Shorelines that are not been replaced by established real property boundaries are referred to as real property shorelines and are used to ensure an enclosed structure. A real property shoreline may divide a property into water and land areas, or constitute an enclosing boundary for 1:5 water (under the Land Code Chapter 1 Section 5).

Restrictions

PLEASE NOTE! Boundaries presented have no legal effect.

Arcs are delivered as line objects.

Layer name	Detail type	Name	Description	Selection
AL_XXXXX	TERRGR	Territorial sea limit	Boundary line in Swedish waters to other nation's territory. The boundary also constitutes county, district and real property boundaries.	Included completely within the mapped area
AL_XXXXX	RIKSGR	National boundary	Boundary line showing Swedish national boundary to other nations. The boundary also includes county, district and real property boundaries.	Included completely within the mapped area
AL_XXXXX	LÄNSGR	County boundary	Boundary line showing county boundary, which is not the national boundary. The county boundary is also the municipal, district and real property boundary.	Completely included.
AL_XXXXX	LÄNS1:5	County boundary, 1:5	Boundary line showing non-established boundary of counties in a water area under the Land Code (SFS 1970:994) Chapter 1 Section 5. The boundary also constitutes non-established	Completely included.

Layer name	Detail type	Name	Description	Selection
			county, district and real property boundaries.	
AL_XXXXX	KOMMU NGR	Municipality boundary	Boundary line showing municipal boundary, which is not a county boundary or national boundary. The municipal boundary also constitutes a district and real property boundary.	Completely included.
AL_XXXXX	KOMMU N1:5	Municipality boundary, 1:5	Boundary line showing non-established boundary of municipalities in a water area under the Land Code (SFS 1970:994) Chapter 1 Section 5. The boundary does not constitute non-established district and real property boundaries.	Included completely, with the exception of showing in public waters.
AL_XXXXX	KOMTÄT GR	Enclosing line for municipality boundary		
AL_XXXXX	KVTRAK TGR	Precinct boundary	A precinct consists of real properties and joint properties with the same precinct name. A precinct boundary is the boundary line for the precinct. It is used as a delimitation to real properties/joint properties that have different precinct names.	according to the specifications for the Digital Cadastral Index Map.
AL_XXXXX	TRAKTG R	District boundary	Boundary line showing a district boundary, which is not a municipal or county boundary or a national boundary. Also constitutes real property boundaries. Delimits the district from public waters.	Included completely outside areas with incomplete display of real property division (AJOURGR, see AO layer).
AL_XXXXX	TRAKT1: 5	District boundary, 1:5	Boundary line showing non-established boundary of a district in a water area under the Land Code (SFS 1970:994) Chapter 1 Section 5. The boundary is not at the same time a municipal, county or national boundary. Also constitutes non-established real property boundaries. On Gotland: The boundary between districts with the same civil parish name in the district name.	Included through assessment by the cadastral authority.
AL_XXXXX	FASTGR	Real property boundary	Boundary line for real property, joint property or unofficial parcelling area, which is not at the same time a district, precinct district, county or national boundary.	Included completely outside areas with incomplete display of real property division (AJOURGR, see AO layer).

Layer name	Detail type	Name	Description	Selection
			When the extent of the real property or joint property area is unclear with respect to water, the boundary is a real property shore instead.	
AL_XXXXX	FAST1:5	Real property boundary, 1:5	Boundary line showing non-established boundary of a real property in a water area under the Land Code (SFS 1970:994) Chapter 1 Section 5. The boundary is not at the same time a district, municipal, county or national boundary.	Included through assessment by the cadastral authority.
AL_XXXXX	FASTSTR	Real property shoreline	Boundary line between a real property or joint property presented as a land area and a water area or previous water area (filled area). Real property shoreline is used in cases where the extent of the real property or joint property is unclear or when there is no boundary presented. The real property shoreline is used to form a closed figure in the real property division. The real property shore may coincide with the shoreline.	Included through assessment by the cadastral authority.
AL_XXXXX	FASTTÄTGR	Enclosing line for real property division		
AL_XXXXX	FAST1:5TÄT	Enclosing line for real property division 1:5		
AL_XXXXX	SOCKNAGR	Civil parish name boundary (Gotland)	Boundary line showing the civil parish name boundary between districts with different civil parish names on Gotland. Is used instead of district boundary to distinguish between areas with different civil parish names in the district name.	Completely included. Only used on Gotland.
AL_XXXXX	SOCKNA 1:5	Civil parish name boundary 1:5 (Gotland)	Boundary line showing non-established boundary in a water area under the Land Code (SFS 1970:994) Chapter 1 Section 5 between districts with different civil parish names on Gotland. It is used instead of the district boundary 1:5 to distinguish areas with different civil parish names in the district name.	Included through assessment by the cadastral authority. Only used on Gotland.
AL_XXXXX	3DGR	Boundary for three-dimensional space.	Boundary line for three-dimensional real property.	Included through assessment by the cadastral authority.

Set of attributes

No.	Attribute	Type Shape	Length shape	Type MapInfo	Length MapInfo	Description
1	INTERNID	Decimal	9	Decimal	9	Internal identity in Lantmäteriet's basic data storage
2	DETAIL TYPE	Text	10	Text	10	Code for detail type
3	G DAT	Text	16	Text	16	Date/time when detail was created. Stated in format: 2005-10-11 12:04
4	A DAT	Text	16	Text	16	Date/time of last change. NB not necessarily the latest update. Stated in format: 2005-10-11 12:04
5	XYFEL	Decimal	6.0	Decimal	6.0	Mean square error in stated measurement method. Stated in unit mm. The value varies between 25 – 999,999. 0 is treated as a null value.
6	METODPLAN	Decimal	5.0	Decimal	5.0	Method of measuring position specification in plane; refer to the detailed description in Table 1, Chapter 5.
7	FLYGHÖJD	Decimal	7.0	Decimal	7.0	Flying height when collecting photogrammetric data
8	UNDSKALA	Decimal	7.0	Decimal	7.0	Document scale factor when digitizing
9	KNID	Decimal	4.0	Decimal	4.0	Municipal code, geographic origin

5.1.5 AN Polygon layer with counties

Contains polygons for counties, including enclaves. An enclave is a county area within another county.

Layer name	Detail type	Name
AN_XXXXX	LÄN	County polygon

Set of attributes

No.	Attribute	Type Shape	Length shape	Type MapInfo	Length MapInfo	Description
1	DETALJTYP	Text	10	Text	10	Code for detail type
2	A DAT	Text	16	Text	16	Date/time of last change. NB not necessarily the latest update. Stated in format: 2005-10-11 12:04
3	LANKOD	Text	2	Text	2	County code
4	LANBOK	Text	2	Text	2	County letter

No.	Attribute	Type Shape	Length shape	Type MapInfo	Length MapInfo	Description
5	LANNAMN	Text	30	Text	30	Name of county

5.1.6 AK Polygon layer with municipalities

Contains polygons for municipalities, including enclaves. An enclave is a municipality area that lies within another municipality.

Layer name	Detail type	Name
AK_XXXXX	KOMMUN	Municipality polygon

Set of attributes

No.	Attribute	Type Shape	Length shape	Type MapInfo	Length MapInfo	Description
1	DETALJTYP	Text	10	Text	10	Code for detail type
2	ADAT	Text	16	Text	16	Date/time of last change. NB not necessarily the latest update. Stated in format: 2005-10-11 12:04
3	LANKOD	Text	2	Text	2	County code
4	KOMMUN-KOD	Text	4	Text	4	Municipal code (county + municipality)
5	KOMMUN-NAMN	Text	16	Text	16	Name of municipality

5.1.7 AG Polygon layer with quality range for road names

Contains polygons for quality areas in localities. In these quality areas, road names are kept up to date. Outside the quality areas there cannot be a guarantee that the road names are correct.

Layer name	Detail type	Name	Description	Selection
AG_XXXXX	TATY	Locality polygon	Polygon for Built-up area with at least 200 inhabitants and a maximum of 200 m between buildings, or village with 50 - 199 inhabitants and at most 150 metres between buildings (without regard to municipal or county boundaries). Certain nearby localities are merged into one polygon.	Within the locality, attributes of plant areas are reported according to the value list, as well as the names of roads and buildings. These attributes may also occur outside the locality but there is no requirement that they do so. Purpose of buildings is fully reported both inside and outside urbanization.

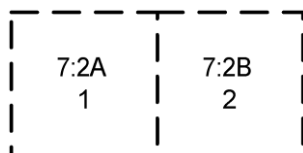
Set of attributes

No.	Attribute	Type Shape	Length shape	Type MapInfo	Length MapInfo	Description
1	DETALJTYP	Text	10	Text	10	Code for detail type
2	ADAT	Text	16	Text	16	Date/time of last change. NB not necessarily the latest update.
3	NAME	Text	35	Text	35	Name of locality (e.g. Stockholm). In cases where several localities are included in a shared urban polygon, only one of the names of the areas is used.

5.1.8 AI Point layer with ID points for joint properties and real properties

Layer containing ID points for real properties and joint properties. When forming areas of real property, attribute information is retrieved from points with detail types FASTID, SAMFID, 3DFASTID, 3DSAMFID, FASTOID and SAMFOID.

The ID points for buildings and joint properties may have parcel letters (a letter) or area information. Parcel letters belong to unofficial parcels which are part of a real property (or part of a joint property) that has been formed by private land division. The letter is in the third position after the area number in EXTERNID, e.g. 1489>BERGA>7:2>1>>A and 1489>BERGA>7:2>2>>B.

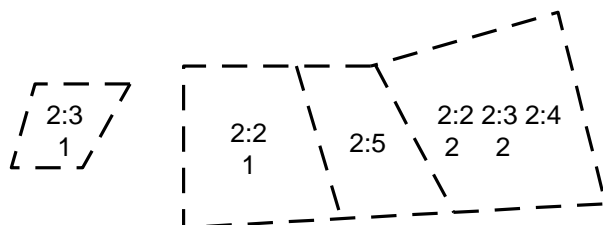


Each area of unofficial parcels has a unique register designation through one unofficial parcel letter.

Area information is in the fourth position after the area number in EXTERNID. Area information may have the following values:

- A Part of an unregistered joint property
- J Railway property
- O Uncertain position; register number is presented in brackets, e.g. (3:5)
- S Unofficial parcel within a joint property or area not asserted in established maps (unofficial land exchange); the register number is presented in square brackets, e.g. [2:4]
- U Three-dimensional space, register number presented within backslashes, e.g. \1:3\
- Z Tenant-owner apartments; register number presented within backslashes, e.g. \1:4\

ID points with an "A" as area information are part of the unregistered joint property. 1266>FULLTOFTA>14:1>1>>>A>1. Information on ownership in unregistered joint properties is not always complete.

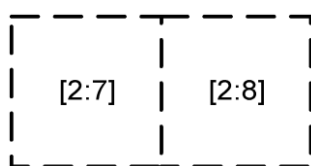


The real properties 2:2, 2:3 and 2:4 are part of an unregistered joint property and have "A" in the EXTERNID for the shared area.

ID points with a "J" as area information are real property used for railway purposes, for which the boundaries of the real property are not fully presented.

Area information "O" is only used for real properties and joint properties presented with a point, as well as joint properties presented in the form of lines.

Area information "S" is used for unofficially parcelled joint properties and unofficial land exchange (the area is not asserted on an established map).



An unofficially parcelled property has a register number within square brackets.

There are also unregistered and unanalysed areas with ID points of the SAMFOID and FASTOID types. They may be unregistered joint properties, so-called "d areas" that could not be mapped in the 1:10,000 scale when the economic map was made, or areas that have not been analysed for other reasons. These areas have a different type of external ID consisting of <county municipal code>:<district block name>:<type of unanalysed area>:<serial number>, e.g. 1315:ÖSTTEG:SAMF:11.

Restrictions

The coordinate position of ID points usually coincides with the text part of the Real Property Register, but deviations may occur. Commissions and omissions of ID points may rarely occur in a real property or joint property area.

ID points for real properties that are not registered in the Real Property Register may lack information about the municipality to which they belong. These points are therefore given the code 9999 in the KOMMUNKOD attribute and the text OKÄND (unknown) in the KOMMUNNAMN attribute.

Layer name	Detail type	Name
AI_XXXXX	3DSAMFID	Three dimensional space for joint property (ID point)
AI_XXXXX	FASTOID	Real property area without identity (ID point)
AI_XXXXX	SAMFID	Joint property area (ID point)

AI_XXXXX	SAMFOID	Joint property area without identity (ID point)
AI_XXXXX	3DFASTID	Three dimensional space for real property (ID point)
AI_XXXXX	FASTID	Real property area (ID point)

Set of attributes

No.	Attribute	Type Shape	Length shape	Type MapInfo	Length MapInfo	Description
1	FNR_FDS	Text	9	Text	9	Real property key in FR (210002312)
2	OBJEKT_ID	Text	36	Text	36	Globally unique identity (UUID) for every register unit.
3	EXTERNID	Text	64	Text	64	External identity in Lantmäteriet's basic database; see examples and clarifying text above.
4	DETALJTYP	Text	10	Text	10	Code for detail type
5	KOMMUN-KOD	Text	4	Text	4	County and municipality code in the county (2180)
6	KOMMUN-NAMN	Text	16	Text	16	Name of municipality (GÄVLE)
7	TRAKT	Text	40	Text	40	District name (BERGA)
8	BLOCKEN-HET	Text	9	Text	9	Precinct and unit (1:3)
9	OMRNR	Decimal	3.0	Decimal	3.0	Area number (3). 0 is treated as a null value
10	FASTIGHET	Text	55	Text	55	Real property area: District_block:unit_area number (BERGA 1:3>3)
11	ADAT	Text	16	Text	16	Date/time of last change. NB not necessarily the latest update. Stated in format: 2005-10-11 12:04
12	OMRTYP	Text	30	Text	30	Value quantity: Ägarlägenhetfastighet, Fastighetsutrymme, Oregistrerad samfällighet, empty value
13	OMRINF	Text	35	Text	35	Value quantity: Andelsfastighet, Sämjedelad, Järnvägsfastighet, empty value

5.1.9 AM Line layer with joint properties presented with a centre line

Contains joint properties presented with a centre line. This means that there is no complete boundary description of the joint properties in the database.

Layer name	Detail type	Name
AM_XXXXX	SAMF	Joint property, generalised

Set of attributes

No.	Attribute	Type Shape	Length shape	Type MapInfo	Length MapInfo	Description
1	INTERNID	Decimal	9	Decimal	9	Internal identity in Lantmäteriet's basic data storage
2	FNR_FDS	Text	9	Text	9	Real property key in FR (210002312)
3	OBJEKT_ID	Text	36	Text	36	Globally unique identity (UUID) for every register unit.
4	EXTERNID	Text	64	Text	64	External identity in Lantmäteriet's basic database. External ID is missing for certain items.
5	DETALJTYP	Text	10	Text	10	Code for detail type
6	KOMMUN-KOD	Text	4	Text	4	County and municipality code in the county (2180)
7	KOMMUN-NAMN	Text	16	Text	16	Name of municipality (GÄVLE)
8	TRAKT	Text	40	Text	40	District name (BERGA)
9	BLOCKEN-HET	Text	9	Text	9	Block and unit (1:3)
10	OMRNR	Decimal	3.0	Decimal	3.0	Area number (3). 0 is treated as a null value.
11	FASTIGHET	Text	54	Text	54	Real property area: District_block:unit_area number (BERGA 1:3>3)
12	G DAT	Text	16	Text	16	Date/time when detail was created. Stated in format: 2005-10-11 12:04
13	A DAT	Text	16	Text	16	Date/time of last change. NB not necessarily the latest update. Stated in format: 2005-10-11 12:04
14	XYFEL	Decimal	6.0	Decimal	6.0	Mean square error in stated measurement method. Stated in unit mm. The value varies between 25 – 999,999. 0 is treated as a null value.

5.1.10 AP Point layer with joint properties and real properties presented in points

This layer contains real property areas, three-dimensional real property space, joint property areas and three-dimensional joint property areas that are generally presented as points (undefined position).

Layer name	Detail type	Name
AP_XXXXX	FASTIGHET	Real property area (point object)
AP_XXXXX	SAMF	Joint property area (point object)

Layer name	Detail type	Name
AP_XXXXX	3DFASTIGH	Three-dimensional real property space (point object)
AP_XXXXX	3DSAMF	Three-dimensional joint property space (point object)

Set of attributes

No.	Attribute	Type Shape	Length shape	Type MapInfo	Length MapInfo	Description
1	INTERNID	Decimal	9	Decimal	9	Internal identity in Lantmäteriet's basic data storage
2	FNR_FDS	Text	9	Text	9	Real property key in FR (210002312)
3	OBJEKT_ID	Text	36	Text	36	Globally unique identity (UUID) for every register unit.
4	EXTERNID	Text	64	Text	64	External identity in Lantmäteriet's basic database
5	DETALJTYP	Text	10	Text	10	Code for detail type
6	KOMMUN-KOD	Text	4	Text	4	County and municipality code in the county (2180)
7	KOMMUN-NAMN	Text	16	Text	16	Name of municipality (GÄVLE)
8	TRAKT	Text	40	Text	40	District name (BERGA)
9	BLOCKEN-HET	Text	9	Text	9	Block and unit (1:3)
10	OMRNR	Decimal	3.0	Decimal	3.0	Area number (3). 0 is treated as a null value
11	FASTIGHET	Text	55	Text	55	Real property area: District_block:unit_area number (BERGA 1:3>3)
12	G DAT	Text	16	Text	16	Date/time when detail was created. Stated in format: 2005-10-11 12:04
13	A DAT	Text	16	Text	16	Date/time of last change. NB not necessarily the latest update. Stated in format: 2005-10-11 12:04
14	OMRINF	Text	35	Text	35	Value quantity: Andelsfastighet, Sämjedelad fastighet, empty value
15	XYFEL	Decimal	6.0	Decimal	6.0	Mean square error in stated measurement method. Stated in unit mm. The value varies between 25 – 999,999. 0 is treated as a null value.
16	METODPLAN	Decimal	5.0	Decimal	5.0	Method of measuring position specification in plane; refer to the detailed description in Table 1, Chapter 5.
17	FLYGHÖJD	Decimal	7.0	Decimal	7.0	Flying height when collecting photogrammetric data

No.	Attribute	Type Shape	Length shape	Type MapInfo	Length MapInfo	Description
18	UNDSKALA	Decimal	7.0	Decimal	7.0	Document's scale factor when digitizing
19	KNID	Decimal	4.0	Decimal	4.0	Municipal code, geographic origin

5.1.11 AY Polygon layer with real properties and joint properties

Contains polygons for real properties and joint properties. When creating polygons for real property division, the boundaries and identity points stored in the AL and AI layers are used. Polygon creation takes place by municipality and comprehensive polygons are created. Quality controls are carried out to provide information on the polygons' structural quality. The geometrical quality of boundaries and ID points and the conformity of the resulting polygon with FR is checked:

The geometrical quality of real property polygons is assessed using the YTKVAL attribute. Refer to detailed description below.

Restrictions

In the case of deliveries divided into municipalities, municipality enclaves found within another municipality are not included.

Unanalysed and unregistered areas have special identities. These areas' external ID consists of <county municipal code>:<district block district name>:<type of unanalysed area><serial number>, e.g. 1315:ÖSTTEG:SAMF:11. Refer to section 5.1.8 AI Point layer with ID points for joint properties and real properties.

Areas that do not belong to any real property, which are not registered in the text part of the Real Property Register and could not be given any association to a municipality are therefore assigned the code 9999 in the KOMMUNKOD attribute and the text OKÄND (unknown) in the attribute KOMMUNNAMN.

Layer name	Detail type	Name
AY_XXXXX	FASTIGHET	Real property area
AY_XXXXX	SAMF	Joint property area
AY_XXXXX	FASTO	Real property area without register number
AY_XXXXX	SAMFO	Joint property area without register number
AY_XXXXX	OSPEC	Unspecified polygon, often code for wrong polygon
AY_XXXXX	3DFASTIGH	Three dimensional real property space
AY_XXXXX	3DSAMF	Three dimensional joint property space

Set of attributes

No.	Attribute	Type Shape	Length shape	Type MapInfo	Length MapInfo	Description
1	FNR_FDS	Text	9	Text	9	Real property key in FR (210002312)
2	OBJEKT_ID	Text	36	Text	36	Globally unique identity (UUID) for every register unit.
3	EXTERNID	Text	64	Text	64	External ID in Lantmäteriet's basic database. Obtained from the AI layer.
4	DETALJTYP	Text	10	Text	10	Detail type code (FASTIGHET, SAMF, FASTO, SAMFO)
5	KOMMUN-KOD	Text	4	Text	4	County and municipality code (2180)
6	KOMMUN-NAMN	Text	16	Text	16	Name of municipality (GÄVLE)
7	TRAKT	Text	40	Text	40	District name (BERGA)
8	BLOCKEN-HET	Text	9	Text	9	Block and unit (1:3)
9	OMRNR	Decimal	3.0	Decimal	3.0	Area number (3). 0 is treated as a null value.
10	FASTIGHET	Text	54	Text	54	Real property area: District_block:unit_area number (BERGA 1:3>3)
11	YTKVAL	Decimal	2.0	Decimal	2.0	Geometric polygon quality Values: 1.2, 6. 0 is treated as a null value. Refer to detailed description below.
12	ADAT	Text	16	Text	16	Date/time of last change. NB not necessarily the latest update. Stated in format: 2005-10-11 12:04
13	OMRTYP	Text	30	Text	30	Value quantity: Oregistrerad samfällighet or empty value

YTKVAL

Code	Description	Comments/sketch
1	The polygon is geometrically correct	
2	The polygon has geometric duplicates.	There are several polygons with identical geometries, one for each point in the AI layer, and each polygon is given the identity of the corresponding point.
6	The polygon is not geometrically correct	Polygons that contain errors in the structure such as gaps, overlaps, lack an ID point or are otherwise incorrect. These polygons may also have multiple ID points or lack identity.

5.1.12 AO Line layer with other administrative boundaries

Contains other area divisions within the administrative division. Civil parish boundaries show the parishes from the earlier real property register , i.e. the civil parish subdivision that applied on 31/12/1999.

Updated boundaries form enclosed areas in which real property division is incomplete.

The cultivation boundary is the administrative boundary that divides the mountain regions to the rest of the country. The Reindeer Husbandry Act prescribes under which periods the reindeers may be below the cultivation boundary.

