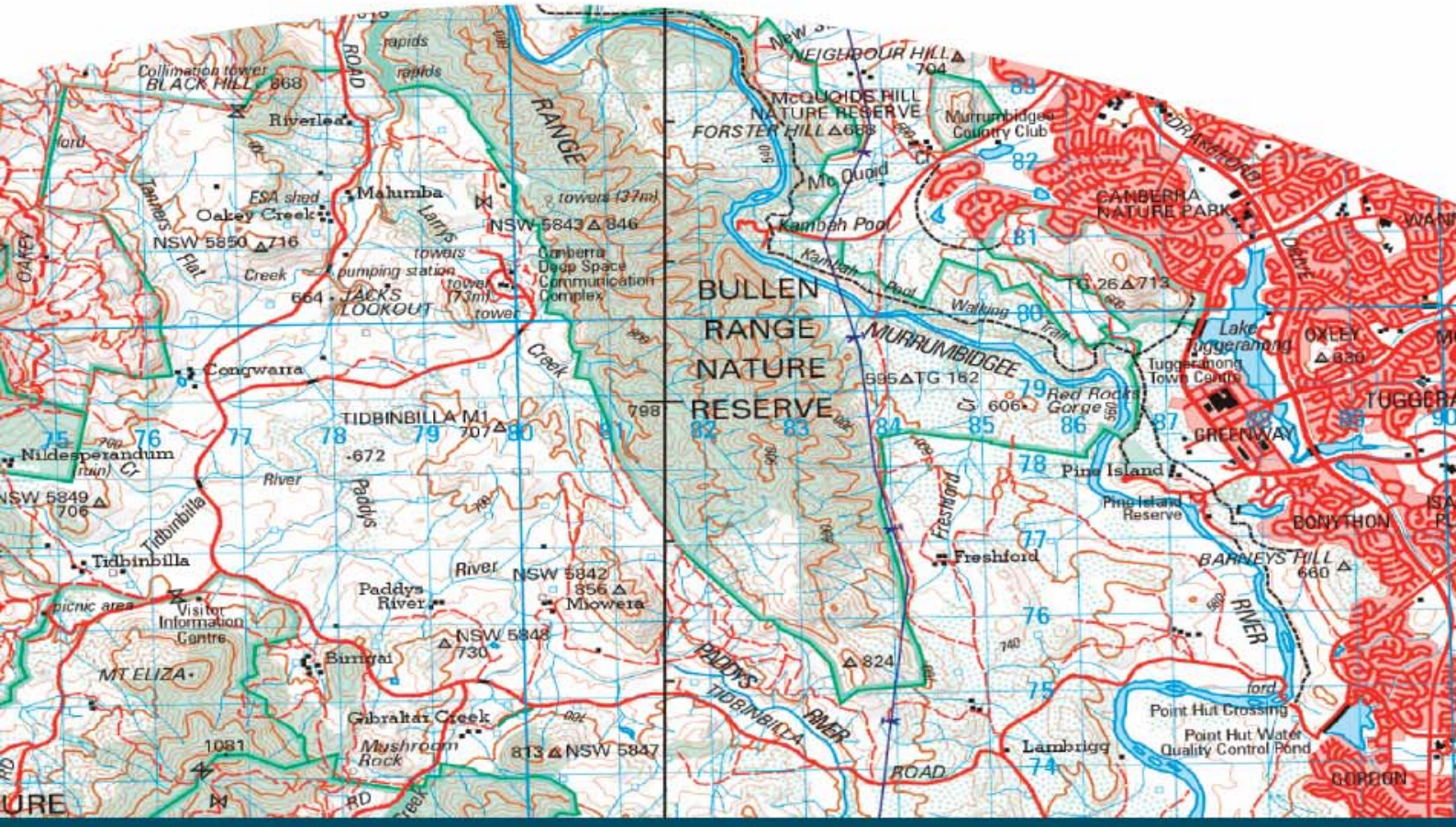
Australian Government
Geoscience Australia

2006 Release

GEODATA TOPO 100K
ACT Region

USER GUIDE



SPATIAL INFORMATION FOR THE NATION

Contents

1. General information

1.1 Conditions of use

The conditions of data use are documented in the licence agreement accompanying this product.