Layer name	Detail type	Name
AO_XXXXX	AJOURGR	Boundary for incomplete real property presentation
AO_XXXXX	SOCKENGR	Civil parish boundary
AO_XXXXX	ODLINGSGR	Cultivation boundary

Set of attributes

No.	Attribute	Type Shape	Length shape	Type MapInfo	Length MapInfo	Description
1	DETALJTYP	Text	10	Text	10	Code for detail type
2	ADAT	Text	16	Text	16	Date/time of last change. NB not necessarily the latest update. Stated in format: 2005-10-11 12:04
3	XYFEL	Decimal	6.0	Decimal	6.0	Mean square error in stated measurement method. Stated in unit mm. The value varies between 25 – 999,999. 0 is treated as a null value.

5.1.13 AQ Point layer with surveyed boundary points

The layer contains surveyed boundary points, witness marks and national boundary cairns.

Surveyed boundary points refer to a point established in a legal property decision that defines the line of the boundary between areas.

In the first chapter of the Land Code on Real Properties and their boundaries, the following is stated:

Section 3 Boundaries that have been legally established have the marking on the ground according to the regulations prescribed by law. If the marking can no longer be determined with certainty, the boundary has the line that can be assumed on the basis of the cadastral plan, as well as documents, ownership and other circumstances. If the boundary line has not been marked on the ground according to the regulations prescribed by law, the boundary shall have the line described by maps and documents.

For each surveyed boundary point there is a boundary line, and on this boundary line there is a break point in the same position as the surveyed boundary point. There may be occasional surveyed points that do not have any connecting boundary line.

Surveyed Boundary points are stored with an external ID. This external ID is nationally unique. An external ID consists of area*type*serial number.

Example

1730EDAS*GRÄ*1348

*Municipal code + area * type * serial number*

It is also possible to place boundary marks in the form of witness marks. Like standard surveyed boundary points, these witness marks are legally determined and thus have legal force. These also have unique external identities in the same way as surveyed boundary points. Instead of GRÄ, the type FMK is specified in the designation.

Example:

1480BODA*FMK*1044

*Municipal code + area * type * serial number*

National boundary cairns are usually a mark of the national boundary position on land, but they may also be in water. There is always a national boundary connected to every boundary cairn. There may also be a height value for some national boundary cairns stored in the Cadastral Index Map. All national boundary cairns have a unique label that consists of a digit, Roman numeral and/or letter. An example of the designation of a national boundary cairn is Rr 34 A. There may also be a name for a national boundary cairn, e.g. Treriksröset.

Layer name	Detail type	Name
AQ _XXXXX	GRÄ	Surveyed boundary point
AQ _XXXXX	FMK	Witness mark
AQ _XXXXX	RIKSRÖSE	National boundary cairn

Set of attributes

No.	Attribute	Type Shape	Length shape	Type MapInfo	Length MapInfo	Description
1	INTERNID	Decimal	9	Decimal	9	Internal identity in Lantmäteriet's basic data storage
2	EXTERNID	Text	64	Text	64	Boundary point designation, consists of area*type*serial number, e.g. 21OCK*GRÄ*7202. The designation for a boundary cairn consists of Rr and serial number, such as Rr 108.
3	DETALJTYP	Text	10	Text	10	Code for detail type
4	MTYP	Text	6	Text	6	Type of marking: refer to detailed description below.
5	MLAGE	Decimal	2	Decimal	2	Marking status 0 = No information 1 = On breakpoint 2 = On polygon 3 = Detached

No.	Attribute	Type Shape	Length shape	Type MapInfo	Length MapInfo	Description
6	G DAT	Text	16	Text	16	Date/time when detail was created. Stated in format: 2005-10-11 12:04
7	A DAT	Text	16	Text	16	Date/time of last change. NB not necessarily the latest update. Stated in format: 2005-10-11 12:04
8	XYFEL	Decimal	6.0	Decimal	6.0	Mean square error in stated measurement method. Stated in unit mm. The value varies between 25 – 999,999. 0 is treated as a null value.
9	METODPLAN	Decimal	5.0	Decimal	5.0	Method of measuring position specification in plane; refer to the detailed description in Table 1, Chapter 5.
10	KVALFORB	Decimal	2.0	Decimal	2.0	Quality improvement measure: refer to detailed description below.
11	FLYGHÖJD	Decimal	7.0	Decimal	7.0	Flying height when collecting photogrammetric data
12	UNDSKALA	Decimal	7.0	Decimal	7.0	Document scale factor when digitizing
13	KNID	Decimal	4.0	Decimal	4.0	Municipal code, geographic origin

KVALFORB

Code	Description	Comments/sketch
0	No information	
1	New measurement	The position specification of the point has been improved by a new measurement of the boundary point.
2	Transformation/ Adaptation	The position specification of the point has been improved by transformation or adjustment with points of higher positional accuracy.

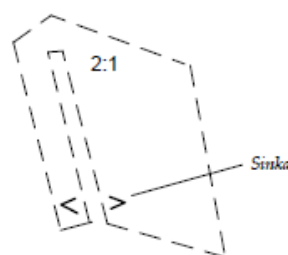
MTYP

Code	Description
	No information
db	Peg in rock
dg	Peg in cast concrete
dh	Peg in building
dm	Peg in wall
ds	Peg in earthbound stone
fr	Five-stone cairn
fs	Signal (photogrammetry)

Code	Description
gr	Glazed pipe
graf	Graphic point
hb	Drill-hole in rock
hg	Drill-hole in concrete casting
hs	Drill-hole earthbound stone
jk	Iron bracket
js	Iron bar
kv	Bracket for wall marker
mp	Target point (spire etc.)
ms	Brass screw
om	Unmarked boundary point
rb	Pipe in rock
rg	Pipe in concrete
rgd	Pipe in casting with cap
rm	Pipe in ground
rmd	Pipe in ground with cap
rn	Hoar stone (boundary stone)
rs	Pipe in earthbound stone
sa	Spike in asphalt
sb	Spike in rock
sg	Spike in concrete casting
ss	Spike in earthbound stone
st	Fence post
tp	Wooden pole

5.1.14 AS Point layer with administrative symbols

Contains point symbols for joining two geometries (“dovetail”) as one object for real property areas. The symbol is used to clarify the extent of a real property by drawing them in pairs on either side of the boundary. A common use of merging characters is when a public road or a double water way separates an area in a real property. See the example diagram.



Layer name	Detail type	Name
AS_XXXXX	FSINKA.S	Dovetail symbol
AS_XXXXX	FSINKAL.S	Dovetail symbol, small

Set of attributes

No.	Attribute	Type Shape	Length shape	Type MapInfo	Length MapInfo	Description
1	DETALJTYP	Text	10	Text	10	Code for detail type
2	SRIKT	Decimal	8.2	Decimal	8.2	Symbol direction. Unit: degrees (0.00 – 360.00, increasing counter-clockwise). 0.00=Undirected symbol
3	ADAT	Text	16	Text	16	Date/time of last change. NB not necessarily the latest update. Stated in format: 2005-10-11 12:04
4	XYFEL	Decimal	6.0	Decimal	6.0	Mean square error in stated measurement method. Stated in unit mm. The value varies between 25 – 999,999. 0 is treated as a null value.

5.1.15 AT Text layer with administrative names, small-scale display

Contains cartographically placed administrative names and information text. The text is adapted in placement and size for displays in scales 1:5,000 - 1:20,000. Arial is recommended as the font.


Restrictions

Detail type F-UPPLYTX may incorrectly contain the names of the easements and rights of way.

Layer name	Detail type	Name
AT_XXXXX	LÄNTX	County name, text, only on county enclaves
AT_XXXXX	KOMMUNTXX	Municipality name, text, only on municipality enclaves
AT_XXXXX	SOCKENTX	Civil parish name, text, only on civil parish enclaves
AT_XXXXX	TRAKTTX	District name

Layer name	Detail type	Name
AT_XXXXX	KVTRAKTTX	Precinct name
AT_XXXXX	F-UPPLYTX	Information text for real property division

Set of attributes

No.	Attribute	Type Shape	Length shape	Type MapInfo	Length MapInfo	Description
1	DETALJTYP	Text	10	Text	10	Code for detail type
2	TRIKT	Decimal	8.2	Decimal	8.2	Text direction. Stated in unit degrees. (0.00 – 360.00, increasing counter-clockwise). 0.00=Undirected text
3	TJUST	Decimal	2.0	Decimal	2.0	Insertion point of text (0-9). Insertion point in decimal points. 
4	THOJD	Decimal	6.0	Decimal	6.0	Text height in the form of code. 0 is treated as a null value. The following font sizes are used when the text is adapted for presentation in a scale of 1:10,000: THOJD: 6 Size: 6 pt (1.59 mm) THOJD: 8 Size: 8 pt (2.12 mm) THOJD: 10 Size: 10 pt (2.65 mm) THOJD: 12 Size: 12 pt (3.18 mm) THOJD: 14 Size: 14 pt (3.71 mm) THOJD: 16 Size: 16 pt (4.24 mm) THOJD: 20 Size: 20 pt (5.30 mm) THOJD: 30 Size: 30 pt (7.95 mm)
5	TSPARR	Decimal	6.0	Decimal	6.0	Text spacing in per cent of original length of text string (0-100 %).
6	TEXT	Text	64	Text	64	Text string
7	ADAT	Text	16	Text	16	Date/time of last change. NB not necessarily the latest update. Stated in format: 2005-10-11 12:04


5.1.16 AR Text layer with register and area numbers, small-scale display

Contains cartographically set register numbers and area numbers, such as 1:2, within areas where the Property Map serves as the cadastral index map. The size and placing of the text is

suitable for presentation at scales between 1:5,000 and 1:20,000. We recommend using the Arial font.

Layer name	Detail type	Name
AR_XXXXX	REGNRTX	Register number
AR_XXXXX	REGNRTXHA	Register numbers in square brackets [] refer to unofficially parcelled joint properties.
AR_XXXXX	REGNRTXPA	Register numbers in brackets () refer to real properties/joint properties with uncertain locations.
AR_XXXXX	3DREGNRTXP	Register text in backslashes \\ refers to 3D spaces
AR_XXXXX	3DREGNRTXH	Register text in backslashes \\ refers to 3D spaces
AR_XXXXX	3DREGNRTX	Register text in backslashes \\ refers to 3D spaces

Set of attributes

No.	Attribute	Type Shape	Length shape	Type MapInfo	Length MapInfo	Description
1	DETALJTYP	Text	10	Text	10	Code for detail type
2	TRIKT	Decimal	8.2	Decimal	8.2	Text direction. Stated in unit degrees. (0.00 – 360.00, increasing counter-clockwise). 0.00=Undirected text
3	TJUST	Decimal	2.0	Decimal	2.0	Insertion point of text (0-9). Insertion point in decimal points. 
4	THOJD	Decimal	6.0	Decimal	6.0	Text height in the form of code. 0 is treated as a null value. The following font sizes are used when the text is adapted for presentation in a scale of 1:10,000:
4	THOJD	Decimal	6.0	Decimal	6.0	Text height in the form of code. 0 is treated as a null value. The following font sizes are used when the text is adapted for presentation in a scale of 1:10,000: THOJD: 6 Size: 6 pt (1.59 mm) THOJD: 8 Size: 8 pt (2.12 mm) THOJD: 10 Size: 10 pt (2.65 mm) THOJD: 12 Size: 12 pt (3.18 mm) THOJD: 14 Size: 14 pt (3.71 mm) THOJD: 16 Size: 16 pt (4.24 mm) THOJD: 20 Size: 20 pt (5.30 mm) THOJD: 30 Size: 30 pt (7.95 mm)

No.	Attribute	Type Shape	Length shape	Type MapInfo	Length MapInfo	Description
5	TSPARR	Decimal	6.0	Decimal	6.0	Text spacing in per cent of original length of text string (0-100 %).
6	TEXT	Text	64	Text	64	Text string
7	ADAT	Text	16	Text	16	Date/time of last change. NB not necessarily the latest update. Stated in format: 2005-10-11 12:04


5.1.17 AX Text layer with texts for large-scale displays

Contains cartographically set names in administrative division and division into real property units, register numbers and area numbers and also informative text within areas with large-scale cadastral index map. This includes the name of the district, municipality, civil parish and the register number and area number. The text is adapted in placement and size for displays in scales > 1:2,000. Arial is recommended as the font.

Layer name	Detail type	Name
AX_XXXXX	LÄNTX	County name, text, only on county enclaves
AX_XXXXX	KOMMUNTX	Municipality name, text, only on municipality enclaves
AX_XXXXX	SOCKENTX	Civil parish name, text, only on civil parish enclaves
AX_XXXXX	TRAKTTX	District name
AX_XXXXX	KVTRAKTTX	District quarter name
AX_XXXXX	REGNRTX	Register number
AX_XXXXX	REGNRTXHA	Register numbers in square brackets [] refer to joint properties with partition of land by private agreement.
AX_XXXXX	REGNRTXPA	Register numbers in brackets () refer to real properties/joint properties with uncertain locations.
AX_XXXXX	F-UPPLYTX	Information text for real property division
AX_XXXXX	3DREGNRTXP	Register text in backslashes \\ refers to 3D spaces
AX_XXXXX	3DREGNRTXH	Register text in backslashes \\ refers to 3D spaces
AX_XXXXX	3DREGNRTX	Register text in backslashes \\ refers to 3D spaces

Set of attributes

No.	Attribute	Type Shape	Length shape	Type MapInfo	Length MapInfo	Description
1	DETALJTYP	Text	10	Text	10	Code for detail type
2	TRIKT	Decimal	8.2	Decimal	8.2	Text direction. Stated in unit degrees.

No.	Attribute	Type Shape	Length shape	Type MapInfo	Length MapInfo	Description
						(0.00 – 360.00, increasing counter-clockwise). 0.00=Undirected text
3	TJUST	Decimal	2.0	Decimal	2.0	<p>Insertion point of text (0-9). Insertion point in decimal points.</p> 
4	THOJD	Decimal	6.0	Decimal	6.0	<p>Text height in the form of code. 0 is treated as a null value. The following font sizes are used when the text is adapted for presentation in a scale of 1:10,000:</p> <p>THOJD: 6 Size: 6 pt (1.59 mm)</p> <p>THOJD: 8 Size: 8 pt (2.12 mm)</p> <p>THOJD: 10 Size: 10 pt (2.65 mm)</p> <p>THOJD: 12 Size: 12 pt (3.18 mm)</p> <p>THOJD: 14 Size: 14 pt (3.71 mm)</p> <p>THOJD: 16 Size: 16 pt (4.24 mm)</p> <p>THOJD: 20 Size: 20 pt (5.30 mm)</p> <p>THOJD: 30 Size: 30 pt (7.95 mm)</p>
5	TSPARR	Decimal	6.0	Decimal	6.0	Text spacing in per cent of original length of text string (0-100 %).
6	TEXT	Text	64	Text	64	Text string
7	ADAT	Text	16	Text	16	Date/time of last change. NB not necessarily the latest update. Stated in format: 2005-10-11 12:04

6 Layer description and code list for topography

6.1 Built-up areas

In this product, built-up areas are presented in four different layers with information on buildings and facilities. The extent of land around facilities describes mainly industrial activities or activities related to sports, recreation or culture.

Built-up area	Layer name
Buildings (polygons)	BY
Facilities or plant areas (polygons)	BA
Facilities (lines)	BO
Built-up area symbols (points)	BS

The AG layer, a polygon layer with quality areas for localities, is also included in the delivery of buildings.

6.1.1 Data capture

Lineage

Buildings

The buildings on the Property Map originate partly from Lantmäteriet's reconstruction and updating of the GGD and partly through collaboration with the Swedish municipalities.

When GGD was developed, buildings were mapped in rural areas and localities with fewer than 4,000 inhabitants. For larger localities, only buildings in the land layer were presented (see *MB Polygon layer with built-up areas*), with the exception of buildings for public purposes, which were also presented as individual buildings.

After the first cooperation agreements for the addresses, buildings and topography, so-called [ABT-avtal](#) (agreements) were made with municipalities, built-up areas started to be filled in with geometric structures for individual buildings. This development, which was completed in 2010, was carried out by municipalities first making a basic delivery of information on buildings. The buildings that were missing in the GGD were added and those buildings that were already in the GGD were replaced by those delivered from the municipalities. After the basic delivery, municipalities gradually changed to delivering only changes. This is done at least twice per year under the agreement.

The responsibility for updating building geometries is limited by the established areas of responsibility. The areas of responsibility are listed in an appendix to each municipal agreement. Within these areas, municipalities are responsible for updates, and outside the areas Lantmäteriet is responsible for updates. Updates by Lantmäteriet take place at periodic intervals that comply with the image supply program, [bildförsörjningsprogrammet](#). Municipalities can also make updates outside the areas of their responsibility.

The most common agreement is that municipal areas of responsibility include localities, so-called primary map areas. This varies from municipality to municipality, however. The area of responsibility may include the entire area of the municipality, the municipality's localities or only the largest locality. This depends on the municipality's ability to keep the areas continuously updated. Some municipalities have not made agreements on updating building geometries since they have no responsibility at all in this area. In such cases Lantmäteriet updates the entire municipality.

In 2011 the geometric representation of the buildings in GGD was merged with the register information that had been compiled and updated by municipalities since the mid-1990s in the building section of the Real Property Register. After the merger, map information and register information for each building have been kept together and stored as one object in the database.

More information was also added after the merger on buildings in the Property Map, such as information about the buildings' purpose and detailed purposes. Other information that already existed on the buildings could, in some cases, be changed due to changes in the source of the information. For example, the thematic classification of buildings was primarily obtained from registry information, which meant that buildings' classifications such as HUS, HUSÖVR or KYRKA could be changed for individual buildings.

For new buildings outside the municipalities' area of responsibility, a classification is made by Lantmäteriet regarding the buildings' purposes and detailed purposes. For existing buildings, this is only done in exceptional cases when updating. In general, the municipality is responsible for the classification of purpose.

Outside municipalities' area of responsibility, information on the geometry of buildings has mainly been collected through photogrammetric detail measurement by Lantmäteriet and external actors at the construction stage. Updating has been managed by Lantmäteriet. Inside municipalities' area of responsibility, building geometry has been collected by the relevant municipality and delivered to Lantmäteriet, which has then processed and stored the information. Data from municipalities may have different origins. They are usually geodetic and photogrammetric detail measurements, but other methods of measurement are sometimes used.

Buildings may have a name designated by the municipality. These names have been quality assured by Lantmäteriet in accordance with its regulations.

Facility areas

Collection and updating are carried out by Lantmäteriet performing photogrammetric measurements from aerial images through a cooperation agreement with the municipalities, as well as through editorial collection. Field checks were also previously carried out in cases of uncertainty of classification or position, but these are no longer done. A facility area is presented as an area object where the outer limit is along the edge of the area, such as in a fence.

Other facilities

Collection and updating takes place by Lantmäteriet performing photogrammetric measurements in aerial images, as well as through cooperation agreements with municipalities. Field checks were also previously carried out in cases of uncertainty, but these are no longer done.

Information about objects such as piers, quays, piled fendering, guide jetties and dolphins along the coast, in the larger lakes and the Göta canal has been collected in cooperation with the Swedish Maritime Administration within the National Shoreline project [Nationell strandlinje \(NSL\)](#).

Dam buildings, jetties and piers are also included in collaboration agreements with municipalities.

Built-up area symbols

Collection and updating takes place by Lantmäteriet performing photogrammetric measurements in aerial images. Field checks were previously carried out in cases of uncertainty, but these are no longer done.

Information on small dolphins along the coast, the larger lakes and the Göta canal is collected in cooperation with the Swedish Maritime Administration within the National Shoreline project (NSL).

6.1.2 Maintenance frequency

Buildings

Buildings outside municipal areas of responsibility for building geometry are updated in accordance with the image supply program. Refer to information on the production plan for the [Property Map](#).

Inside municipal areas of responsibility, the delivery of data to Lantmäteriet takes place at least twice a year in accordance with the ABT agreement. Some municipalities deliver more often. Municipalities that have gone over to [service-based updating](#) (tjänstebaserad uppdatering) of buildings have the option of updating continuously via their own operations system.

Lantmäteriet carry out periodic regular collection and updating of data, while municipalities' collection and updating are often needs-driven, such as for detailed planning, registration of real property and building permits. This leads to varying levels of updating in different areas of responsibility in municipalities. Not all areas need to be updated between each data delivery to Lantmäteriet.

Register information of buildings (not geometry) is continuously updated by municipalities via Lantmäteriet's INsamlingsApplikation ([LINA](#)) or via [service-based updating](#) in the municipalities' own operations systems.

Facility areas

Update intervals follow the image supply program [bildförsörjningsprogrammet](#).

Other facilities

How updated different areas are depends partly on the image supply program, which indicates when the aerial images were photographed, and partly on the production plan for NSL.

Building symbols

How updated different areas are depends partly on the image supply program, which indicates when the aerial images were photographed, and partly on the production plan for NSL.

6.1.3 Data quality

Completeness

Buildings

Within the municipalities' areas of responsibility, Lantmäteriet performs completeness checks in some municipalities every year. For some smaller areas, buildings on the map are compared to new aerial images taken at low altitude. The results of the checks varies

between municipalities and the different areas, but on average they show a high level of completeness. The results indicate around 4% deviations in the form of commission or omission on the national level.

The completeness level for buildings outside the municipalities' areas of responsibility is considered to be high in areas that have been reviewed recently in the periodic updating. Since mapping is carried out by aerial images, it is possible that small buildings are obscured by vegetation or that there are faulty assessments of interpretation, but these errors are relatively small. The chances of obtaining good completeness also depend on what aircraft height the photograph is taken from and what resolution the aerial image has; refer to the image supply program [bildförsörjningsprogrammet](#). Lantmäteriet makes no field checks. See also section 6.1.1 Data capture and 6.1.2 Maintenance frequency.

Facility areas

High completeness.

Other facilities

High completeness.

Pier (edge line), Pier (centre line), Quay (centre line), Quay (edge line), Timber fenders, Piled fendering and guide jetties have very high completeness in NSL areas, where the Swedish Maritime Administration also reviews mapped materials. The objects also occur outside NSL areas, but completeness is not checked there.

Built-up area symbols

Built-up area symbols have high completeness.

Small dolphins have very high completeness in NSL areas, where the Swedish Maritime Administration makes checks on completeness for them. In other areas, small dolphins are not mapped.

Logical consistency

Buildings

Lantmäteriet checks that building geometries and other building information are valid and, in accordance with geo-data specifications, maintain very high quality.

Organisation rules govern what checks are made. Information is checked in connection with acquisitions through interfaces and services. This means that any deviations that occur originate from previous storage environments and systems.

Facility areas

It is checked that information corresponds with specifications and the range of values is checked by the system before storage takes place. For example, all plant areas must have a value for the FUNKTION attribute *and this must be* in accordance with the related information text in the TX layer, Text Layer with place names and information text. The geometry must also be consistent. No gaps, overhang, self-intersecting lines or overlaps may occur.

Note that only a selection of the different functions of plant areas are available as attribute values for FUNKTION on the objects. To obtain a complete picture of information, the BA layer, polygon layer, together with other facilities or areas, should be used with the TX layer,

text layer with place names and information text, where the functions of the areas are stored under detail type ANLUTX (Information text, Facility).

Other facilities

Piers are checked so that they connect to the shoreline.

For reindeer fences and cableways, no topological rules have been established.

Building symbols

The objects are independent point objects and have no requirements for logical consistency.

Thematic accuracy

Buildings

Deviations occur primarily with regard to the classification of other buildings, farm buildings and complement buildings.

Deviations may also originate from previous storage environments and systems, as well as assessments made by municipalities and by Lantmäteriet of flight image interpretation. Lantmäteriet makes no field checks.

Facility areas

Measurements and thematic interpretations from flight images cause a certain degree of uncertainty due to the varying ability of distinguishing details in the images varies. Previously collected facilities are judged to have high thematic accuracy since they have been checked in the field whenever necessary. Facilities delivered by municipalities under the ABT agreement are considered to have high thematic accuracy.

Other facilities

Classification that takes place from measurements of aerial images involves a degree of uncertainty, but thematic accuracy is still considered high for these facilities, especially for objects included in NSL.

Data on reindeer fences in the Mountain Map coverage area is collected via field checks and contacts, which results in very high thematic accuracy.

Objects that are collected using municipality collaboration have high thematic accuracy, too.

Built-up area symbols

Classifications are made from measurements in aerial images, which involve a degree of uncertainty. Classification is still assessed as good for built-up area symbols.

Positional accuracy

Buildings

Positional accuracy of buildings in plane are stated in the XYFEL attribute. Buildings with a low mean square error (25 mm - approximately 500 mm) usually originate from municipal measurements, where more accurate methods such as geodetic measurement are used. Specified mean square errors from Lantmäteriet are calculated values based on measurement methods, flight altitude and scale.

The INSAM_LAGE attribute (Collection position) indicates where on the building the measurement was made. Note that the value 4 (Illustrative position) for INSAM_LAGE indicates that the building is only presented in outline, both in extent and position. No measurement of the building has been made.

Facility areas

A plant area is presented as a polygon object through a boundary line being created at the edge of the area, e.g. a fence. Depending on the altitude of the aircraft and the quality of the image, positional accuracy may vary somewhat, but generally positions in plane have a mean accuracy of 5 m.

Facilities delivered through municipality collaboration usually have better positional accuracy since they have been measured geodetically or by using Network RTK.

Other facilities

Depending on the altitude of the aircraft and the quality of the image, positional accuracy may vary somewhat, but generally the position in plane has a high accuracy. Objects in the water have very high positional accuracy. For NSL objects, marked with * in the table below, there is a standard requirement that objects in fairways of a certain class must have a positional accuracy of 1 m. It can be difficult to achieve this with stereo mapping and for this reason Lantmäteriet has set the requirement at 2 m.

Objects delivered by collaboration between municipalities usually have a high positional accuracy since they are often measured geodetically or with DGPS.

Built-up area symbols

Depending on the altitude of the aircraft and the quality of the image, positional accuracy may vary somewhat, but generally the position in plane has high or very high accuracy for built-up area symbols.

One exception is the symbol for graveyards - an information symbol which is only a cartographically located symbol point.

Requirements for object types' positional accuracy

Object type	Requirements for positional accuracy in plane (m)
Residential building	2
Outbuilding	2
Religious associations: Church, non-conformist church	2
Facilities and recreation area	5
Sports ground	5
Runway	2
Reindeer fence	5

Object type	Requirements for positional accuracy in plane (m)
Jetty	2
Dam building	2
Pier, centre line	1m/2m*
Pier, boundary	1m/2m*
Quay, boundary	1m/2m*
Pile fendering	1m/2m*
Guide jetty	1m/2m*
Dolphin	1m/2m*
Cableway	5
Bell tower	5
Church (symbol)	5
Lapp cot	10
Mast	5
Chimney	5
Tower	5
Wind turbine	5
Wind shield	10
Windmill	5
Cemetery, information symbol	-
Lock gate	5
Lighthouse	5
Dolphin, small	1m/2m*

6.1.4 BY Polygon layer with buildings

The layer contains building geometries. Most of the buildings are measured and have the value "takkant" or "fasad" for the INSAM_LAGE (collection mode). The value depends on where in the building the measurement is made. There are also buildings whose geometries are more schematically presented (sometimes called building templates). These buildings have the value "illustrativt läge" mode for INSAM_LAGE. Buildings may be presented as an outline, both in extent and position.

All Swedish municipalities have signed a collaboration agreement with Lantmäteriet on updating buildings. All municipalities have building presentation.

Building

Buildings in the Real Property Register building section are defined in accordance with the Planning and Building Act (PBL 2010:900) as *"A durable construction that consists of a roof or roof and walls, that is permanently located on ground or fully or partly underground or permanently located at a certain point in water and is intended to be constructed in such a way that people can reside in it."*

Building purposes and detailed purposes

Building purposes indicate the purpose that a building is used for. A building may have several different building purposes, such as residential and business. Detailed purposes are specified for buildings with the building purposes of Residential, Industrial and Public purpose. It could be for Residential: Single family house detached, or for Industry: Heating plant. The purpose of the building and detailed purposes are clarified in the associated code list.

Buildings with building purposes Residential, Public (except religious associations) and Businesses are presented as detail type HUS. Industrial, Farm buildings, Complementary buildings and Other buildings are presented as HUSÖVR detail type. Purpose of public: Religious associations are presented as KYRKA detail type.

Main purpose

When a building has several purposes, state the building's main purpose. This is standard when a building has only one purpose. The main purpose is always specified in ANDAMAL_1.

Names of buildings

Certain buildings have names as attributes. Building names come mainly from municipalities and are then quality assured by Lantmäteriet.

House number

Property designation and house number, in the form of a serial number, constitute an identifier for the building.

Layer name	Detail type	Name	Description	Selection
BY_XXXXX	HUS	Building	Building for residential purposes, public building (social function, e.g. school, hospital) or other building that houses activities, e.g. trade, office or similar.	Presented for all buildings of more than 15 m ² . Buildings of less than 15 m ² may be presented. Smaller buildings (<15 m ²) must be presented if they form part of the characteristic details in the landscape, e.g. area of holiday cottages.
BY_XXXXX	HUSÖVR	Other building	Industrial building, farm building or other building.	Presented for all buildings; the basic rule is minimum dimension of 15 m ² . Buildings of less than 15 m ²

Layer name	Detail type	Name	Description	Selection
				may be presented. Smaller buildings (< 15 m2) must be presented if they form part of the characteristic details in the landscape such as fishing sheds, church cottages or single barns on cultivated or open land.
BY_XXXXX	KYRKA	Religious associations	Building for established organised religious association, e.g. church, non-conformist church, mosque, synagogue, temple, monastery, parish house , crematorium, chapel or burial chapel.	Presented in full. Churches in the Church of Sweden are presented with the symbols Church, large and Church, small.

Set of attributes

No.	Attribute	Type Shape	Length shape	Type MapInfo	Length MapInfo	Description
1	OBJEKT_ID	Text	36	Text	36	Globally unique identity (UUID) for every building.
2	OBJEKT_VER	Decimal	4.0	Decimal	4.0	Indicates the version of the building object. The service always delivers the latest version of the building object.
3	DETALJTYP	Text	10	Text	10	Code for detail type
4	ADAT	Text	16	Text	16	Date/time of last change. NB not necessarily the latest update. Stated in format: 2005-10-11 12:04
5	INSAM_LAGE	Text	30	Text	30	Collection position: indicates how the position of the building polygon has been selected. 0 = Unspecified 1 = Façade 2 = Roof edge 3 = Illustrative position
6	XYFEL	Decimal	6.0	Decimal	6.0	Mean square error in stated measurement method. Stated in unit mm. The value varies between 25 – 999,999. 0 is treated as a null value.
7	NAMN1	Text	45	Text	45	Building name no. 1
8	NAMN2	Text	45	Text	45	Building name no. 2
9	NAMN3	Text	45	Text	45	Building name no. 3
10	HUVUDBYGGN	Text	1	Text	1	Points out a building as the main building in a larger complex of buildings on a real property.
11	ANDAMAL_1	Decimal	4.0	Decimal	4.0	Main purpose

No.	Attribute	Type Shape	Length shape	Type MapInfo	Length MapInfo	Description
12	ANDAMAL_1T	Text	60	Text	60	Descriptive text for main purpose
13	ANDAMAL_2	Decimal	4.0	Decimal	4.0	Purpose of building
14	ANDAMAL_3	Decimal	4.0	Decimal	4.0	Purpose of building
15	ANDAMAL_4	Decimal	4.0	Decimal	4.0	Purpose of building
16	ANDAMAL_5	Decimal	4.0	Decimal	4.0	Purpose of building
17	ANDAMAL_6	Decimal	4.0	Decimal	4.0	Purpose of building
18	ANDAMAL_7	Decimal	4.0	Decimal	4.0	Purpose of building
19	ANDAMAL_8	Decimal	4.0	Decimal	4.0	Purpose of building
20	ANDAMAL_9	Decimal	4.0	Decimal	4.0	Purpose of building
21	ANDAMAL_10	Decimal	4.0	Decimal	4.0	Purpose of building
22	HUSNR	Decimal	2,0	Decimal	2,0	Serial number for a building inside register unit

Purpose of building

Purpose	Definition	Description
Bostad (Residential)	Building that is predominantly used for permanent or leisure accommodation	
Industri (Industrial)	Building that is predominantly used for the manufacture of products or processing of raw materials.	
Sammhällsfuntion (Public)	Building that is predominantly used for citizens' activities in a public context.	
Verksamhet (Commercial)	Building that is predominantly used for commercial purposes.	E.g. hotel, office, retail shop, restaurant or car park.
Ekonomibyggnad (Agricultural)	Building that is predominantly used for agricultural, forestry or comparable industry.	
Komplementbyggnad (Complementary)	Building belonging to other buildings with residential, social function, business or industrial purposes.	E.g. outhouse, garage, carport, cistern, storeroom, boathouse or garden shed. Buildings without walls may be included.
Övrig byggnad (Other building)	Building whose purpose is not Residential, Industrial, Social, Commercial, Agricultural or Complementary.	E.g. allotment cottage, detached, roof larger than 15 m2 of durable construction.

Code list for building purposes and detailed purposes

Code	Purpose of building	Detailed purpose	Description
130	Residential	Small house, detached	Small house with a dwelling that is not connected to another small house.
131	Residential	Small house, chain linked house	Two or more single family houses joined via a garage, storeroom or similar. Each home is on private property; semi-detached houses are also classified as chain linked houses.
132	Residential	Single family houses, terraced houses	Small houses in a row of at least three houses whose dwelling parts are directly joined with each other and where each dwelling is on private property.
133	Residential	Multi-family house	Building with at least three dwellings. May sometimes contain an office, shop, hotel, restaurant or similar. At least 50% must be residential.
135	Residential	Small house with several apartments	Small house with several apartments that are on the same property. E.g. two residential houses, rental or tenant-owned, with at least three apartments.
199	Residential	Unspecified	Home with unknown residential purposes. Stated only by Lantmäteriet when using updating methods that cannot determine the purpose.
240	Industrial	Other manufacturing industry	Building for other industrial activities involving manufacturing.
241	Industrial	Gas turbine plant	Facilities for production of electricity using combustion gases.
242	Industrial	Industry hotel	Building that contains several different industries. E.g. industrial building.
243	Industrial	Chemical industry	Industry for the manufacture or processing of chemical products. E.g. paint industry, plastics industry, pharmaceuticals industry.
244	Industrial	Condensing power plant	Facilities for the production of electricity from steam; does not utilise waste heat.
245	Industrial	Nuclear power station	Facilities for the production of electricity from nuclear energy.
246	Industrial	Food industry	Industry for the production of food, by the processing of agricultural products among other things. E.g. processed meats, canning industry, fruit industry.
247	Industrial	Metal or machinery industry	Industry for the production and processing of metals and machinery. E.g. car industry, iron works, mechanical industry, metal industry, shipbuilding.
248	Industrial	Textile industry	Industry that manufactures yarn, cloth etc. and prepares these. E.g. textile and clothing, weaving.

Code	Purpose of building	Detailed purpose	Description
249	Industrial	Wood industry	Industries for processing wood raw materials. E.g. wood, pulp and paper and furniture industries, paper mill, sawmill, carpentry.
250	Industrial	Water power facilities	Facility that converts potential energy of water into electricity.
251	Industrial	Wind turbine	Facility for the conversion of wind energy into electricity.
252	Industrial	Heat plant	Facility that delivers district heating from boilers that burn solid, liquid or gaseous fuels and consume electricity. E.g. combined heat and power facilities or district heating facilities.
253	Industrial	Other industrial building	Other building for industrial activities (possibly without walls) not involving manufacturing, e.g. warehouse, petrol station, repair workshop.
299	Industrial	Unspecified	Industry with unknown purpose.
301	Public	Public baths	Building with public bathing facilities. E.g. public baths, open-air swimming-bath, swimming pool, adventure pool.
302	Public	Fire station	Building for rescue services.
303	Public	Bus station	Large bus stop or travel centre with several lines with buildings. E.g. travel centre.
304	Public	Distribution building	Building for distribution networks for gas, heating, electricity or water. E.g. transformer station, district heating plant, cabinet (telecommunications, broadband), water tower, grid station.
305	Public	Animal hospital	Building for stationary care of sick animals.
306	Public	Defence building	Building used for defence purposes or defence preparedness. E.g. building adjacent to a military establishment or military store.
307	Public	Healthcare centre	Unit for non-hospital care. E.g. healthcare centre, care centre, medical care centre, open care centre. Not private surgery, however.
308	Public	Higher education institution	Post-secondary school classified as higher education institution.
309	Public	Ice rink	Built-in artificially frozen ice facility. E.g. for ice hockey, bandy or ice skating.
310	Public	Railway station	Station or stop that expedites passenger or goods traffic under SJ provisions (SJF 611) and the national timetable.
311	Public	Town hall	The main building for municipal management. E.g. government offices, town hall, civic centre.

Code	Purpose of building	Detailed purpose	Description
312	Public	Prison	Institution for the enforcement of custodial sentences, e.g. penitentiary institution or prison.
313	Public	Cultural building	Building used for cultural purposes. E.g. theatre, museum or local history museum.
314	Public	Police station	Building used as a centre for police operations.
315	Public	Sewage treatment plant	Building for the treatment of waste water.
316	Public	Riding stables	Building with manège for horse riding, e.g. riding stables, riding school.
317	Public	Associations	Building for established organised religious association. E.g. church, non-conformist church, mosque, synagogue, temple, monastery, parish house , crematorium, chapel or burial chapel.
318	Public	Hospital	Establishment for inpatient care and specialised outpatient care. E.g. hospital, county hospital, regional hospital.
319	Public	School	Building for education. E.g. preschool, compulsory school, upper secondary school, school for people, trade, hunting, agriculture, nature and culture, natural resources, nomads, rescue, forestry, engineering, healthcare or Sami.
320	Public	Sports hall	Indoor sports facility for sports such as badminton, curling, tennis.
321	Public	University	Higher education classified in the Higher Education Ordinance.
322	Public	Waterworks	Facility where groundwater or surface water is purified into drinking water. For example, water purification facilities.
324	Public	Multi arena	Flexible large arena for sports, cultural and other types of events.
399	Public	Unspecified	Public function with unknown purpose.
499	Activity	Unspecified	Public function with unknown purpose.
599	Agricultural	Unspecified	Agricultural building with unknown purpose.
699	Complementary	Unspecified	Complementary building with unknown purpose.
799	Other building	Unspecified	Other building with unknown purpose.

6.1.5 BA Polygon layer with other facilities or areas

Contains polygons with other facilities or areas.

Layer name	Detail type	Name	Description	Selection
BA_XXXXX	ANLOMR	Facilities and recreation area	Area for land that is mainly used for industrial activities or activities related to sports, recreation or culture.	Area intended and prepared for the purpose which is prominent in the landscape. Minimum dimension for display is approximately 1 ha. Areas less than 1 ha may be presented if they refer to a shooting range, fur animals farm, reindeer enclosure or camp site, and detached cemetery. Not normally used for industrial areas. Industrial buildings/areas are presented in most cases either by mapping the individual buildings or as a built-up area (i.e. "industrial grids"). The boundary for a plant area may be used if there is a need to keep the area together. Facilities and recreation areas include certain process industries, sawmills, waste facilities, scrap metal manufacturing facilities, water purification facilities, water works, fish farms, fur farms, plant nurseries, seed orchards, sports facilities, car racing track, ski areas, golf courses, shooting ranges, camping sites, entertainment parks, zoos, allotment areas, cemeteries, airport areas, industrial peat harvesting, gravel pits, military training grounds and reindeer enclosures. Reindeer enclosures are only presented within the coverage area of the Mountain Map 1:50,000 and Mountain Map 1:100,000.
BA_XXXXX	IDRPLAN	Sports field	Area for pitch, track or rink where sports activities are practised	Presented in accordance with the value list, function for sports facilities below.
BA_XXXXX	FLYGBAN	Runway	Area for runway within the airport.	Presented for airports in accordance with the list and notices from AIP and LFV (Swedish Civil Aviation Administration) and Air Force wing and training areas. Also displays airfields and previous airfields. Airport areas may also be included in facility areas; refer to ANLOMR detail type.

Set of attributes

No.	Attribute	Type Shape	Length shape	Type MapInfo	Length MapInfo	Description
1	DETALJTYP	Text	10	Text	10	Code for detail type
2	ADAT	Text	16	Text	16	Date/time of last change. NB not necessarily the latest update. Stated in format: 2005-10-11 12:04
3	XYFEL	Decimal	6.0	Decimal	6.0	Mean square error in stated measurement method. Stated in unit mm. The value varies between 25 – 999,999. 0 is treated as a null value.
4	NAME	Text	45	Text	45	Name of plant
5	FUNCTION	Text	20	Text	20	Function for plant; refer to value lists

Value list, function for sports facilities

Function	Detail type
Bandy pitch	IDRPLAN
Football pitch	IDRPLAN
Race track	IDRPLAN
Golf course	ANLOMR
Sports field	IDRPLAN
Sports field, unspecified	IDRPLAN
Ice hockey rink	IDRPLAN
Physical training facility	ANLOMR
Race track, cars	IDRPLAN, ANLOMR
Tennis court	IDRPLAN
Trotting course	IDRPLAN
Other	IDRPLAN, ANLOMR

Value list, function for facilities

Function	Detail type
Waste plant	ANLOMR
Cemetery	ANLOMR
Vehicle dismantlers	ANLOMR

Function	Detail type
Camping site	ANLOMR
Animal park	ANLOMR
Airfield	ANLOMR
Airport	ANLOMR
Allotment area	ANLOMR
Firing range	ANLOMR
Recycling facility	ANLOMR

6.1.6 BO Line layer with other facilities

Contains other facilities presented by mid-line and/or outline.

Detail types Pier (edge line), Quay (mid-line), Quay (edge line), Pile fendering, guide jetty and Dolphins are only presented in NSL areas.

Layer name	Detail type	Name	Description	Selection
BO_XXXXX	ANLRENT	Reindeer fences	Centre line for fence in mountain areas intended to lead reindeer between different pastures and to collection points.	Presented fully, apart from catching funnels shorter than 200 m in reindeer fences. Reindeer fences are only presented within the coverage areas of Mountain Map 1:50,000 and Mountain Map 1:100,000.
BO_XXXXX	BRYGGA.M	Jetty	Centre line for jetty of a permanent nature. Construction that extends into the water, intended for mooring of small vessels. The jetty may also be used for swimming etc.	Fully presented, minimum dimension for display is 20 m from the shoreline. Jetties that follow the shoreline shall not be presented. In NSL areas: Fully presented, minimum dimension for display is 10 m from the shoreline.
BO_XXXXX	DAMMB.M	Dam building	Centre line for dam buildings with the purpose of damming water.	All dam buildings are presented. Earth dams and embankments whose purpose is to lead water in a certain channel are not presented as dams. Buildings for reflection ponds are not presented.
BO_XXXXX	PIR.M	Pier, centre line*	Centre line of pier or breakwater to protect against breaking seas.	All breakwaters/piers narrower than 6 m and longer than 20 m measured from the shoreline are presented. In NSL areas, longer than 10 m. Broader objects are presented as piers, edge line coincides with shoreline.

Layer name	Detail type	Name	Description	Selection
BO_XXXXX	PIR.K	Pier, edge line *	Edge line for pier or breakwater to protect against breaking seas. Presented as a line which coincides with the shoreline.	Breakwater/pier at least 6 m wide and at least 10 m long. Only presented within NSL areas. Outside NSL areas they are only presented with the shoreline. Breakwater/pier narrower than 6 m presented with PIR detail type, centre line.
BO_XXXXX	KAJ.M	Quay, centre line*	Centre line for quay. Construction for the mooring of vessels which connects with the shoreline. The construction has one or more vertical sides into deep water and a horizontal surface for cargo handling.	Only presented within NSL areas. Protruding quays that are longer than 10 m measured from the shoreline and narrower than 6 m are presented. Only quays presented in the Swedish Maritime Administration database are mapped. Quays that are 6 m or wider are presented under detail type Quay, centre line.
BO_XXXXX	KAJ.K	Quay, edge line*	Edge line for quay. Construction for the mooring of vessels which connects with the shoreline. The construction has one or more vertical sides into deep water and a horizontal surface for cargo handling. Presented as a line which coincides with the shoreline.	Only presented within NSL areas. Presented if it is at least 6 m wide. Protruding quay narrower than 6 m is presented as detail type Quay, centre line.
BO_XXXXX	AVBARÄRE.M	Pile fendering *	Centre line for protective and shock absorbing construction by quay.	Only presented within NSL areas. Timber fenders longer than 8 m are presented.
BO_XXXXX	LEDVERK.M	Guide jetty *	Centre line for protective and shock absorbing construction around bridge pillars. Guide jetty protects bridge pillars from passing vessels.	Only presented within NSL areas. Bridge pillars longer than 8 m are presented. Presented coherently under bridges.
BO_XXXXX	DYKDALB.K	Dolphin *	Edge line for seabed mooring device or timber fenders consisting of a group of piles or foundations attached to each other.	Only presented within NSL areas. Dolphins with a area of at least 12 m ² are presented. Dolphins with a surface of less than 12 m ² are presented as detail type Dolphin, small. Presented with a line that coincides with the shoreline.
BO_XXXXX	LINBANA	Cableway	Line showing cable car, mountain railway or lift.	Presented if it is operating and is at least 200 m long.