1.2 Feedback

Geoscience Australia welcomes feedback on any aspect of this product or services. Please direct your comments or queries regarding this document or data to:

Geoscience Australia Sale Centre
GPO Box 378
Canberra ACT 2601
Freecall (within Australia): 1800 800 173
Telephone: +61 2 6249 9966
Facsimile: +61 2 6249 9960
Email: sales@ga.gov.au
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1.3 Geoscience Australia

Geoscience Australia is the national agency for geoscience research and spatial information. It serves the government and supports the community by producing geoscientific information and knowledge to enable informed decisions about the exploration of resources, management of the environment, safety of critical infrastructure, and the resultant wellbeing of all Australians.

Further information on Geoscience Australia can be found on the Geoscience Australia website at www.ga.gov.au

1.4 Contributors

Geoscience Australia gratefully acknowledges contributions to map and data content. Information supplied by a range of national, state, territory and local governments, private sector agencies and individuals is utilised to update and enhance the spatial and attribute content of map and digital data products. A comprehensive list is available from the Geoscience Australia website at www.ga.gov.au/nmd/mapping/acknowledge.htm

2. About GEODATA TOPO 100K ACT Region

2.1 GEODATA TOPO 100K ACT Region

GEODATA TOPO 100K ACT Region is a vector data representation of the ACT Region NATMAP 1:100,000 (100K) scale topographic map and has been developed to conform to Geoscience Australia's Topographic Data and Map Specifications Version 4.0, February 2006 (Version 4.0 Specifications).

Features such as buildings, roads and lakes are spatially represented as points, lines or polygons, and attributes are used to describe them. The combination of spatial location and attributes enables a feature to be uniquely identified. This not only provides emergency service workers with critical information like the location of fire trails, bridges and dams, it also provides other users with a good overview of the Australian Capital Territory and surrounding region.

The main characteristics of *GEODATA TOPO 100K ACT Region* are:

- **Geodatabase structure**
  Geoscience Australia's 100K topographic data is stored as a geodatabase and is provided as a personal geodatabase as well as Shapefiles and MapInfo mid/mif formats. A geodatabase is a relational database that stores the spatial data and related attributes of features.
- **Revised specification**
  The revision of Geoscience Australia's Version 4.0 Specifications is reflective of the new geodatabase structure. This includes additional feature attributes, reclassification of some features and removal of void polygons.

2.2 GEODATA TOPO 100K ACT Region Product Components

The product consists of the following components which combine to give you a complete data product. (Please note that the online downloads do not contain all these files, only the selected vector or raster files):

- **Vector data** (Folder: Vector_data)
  The data is available in three formats: Personal geodatabase; Shapefiles; and MapInfo mid/mifs in the folders PDGB, Shapefile and Mid_Mif respectively. The personal geodatabase is the most significant of these and reflects the stored environment of the data, therefore this user guide is predominately focused on this format.
- **Raster data** (Folder: Raster_data)
  This is a digital raster representation of the 100K ACT Region NATMAP map. The raster is supplied as an ER Mapper Compressed Wavelet (ECW) file.
- **User guide** (Folder: Documentation)
  This user guide describes the *GEODATA TOPO 100K ACT Region* data, particularly the geodatabase format. It describes the important and common geodatabase characteristics, its components and concepts, the feature structure and attribute rules and accuracy of the data.
- **Licence agreement** (Folder: Documentation)
  The licence agreement details the data use conditions including any referencing requirements. The conditions of use are reflective of the Australian Government policy on spatial data access and pricing.
- **Symbol dictionary** (Folder: Documentation)
  The symbol dictionary contains all map symbols used by Geoscience Australia for its topographic map production. It lists the symbol, its number and related feature and is a useful reference source.

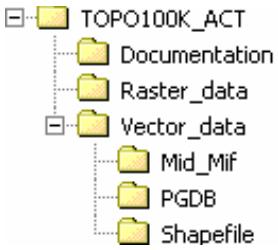


Figure 1: GEODATA TOPO 100K ACT Region product folder arrangement

3. Data Loading

3.1 Delivery Application Formats

GEODATA TOPO 100K ACT Region is supplied in the following formats:

- Personal geodatabase – Version 8.3;
- ESRI Shapefile; and
- MapInfo mid/mif.

The personal geodatabase contains a two tier structure (i.e. theme and associated features classes), while both the Shapefiles and MapInfo mid/mif formats contain a single tier structure (i.e. individual files for each feature class). Other formats (e.g. Enterprise geodatabase) can be requested from Geoscience Australia's Sale Centre.