* Included as object in the National shoreline, NSL.

Set of attributes

No.	Attribute	Type Shape	Length shape	Type MapInfo	Length MapInfo	Description
1	DETALJTYP	Text	10	Text	10	Code for detail type
2	ADAT	Text	16	Text	16	Date/time of last change. NB not necessarily the latest update. Stated in format: 2005-10-11 12:04
3	XYFEL	Decimal	6.0	Decimal	6.0	Mean square error in stated measurement method. Stated in unit mm. The value varies between 25 – 999,999. 0 is treated as a null value.

6.1.7 BS Point Layer with built-up symbols

Contains point symbols for different types of buildings or facilities not presented with edge lines or polygons. A church is presented as both a building polygon and a point symbol.

Layer name	Detail type	Name	Description	Selection
BS_XXXXX	KLOCKST.C	Bell tower	Centre point for detached tower or column with church bells.	Presented in full. Bell tower with a area of at least about 15 m2 is also presented as a Building.
BS_XXXXX	KYRKA.C	Church (belonging to the Church of Sweden)	Bell tower with a area of at least about 15 m2 is also presented as a Building.	Detached church building presented fully. Church is also presented as Building.
BS_XXXXX	KYRKAL.C	Church, small (belonging to the Church of Sweden)	Centre point of church building belonging to the Church of Sweden but not a parish church. Chapels (not burial chapel) and abandoned churches are included.	Detached church building presented fully. Church is also presented as Building.
BS_XXXXX	KÅTA.C	Lapp cot	Centre point for small conical or cupola shaped building in mountain area intended for residence.	Presented in full. Cot with a area of at least 15 m2 is also presented as a Building.
BS_XXXXX	MAST.C	Mast	Centre point of mast.	Presented for telecommunications, radio and TV masts that are at least 25 m tall.
BS_XXXXX	SKORST.C	Chimney	Centre point of chimney, detached or as part of a building.	Presented for all significant chimneys in the landscape that are at least 25 m high. Detached chimneys with a area of at least 15 m2 are also presented as a Building.
BS_XXXXX	TORN.C	Tower	Centre point of the tower.	Presented for all significant towers in the landscape. Towers with a area of at least 15 m2 are also presented as a

Layer name	Detail type	Name	Description	Selection
				Building. Towers include mining towers, fire towers, watchtowers, water towers and bird towers.
BS_XXXXX	VINDKR.C	Wind turbine	Centre point of wind turbine.	Presented for all wind turbines that are at least 25 m tall, where the height includes the rotor blades' maximum height above the ground. Wind turbines with a area of at least 15 m ² are also presented as a Building.
BS_XXXXX	VINDSKY.C	Wind shield	Centre point for simple buildings intended to provide protection against weather and wind, often in the form of a so-called gap house.	Presented along hiking trails. Within the coverage area for Mountain Map 1:50,000 and Mountain Map 1:100,000 wind shields are also presented when they are not near a path. Wind shields with a area of at least 15 m ² are also presented as a Building.
BS_XXXXX	VÄDERKV.C	Windmill	Centre point of the windmill.	Presented for all windmills with the characteristic building design. Vanes may be missing. Windmills with a area of at least 15 m ² are also presented as a Building.
BS_XXXXX	BEGRAV.S	Cemetery, information symbol	Symbol for area of land used for keeping the dust or ashes of the dead. Memorial groves and cemeteries are included.	Presented cartographically within the area of the graveyard. Graveyards that are detached, not next to a church, are presented regardless of size.
BS_XXXXX	SLUSSP.C	Lock gate	Point for lock gate by a lock.	Presented in full.
BS_XXXXX	SJÖFYR.C	Lighthouse	Centre point showing lighthouse for shipping.	Presented in accordance with the selection from the Swedish list of lighthouses *. Only lighthouses and beacon buildings that constitute a significant element in the landscape are presented (normal coastal and leading lights, and historical lights). Lighthouses with a area of at least 15 m ² are also presented as a Building. * The Swedish list of lighthouses was discontinued in 2010 and has been replaced by information in Swedish sea charts and ENC (electronic navigational charts).
BS_XXXXX	DYKDALB.C	Dolphin, small *	Point for seabed mooring device or timber fenders consisting of a group of piles or foundations attached to each other.	Only presented within NSL areas. Dolphins whose area is less than 12 m ² are presented.

* Included as object in the National shoreline, NSL.

Set of attributes

No.	Attribute	Type Shape	Length shape	Type MapInfo	Length MapInfo	Description
1	DETALJTYP	Text	10	Text	10	Code for detail type
2	SRIKT	Decimal	8.2	Decimal	8.2	Symbol orientation. Stated in unit degrees (0.00 – 360.00, increasing counter-clockwise). 0.00=Unoriented symbol
3	ADAT	Text	16	Text	16	Date/time of last change. NB not necessarily the latest update. Stated in format: 2005-10-11 12:04
4	XYFEL	Decimal	6.0	Decimal	6	Mean square error in stated measurement method. Stated in unit mm. The value varies between 25 – 999,999. 0 is treated as a null value.

6.2 Transport networks

Included in this theme are transport network objects such as classified roads, railways and power lines, with adjacent detail types. The main responsibility for the road and rail networks is held by the Swedish Transport Administration. Lantmäteriet supplements this with other road networks and paths. For vehicle navigation, refer to Swedish Transport Administration's products.

The power lines included are main lines, regional lines and distribution lines, which are updated in collaboration with the power companies.

Transport networks	Layer name
Roads (lines)	VL
Road symbols (point)	VS
Other roads (lines)	VO
Railways (lines)	JL
Railway and metro stations (point)	JS
Power lines (lines)	KL

6.2.1 Data capture

Lineage

For the original history, refer to Ch. 2.2.1.

Roads

Lantmäteriet updates the road network in the whole country through aerial image interpretation. Public roads are updated mainly through collaboration with the Swedish Transport Administration and the National Road database [NVDB \(Nationella vägdatabasen\)](#). The NVDB contains municipal, state, private and forestry roads. Private roads are updated through aerial image interpretation and NVDB. Objects included in the layer Other roads are updated using aerial image interpretation, but also in collaboration with the municipalities, which are able to deliver footpaths, lighted tracks and hiking trails through the ABT agreement. Tractor roads are only updated using aerial image interpretation.

Names of roads, i.e. street names, are compared with existing address points, which municipalities regularly deliver to Lantmäteriet. These names are only presented in quality areas in Lantmäteriet's data, as well as road numbers lower than 500. Quality areas are found in the AG layer.

Deviations for roads are continuously added through error reports to Lantmäteriet. If the road is visible in the image, orthophoto is used as the basis for corrections. If the road is within NVDB's area of responsibility, which the municipality is responsible for, the information is retrieved from there instead.

For more information on NVDB refer to www.nvdb.se

Railways

Most of the railways are updated using orthophotographs and previous field work from Lantmäteriet. Aerial image interpretation updates railways if there have been any changes such as new railways, removed railways or changes to the track route. Other railways may be delivered to Lantmäteriet by municipalities via the collaboration agreement.

Deviations for railways are continuously added through error reports to Lantmäteriet. If the railway is visible in the image, orthophoto is used as the basis for corrections.

Power lines

Updating of power lines is carried out in collaboration with the electricity companies in Sweden. Lantmäteriet has signed an agreement with the majority of these companies. Some companies deliver information on power lines on a voluntary basis. Lantmäteriet updates power lines from the electricity companies' documentation. Any power lines which are not updated through the power companies remain as originally collected and have not been updated since then.

Transformer areas and pipelines are updated by Lantmäteriet by means of aerial image interpretation.

6.2.2 Maintenance frequency

Roads

Lantmäteriet updates roads periodically with the help of aerial image interpretation in accordance with the aerial photography intervals in the image supply program [bildförsörjningsprogrammet](#).

Each month change data is retrieved from the Swedish Transport Administration via NVDB, adapted to Lantmäteriet. This includes changes in geometry and attributes to vehicle and cycle road networks over the whole country. All changes to the vehicle road network are updated in Lantmäteriet's basic data. Only a selection of cycle paths are updated.

In addition to the aerial image interpretation and collaboration via NVDB, the road network is updated continuously from deviation reports.

Through the ABT agreement, municipalities can deliver hiking trails and lighted tracks to Lantmäteriet if they have the geometries for these. Changes must be reviewed once a year, but it is not obligatory to deliver them under the agreement.

Railways

Lantmäteriet updates railways periodically with the help of aerial image interpretation in accordance with the aerial photography intervals in the image supply program.

In addition to the aerial image interpretation, the railway network is updated continuously with the help of deviation reports.

In accordance with the ABT agreement, municipalities deliver other railway information to Lantmäteriet. Changes must be reviewed once a year.

Power lines

Electricity companies deliver information on power lines to Lantmäteriet every two years, where it is used as a basis for updating. Information is added to the maps with the help of orthophoto.

Deviations regarding transformer stations and pipelines are corrected periodically through the use of image interpretation by Lantmäteriet.

6.2.3 Data quality

Completeness

Roads

The completeness of road information is generally high since the Lantmäteriet works in collaboration with the Swedish Transport Administration, to which all cooperating parties give their information. The objects that are included in the road layer (VL) are seen very clearly in orthophotographs when interpreting aerial images, and they are easier to update than the other roads layer because the latter are more difficult to see in orthophotographs. In the other roads layer, objects are removed and adjusted, but there are not many new additions. Tractor roads are updated with less accuracy from aerial image interpretation.

Aerial image interpretation does not add new barriers because they are difficult to see from the images. It is only through deviation reports that new barriers are added, and for this reason they have low completeness.

Cycles paths and park roads are generalised, meaning that not all roads are included on the map. For additional displays, refer to NVDB.

Railways

The completeness of railways is generally high but the number of tracks in station areas and similar are generalised. Not all railway tracks are presented, only the main tracks and outer tracks. The main tracks are presented everywhere except for industrial areas.

Power lines

Completeness of information on transmission lines is high and there are good verification procedures for including them.

Completeness is not as high for regional and distribution lines as for transmission lines. Information on more than half of Sweden's surface is delivered to Lantmäteriet under agreements with major power companies, and one third is delivered through oral agreements with small companies. Agreements with the remaining companies are being produced. There are a few buried lines which are not presented on the GGD.

In the case of power line streets in forests, it is more difficult to determine whether the lines are present or not. It is particularly important in this area to obtain up-to-date information on lines from power companies.

Logical consistency

Roads

Checks are made when updating objects included in the layer for roads, both in Lantmäteriet's own production and in collaboration with the Swedish Transport Administration. The checks carried out are that roads form networks (geometric line networks). Lines in a geometric line network are coherent and are divided into connection points (see diagram below). Roads are thus prepared for the creation of topological networks.



For the layer *VO Line layer with other roads*, checks are made that they are cut in the connection points, but there are no requirements or checks that they are network-adapted.

Railways

Logical consistency is not checked for railways.

Power lines

Due to generalisations and so on, it is not possible to place any demands on logical consistency and checks for power lines. Transmission lines form their own network.

Thematic accuracy

Roads

In Lantmäteriet's own production, roads are checked for having the correct classification in relation to each other. Isolated road sections should not have better/higher road quality than surrounding roads.

The public roads that come from NVDB generally have good thematic accuracy. The lower classifications (e.g. poor road, road, precinct road) are more difficult to distinguish. It is also difficult to distinguish between poor road and tractor road and make the correct classification between these from aerial image interpretation.

Hiking trails and lighted tracks mainly come from collaboration with municipalities. Lantmäteriet makes no checks on their classification.

Railways

The thematic accuracy of railways is good since most of them were entered during the construction of Lantmäteriet's basic data and have been checked through field work.

Power Lines

The thematic accuracy of power lines is high since the power companies themselves classify and supply information on them.

Positional accuracy

For aerial image interpretation, the requirement for positional accuracy is 2 m but it is usually around 1 m. Refer to the table below.

Roads

Positional accuracy from aerial image interpretation depends on the type of surface.

In NVDB, the road network is divided into four quality requirements classes, which means that a motorway has higher quality requirements than a forest road. Since collaboration takes place between different partners for NVDB, positional accuracy also depends on their different data collection methods. There are higher requirements on the positional accuracy for state and municipal road networks than there are for private road networks.

Railways

The positional accuracy of railways is 2 m. Other railways information is supplied through collaboration agreements with municipalities, which means that positional accuracy may vary between different municipalities.

Power Lines

The positional accuracy of lines varies, depending on whether they are located in forests or in open surfaces. With the help of high resolution aerial images it is easy to check whether there are power lines in open surfaces. The quality and origin of deliveries varies from company to company.

Requirements for object types' positional accuracy

Object type	Requirements for positional accuracy in plane (m)
Ferry route	2
Public road class I, road centre line	2
Public road class I, road centre line in underpass	2
Public road class II, road centre line	2
Public road class II, road centre line in underpass	2
Public road class III, road centre line	2
Public road class III, road centre line in underpass	2
Public road, separated lanes, centre line of lane	2
Public road, separated lanes, centre line of lane, underpass	2
Road/street	2
Road/street in underpass/tunnel	2
Precinct road	2
Poorer quality road	2
Poorer quality road in underpass/tunnel	2

Object type	Requirements for positional accuracy in plane (m)
Thoroughfare, centre line of lanes	5
Thoroughfare, centre line of street	5
Thoroughfare, centre line of lanes, underpass	5
Thoroughfare, centre line of street, underpass/tunnel	5
Motorway, centre line of lanes	2
Motorway, centre line of lanes, underpass/tunnel	2
Road under construction	5
Opening bridge	5
Road gate	10
Turning point	2
Tractor road	5
Cycle path/park road	2
Footpath	10
Lighted track	5
Underpass/tunnel for other road or way	2
Footbridge	5
Hiking trail	10
Single track railway	2
Double track railway	2
Underpass/tunnel for railway	2
Other railway	2
Railway under construction	5
Other railway in tunnel	2
Station	10
Station on other railway	10
Power line, distribution	5
Power line, region	5

Object type	Requirements for positional accuracy in plane (m)
Power line, transmission	5
Transformer station	5
Pipeline	5

6.2.4 VL Line layer with roads

Shows the road network in the form of public and private roads. Underpass/tunnel has a separate code for each class of road. This layer is suitable for structural operations, i.e. they form a topological network.

Layer name	Detail type	Name	Description	Selection
VL_XXXXX	FÄRJELED	Ferry route	Line showing route of road ferry	Ferry route with road ferry in regular service within the country is presented: (a) Ferry route operated by the Transport Administration's ferry company. (b) Other ferry routes linking the national road network. (c) Other ferry routes with year-round traffic and fixed timetable.
VL_XXXXX	VÄGA1.M	Public road class I, road centre line	Centre line for public road class I, width ≥ 7 m with two-way traffic.	Presented in full.
VL_XXXXX	VÄGA1U.M	Public road class I, road centre line in underpass	Centre line for public road class I, width ≥ 7 m with two-way traffic in underpass/tunnel.	An underpass is presented if there is a reported object above. Tunnel is presented in full.
VL_XXXXX	VÄGA2.M	Public road class II, road centre line.	Centre line for public road class II, width ≥ 5 and < 7 m with two-way traffic.	Presented in full.
VL_XXXXX	VÄGA2U.M	Public road class II, road centre line, underpass	Centre line for public road class II, width ≥ 5 and < 7 m with two-way traffic in underpass/tunnel.	An underpass is presented if there is a reported object above. Tunnel is presented in full.
VL_XXXXX	VÄGA3.M	Public road class III, road centre line	Centre line for public road class III, width < 5 m with two-way traffic.	Presented in full.
VL_XXXXX	VÄGA3U.M	Public road class III, road centre line in underpass	Centre line for public road class III, width < 5 m with two-way traffic in underpass/tunnel.	An underpass is presented if there is a reported object above. Tunnel is presented in full.
VL_XXXXX	VÄGAS.D	Public road, separate lanes, centre line of lane	Centre of lane for public road with separated lanes (separated directions of traffic) with slip roads.	Centre of lane presented for: (a) physically separated lanes longer than 200 m with the exception of bridges. b)

Layer name	Detail type	Name	Description	Selection
			Every lane has one-way traffic.	physically separated lanes between two crossings. (c) refuges and other channelization roads. d) roundabouts whose external diameter is greater than 25 m and where any of the connecting roads is a public road. (e) one-way slip roads. (f) slip roads to rest areas. (g) 2+1 roads where lanes with opposing direction of traffic are separated by a mid-rail, usually steel cables. Measured in the centre of the outermost lane.
VL_XXXXX	VÄGASU.D	Public road, separate lanes, centre line of lane, underpass	Centre of lane for public road with separated lanes (separated directions of traffic) and for slip roads in underpass/tunnel. Every lane has one-way traffic.	An underpass is presented if there is a reported object above. Tunnel is presented in full.
VL_XXXXX	VÄGBN.M	Road/street	The centre line of streets in coherent built-up areas and private roads with a lane width of at least 3.5 m and which are passable for trucks with a trailer (24 m) except during the spring thaw or during continuous rain periods. The road should be ditched and the road surface normally in good enough condition for a passenger car to use it all year round.	Presented in full (minimum measure 50 m) with a few exceptions: - Slip roads used by two or more properties are presented even if they are shorter than 50 m. - Roads with names or address locations are presented even if they are shorter than 50 m. Pedestrian streets and bus only streets are presented as roads.
VL_XXXXX	VÄGBNU.M	Road/street in underpass/tunnel	The centre line of streets in coherent built-up areas and private roads with a lane width of at least 3.5 m in an underpass/tunnel and which are passable for trucks with a trailer (24 m) except during the spring thaw or during continuous rain periods. The road should be ditched and the road surface normally in good enough condition for a passenger car to use it all year round.	An underpass is presented if there is a reported object above. Tunnel is presented in full.
VL_XXXXX	VÄGKV.M	Precinct road	The centre line for narrow roads in built-up areas that are only used for road traffic for transportation to and from properties.	Roads with names that are not classified as other road class are presented as precinct roads. In the delivery of data on municipal roads to NVDB, roads are included that Lantmäteriet classifies as precinct roads. The content may vary between different municipalities.

Layer name	Detail type	Name	Description	Selection
VL_XXXXX	VÄGBS.M	Poorer quality road	Centre line for private road with metalled surface. On bearing ground with good drainage, an actual road structure may not exist. Certain roads within the class are passable for trucks with a short trailer (18 m); other roads for trucks without a trailer mainly when the road is frozen solid. Passenger car traffic is normally possible except during the spring thaw or during continuous rain periods.	Presented in full (minimum measure 50 m) with a few exceptions: - Slip roads used by two or more properties are presented even if they are shorter less than 50 m. - Roads with names or address locations are presented even if they are less than 50 m.
VL_XXXXX	VÄGBSU.M	Poorer quality road in underpass/tunnel	Centre line for private road in an underpass/tunnel with a metalled surface. On bearing ground with good drainage, an actual road structure may not exist. Certain roads within the class are passable for trucks with a short trailer (18 m); other roads for trucks without a trailer mainly when the road is frozen solid. Passenger car traffic is normally possible except during the spring thaw or during continuous rain periods.	An underpass is presented if there is a reported object above. Tunnel is presented in full.
VL_XXXXX	VÄGGG.D	Thoroughfare, centre line of lanes	Centre of lanes for thoroughfare with separated lanes in coherent built-up area intended for through traffic which links together the public road network.	Centre of lanes is presented for: (a) physically separated lanes longer than 200 m. b) physically separated lanes between two junctions. (c) refuges and other channelization roads. d) roundabouts whose external diameter is greater than 25 m and where any of the connecting roads is a public road. Note, however, that if any of the other joining roads in item (d) above is a public road (VÄGA1.M, VÄGA2.M or VÄGA3.M), the code for public road centre of lanes, VÄGAS.D, must be used instead.
VL_XXXXX	VÄGGG.M	Thoroughfare, centre line of street	Centre line for a thoroughfare in a coherent built-up area with two-way traffic intended for through traffic and linking the public road network.	Presented in full.
VL_XXXXX	VÄGGGU.D	Thoroughfare, centre line of lanes, underpass	Centre of lanes for street that connects the public road network through a	An underpass is presented if there is a reported object above. Tunnel is presented in full.

Layer name	Detail type	Name	Description	Selection
			locality in an underpass/tunnel.	
VL_XXXXX	VÄGGGU.M	Thoroughfare, centre line of street, underpass/tunnel	Centre line for a thoroughfare in a coherent built-up area intended for through traffic and linking the public road network in an underpass/tunnel.	An underpass is presented if there is a reported object above. Tunnel is presented in full.
VL_XXXXX	VÄGMO.D	Motorway, centre line of lanes	Centre of lanes for motorway.	An underpass is presented if there is a reported object above. Tunnel is presented in full.
VL_XXXXX	VÄGMOU.D	Motorway, centre line of lanes, underpass/tunnel	Centre of lanes for motorway in underpass or tunnel.	An underpass is presented if there is a reported object above. Tunnel is presented in full.
VL_XXXXX	VÄGA0BY.M	Road under construction	Centre line for road under construction but not yet open to traffic.	presented fully if the final route can be determined with certainty.

Set of attributes

No.	Attribute	Type Shape	Length shape	Type MapInfo	Length MapInfo	Description
1	DETALJTYP	Text	10	Text	10	Code for detail type
2	ADAT	Text	16	Text	16	Date/time of last change. NB not necessarily the latest update. Stated in format: 2005-10-11 12:04
3	XYFEL	Decimal	6.0	Decimal	6.0	Mean square error in stated measurement method. Stated in unit mm. The value varies between 25 – 999,999. 0 is treated as a null value.
4	NAMN1	Text	100	Text	100	Street name from the Address register
5	NAMN2	Text	100	Text	100	Street name from the Address register
6	VAGNR1	Text	10	Text	10	Road number
7	VAGNR2	Text	10	Text	10	Alternative road number 1
8	VAGNR3	Text	10	Text	10	Alternative road number 2
9	NIVA	Decimal	2.0	Decimal	2.0	State the level of the road: 1 = Ground level 2 = Underpass 3 = Tunnel

6.2.5 VS Point layer with road symbols

Contains point symbols related to the road network. Is node or point on line in VL layer.

Layer name	Detail type	Name	Description	Selection
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VS_XXXXX	BROÖPPN.C	Opening bridge	Centre point of part of bridge that opens for maritime traffic.	Presented in full.
VS_XXXXX	VÄGBOM.C	Road gate	Centre point for permanent closing of private road which may consist of a barrier, chain, cable (locked or temporarily open).	Presented fully for road and poor road. Exception for road less than 250 m and roads in built-up areas (raster areas). Gates in wild animal fences are not presented.
VS_XXXXX	VÄNDPL.C	Turning area	Centre point of turning area (flat surface) or turning road (short road) where it is possible to turn a truck and trailer, which corresponds to a turning option in NVDB.	Presented along or at the end of a road and poor road when: - The turning area has an external diameter of more than 22 meters. - The turning road has a length of between 25 and 50 meters. If instead there is a turning loop (diameter more than 18 meters) with a physical barrier in the middle, the loop is presented as a road without a turning area.

Set of attributes

No.	Attribute	Type Shape	Length shape	Type MapInfo	Length MapInfo	Description
1	DETALJTYP	Text	10	Text	10	Code for detail type
2	SRIKT	Decimal	8.2	Decimal	8.2	Symbol orientation. Stated in unit degrees (0.00 – 360.00, increasing counter-clockwise) 0.00=Undirected symbol.
3	ADAT	Text	16	Text	16	Date/time of last change. NB not necessarily the latest update. Stated in format: 2005-10-11 12:04
4	XYFEL	Decimal	6.0	Decimal	6.0	Mean square error in stated measurement method. Stated in unit mm. The value varies between 25 – 999,999. 0 is treated as a null value.

6.2.6 VO Line layer with other roads

Contains other roads and paths. Hiking trails overlay on other objects in the layer.

Restrictions

This layer is considered as pure map data and is not suitable for structure processing as there may be some gaps and superimposition of objects.

Layer name	Detail type	Name	Description	Selection
VO_XXXXX	ÖVÄGTRA.M	Tractor tack	Centre line of a road that normally lacks a road structure, but has a prepared surface of a lasting nature. The road is usually passable for agricultural tractors with trailers.	Presented when it: - Has a length exceeding 500 meters. - Leads to a built-up area or cultivated land (minimum length 100 meters). - Leads to other specific goal (minimum length 250 meters). - Connects roads. - Follows a shore. Not to be presented: - Haulage road (temporary road used to transport timber). - Winter road (old road going over wet land areas).
VO_XXXXX	ÖVÄGCYK.M	Cycle path/park road	Centre line for cycle path or park road.	Presented in full if it links different built-up areas or leads to specific goals. Not presented if it is part of other road.
VO_XXXXX	ÖVÄGSTI.M	Footpath	Centre line for clear footpath.	Presented when it: - Leads to a built-up area (minimum length 100 meters). - Leads to other specific goal (minimum length 250 meters). For example, a lake, viewpoint, bog, ancient remains or infields. - Connects roads. - Runs along the shore. In areas that have many paths, specific editing may be required to obtain the character of the area. Within the coverage area of Mountain Map 1:50,000 and Mountain Map 1:100,000, roads created by quads are also presented as paths if they are clear.
VO_XXXXX	ÖVÄGELS.M	Illuminated tracks	Centre line for lighted exercise tracks with prepared and maintained path or track.	Presented in full.
VO_XXXXX	ÖVÄGUND.M	Underpass/tunnel for other road or path.	Centre line for underpass/tunnel for other road, e.g. cycle path/park road, footpath.	An underpass is presented if there is a reported object above. Tunnel is presented in full.
VO_XXXXX	GÅNGBRO.M	Footbridge	Centre line of a footbridge (suspension bridge/plank bridge) in connection with trails and paths.	Presented in connection to paths and trails where they pass over watercourses of 6 m or wider (double line). A footbridge may also be included if it goes over other obstacles, such as a deep ravine. A footbridge is also presented independently from paths and trails if it is considered to be important information, such as footbridges that connect the mainland with islands. Within the coverage area for

Layer name	Detail type	Name	Description	Selection
				Mountain Map 1:50,000 and Mountain Map 1:100,000, footbridges are also presented when they are not part of paths or trails. In these maps, footbridges are also presented over watercourses narrower than 6 m (single line).
VO_XXXXX	VANDLED	Hiking trail	Line showing trail.	Presented regardless of length in addition it should be named. It must be clearly marked, usually with orange rings painted on trees or posts. In bare mountain regions cairns or low posts are painted.

Set of attributes

No.	Attribute	Type Shape	Length shape	Type MapInfo	Length MapInfo	Description
1	DETALJTYP	Text	10	Text	10	Code for detail type
2	ADAT	Text	16	Text	16	Date/time of last change. NB not necessarily the latest update. Stated in format: 2005-10-11 12:04
3	XYFEL	Decimal	6.0	Decimal	6.0	Mean square error in stated measurement method. Stated in unit mm. The value varies between 25 – 999,999. 0 is treated as a null value.

6.2.7 JL Line layer with railways

Contains lines for the railway network.

Layer name	Detail type	Name	Description	Selection
JL_XXXXX	JVGR1.M	Single track railway	Centre line for standard gauge, single track railway included in the regular railway network.	Presented fully as long as the rails remain and no decision to remove them has been issued. Passing points are not presented.
JL_XXXXX	JVGR2.M	Double track railway	Centre line for standard gauge double track railway included in the regular railway network.	Presented fully as long as the rails remain and no decision to remove them has been issued. Passing points are not presented.
JL_XXXXX	JVGU.M	Underpass/tunnel for railway	Centre line for regular railway in an underpass under another road/railway, or in a tunnel.	An underpass is presented if there is a reported object above. Tunnel is presented in full.

Layer name	Detail type	Name	Description	Selection
JL_XXXXX	JVGÖ.M	Other railway	Centre line for other railways not included in the regular railway network.	Presented fully as long as the rails remain and no decision to remove them has been issued. Passing points are not presented. These could include:- Suburban track - Narrow gauge railway - Industrial track - Vintage railway - Metro (above ground) - Tramway
JL_XXXXX	JVGBY.M	Railway under construction	Centre line of railway in construction. presented as railway when the construction project is completed and responsibility is handed over to the Swedish Transport Administration.	Presented fully if the final route can be determined with certainty.
JL_XXXXX	JVGÖU.M	Other railway in underpass/tunnel	Centre line for other railway in an underpass under another road/railway, or in a tunnel.	An underpass is presented if there is a reported object above. Tunnel is presented in full. This includes metro underground.

Set of attributes

No.	Attribute	Type Shape	Length shape	Type MapInfo	Length MapInfo	Description
1	DETALJTYP	Text	10	Text	10	Code for detail type
2	ADAT	Text	16	Text	16	Date/time of last change. NB not necessarily the latest update. Stated in format: 2005-10-11 12:04
3	XYFEL	Decimal	6.0	Decimal	6.0	Mean square error in stated measurement method. Stated in unit mm. The value varies between 25 – 999,999. 0 is treated as a null value.
4	SPARTYP	Decimal	1.0	Decimal	1.0	0=No information 1=Tramway line 2=Metro underground 3=Railway
5	NIVA	Decimal	1.0	Decimal	1.0	State the level of the track: 0 = Unknown (places with reduced content) 1 = Ground level 2 = Tunnel

6.2.8 JS Point layer with railway and metro stations

Contains point symbols related to the railway network. Is node or point on line in JL layer.

Layer name	Detail type	Name	Description	Selection
JS_XXXXX	JVGSTN.C	Station	Centre point of railway station or stop with passenger traffic or where wagon cargo is dispatched and the station is manned.	presented in accordance with data from the Swedish Transport Administration and available timetables.
JS_XXXXX	JVGÖSTN.C	Station on other railway	Centre point of railway station or stop on other railway with passenger traffic or where wagon cargo is dispatched and the station is manned.	presented in accordance with data from the Swedish Transport Administration or available timetables.

Set of attributes

No.	Attribute	Type Shape	Length shape	Type MapInfo	Length MapInfo	Description
1	DETALJTYP	Text	10	Text	10	Code for detail type
2	SRIKT	Decimal	8.2	Decimal	8.2	Symbol orientation. Stated in unit degrees (0.00 – 360.00, increasing counter-clockwise) 0.00=Unoriented symbol.
3	ADAT	Text	16	Text	16	Date/time of last change. NB not necessarily the latest update. Stated in format: 2005-10-11 12:04
4	XYFEL	Decimal	6.0	Decimal	6.0	Mean square error in stated measurement method. Stated in unit mm. The value varies between 25 – 999,999. 0 is treated as a null value.
5	NAME	Text	45	Text	45	Name of railway station
6	SPARTYP	Decimal	1.0	Decimal	1.0	0=No information 1=Tramway line 2=Metro underground 3=Railway
7	NIVA	Decimal	1.0	Decimal	1.0	State the level of the station: 1 = Ground level 2 = Tunnel/under ground

6.2.9 KL Line layer with power lines

Includes power line network and boundary line for transformer stations.

Restrictions

Lines overlay each other where several lines with different voltage are installed in the same post. As a result, the layer is not suitable for structural processing.

Layer name	Detail type	Name	Description	Selection
KL_XXXXX	KRAFTFÖ.M	Power line, distribution	Centre line showing distribution lines for power distribution, generally with a voltage of between 6-24kV.	Presented fully for aerial lines.
KL_XXXXX	KRAFTRE.M	Power line, region	Centre line showing regional distribution lines for power distribution generally with a voltage of between 25 and 200 kV. Some older regional lines may be 20 and 24 kV.	presented fully for aerial lines.
KL_XXXXX	KRAFTST.M	Power line, transmission	Centre line showing transmission line for power distribution, generally with a voltage of higher than 200 kV.	presented fully for aerial lines.
KL_XXXXX	TRAFOMR.B	Transformer station	Polygon for enclosed transformer areas.	presented fully for transformer areas.
KL_XXXXX	RÖRLEDN.M	Pipeline	Centre line showing pipelines above ground for transporting gas or liquid.	Presented in full. Generalisation may occur within industrial and port areas.

Set of attributes

No.	Attribute	Type Shape	Length shape	Type MapInfo	Length MapInfo	Description
1	DETALJTYP	Text	10	Text	10	Code for detail type
2	ADAT	Text	16	Text	16	Date/time of last change. NB not necessarily the latest update. Stated in format: 2005-10-11 12:04
3	XYFEL	Decimal	6.0	Decimal	6.0	Mean square error in stated measurement method. Stated in unit mm. The value varies between 25 – 999,999. 0 is treated as a null value.

6.3 Land data

Land data in this product is provided in the form of lines, polygons and points in the following layers:

Land data	Layer name
Land data (lines)	ML
Land data (point)	MP
Comprehensive land data (polygons)	MY
Cultivated land (polygons)	MA
Built-up areas (polygons)	MB

Land data	Layer name
Open land and forest (polygons)	MO
Marsh (polygons)	MS

Large watercourses are presented as water (lakes and large watercourses) and are included in the land data layer. The land data layer and water polygons (MV) are described under the theme Hydrographic section 6.4.

6.3.1 Data capture

Lineage

For the original history, refer to Ch. 2.2.1.

Water

Water polygons fall under hydro graphics, but are also included in land cover in order to provide a comprehensive picture of land polygons. Refer to information on water in Chapter 6.4.1.

Built-up area

Since 2004, data on built-up areas has been collected using aerial image interpretation and screen digitization, often with the support of real property boundaries. The selection of localities that include built-up areas has been made using data from Statistics Sweden. In 2016, Lantmäteriet changed the limit value for built-up areas from 4,000 to 1,000 inhabitants.

Cultivated land

Since 2004 data on cultivated land has been collected through aerial image interpretation, and since 2011 with the support of the block database at the Swedish Board of Agriculture.

Marshland

Marshland has been digitized largely through data from the earlier economic map, and to a lesser extent through new material from aerial image interpretation.

Parts of the country which lacked information on marshes through GGD have been supplemented with information from the Road Map in 1:100,000, with certain support from aerial image interpretation and the national elevation model.

Forest and open land

Other land was the remaining category when land, water and settlements had been mapped using data collected previous to GGD. In 1994, however, the process started to divide it into different types of forest and open land. The terrain map [Terrängkartan](#) (T5) in the scale of 1:50,000, produced between 1988 and 2004, already had this division. Coniferous and mixed forest, deciduous forest and mountain birch forest were mapped with the support of IR colour images in the production of the Terrain Map (T5). The terrain map was used as the basis, together with aerial image interpretation, for the division. The same forest classification was then used in GGD without any major adaptation.

Glaciers have been measured through stereo mapping and with data from the Department of Physical Geography at Stockholm University.

A basic collection of data on squares was made after 2000. New squares can be updated through the municipalities' agreement with Lantmäteriet. Apart from this, they are not updated.

6.3.2 Maintenance frequency

Built-up area, cultivated land, bare mountains and other open land is updated from the image supply program plan.

Glaciers are updated from laser data. There is no plan for updating yet.

Marshland is only updated during exploitation. Most of the marshland has not been updated since the first mapping of the Economic map.

Squares and boundaries between different types of forest have not been updated since the GGD was completed in 2004.

6.3.3 Data quality

Completeness

High completeness.

Logical consistency

Land cover is handled as an overall layer with non-overlapping polygons. The exception is marshland, which is treated as a separate layer with independent polygons (fig. X). Each polygon has an ID point with the detail type in question.

Boundary lines are coherent, i.e. they form a geometric network structure.

The boundary lines are assigned to codes according to an established hierarchical order of priority. Shoreline has the highest priority, followed by boundary of settlement area and so on. (figure 1). Shoreline is thus the only boundary line that can form coherent polygons.

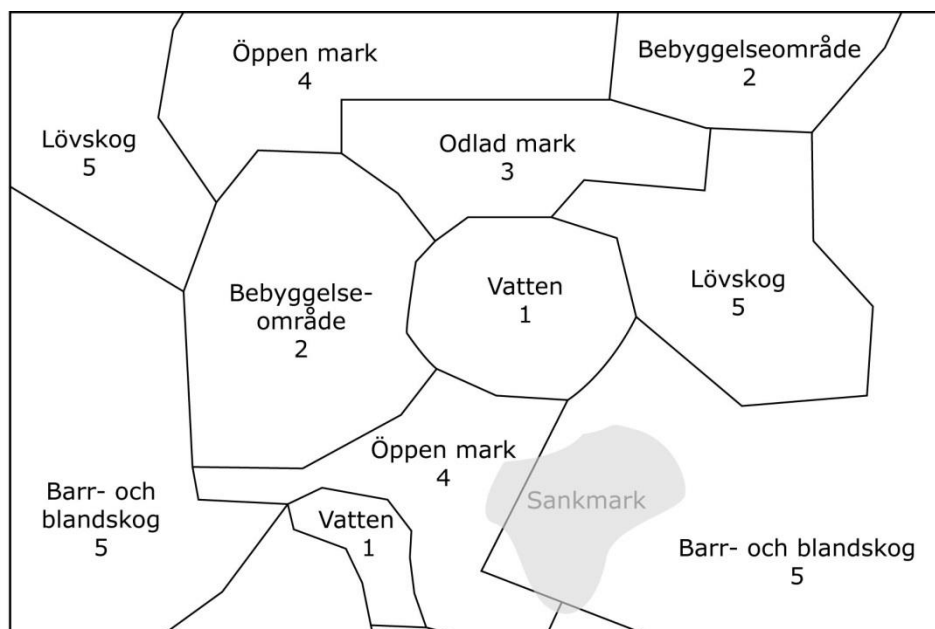


Figure 1.

Open land (Öppen mark), built-up area (bebyggelseområde), Deciduous forest (Lövskog), Water (Vatten), Coniferous and mixed forest (Barr- och blandskog), Marshland (Sankmark)

Apart from hierarchical boundary lines, only cultivated land results in an incomplete classification (figure 2).

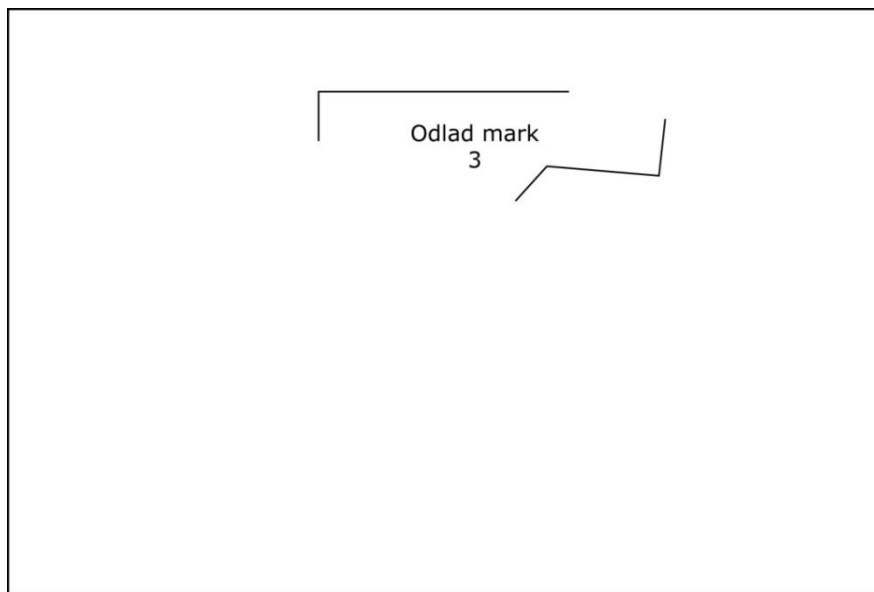


Figure 2

Together with the principal boundary lines for water and built-up areas, cultivated land results in complete division (figure 3).

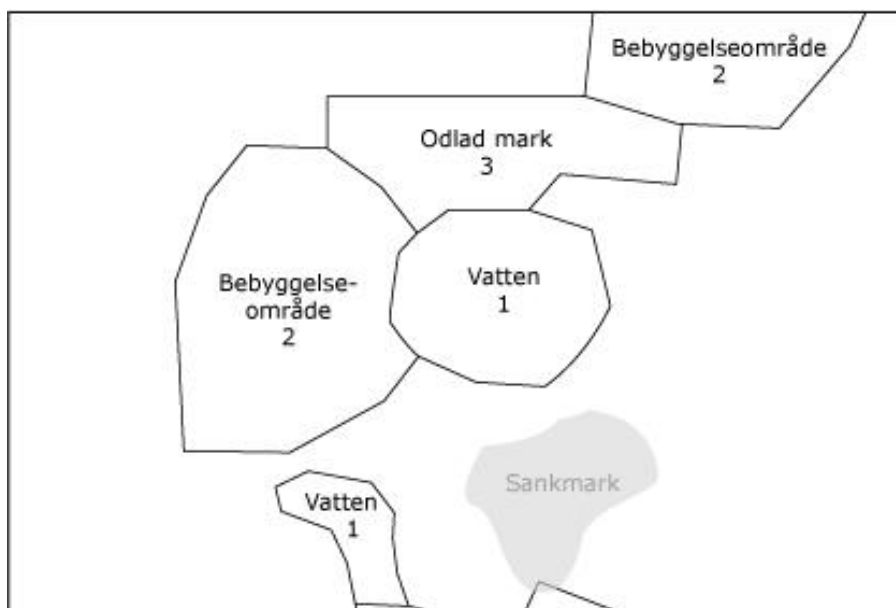


Figure 3

The boundary line is shared between two adjacent polygons (single geometry). Lines are shared at all connection points (figure 4). The lines may also be shared between the connection points.

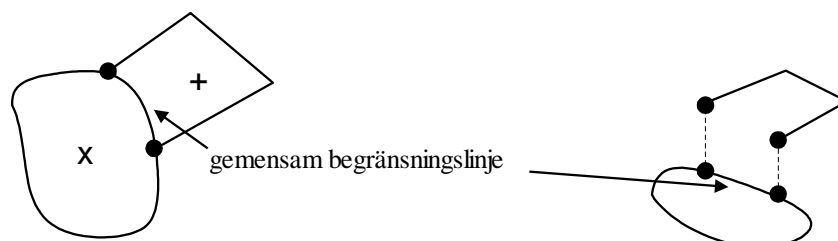


Figure 4. Common boundary (gemensam begränsningslinje)

Thematic accuracy

Large polygons, such as dense forest, open water and ploughed fields, are usually simple to map and have high thematic accuracy. This also applies to settlements.

In the following cases the thematic accuracy is lower because it is more difficult to assess:

- Land types that are difficult to distinguish from each other, such as marshland and water polygons covered with vegetation, or cultivated land and open land.
- Gradual transitions can make different land types difficult to delimit, such as a gradually thinning coverage of trees
- or built-up areas' division into different types such as low or high built-up areas and industrial areas.

Positional accuracy

Lack of clarity in the definitions of where the boundary lies between the two land polygons can make positional accuracy difficult to assess.

Different types of boundary lines may have been collected using different methods. Each land type (polygon) is normally surrounded by different types of lines. The positional accuracy, therefore, is not specified in terms of land type but to the type of boundary line.

Requirements for object types' positional accuracy

Object type	Requirements for positional accuracy in plane (m)
Shoreline	5
Shoreline, diffuse	10
Boundary of built-up area	5
Boundary of cultivated land	5
Boundary for other open land	15
Boundary for forest land	20
Boundary for non-mapped area	10

Object type	Requirements for positional accuracy in plane (m)
Water	10
Low built-up area	5
High built-up area	5
Blocks of built-up area	5
Industrial area	5
Arable land	5
Fruit cultivation	5
Seed plantation	5
Other open land	15
Bare mountain	15
Glacier	15
Coniferous and mixed forest	20
Deciduous forest	20
Mountain birch forest	20
Non-mapped area	10
Other land, unclassified	20
Square	5
Marshland	20
Marshland, not easily passable	20

6.3.4 ML Line layer with land data

Contains division into land types. Boundary lines are hierarchically coded and form a polygon structure. The classification of the polygon is obtained from ID points (one ID point per polygon and 10 km square) in the MP layer.