3.2 Personal Geodatabase

3.2.1 Data Structure

In the geodatabase environment, data is delivered in a two tier structure where feature datasets (also known as themes) are the containers (e.g. Administration) and the feature classes are the geometry layers or tables within the containers (e.g. AdministrationBoundaries).

All the spatial and attribute data is stored in the same Microsoft Access database (mdb) file which has a two gigabyte limit. Further information on the geodatabase's data structure can be found in Section 5 - Geodatabase model and content.

3.2.2 Data Provided

There are 18 themes containing approximately 100 feature classes within *GEODATA TOPO 100K ACT Region* as detailed in Table 1.

3.3 Shapefile and MapInfo mid/mif

3.3.1 Data Structure

The Shapefiles and MapInfo mid/mifs have been extracted from the geodatabase, however, these formats do not store topology (i.e. rules or relationships on how point, line and polygon features share geometry).

Both types of files are delivered in a single tier structure and the files have been separated into folders that correspond to the 18 themes listed in Table 1. These files are compatible with most Geographic Information Systems (GIS).

A **Shapefile** is an ESRI vector data storage format and it represents one feature class. Each Shapefile is made up of the following files:

- ***.shp** – Main file contains feature geometry;
- ***.shx** – Index file contains look-up index of the feature geometry;
- ***.dbf** – dBase file contains feature attributes with one record per feature;
- ***.prj** – Projection file contains the coordinate system information; and
- ***.sbn and *.sbx** – Spatial index files contain the spatial index of features.

MapInfo mid/mif is MapInfo's data interchange format and it represents one feature class. Each MapInfo mid/mif is made up of the following combination of ASCII files which build into a single MapInfo table and additional information may be supplied as text files.

- ***.mif** – Mif file contains the spatial data; and
- ***.mid** – Mid file contains the corresponding attribute information.

3.3.2 Data Provided

The names of the Shapefiles and MapInfo mid/mif files follow a naming convention which is made up of the theme code, class name and a code representing the spatial object. This naming convention is explained in detail in Figure 2.

Naming convention

Shapefiles and MapInfo mid/mifs have the following naming convention which is made up by four components:

g100_<***theme_id***>_<***class***>_<***obj_id***>

e.g.: g100_rdt_roads_l

Where:

- '***g100***' refers to GEODATA 100K;
- <***theme_id***> identifies the theme/feature dataset;
- <***class***> is the name of the feature class that the file represents; and
- <***obj_id***> identifies the spatial object contained in the file. Only one type of spatial object is transferred with each Shapefile and mid/mif file.

Reference table for <obj_id>

Spatial object	<obj_id> code
Anno	a
Point	p
Line	l
Polygon (region)	r

Reference table for <theme_id>

Theme	<theme_id> code
Administration	adm
Aviation	ava
Cartography	car
Culture	cul
Drainage	drn
Elevation	evl
Framework	fmw
Habitation	hab
Hydrography	hyd
Industry	ind
Infrastructure	inf
Marine	mar
Physiography	phy
RailTransport	rlt
Relief	ref
RoadTransport	rdt
SeriesIndex	srx
SurveyMarks	smk
Utility	uty
Vegetation	veg
Waterbody	wby

Figure 2: Naming convention for Shapefiles and MapInfo mid/mifs

The Shapefiles and MapInfo mid/mifs are supplied in separate folders for each of the 18 themes and correspond to the *GEODATA TOPO 100K ACT Region* themes and feature classes listed in Table 1.

Please note:

- All feature classes within the personal geodatabase format have been provided, even though some are not populated as feature capture was not relevant for the area. This is to retain the integrity of the geodatabase structure. However, Shapefiles and MapInfo mid/mifs have not been supplied for feature classes which have no features.
- Shapefiles do not contain annotation geometry, therefore the annotation layers (i.e. Annotations, GraticuleAnnotations, and GridAnnotations) are not provided.

Table 1: GEODATA TOPO 100K ACT Region themes and feature classes

Theme	Geometry	Personal Geodatabase Feature Class	Shapefile and Mid/mif File Names
Administration	Line	AdministrationBoundaries	g100_adm_administrationboundaries_l
	Polygon	ProhibitedAreas	g100_adm_prohibitedareas_r
	Polygon	Reserves	g100_adm_reserves_r
Aviation	Polygon	AircraftFacilityAreas	g100_ava_aircraftfacilityareas_r
	Line	AircraftFacilityLines	g100_ava_aircraftfacilitylines_l
	Point	AircraftFacilityPoints	g100_ava_aircraftfacilitypoints_p
	Polygon	AirportAreas	g100_ava_airportareas_r