Layer name	Detail type	Name	Description	Selection
ML_XXXXX	STRAND	Shoreline *	Clearly determinable boundary line between the water surface and land.	presented in accordance with the selection for water polygon (VATTENID). Changing and/or not clearly determinable shoreline is presented as detail type Shoreline, diffuse.

Layer name	Detail type	Name	Description	Selection
ML_XXXXX	STRANDOTY	Shoreline, diffuse *	Boundary line between water area and land which is constantly changing and/or not clearly determinable.	presented in accordance with the selection for water area (VATTENID) and glacial (ÖPGLACID). Diffuse shoreline shorter than about 200 m is presented as a shoreline. Shoreline, diffuse is used for: - Changeable shoreline due to currents and wind. - Shoreline that is vague and difficult to determine. Examples include where the transition to impassable marshland and reeded area is not distinct. - Drained or partially drained riverbed downstream from dam buildings. A clearly determinable shoreline is presented as detail type Shoreline.
ML_XXXXX	BEBOMR.B	Boundary of built-up area	Boundary line for land areas with a certain type of contiguous built-up area.	Used in localities with more than about 1000 inhabitants. Smaller areas may be included if they are up to about 200 metres away. Built-up polygons are a complement to the display of individual buildings. presented in accordance with the selection of different built-up polygons, enclosed buildings (BEBSLUTID), high built-up areas (BEBHÖGID), low built-up area (BEBLÅGID), industrial area (BEBINDID) and square (ÖPTORGID), but replaced by shoreline and shoreline, diffuse towards polygons bounded by one of these. The outermost limit of a built-up area shall be recorded in the natural (e.g., plot boundary, fence, hedge, etc.) transition between land belonging to a built-up area and uninhabited land. A large building with a solitary and prominent position can be distinguished from the built-up area when a significant part of the precinct around the building consists of undeveloped land, such as parks.
ML_XXXXX	ODLMARK.B	Boundary of arable land	Boundary line for cultivated land, which may also distinguish between fields and fruit cultivation.	presented in accordance with the selection for cultivated land, field (ODLÅKID) and fruit cultivation (ODLFRUKID), but is replaced by the shoreline or shoreline, diffuse and built-up area boundary toward polygons bounded by these.

Layer name	Detail type	Name	Description	Selection
ML_XXXXX	ÖPMARK.B	Boundary for other open land	Boundary line for other open land, which can also distinguish between other open land and bare mountains.	presented in accordance with the selection for open land, other open land (ÖPMARKID) and bare mountain (ÖPKFJÄID), but is replaced by shoreline, shoreline diffuse, built-up area boundary and cultivated land boundary towards polygons bounded by these.
ML_XXXXX	SKOG.B	Boundary for forest land	Boundary line that separates coniferous and mixed forests, deciduous forest and mountain birch forest from each other.	presented in accordance with the selection for woodland, coniferous and mixed forest pine), broad-leaved (SKOGLÖV) and mountain birch forest (SKOGFBJ), but replaced by shoreline, shoreline diffuse, built-up area boundary, cultivated land boundary and boundary line for other open land towards polygons bounded by these.
ML_XXXXX	MRKTÄT.B	Boundary for non-mapped area	Boundary for non-mapped area Used to delimit and enclose polygons in the land data layer from non-mapped areas.	presented fully in areas bordering non-mapped areas. presented along the national boundary with Norway. The national boundary with Finland consists mainly of river boundaries (Tornia, Könkämä and Muonio rivers). Boundary rivers' water surface must be delimited by shoreline or shoreline, diffuse on the Swedish side and with a boundary line for non-mapped area on the Finnish side of the national boundary.

* Included as an object in the National shoreline, NSL.

Set of attributes

No.	Attribute	Type Shape	Length shape	Type MapInfo	Length MapInfo	Description
1	DETALJTYP	Text	10	Text	10	Code for detail type
2	ADAT	Text	16	Text	16	Date/time of last change. NB not necessarily the latest update. Stated in format: 2005-10-11 12:04
3	XYFEL	Decimal	6.0	Decimal	6.0	Mean square error in stated measurement method. Stated in unit mm. The value varies between 25 – 999,999. 0 is treated as a null value.

6.3.5 MP Point layer with land data

Contains polygon classification points for land types, with the exception of marsh land. One ID point per polygon and 10 km square.

Layer name	Detail type	Name	Description	Selection
MP_XXXXX	VATTENID	Water (lakes and large watercourses) (ID point)	ID point in sea, lake, dam or watercourse.	The minimum dimension for display is polygons greater than about 500 m ² and watercourses at least 6 m wide. Water-filled sludge basins, settling basins, basins and gravel pits are also included. Within the coverage area for Mountain Map 1:50,000 and Mountain Map 1:100,000, water polygons down to 400 m ² are included. The primary exception is bare mountains with few details. Islands are distinct from the water polygon if they are 20 m ² or larger. In NSL areas, islands of less than 20 m ² are presented in the detail type Rock above water. If possible the water polygon should be presented at normal water level. Reed areas, silt deposits and so on, which are generally below the normal water level, are presented as water polygon. Regulated water surfaces, such as reservoirs, are delimited at the highest dammed level. If the water level was low at the time of photographing, the highest dammed level is presented if it is possible to interpret. Since the position of the shoreline is interpreted from aerial images, the height level may deviate from the value of the damming limit in a water judgement.
MP_XXXXX	BEBLÅGID	Low built-up area (ID point)		
MP_XXXXX	BEBHÖGID	High built-up areas (ID point)	The ID point for detached high built-up areas with multi-family apartment blocks that have three floors or more. Lower buildings may occur. All associated land such as roads, car parks and land with buildings are included.	presented for one or several completely adjacent precincts of high built-up areas. Parts of precincts may also be presented if the area is greater than about 1 ha.
MP_XXXXX	BEBSLUTID	Blocks of built-up area (ID point)	ID point for enclosed coherent precincts, buildings with several floors. Lower buildings may be included. A built-up area may be open in certain places to allow transport to and from the precinct's interior. Three sides of the	presented for one or several completely adjacent precincts of blocks of high built-up areas. Parts of precincts may also be presented if the area is greater than about 1 ha.

Layer name	Detail type	Name	Description	Selection
			precinct should be almost closed. All associated land such as roads, car parks and land with buildings are included.	
MP _XXXXX	BEBINDID	Industrial area (ID point)	ID point for land area on which there are mainly industrial activities. All associated land such as roads, car parks, storage places and land with buildings are included.	presented for one or several completely adjacent precincts in industrial areas. Parts of precincts may also be presented if the area is greater than about 1 ha.
MP _XXXXX	ODLÅKID	Arable land (ID point)	ID point for land that has been ploughed for the cultivation of cereals, pasturage facilities, oil seeds, root crops and vegetables, but not fruit or berries grown on trees. The term also includes pasture land which is occasionally ploughed up and sown, similar arable land included in the crop rotation and land used for the production of energy woods. Hay meadows and gardens in connection with dwellings are not included. Arable land lying fallow is presented as fields.	The minimum dimension for showing is approximately 900 m ² . Minimum dimensions for showing impediments is approximately 100 m ² . Minimum width for long, narrow impediments is about 5 m. Minimum width for long, narrow impediments where a road separates cultivated land is about 10 m.
MP _XXXXX	ODLFRUKID	Fruit cultivation/orchard (ID point)	ID point for land used for cultivating fruit and berries on trees.	The minimum dimension for displaying this is about 2 ha. Fruit cultivation which covers an area of between 900 m ² and about 2 hectares is presented as fields. In cases where several small fruit cultivations are very close to each other, the total surface area of these can be recalculated and every included surface be presented as fruit cultivation, even if each part surface does not maintain the minimum dimension.
MP _XXXXX	ÖPMARKID	Other open land (ID point)	ID point for other open land, which can also distinguish between other open land and bare mountain region.	presented in accordance with the selection for open land, other open land (ÖPMARKID) and bare mountain (ÖPKFJÄID), but is replaced by the shoreline, shoreline diffuse, built-up area boundary and cultivated land boundary towards polygons bounded by these.
MP _XXXXX	ÖPKFJÄLLID	Bare mountains (ID point)	ID point of bare mountains, including all land above the tree line except for water polygon and glacier.	The minimum dimension for displaying this is about 1 ha.
MP _XXXXX	ÖPGLACID	Glacier (ID point)	ID point for areas which are permanently covered with ice.	The minimum dimension for displaying this is about 2 ha. Separate parts of a larger glacier are presented if they are larger than approximately ½ hectare. Permanently clear

Layer name	Detail type	Name	Description	Selection
				mountain/solid land that is larger than about ½ hectare is distinguished from the glacier. Small parts of clear mountain/solid land may be included in the glacier. The collection is made on the basis of the information provided by the Department of Physical Geography at Stockholm University.
MP _XXXXX	SKOGBARID	Conifer and mixed forest (ID point)	ID point for land with conifers or with mixed coniferous and deciduous trees, including wooded park land which also includes cleared land. All types of trees and bushes may be included.	The minimum dimension for display is approximately 900 m ² . Smaller polygons can occur on islands in water and impediments in fields. See water polygon (VATTEN), and fields (ODLÅK).
MP _XXXXX	SKOGLÖVID	Deciduous forest (ID point)	ID point for wooded land where the trees' canopy consists mainly of pure deciduous forest in a continuous area, in which cleared areas are also included. The proportion of deciduous forest must be at least 90-95%.	The minimum dimension for displaying this is about 8 ha. Special small areas with broad-leaved deciduous trees of at least about 4 ha are also presented. Small polygons can occur on islands in water and impediments in fields within a deciduous forest area. See water polygon (VATTEN), and fields (ODLÅK).
MP _XXXXX	SKOGBBJID	Mountain birch forest (ID point)	ID point for forest land that starts above the coniferous tree upper limit (individual conifers may occur) and extends up to the boundary of bare mountains. Above the mountain birch forest upper limit there may be groves of individual trees.	The minimum dimension for displaying this is about 8 ha. Areas (approximately 8 ha) with a mixture of small polygons of open land and mountain birch forest adjacent to homogeneous mountain birch forest areas may also be presented.
MP _XXXXX	MRKOID	Non-mapped area (ID point)	ID point for non-mapped area.	Presented in full.
MP _XXXXX	MRKÖVRID	Other land, unclassified (ID point)	ID point for unclassified land.	
MP _XXXXX	ÖPTORGID	Square (ID point)	ID point for a square, which is an open area intended for occasional trade and sometimes also for meeting activities etc.	presented as square with name within a built-up area. The names come from municipalities and are presented as a text with detail type ANLTX.

Set of attributes

No.	Attribute	Type Shape	Length shape	Type MapInfo	Length MapInfo	Description
1	DETALJTYP	Text	10	Text	10	Code for detail type
2	ADAT	Text	16	Text	16	Date/time of last change. NB not necessarily the latest update. Stated in format: 2005-10-11 12:04

6.3.6 MY Polygon layer with comprehensive land data

Contains polygons for land types. All types of land except marsh land are found in the MY layer. Land data polygons are formed on a 10 x 10 km grid, causing a fictitious line to limit the polygon on a grid. This means that polygons extending over the grid are divided into several polygons.

All 10 km squares relating to Swedish water territory are polygon classified using the attribute detail type = VATTEN. The parts of these squares that extend over the Norwegian or Finnish boundaries are polygon classified using the attribute type of part = MRKO, which means a non-mapped area.

Deviations in the classification of land types are found in the joints between squares with different production years. This becomes particularly clear when forming polygons. Marshland occurs as a stand-alone object (refer to polygon layer MS).

Layer name	Detail type	Name	Description	Selection
MY_XXXXX	VATTEN	Water (lakes and large watercourses)	Polygon of sea, lake, dam or water.	The minimum dimension for display is surfaces greater than about 500 m ² and watercourses at least 6 m wide. Water-filled sludge basins, settling basins, basins and gravel pits are also included. Within the coverage area for Mountain Map 1:50,000 and Mountain Map 1:100,000, water surfaces down to 400 m ² are included. The primary exception is bare mountains with few details. Islands are distinct from the water surface if they are 20 m ² or larger. In NSL areas, islands of less than 20 m ² are presented in the detail type Rock above water. If possible the water surface should be presented at normal water level. Reed areas, silt deposits and so on, which are generally below the normal water level, are presented as water surface. Regulated water surfaces, such as reservoirs, are delimited at the highest dammed level. If the water level was low at the time of photographing, the highest dammed level is presented if it is possible to interpret. Since the position of the shoreline is interpreted from aerial images, the height level may deviate from the damming limit in a water judgement.
MY_XXXXX	BEBLÅG	Low built-up area (polygon)	Polygon for dense low built-up area, which consists of planned precinct formation with detached one-family and two-family houses, terraced houses, chain linked houses or multi-	presented for one or several completely adjacent precincts of low built-up area. Parts of precincts may also be presented if the area is greater than about 1 ha. Allotment area is presented

Layer name	Detail type	Name	Description	Selection
			family apartment buildings with no more than two floors. Individual higher buildings may be included. All associated land, such as roads, car parks and land with buildings, is included.	as low built-up if it is within a locality and the allotments have buildings of more than 15 m ² .
MY_XXXXX	BEBHÖG	High built-up areas (polygon)	Polygon for detached high built-up areas with apartment blocks of three floors or more. Lower buildings may occur. All associated land, such as roads, car parks and land with buildings, is included.	presented for one or several completely adjacent precincts of high built-up areas. Parts of precincts may also be presented if the area is greater than about 1 ha.
MY_XXXXX	BEBSLUT	Blocks of built-up areas (polygon)	Polygon for enclosed coherent quarters, buildings with several floors. Lower buildings may be included. A built-up may be open in certain places to allow transport to and from the interior. Three sides of the precinct should be almost closed. All associated land, such as roads, car parks and land with buildings, is included.	presented for one or several completely adjacent precincts of high built-up areas. Parts of precincts may also be presented if the area is greater than about 1 ha.
MY_XXXXX	BEBIND	Industrial area (polygon)	ID point for land area on which there are mainly industrial activities. All associated land, such as roads, car parks, storage places and land with buildings, is included.	presented for one or several completely adjacent precincts of industrial area. Parts of precincts may also be presented if the area is greater than about 1 ha.
MY_XXXXX	ODLÅKER	Arable land (polygon)	Polygon for land that has been ploughed for the cultivation of cereals, pasturage facilities, oil seeds, root crops and vegetables, but not fruit or berries grown on trees. The term also includes pasture land which is occasionally ploughed up and sown, similar arable land included in the crop rotation and land used for the production of energy woods. Hay meadows and gardens in connection with dwellings are not included. Arable land lying fallow is presented as fields.	The minimum dimension for display is approximately 900 m ² . Minimum dimensions for showing impediments is approximately 100 m ² . Minimum width for long, narrow impediments is about 5 m. Minimum width for long, narrow impediments where a road separates cultivated land is about 10 m.
MY_XXXXX	ODLFRUKT	Fruit cultivation/seedlings (polygon)	Polygon for land used for cultivating fruit and berries on trees.	The minimum dimension for displaying this is about 2 ha. Fruit cultivation which covers an area of between 900 m ² and about 2 hectares is presented as land. In cases where several small fruit cultivations are very close to each other, the total surface area of these can be calculated and show every included surface as fruit cultivation, of even if each

Layer name	Detail type	Name	Description	Selection
				part surface does not maintain minimum dimension.
MY_XXXXX	ÖPMARK	Other open land (polygon)	Polygon for other open land, which can also distinguish between other open land and bare mountain region.	Area for other open land where the vegetation is lower than 1.5 m. Cultivated land that has been tree planted or been bushed. Low productive pastures, open land and gardens, allotments, sandy shorelines and cobblestone fields. Also land for special purposes as slalom slope, shooting gallery, gravel pit and quarry is included. Areas at the coast with bare cliffs near water is also classified as open land.
MY_XXXXX	ÖPKFJÄLL	Bare mountains (polygon)	Polygon for bare mountains, including all land above the tree line except for water surface and glacier.	The minimum dimension for displaying this is about 1 ha.
MY_XXXXX	ÖPGLAC	Glacier (polygon)	Polygon for areas which are permanently covered with ice.	The minimum dimension for displaying this is about 2 ha. Separate parts of a larger glacier are presented if they are larger than approximately ½ hectare. Permanently clear mountain/solid land that is larger than about ½ hectare is distinguished from the glacier. Small parts of clear mountain/solid land may be included in the glacier. The collection is made on the basis of the information provided by the Department of Physical Geography at Stockholm University.
MY_XXXXX	SKOGBARR	Coniferous and mixed forest (polygon)	Polygon for land with conifers or with mixed coniferous and deciduous trees, including wooded park land which also includes cleared land. All types of trees and bushes may be included.	The minimum dimension for display is approximately 900 m ² . Small surfaces may occur on islands in water and impediments in fields. See water polygon (VATTEN), and fields (ODLÅK).
MY_XXXXX	SKOGLÖV	Deciduous forest (polygon)	Polygon for wooded land where the trees' canopy consists mainly of pure deciduous forest in a continuous area, in which cleared areas are also included. The proportion of deciduous forest must be at least 90-95%.	The minimum dimension for displaying this is about 8 ha. Special small areas with broad-leaved deciduous trees of at least about 4 ha are also presented. Smaller surfaces can occur on islands in water and impediments in fields within a deciduous forest area. See water polygon (VATTEN), and fields (ODLÅK).
MY_XXXXX	SKOGBFJ	Mountain birch forest (polygon)	Polygon for forest land that starts above the coniferous tree upper limit (individual conifers may occur) and extends up to the boundary	The minimum dimension for displaying this is about 8 ha. Areas (approximately 8 ha) with a mixture of small surfaces with open land and

Layer name	Detail type	Name	Description	Selection
			of bare mountains. Above the mountain birch forest upper limit there may be groves of individual trees.	mountain birch forest adjacent to homogeneous mountain birch forest areas may also be presented.
MY_XXXXX	MRKO	Non-mapped area (polygon)	Polygon for non-mapped area.	Presented in full.
MY_XXXXX	MRKÖVR	Other land, unclassified (polygon)	Polygon for unclassified land.	
MY_XXXXX	ÖPTORG	Square (Polygon)	Polygon for a square, which is an open area intended for occasional trade and sometimes also for meeting activities etc.	presented as square with name within a built-up area. The names come from municipalities and are presented as a text with detail type ANLTX.

Set of attributes

No.	Attribute	Type Shape	Length shape	Type MapInfo	Length MapInfo	Description
1	DETALJTYP	Text	10	Text	10	Code for detail type
2	ADAT	Text	16	Text	16	Date/time of last change. NB not necessarily the latest update. Stated in format: 2005-10-11 12:04

6.3.7 MA Polygon layer with cultivated land

Contains polygons for cultivated land. Cultivated land that extends over the grid of 10 km squares in the Property Map is divided into several polygons. (One polygon per 10 km square)

Layer name	Detail type	Name	Description	Selection
MA_XXXXX	ODLÅKER	Arable land (polygon)	Polygon for land that has been ploughed for the cultivation of cereals, pasturage facilities, oil seeds, root crops and vegetables, but not fruit or berries grown on trees. The term also includes pasture land which is occasionally ploughed up and sown, similar arable land included in the crop rotation and land used for the production of energy woods. Hay meadows and gardens in connection with dwellings are not included. Arable land lying fallow is presented as fields.	The minimum dimension for display is approximately 900 m ² . Minimum dimensions for showing impediments is approximately 100 m ² . Minimum width for long, narrow impediments is about 5 m. Minimum width for long, narrow impediments where a road separates cultivated land is about 10 m.
MA_XXXXX	ODLFRUKT	Fruit cultivation/seedlings (polygon)	Polygon for land used for cultivating fruit and berries on trees.	The minimum dimension for displaying this is about 2 ha. Fruit cultivation which covers an area of between 900 m ² and about 2 hectares is presented as land. In cases where several small

				fruit cultivations are very close to each other, the total surface area of these can be calculated and show every included surface as fruit cultivation, of even if each part surface does not maintain minimum dimension.
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Set of attributes

No.	Attribute	Type Shape	Length shape	Type MapInfo	Length MapInfo	Description
1	DETALJTYP	Text	10	Text	10	Code for detail type
2	ADAT	Text	16	Text	16	Date/time of last change. NB not necessarily the latest update. Stated in format: 2005-10-11 12:04

6.3.8 MB Polygon layer with built-up areas

Contains polygons for built-up areas. Built-up areas that extend over the grid of 10 km squares in the Property Map are divided into several polygons. (One polygon per 10 km square)

Layer name	Detail type	Name	Description	Selection
MB_XXXXX	BEBLÅG	Low built-up area (polygon)	Polygon for dense low built-up area, which consists of planned precinct formation with detached one-family and two-family houses, terraced houses, chain linked houses or multi-family apartment buildings with no more than two floors. Individual higher buildings may be included. All associated land, such as roads, car parks and land with buildings, is included.	presented for one or several completely adjacent precincts of low built-up area. Parts of precincts may also be presented if the area is greater than about 1 ha. Allotment area is presented as low built-up if it is within a locality and the allotments have buildings of more than 15 m ² .
MB_XXXXX	BEBHÖG	High built-up areas (polygon)	Polygon for detached high built-up areas with apartment blocks of three floors or more. Lower buildings may occur. All associated land, such as roads, car parks and land with buildings, is included.	presented for one or several completely adjacent precincts of high built-up areas. Parts of precincts may also be presented if the area is greater than about 1 ha.
MB_XXXXX	BEBSLUT	Blocks of built-up areas (polygon)	Polygon for enclosed coherent quarters, buildings with several floors. Lower buildings may be included. A built-up may be open in certain places to allow transport to and from the interior. Three sides of the precinct should be almost closed. All associated land,	presented for one or several completely adjacent precincts of high built-up areas. Parts of precincts may also be presented if the area is greater than about 1 ha.

Layer name	Detail type	Name	Description	Selection
			such as roads, car parks and land with buildings, is included.	
MB_XXXXX	BEBIND	Industrial area (polygon)	ID point for land area on which there are mainly industrial activities. All associated land, such as roads, car parks, storage places and land with buildings, is included.	presented for one or several completely adjacent precincts of industrial area. Parts of precincts may also be presented if the area is greater than about 1 ha.
MB_XXXXX	ÖPTORG	Square (polygon)	Polygon for a square, which is an open area intended for occasional trade and sometimes also for meeting activities etc.	presented as square with name within a built-up area. The names come from municipalities and are presented as a text with detail type ANLTX.

Set of attributes

No.	Attribute	Type Shape	Length shape	Type MapInfo	Length MapInfo	Description
1	DETALJTYP	Text	10	Text	10	Code for detail type
2	ADAT	Text	16	Text	16	Date/time of last change. NB not necessarily the latest update. Stated in format: 2005-10-11 12:04

6.3.9 MO Polygon layer with open land and forests

Contains polygons for open land and forests. Open land and forests that extend over the grid of 10 km squares in the Property Map are divided into several polygons. (One polygon per 10 km square)

Layer name	Detail type	Name	Description	Selection
MO_XXXXX	ÖPMARK	Other open land (Polygon)	Polygon for other open land, which can also distinguish between other open land and bare mountain region.	Surface for other open land where the vegetation is lower than 1.5 m. Cultivated land that has been tree planted or been bushed. Low productive pastures, open land and gardens, allotments, sandy shorelines and cobblestone fields. Also land for special purposes as slalom slope, shooting gallery, gravel pit and quarry is included. Areas at the coast with bare cliffs near water is also classified as open land.
MO_XXXXX	ÖPKFJÄLL	Bare mountains (Polygon)	Polygon for bare mountains, including all land above the tree line	The minimum dimension for displaying this is about 1 ha.

Layer name	Detail type	Name	Description	Selection
			except for water surface and glacier.	
MO_XXXXX	ÖPGLAC	Glacier (Polygon)	Polygon for areas which are permanently covered with ice.	The minimum dimension for displaying this is about 2 ha. Separate parts of a larger glacier are presented if they are larger than approximately ½ hectare. Permanently clear mountain/solid land that is larger than about ½ hectare is distinguished from the glacier. Small parts of clear mountain/solid land may be included in the glacier. The collection is made on the basis of the information provided by the Department of Physical Geography at Stockholm University.
MO_XXXXX	SKOGBARR	Coniferous and mixed forest (polygon)	Polygon for land with conifers or with mixed coniferous and deciduous trees, including wooded park land which also includes cleared land. All types of trees and bushes may be included.	The minimum dimension for display is approximately 900 m ² . Small surfaces may occur on islands in water and impediments in fields. See water polygon (VATTEN), and fields (ODLÅK).
MO_XXXXX	SKOGLÖV	Deciduous forest (Polygon)	Polygon for wooded land where the trees' canopy consists mainly of pure deciduous forest in a continuous area, in which cleared areas are also included. The proportion of deciduous forest must be at least 90-95%.	The minimum dimension for displaying this is about 8 ha. Special small areas with broad-leaved deciduous trees of at least about 4 ha are also presented. Smaller surfaces can occur on islands in water and impediments in fields within a deciduous forest area. See water polygon (VATTEN), and fields (ODLÅK).
MO_XXXXX	SKOGFBJ	Mountain birch forest (Polygon)	Polygon for forest land that starts above the coniferous tree upper limit (individual conifers may occur) and extends up to the boundary of bare mountains. Above the mountain birch forest upper limit there may be groves of individual trees.	The minimum dimension for displaying this is about 8 ha. Areas (approximately 8 ha) with a mixture of small surfaces with open land and mountain birch forest adjacent to homogeneous mountain birch forest areas may also be presented.
MO_XXXXX	MRKO	Non-mapped area (polygon)	Polygon for non-mapped area.	Presented in full.
MO_XXXXX	MRKÖVR	Other land, unclassified (polygon)	Polygon for unclassified land.	

Set of attributes

No.	Attribute	Type Shape	Length shape	Type MapInfo	Length MapInfo	Description
1	DETALJTYP	Text	10	Text	10	Code for detail type
2	ADAT	Text	16	Text	16	Date/time of last change. NB not necessarily the latest update. Stated in format: 2005-10-11 12:04

6.3.10 MS Polygon layer with marshland

Contains polygons for marshland. Marshland that extends over the grid of 10 km squares in the Property Map is divided into several polygons. (One polygon per 10 km square)

Layer name	Detail type	Name	Description	Selection
MS_XXXXX	SANK	Marshland (Polygon)	Polygon for marshland. Commonly peat forming fen with shrubs and grass sedge. The area is usually accessible for walking. Can be covered by trees or completely free from trees as well as just a few trees.	The minimum dimension for displaying this is about 2500 m ² . Dried marshland that have been used for forestry is not classified as marshland.
MS_XXXXX	SANKSVÅ	Marshland, almost impassable (Polygon)	Polygon for marshland that is hard to access. The area is usually hard to access and can be waterlogged. Peat forming watery fens and soft bed without vegetation. Overgrown lakes with reed. Can be covered by trees or completely free from trees as well as just a few trees.	The minimum dimension for displaying this is about 2500 m ² . Dense permanent reed areas is presented as marshland that is hard to access. Dry areas or drained marshland, which has become productive forest land, is not classified as marshland.

Set of attributes

No.	Attribute	Type Shape	Length shape	Type MapInfo	Length MapInfo	Description
1	DETALJTYP	Text	10	Text	10	Code for detail type
2	ADAT	Text	16	Text	16	Date/time of last change. NB not necessarily the latest update. Stated in format: 2005-10-11 12:04

6.4 Hydrography

This product provides three different layers with information about hydrography.

Hydrography	Layer name
Hydrography (lines)	HL
Hydrography (point)	HS
Water - lakes and large watercourses (polygons)	MV

6.4.1 Data capture

Lineage

For the original history, refer to Ch. 2.2.1.

Information about certain objects (e.g. water, shoals and islets) along the coast and in the large lakes has been collected in cooperation with the Swedish Maritime Administration within the National Shoreline project [Nationell Strandlinje \(NSL\)](#). The aim has been to produce a joint shoreline. For more information, see [Sjöfartsverket](#).

Between 1995 and 2004, shorelines were measured through stereo mapping. They are currently being updated in the NSL project as well through normal updating at Lantmäteriet.

Shoals and islets are measured photogrammetrically, with the exception of a few that are measured geodetically by the Swedish Maritime Administration. The collection of NSL objects started in 2005 and is expected to be completed by 2020.

In the current Property Map, many of the rivers and streams in forests are remnants from the earlier Economic map.

Direction of flow arrows, water pipes/water channels, waterfalls and rapids are based on field work from the Economic map and the building up of the Basic Geographic Data (GGD).

6.4.2 Maintenance frequency

Lantmäteriet updates hydrography objects periodically with the help of aerial image interpretation in accordance with the aerial photography intervals in the [bildförsörjningsprogrammet](#).

How updated the hydrography objects are also depends on earlier data collection through field work for the objects that have not changed since then.

6.4.3 Data quality

Completeness

For lakes and large watercourses, waterfalls and flow direction arrows, completeness is very high.

Shoals and islets have very high completeness in NSL map areas, whereas in other areas these objects are not included.

Brooks and rapids have high completeness.

Water pipes/water channels have low completeness since they are difficult to update.

Logical consistency

Lakes and large watercourses are polygons.

Streams are coherent and connect to lakes and large watercourses, but in order to obtain a complete network, refer to the service [Hydrografi nedladdning](#).

Flow direction arrows, shoals and islets, waterfalls, water pipes/water channels and rapids are independent objects and are not connected to other objects.

Thematic accuracy

The thematic accuracy between objects is very high in all layers for hydrography.

Positional accuracy

The shore line is measured at normal water level, except in regulated lakes and rivers when it is measured at the maximum damming limit. The position of the shoreline may vary due to different water levels. Updating is only carried out when it is clear that there has been a major lasting change.

The positional accuracy of streams is high in open areas, but is varied in forest areas where it is difficult to see through the canopy. Large errors regarding streams are gradually being corrected using laser/height data in forest areas.

Other hydrographic objects have very high positional accuracy.

Requirements for object types' positional accuracy

Object type	Requirements for positional accuracy in plane (m)
Water	10
Shoal	2
Islet	2
Stream/Ditch	5
Waterfall	5
Water pipe/water channel	5
Rapids	-
Flow direction arrow	-

6.4.4 HL Line layer with hydrography

Contains watercourses < 6 m. Large watercourses are presented as water (lakes and large watercourses) and are included in the land data layer.

Restrictions

The layer is not suitable for structural processing.

Layer name	Detail type	Name	Description	Selection
HL_XXXXX	VATTDR.M	Stream/ditch	Centre line for visible watercourses narrower than about 6 m which are	The shortest distance presented for watercourses not connecting hydrographic

Layer name	Detail type	Name	Description	Selection
			included in a run-off system.	map objects (e.g. lakes and marsh land) is 250 m. On fields and marshlands where there is a network of streams, only main drains are reported. The cross ditches are included in cases where they dewater other areas. In the coverage area for Mountain Map 1:50,000 and Mountain Map 1:100,000, a simplified display is applied.
HL_XXXXX	VATTF.K	Waterfall	Edge line where water falls freely from a cliff or threshold in the watercourse.	Complete display in watercourse that is at least about 20 m wide. In narrow watercourses down to about 6 m, only significant waterfalls are presented.
HL_XXXXX	VTUB.M	Water pipe/water channel	Centre line for Water pipe/water channel or rafting chute above the surface of the land.	All water pipes or water channels included in or connecting to presented watercourses and at least about 200 meters long.
HL_XXXXX	FORS.M	Rapids, centre line	Centre line for rapids section of water that is presented as a water surface.	presented in watercourses wider than 6 m (double line) so that the character and navigability of the watercourse are apparent. The minimum length for displaying this is about 50 m.

Set of attributes

No.	Attribute	Type Shape	Length shape	Type MapInfo	Length MapInfo	Description
1	DETALJTYP	Text	10	Text	10	Code for detail type
2	ADAT	Text	16	Text	16	Date/time of last change. NB not necessarily the latest update. Stated in format: 2005-10-11 12:04
3	XYFEL	Decimal	6.0	Decimal	6.0	Mean square error in stated measurement method. Stated in unit mm. The value varies between 25 – 999,999. 0 is treated as a null value.

6.4.5 HS Point Layer with hydrography

Contains symbols that represent flow directions and hydrographic objects presented as points. Detail types such as Underwater rock and Rock above water are only presented in NSL areas.

Layer name	Detail type	Name	Description	Selection
HS_XXXXX	VATTPIL.S	Flow direction arrow →	Symbol for flow direction in water surface or along water courses.	presented for watercourses which are 6 m or wider (double line). presented in such numbers that the direction of flow can be seen.
HS_XXXXX	VATTRKT.S	Flow direction arrow >	Symbol for the flow direction in watercourses narrower than 6 m (single line).	presented in such numbers that the direction of flow can be seen.
HS_XXXXX	BRÄNNING.C	Shoal*	A fixed land mass between 2 dm above to 5 dm below the applicable reference level.	Only presented within NSL areas. Shoals that are further than 10 m from the shoreline must be presented.
HS_XXXXX	ÖVSTEN.C	Islet *	A fixed land mass over 2 dm above the applicable reference level.	Only presented within NSL areas. All islands and islets that are less than 20 m ² are included. Large islands are presented with detail type for Shoreline or Shoreline, diffuse. (Refer to ML layer) Islets that are further than 10 m from the shoreline must be presented.

* Included as an object in the National shoreline, NSL.

Set of attributes

No.	Attribute	Type Shape	Length shape	Type MapInfo	Length MapInfo	Description
1	DETALJTYP	Text	10	Text	10	Code for detail type
2	SRIKT	Decimal	8.2	Decimal	8.2	Symbol orientation. Unit: degrees (0.00 – 360.00, increasing counter-clockwise) 0.00=Unoriented symbol.
3	ADAT	Text	16	Text	16	Date/time of last change. NB not necessarily the latest update. Stated in format: 2005-10-11 12:04
4	XYFEL	Decimal	6.0	Decimal	6.0	Mean square error in stated measurement method. Stated in unit mm. The value varies between 25 – 999,999. 0 is treated as a null value.

6.4.6 MY Polygon layer with water (lakes and large watercourses)

Contains polygons for lakes and large watercourses. If a polygon extends over the grid of 10 km squares in the Property Map, it is divided into several polygons. (One polygon per 10 km square)

Layer name	Detail type	Name	Description	Selection
MV_XXXXX	VATTEN	Water (lakes and large watercourses)	Polygon of sea, lake, dam or water.	<p>The minimum dimension for display is surfaces greater than about 400 m² and watercourses at least 6 m wide. Water-filled sludge basins, settling basins, basins, tarns and small mining pits are also included. Islands are distinct from the water surface if they are 20 m² or larger. In NSL areas, islands of less than 20 m² are presented in the detail type Rock above water.</p> <p>If possible the water surface should be presented at normal water level. Reed areas, silt deposits and so on, which are generally below the normal water level, are presented as water surface. Regulated water surfaces, such as reservoirs, are delimited at the highest dammed level. If the water level was low at the time of photographing, the highest dammed level is presented if it is possible to interpret.</p> <p>Since the position of the shoreline is interpreted from aerial images, the height level may deviate from the damming limit in a water judgement.</p>

Set of attributes

No.	Attribute	Type Shape	Length shape	Type MapInfo	Length MapInfo	Description
1	DETALJTYP	Text	10	Text	10	Code for detail type
2	ADAT	Text	16	Text	16	Date/time of last change. NB not necessarily the latest update. Stated in format: 2005-10-11 12:04

6.5 Others

This theme of the Property Map provides information on nature conservation, height information, military zones, place names and information text. There are different types of regulations that may apply to different geographical areas. Examples of such regulations are those for nature reserves, animal protection areas or military regulations for training fields. Height information included is in the form of contours that are equidistant every 5 metres. In internal Norrland they are equidistant at 10 metres and in some cases even 20 metres. Height contours are obtained from scanned part original documents and as a result they have no height values.

Lantmäteriet is a national place name agency, which means that we must operate in accordance with the Cultural Environment Act Chapter 1 Section 4, Good place name practice. The paragraph states that "good place name practice" must be observed in all state and municipal place name activities. This means, among other things, that we must not change traditional place names without good reasons.

In addition, place names must normally be spelt according to the accepted rules of Swedish language accuracy. Place names in Swedish, Finnish, Meänkieli and Sami must be used at the same time in our multilingual areas.

Place names presented on the Property Map are normalised, reviewed and established by Lantmäteriet.

Others	Layer name
Nature conservation (lines)	NL
Nature conservation (polygons)	NY
Nature conservation symbols (point)	NS
Height contours (lines)	OH
Height information (point)	OS
Height (text)	OT
Military zones (lines)	QL
Military zones (polygons)	QY
Place names and information text (text)	TX

6.5.1 Data capture

Lineage

Nature conservation

Information on nature conservation areas is obtained through collaboration with the Swedish Environmental Protection Agency. The Swedish Environmental Protection Agency in turn receives information from each county administrative board. The areas have been digitized by the county administrative boards using existing real property boundaries and aerial photographs. New nature conservation areas are measured in the field using GPS, but some of the older areas have also been measured using other high accuracy measurement methods or GPS.

Military zones

Older decisions on boundary lines for military zones have been digitized from paper maps. Some updating has been carried out using information from the Swedish Fortifications Agency, among other sources. A thorough establishment of boundary lines has been carried out between 2011 and 2017 for those military zones which are still used by the Swedish Armed Forces.

Place names

The collection of place names began during the production of the Economic map in the 1930s. Place names established by Lantmäteriet have also been collected through field work with records, in which the local population have passed on information. The names have subsequently been checked by place name experts and compared to records in the place name archives in Uppsala, Gothenburg and Lund.

Since the field work was completed in 2004, collaboration between the various authorities and municipalities has become a major part of the current collection of place names for basic data at Lantmäteriet.

Place names established by the government, county administrative boards or municipalities are delivered as attributes to objects via collaboration agreements. These place names are scrutinised by Lantmäteriet's place names unit before they are published.

Information text

presented on the basis of a list of information text that has changed over time. The purpose of the information text is to give the data or map user further information on matters of public interest.

Contour lines

The digital contour lines are generated by scanning the original contours from 1:50,000 maps.

6.5.2 Maintenance frequency

Nature conservation

Information is updated every month with changes. The change date (ADAT) is the date when the information was put into Lantmäteriet's database. The date of decision is kept by the Swedish Environmental Protection Agency, [skyddad natur](#).

Military zones

Continuous updating for changes. Changes are delivered by the Swedish Armed Forces.

The change date (ADAT) is the date when the information was last changed. The decision/creation date is kept by the Swedish Armed Forces.

Place names and information text

Place names and information text are continuously updated, place names by name decisions and information text by ongoing updating of topographical objects.

Text coming in through collaboration is updated at the delivery time for each object.

Contour lines

Contour lines are not updated.

6.5.3 Data quality

Completeness

Nature conservation

The areas have very high completeness and are presented in accordance with the decision of the County Administrative Board.

Military zones

The areas have very high completeness.

Place names and information text

Place names have high completeness and are nationwide. In minority areas place names are also presented in Finnish, Meänkieli and Sami.

Information text has high completeness and is nationwide.

Contour lines

The distance is 5 meter except for inner Norrland where the distance is 10 meters. In some few cases even 20 meters.

*Logical consistency***Nature conservation**

Nature reserves do not overlap national parks and nature conservation areas.

Military zones

Military zones are independent objects that are not connected to any other objects.

Place names and information text

Place names and information text that is printed as cartographic text have no connection to the objects that the text refers to.

Information text

Information texts are independent texts which cannot be linked to an object.

There are different categories of information text, such as NATUTX and MILUTX. The categories are used according to the theme that the information text describes; see Chapter 6.5.12 TX Text layer with place names and information text.

Contour lines

There is no logical structure. Contour lines are only for visual use. Contour lines have no height values.

*Thematic accuracy***Nature conservation**

presented in full, in accordance with decisions by the County Administrative Board.

Military zones

Presented in full.

Place names

Place names are presented in full and checks with Lantmäteriet's place names register are carried out continuously.

Information text

Text information is presented in accordance with the relevant list.

Contour lines

Thematic accuracy is not relevant to contour lines.

*Positional accuracy***Nature conservation**

Older areas have the same positional accuracy as real property boundaries. Where more recent measurements have been made by GPS, positional accuracy is at least 5 m in plane.

Military zones

Older boundary lines have approximately the same positional accuracy as the real property limits we have tried to follow. Where more recent measurements have been made by GPS positional accuracy is normally better than 5 m and where measurements have been carried out using network RTK positional accuracy is normally better than 1 decimetre.

The boundary lines on the map show the approximate position of boundaries for an artillery range or a training ground. It is always the signs put up in terrain by the Swedish Armed Forces which determine where the actual boundary is.

Boundary lines normally follow the real property division boundaries. Sometimes there may be a certain discrepancy between the boundaries. Usually this is because the collection of boundary lines for military zones was not made at the same time as the collection of real property boundaries. The collection of boundaries may also have taken place by methods with different positional accuracy.

Place names and information text

Place names and information text are laid out as cartographic texts, so positional accuracy is not relevant.

Contour lines

Contour lines show a visual height position, so positional accuracy is not relevant.

Requirements for object types' positional accuracy

Object type	Requirements for positional accuracy in plane (m)
National park	5
Nature reserve	5
Natural monument area	5
Cultural monument reserve	5
Animal protection area	5
Natural monument	5
Other nature conservation object	5
Biological natural monument (information symbol)	-
Geological natural monument (information symbol)	-
Military artillery range	20
Military training field	5

6.5.4 NL Line layer with nature conservation

Contains boundary lines for nature conservation.

Layer name	Detail type	Name	Description	Selection
NL_XXXXX	NATPARK.B	National park	Polygon for national park in accordance with the Environmental Code (SFS 1998:808) Chapter 7 Section 2 or corresponding older regulations.	presented in full, in accordance with decisions by the government. National Parks are always presented with their name, e.g. Abisko nationalpark (NATTX). In cases where the name form from the government does not correspond with the Lantmäteriet's normative name form, the only information text presented is National Park (NATUTX).
NL_XXXXX	NATRES.B	Nature reserve	Polygon for nature reserve in accordance with the Environmental Code (SFS 1998:808) Chapter 7 Section 4 or corresponding older regulations.	presented in full, in accordance with decisions by the County Administrative Board. Nature reserves are always presented with their name, e.g. Agnäs naturreservat (NATTX). In cases where the name form from the County Administrative Board does not correspond with the Lantmäteriet's normative name form, the only information text presented is Nature Reserve (NATUTX).
NL_XXXXX	NATM.B	Natural monument area	Polygon for an area in which one or more natural monuments are located.	presented in full, in accordance with decisions by the County Administrative Board.
NL_XXXXX	KULTRES.B	Cultural monument reserve	Polygon for culture monument reserve in accordance with the Environmental Code (SFS 1998:808) Chapter 7 Section 9.	presented in full, in accordance with decisions by the County Administrative Board.
NL_XXXXX	DJURSKY.B	Animal protection area	Polygon for animal protection in accordance with the Environmental Code (SFS 1998:808) Chapter 7 Section 12 or corresponding older regulations.	presented in full, in accordance with decisions by the County Administrative Board. presented together with the information text Bird Protection Area, Seal Protection Area or Animal Protection Area (NATUTX).

Set of attributes

No.	Attribute	Type Shape	Length shape	Type MapInfo	Length MapInfo	Description
1	DETALJTYP	Text	10	Text	10	Code for detail type
2	ADAT	Text	16	Text	16	Date/time of last change. NB not necessarily the latest update. Stated in format: 2005-10-11 12:04
3	XYFEL	Decimal	6.0	Decimal	6.0	Mean square error in stated measurement method. Stated in unit mm. The value varies between 25 – 999,999. 0 is treated as a null value.

6.5.5 NY Polygon layer with nature conservation

Contains polygons for nature conservation.