Theme	Geometry	Personal Geodatabase Feature Class	Shapefile and Mid/mif File Names
Cartography	Anno	Annotations	g100_car_annotations_a*
	Line	CartographicLines	g100_car_cartographiclines_l
	Point	CartographicPoints	g100_car_cartographicpoints_p
	Anno	GraticuleAnnotations	g100_car_graticuleannotations_a*
	Line	Graticules	g100_car_graticules_l
	Anno	GridAnnotations	g100_car_gridannotations_a*
	Line	Grids	g100_car_grids_l
Culture	Line	AerialCableways	
	Polygon	CemeteryAreas	g100_cul_cemeteryareas_r
	Point	CemeteryPoints	
	Line	DamWalls	g100_cul_damwalls_l
	Point	EmergencyFacilityPoints	
	Line	Fences	
	Polygon	LandmarkAreas	g100_cul_landmarkareas_r
	Polygon	RecreationAreas	g100_cul_recreationareas_r
	Polygon	RubbishTips	g100_cul_rubbishtips_r
	Point	VerticalObstructions	g100_cul_verticalobstructions_p
	Point	WaterTanks	g100_cul_watertanks_p
	Point	Windpumps	g100_cul_windpumps_p
	Point	Yards	
Drainage	Line	CanalLines	
	Point	Locks	
	Line	RapidLines	g100_drn_rapidlines_l
	Line	Spillways	
	Line	WatercourseLines	g100_drn_watercourselines_l
	Point	WaterfallPoints	g100_drn_waterfallpoints_p
Framework	Line	FrameworkBoundaries	g100_fmw_frameworkboundaries_l
	Polygon	Islands	
	Polygon	LargeAreaFeatures	
	Point	Locations	g100_fmw_locations_p
	Polygon	Mainlands	g100_fmw_mainlands_r
	Polygon	Seas	
Habitation	Polygon	BuildingAreas	g100_hab_buildingareas_r
	Point	BuildingPoints	g100_hab_buildingpoints_p
	Polygon	BuiltUpAreas	g100_hab_builtupareas_r
	Point	Homesteads	g100_hab_homesteads_p
	Point	PopulatedPlaces	g100_hab_populatedplaces_p
Industry	Line	Conveyors	
	Polygon	MineAreas	g100_ind_mineareas_r
	Point	MinePoints	g100_ind_minepoints_p
	Point	PetroleumWells	
	Point	StorageTanks	
Marine	Polygon	ForeshoreFlats	
	Polygon	MarineHazardAreas	

Theme	Geometry	Personal Geodatabase Feature Class	Shapefile and Mid/mif File Names
	Point	MarineHazardPoints	
	Line	MarineInfrastructureLines	
	Point	MarineInfrastructurePoints	
Physiography	Point	Caves	g100_phy_caves_p
	Polygon	Craters	
	Polygon	DeformationAreas	g100_phy_deformationareas_r
	Line	Discontinuities	g100_phy_discontinuities_l
	Point	Pinnacles	g100_phy_pinnacles_p
	Line	SandRidges	
	Polygon	Sands	
RailTransport	Point	RailwayBridgePoints	g100_rlt_railwaybridgepoints_p
	Line	RailwaysCrossingLines	g100_rlt_railwaycrossinglines_l
	Line	Railways	g100_rlt_railways_l
	Point	RailwayStopPoints	g100_rlt_railwaystoppoints_p
	Line	RailwayTunnelLines	g100_rlt_railwaytunnellines_l
	Point	RailwayTunnelPoints	
Relief	Line	Contours	g100_ref_contours_l
	Polygon	HypsometricAreas	g100_ref_hypsometricareas_r
	Point	SpotElevations	g100_ref_spotelevations_p
RoadTransport	Point	BarrierPoints	
	Line	FerryRouteLines	
	Line	FootBridges	g100_rdt_footbridges_l
	Line	FootTracks	g100_rdt_foottracks_l
	Line	RoadCrossingLines	g100_rdt_roadcrossinglines_l
	Point	RoadCrossingPoints	g100_rdt_roadcrossingpoints_p
	Line	Roads	g100_rdt_roads_l
	Line	RoadTunnelLines	
	Point	RoadTunnelPoints	
SeriesIndex	Polygon	GeodataIndexes	g100_srx_geodataindexes_r
	Polygon	MapIndexes	
SurveyMarks	Point	BenchMarks	
	Point	HorizontalControlPoints	g100_smk_horizontalcontrolpoints_p
Utility	Line	Pipelines	g100_uty_pipelines_l
	Line	Powerlines	g100_uty_powerlines_l
Vegetation	Line	ClearedLines	
	Polygon	CultivatedAreas	g100_veg_cultivatedareas_r
	Polygon	NativeVegetationAreas	g100_veg_nativevegetationareas_r
	Line	Windbreaks	g100_veg_windbreaks_l
Waterbodies	Point	Bores	g100_wby_bores_p
	Polygon	CanalAreas	
	Polygon	Flats	g100_wby_flats_r
	Polygon	Lakes	g100_wby_lakes_r