Layer name	Detail type	Name	Description	Selection
NY_XXXXX	NATDSY	Animal protection area	Polygon for animal protection in accordance with the Environmental Code (SFS 1998:808) Chapter 7 Section 12 or corresponding older regulations.	presented in full, in accordance with decisions by the County Administrative Board. presented together with the information text Bird Protection Area, Seal Protection Area or Animal Protection Area (NATUTX).
NY_XXXXX	NATKRESY	Cultural monument reserve	Polygon for culture monument reserve in accordance with the Environmental Code (SFS 1998:808) Chapter 7 Section 9.	presented in full, in accordance with decisions by the County Administrative Board.
NY_XXXXX	NATNMY	Natural monument area	Polygon for an area in which one or more natural monuments are located.	presented in full, in accordance with decisions by the County Administrative Board.
NY_XXXXX	NATPARK	National park	Polygon for national park in accordance with the Environmental Code (SFS 1998:808) Chapter 7 Section 2 or corresponding older regulations.	presented in full, in accordance with decisions by the government. National Parks are always presented with their name, e.g. Abisko nationalpark (NATTX). In cases where the name form from the government does not correspond with the Lantmäteriet's normative name form, the only information text presented is National Park (NATUTX).
NY_XXXXX	NATRES	Nature reserve	Polygon for nature reserve in accordance with the Environmental Code (SFS 1998:808) Chapter 7 Section 4 or corresponding older regulations.	presented in full, in accordance with decisions by the County Administrative Board. Nature reserves are always presented with their name, e.g. Agnäs naturreservat (NATTX). In cases where the name form from the County Administrative Board does not correspond with the Lantmäteriet's normative name form, the only information text presented is Nature Reserve (NATUTX).

Set of attributes

No.	Attribute	Type Shape	Length shape	Type MapInfo	Length MapInfo	Description
1	DETALJTYP	Text	10	Text	10	Code for detail type

No.	Attribute	Type Shape	Length shape	Type MapInfo	Length MapInfo	Description
2	DSTYP	Decimal	5.0	Decimal	5.0	Type of animal protection: 0=no info., 1=bird protection, 2=animal protection
3	NVID	Text	7	Text	7	Nature conservation ID County+type+serial no. 2+2+3. Type code: National park=01; e.g. "210113"
4	ADAT	Text	16	Text	16	Date/time of last change. NB not necessarily the latest update. Stated in format: 2005-10-11 12:04
5	BESK	Text	50	Text	50	Name/description: e.g. "Åtta almar"

6.5.1 NS Point layer with nature conservation symbols

Contains point symbols for small nature conservation objects. The layer also contains pure information symbols.

Layer name	Detail type	Name	Description	Selection
NS_XXXXX	NATM.C	Natural monument	Centre point for natural monument in accordance with the Environmental Code (SFS 1998:808) Chapter 7 Section 10 or corresponding older regulations.	presented in full, in accordance with decisions by the County Administrative Board.
NS_XXXXX	ÖVRNAT.C	Other nature conservation object	Natural object not protected by the law but still of importance and therefore of general interest.	presented for cave, giant's kettles, springs and viewpoints. presented together with name (TERRTX) or information text (TERRUTX).
NS_XXXXX	NATMBIO.S	Biological natural monument (information symbol)	Point for information symbol by biological natural monument in accordance with the Environmental Code (SFS 1998:808) Chapter 7 Section 10 or corresponding older regulations.	presented in full, in accordance with decisions by the County Administrative Board.
NS_XXXXX	NATMGEO.S	Geological natural monument (information symbol)	Point for information symbol by geological natural monument in accordance with the Environmental Code (SFS 1998:808) Chapter 7 Section 10 or corresponding older regulations.	presented in full, in accordance with decisions by the County Administrative Board.

Set of attributes

No.	Attribute	Type Shape	Length shape	Type MapInfo	Length MapInfo	Description
1	DETALJTYP	Text	10	Text	10	Code for detail type
2	SRIKT	Decimal	8.2	Decimal	8.2	Symbol orientation. Unit: degrees (0.00 – 360.00, increasing counter-clockwise) 0.00=Unoriented symbol.
3	ADAT	Text	16	Text	16	Date/time of last change. NB not necessarily the latest update. Stated in format: 2005-10-11 12:04
4	XYFEL	Decimal	6.0	Decimal	6.0	Mean square error in stated measurement method. Stated in unit mm. The value varies between 25 – 999,999. 0 is treated as a null value.

6.5.2 OH Line layer for contours

Contains lines with height contours and dip contours, and cuttings.

Layer name	Detail type	Name	Description	Selection
OH_XXXXX	HÖJDK5	Height contour, normal	Normal height contour, with 5 meters height range. In inner Norrland and the mountain range there are also areas with 10 and 20 meter intervals respectively.	Is presented in a minimum height at 5 m.
OH_XXXXX	HÖJDK25	Height contour, support for each 25 m interval	In inner Norrland and the mountain range there are also areas with 50 and 100 meter intervals respectively.	Every fifth curve is presented as height curve with support for 25 m interval (within areas with 5 m distance).
OH_XXXXX	GROP5.K	Depression contour, normal	Depression contour normal, with 5 meters height range. In inner Norrland and the mountain range there are also areas with 10 and 20 meter intervals respectively.	Is presented at a depth of at least 5 m and a length of at least 100 m.
OH_XXXXX	GROP25.K	Depression contour, support for each 25 m interval	In inner Norrland and the mountain range there are also areas with 50 and 100 meter intervals respectively.	Every fifth curve is presented as a depression support curve at a depression depth of at least 5 m and a depression length of at least 100 m.
OH_XXXXX	SKÄRNING	Cutting	Cutting line at for example road, railway or opencast.	Is presented if the cutting is at least 5 m in height and 200 m in length. The minimum radius of circular cuttings is 50 m. Also included are quarries where

Layer name	Detail type	Name	Description	Selection
				refraction is taking place and abandoned quarries which is not fully waterfilled. Cutting slopes in gravel pits are not reported.

Set of attributes

No.	Attribute	Type Shape	Length shape	Type MapInfo	Length MapInfo	Description
1	DETALJTYP	Text	10	Text	10	Code for detail type

6.5.3 OS Point Layer for height contours

Contains symbols for hachuring.

Layer name	Detail type	Name	Description	Selection
OS_XXXXX	GROPSTRECK	Hachuring	Slope lines in natural pits.	Suitable number of slope lines for each 5 or 25m level.

Set of attributes

No.	Attribute	Type Shape	Length shape	Type MapInfo	Length MapInfo	Description
1	DETALJTYP	Text	10	Text	10	Code for detail type
2	SRIKT	Decimal	8.2	Decimal	8.2	Symbol orientation in degrees (0.00 – -360.00, increasing counter-clockwise) 0.00=unoriented symbol.

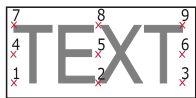
6.5.4 OT Text layer for height contours

Contains text that is delivered with height contours.

Layer name	Detail type	Name	Description	Selection
OT _ XXXXX	HÖJDKTX	Height contour number		

Set of attributes

No.	Attribute	Type Shape	Length shape	Type MapInfo	Length MapInfo	Description
1	TEXT	Text	40	Text	40	Text string
2	DETALJTYP	Text	10	Text	10	Code for detail type
3	TRIKT	Decimal	6.2	Decimal	6.2	Text orientation (0-360 counter-clockwise)

No.	Attribute	Type Shape	Length shape	Type MapInfo	Length MapInfo	Description
4	TJUST	Integer	1	Integer	1	Insertion point of text (0-9). Insertion point in decimal points. 
5	THOJD	Integer	4	Integer	4	Height value of text
6	TSPARR	Integer	3	Integer	3	Text spacing in per cent of original length of text string (0-100 %).

6.5.5 QL Line layer with military zones

A military artillery range is a military zone where dangerous activities take place, such as firing with live ammunition and blasting. Observe current alerts and barriers closely. The public may not access these areas when activities are taking place.

A military training field is a military zone where dangerous activities take place, such as driving with heavy vehicles, night driving, firing, grouping. Observe current barriers closely. The public may not access these areas when activities are taking place.

Some areas are continuously or intermittently closed off so that military units can practice their activities without the public being exposed to danger. See more at [Försvarsmakten](#) for further information.

Layer name	Detail type	Name	Description	Selection
QL_XXXXX	MILSKJU.B	Military artillery range	Polygon for area set aside as military artillery range.	Presented in full.
QL_XXXXX	MILÖVN.B	Military training field	Polygon for land area set aside as military training field.	Presented in full.

Set of attributes

No.	Attribute	Type Shape	Length shape	Type MapInfo	Length MapInfo	Description
1	DETALJTYP	Text	10	Text	10	Code for detail type
2	ADAT	Text	16	Text	16	Date/time of last change. NB not necessarily the latest update. Stated in format: 2005-10-11 12:04
3	XYFEL	Decimal	6.0	Decimal	6.0	Mean square error in stated measurement method. Stated in unit mm. The value varies between 25 – 999,999. 0 is treated as a null value.

6.5.6 QY Polygon layer with military zones

Contains polygons for military zones.

Layer name	Detail type	Name	Description	Selection
QY_XXXXX	MILSKJU	Military artillery range	Polygon for area set aside as military artillery range.	Presented in full.
QY_XXXXX	MILÖVN	Military training field	Polygon for land area set aside as military training field.	Presented in full.

Set of attributes

No.	Attribute	Type Shape	Length shape	Type MapInfo	Length MapInfo	Description
1	DETALJTYP	Text	10	Text	10	Code for detail type
2	ADAT	Text	16	Text	16	Date/time of last change. NB not necessarily the latest update. Stated in format: 2005-10-11 12:04
3	MO_ID	Text	6	Text	6	Swedish Armed Forces' ID for military zones. Format: MO+serial no. The ID can be used to connect with data from the Swedish Armed Forces.

6.5.7 TX Text layer with place names and information text

Contains cartographically placed text. Arial is recommended as the font.

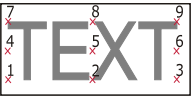
Layer name	Detail type	Name	Description	Selection
TX_XXXXX	ANLTX	Facility name	Name of plant or plant area. The plant could be a building, a collection of buildings or otherwise constructed area intended for production, service or recreation.	The names have been reviewed and established by Lantmäteriet's place names unit. E.g. names of airports, lighthouses, power facilities, hiking trails, boundary cairns, squares, sports facilities. The names of airports are presented in accordance with the list taken from AIP (Aeronautical Information Publication, list of airports). Airports presented with a name have facilities and run according to a timetable. Names of lighthouses are always presented in letters when there is a number in the name.
TX_XXXXX	ANLUTX	Information text, Facility	Information text for facilities and built-up areas.	presented in accordance with the established list of information texts.
TX_XXXXX	BEBTX	Name of built-up area	Name of built-up area. A built-up area is a building or a collection of buildings	The names have been reviewed and established by

Layer name	Detail type	Name	Description	Selection
			primarily for residential purposes or offices. E.g. names of villages, farms, smallholdings and other individual built-up areas. N.B! Names of localities may also be included in this detail type.	Lantmäteriet's place names unit.
TX_XXXXX	BEBTÄTTX	Place name for locality	Name of a built-up area.	The names have been reviewed and established by Lantmäteriet's place names unit. The name must be the traditional place name, such as: Gävle, Andersberg, Huskvarna, Norrhult, Klavreström or Svansjö sommarby. Statistics Sweden's delimitation of localities is used as a basis for giving an impression of the extent of a built-up area. A statistical locality, as defined by Statistics Sweden, is a continuous built-up area with at least 200 inhabitants and at most 200 m between buildings. E.g: Sundbyberg is included in the statistical locality of Stockholm, but the name of Sundbyberg is presented with the detail type BEBTÄTTX because it has more than 200 inhabitants. The name according to Statistics Sweden's statistical localities is presented only in the Overview Map with a scale of 1:250,000 as an attribute to the built-up area.
TX_XXXXX	KYRKATX	Church, name	Name of large church building, parish church, former parish church and parish church belonging to the Church of Sweden. Churches also include chapels (not burial chapels) and abandoned churches.	The names have been reviewed and established by Lantmäteriet's place names unit. The suffix kyrka (church) is always written after the name, e.g. Ovanåkers kyrka. The name of the church consists of the civil parish name in genitive form together with the main word kyrka, e.g. Vendels kyrka. The names have been reviewed and established by Lantmäteriet's place names unit.
TX_XXXXX	GLACIÄRTX	Name of a glacier	Name of a glacier.	The names have been reviewed and established by Lantmäteriet's place names unit.
TX_XXXXX	SANKTX	Name of marshland	Name of marshland	The names have been reviewed and established by Lantmäteriet's place names unit.
TX_XXXXX	VATTDELTX	Name of part of water (lakes and large watercourses)	Name of part of water. E.g. part of the sea, lake, sound or bay.	The names have been reviewed and established by Lantmäteriet's place names unit.

Layer name	Detail type	Name	Description	Selection
TX_XXXXX	VATTDRTX	Watercourse, name	Name of watercourse, rapids or waterfall.	The names have been reviewed and established by Lantmäteriet's place names unit.
TX_XXXXX	VATTTX	Name of lake	Name of sea or lake.	The names have been reviewed and established by Lantmäteriet's place names unit.
TX_XXXXX	KULTURTX	Name of ancient remains or cultural-historical remains	Name of ancient remains or other cultural-historical remains	For example, Uppsala högar.
TX_XXXXX	KULTURUTX	Information text, cultural-historical remains	Information text for ancient remains or other cultural-historical remains	presented in accordance with the established list of information texts.
TX_XXXXX	MILUTX	Information text, military zones	Information text for military zones	presented in accordance with the established list of information texts.
TX_XXXXX	NATTX	Name of the area protected under the Nature Conservation Act	Name of nature and culture reserve and nature protection areas that are protected by law.	Name established by the Government and the County Administrative Board for national park, nature reserve, domain reserve, culture reserve and seal protection area. In cases where the name does not correspond with Lantmäteriet's established place names, the place names unit is contacted who make an assessment of whether the name should be presented alone or only as information text.
TX_XXXXX	NATUTX	Information text, nature conservation	Information text for nature and culture reserves and nature protection areas that are protected by law.	presented in accordance with the established list of information texts.
TX_XXXXX	TERRTX	Terrain name	Name of natural and terrain phenomena.	The names have been reviewed and established by Lantmäteriet's place names unit.
TX_XXXXX	TERRUTX	Information text, nature and terrain phenomena	Information text for nature and terrain phenomenon.	presented in accordance with the established list of information texts.

Set of attributes

No.	Attribute	Type Shape	Length shape	Type MapInfo	Length MapInfo	Description
1	THOJD	Decimal	6.0	Decimal	6.0	Text height in the form of code. 0 is treated as a null value. The following font sizes are used when the text is adapted for presentation in a scale of 1:10,000:
2	DETALJTYP	Text	10	Text	10	Code for detail type
3	TRIKT	Decimal	8.2	Decimal	8.2	Text direction. Stated in unit degrees. (0.00 – 360.00, increasing counter-clockwise). 0.00=Undirected text
4	TJUST	Decimal	2.0	Decimal	2.0	Insertion point of text (0-9). Insertion point in decimal points.

No.	Attribute	Type Shape	Length shape	Type MapInfo	Length MapInfo	Description
						
5	THOJD	Decimal	6.0	Decimal	6.0	<p>Text height in the form of code. 0 is treated as a null value. The following font sizes are used when the text is adapted for presentation in a scale of 1:10,000:</p> <p>THOJD: 6 Size: 6 pt (1.59 mm)</p> <p>THOJD: 8 Size: 8 pt (2.12 mm)</p> <p>THOJD: 10 Size: 10 pt (2.65 mm)</p> <p>THOJD: 12 Size: 12 pt (3.18 mm)</p> <p>THOJD: 14 Size: 14 pt (3.71 mm)</p> <p>THOJD: 16 Size: 16 pt (4.24 mm)</p>
6	TSPARR	Decimal	6.0	Decimal	6.0	Text spacing in per cent of original length of text string (0-100 %).
7	TEXT	Text	64	Text	64	Text string
8	ADAT	Text	16	Text	16	Date/time of last change. NB not necessarily the latest update. Stated in format: 2005-10-11 12:04

7 List of changes

Version	Date	Reason and change from previous version
6.2.5	2019-07-02	In chapter 6.2.4, the text has been adjusted because of temporary handling in the production mainly of private roads.
6.2.4	2019-04-10	In chapter 6.5.5 has the text changed to only surface objects.
6.2.3	2019-02-28	In chapter 6.2.4, 6.2.6 and 6.2.7 has the selection for detail types for underpass been updated. In chapter 6.3.10 has the selection for the detail types SANK and SANKSVÅ been updated. In chapter 6.4.6 has the selection for the detail type VATTEN been updated.
6.2.2	2018-12-07	In chapter 5.1.3 and 5.1.4 Territorial border has changed to Territorial sea limit. In chapter 5.1.4 has the detail type 3DGR , Boundary for three-dimensional space been added. In chapter 6.1.5 have the description and selection been updated for the detail type FLYGBAN. In chapter 6.4.4 has the selection for detail type VATTD.R.M been updated. In chapter 6.1.6 has the description for detail type DAMMB.M been updated. In chapter 6.2.6 has the selection for detail type VANDLED been updated. In chapter 5.1.3 and 5.1.12 have more information about the cultivation boundary been added.
6.2.1	2018-06-29	Updated links
6.2	2018-05-23	In chapter 5.1.7 the heading has been changed and the description of the layer has been updated. The attribute TATID has been removed. In chapter 6.1.4 has the information about house number been added. The attribute HUSNR has been added. In chapter 6.3.5 has the detail type BEBID, ODLEJÅKID and OSPECID been removed. In chapter 6.3.6 has the detail type BEBYGG, ODLEJÅK and OSPEC (yta) been removed. In chapter 6.3.7 has the detail type ODLEJÅK been removed. In chapter 6.3.8 has the detail type BEBYGG been removed. In chapter 6.3.10 has the detail type SANKBLE been removed. In chapter 6.4.4 has the detail type VATTD.RU.M been removed. In chapter 6.5.4 has the detail type ÖVRRES.B been removed. In chapter 6.5.5 has the detail type NATORY been removed.
6.1	2017-12-19	Added font file for Gsdsmbo.ttf in chapter 3.1.2. Text corrected for PBL (2010:900) in chapter 6.1.4.
6.0	2017-11-02	New version supplemented with quality information. Appendix for drawing order have been added.

Appendix 1: Proposed drawing order of layers

The following drawing order is proposed, irrespective of the software program. When data is used in ArcMap, layers can be connected to the supplied LYR file that controls the order of drawing and what scale interval the different layers are presented in.

Layer name		Geometry	On	Set scale area of LYR file
Administrative name	AT	Text	X	1:15,050 and larger
Large scale register numbers	AX	Text	X	1:2,550 and larger
Register numbers	AR	Text	X	1:15,050 and larger
Place names and information text	TX	Text	X	1:15,050 and larger
Contour height text	OT	Text	X	Always presented
Text for rights and joint facilities (addition PBR)	RT	Text		1:15,050 and larger
Text for regulations (addition PBR)	ET	Text		1:15,050 and larger
Administrative symbols	AS	Point	X	1:5,050 and larger
Surveyed boundary points	AQ	Point		1:5,050 and larger
Joint properties and real properties, ID points	AI	Point		Not presented
Joint properties and real properties, points	AP	Point		Not presented
Administrative name, points (not MapInfo)	AT	Point		Not presented
Large scale register numbers, points (not MapInfo)	AX	Point		Not presented
Register numbers, points (not MapInfo)	AR	Point		Line
Place name, points (not MapInfo)	TX	Point	X	1:15,050 and larger
Railway symbols	JS	Point	X	1:15,050 and larger
Symbol for rights and joint facilities (addition PBR)	RI	Point		1:15,050 and larger
Symbol for regulations (addition PBR)	EI	Point		1:15,050 and larger
Railways	JL	Line	X	Always presented
Administrative boundaries (Cadastral Index Map)	AL	Line	X	1:25,050 and larger
Administrative boundaries (light background)	AL	Line		1:25,050 and larger

Layer name		Geometry	On	Set scale area of LYR file
Joint properties presented with centre lines	AM	Line	X	1:75,050 and larger
Other administrative boundaries	AO	Line	X	1:75,050 and larger
Power lines	KL	Line	X	1:100,050 and larger
Point objects for rights and joint facilities (addition PBR)	RS	Point		1:15,050 and larger
Point objects for regulations (addition PBR)	ES	Point		1:15,050 and larger
Lines for rights and joint facilities (addition PBR)	RO	Line		1:15,050 and larger
Lines for regulations (addition PBR)	EO	Line		1:15,050 and larger
Real properties and joint properties	AY	Polygon	X	Always on, but without portrayal
Other facilities	BO	Line	X	1:50,050 and larger
Other facilities or areas	BA	Polygon	X	1:50,050 and larger
Building symbols	BS	Point	X	1:50,050 and larger
Conventional sign for depression	OS	Point	X	1:50,050 and larger
Nature conservation	NL	Line	X	1:50,050 and larger
Road symbols	VS	Point	X	1:50,050 and larger
Military zone	QL	Line	X	1:50,050 and larger
Buildings	BY	Polygon	X	1:15,050 and larger
Ancient remains (Addition PBR)	LS	Point	X	1:50,050 and larger
Cultural/historical symbols (Addition PBR)	GS	Point	X	1:50,050 and larger
Nature conservation symbols	NS	Point	X	1:50,050 and larger
Other roads	VO	Line	X	1:50,050 and larger
Roads	VL	Line	X	Always presented
Hydrography symbols	HS	Point	X	1:50,050 and larger
Hydrography	HL	Line	X	1:50,050 and larger
Height contour lines	OH	Line	X	Always presented
Nature conservation polygons	NY	Polygon		Not presented
Military zone polygons	QY	Polygon		Not presented

Layer name		Geometry	On	Set scale area of LYR file
Polygons for rights and joint facilities (addition PBR)	RY	Polygon		1:50,050 and larger
Polygons for regulations (addition PBR)	EY	Polygon		1:50,050 and larger
Polygon classification points	MP	Point		Not presented
Land lines	ML	Line		Not presented
Cultivated land	MA	Polygon		Not presented
Marshland	MS	Area		Not presented
Open land and forest	MO	Polygon		Not presented
Buildings	MB	Polygon		Not presented
Water (lakes and large watercourses)	MV	Polygon		Not presented
Land types, all	MY	Polygon	X	Always presented
Locality polygons	AG	Polygon	X	Always presented
Municipality polygons	AK	Polygon	X	Always presented