Theme	Geometry	Personal Geodatabase Feature Class	Shapefile and Mid/mif File Names
	Polygon	PondageAreas	g100_wby_pondageareas_r
	Polygon	RapidAreas	
	Polygon	Reservoirs	g100_wby_reservoirs_r
	Point	Springs	g100_wby_springs_p
	Line	WaterbodyBoundaries	g100_wby_waterbodyboundaries_l
	Polygon	WatercourseAreas	g100_wby_watercourseareas_r
	Point	Waterholes	g100_wby_waterholes_p
	Point	Waterpoints	g100_wby_waterpoints_p

* Not provided for Shapefiles

4. Data Characteristics and Special Features

4.1 Data Characteristics

4.1.1 Datum, Projection and Coordinate Extents

Datum
Geographic Datum of Australia (GDA94)

Projection
Geographicals (i.e. latitudes and longitudes)

Resolution of coordinates
Coordinates of all spatial objects are quoted to the nearest 0.00001 degrees (approx. 1m).

Spatial index
Single. This is a grid of side length 0.5 degrees, for all feature classes except the Sea, Mainland and Hypsometric areas feature classes. These feature classes have a side length of 1.5 degrees.

Extent of geodatabase
-35 to -136 degrees of latitude and 148.5 to 150 degrees of longitude.

4.1.2 Cartographic Generalisation

Some features are located on the earth's surface in such a way that they cannot be separated at the scale of the map. To ensure cartographic clarity, one feature is held in the correct position and the rest are displaced. This is referred to as cartographic generalisation.

During data and map compilation, the following hierarchy is used to determine which features are held in the real-world position and which are displaced when one or more are adjacent. The higher a feature is on the list, the more likely that it has been held in the correct position over those lower on the list. Natural features are given precedence over constructed features.

1. Hydrographic lines (i.e. coastlines, watercourses and lakes)
2. Railways
3. Principal roads
4. Secondary roads
5. Minor roads
6. Vehicular tracks
7. Buildings
8. Vegetation boundaries

Generally, features that do not appear on the list may also be displaced. Their displacement may be due to an adjacent feature either appearing on the list above or having a greater landmark value.

Where up to three features are close and adjacent, one may be displaced by up to 90 metres. If there are more than three features close and adjacent, the maximum displacement of a feature is 270

meters. As far as possible, the displaced features maintain the correct alignment and spatial relationship to other features.

4.2 Special Features

Geoscience Australia has begun managing its topographic data in National Topographic Databases (NTDBs) for its various scale data. This is through an Oracle Relational Database Management System (RDBMS) and ESRI's ArcSDE software. The NTDB's are used for the revision and maintenance of the data, generation of data and map products, and comply with the Version 4.0 Specifications.

While the 250K NTDB has been sourced from previous series of topographic 250K data, the 100K NTDB is being progressively constructed, loaded and concatenated to form a seamless 100K scale database. Its population will commence in 2006.

4.2.1 Persistent Identifier, Creation Date and Retirement Date

Although the field is not currently populated, a ***Persistent Identifier* (*PID*)** attribute exists for the future identification of individual features. The ***PID*** will be unique on a national basis and assigned to each feature during the population of the 100K NTDB. The ***PID*** is only retired when changes have made it unavoidable (e.g. splitting of a linear feature into two features, or merging of two features). However, the ***PID*** is maintained when a feature's attributes have changed or where the spatial representation of the feature changes but logically the feature is the same (e.g. the start node and end node are the same).

The ***Creation Date*** (also currently unpopulated) represents the date that the feature was created in the 100K NTDB. It has no relation to the date which the feature physically came into existence (e.g. the completion of a building).

The ***Retirement Date*** field represents the date that the feature is marked as retired from the 100K NTDB. It has no relation to the date on which the feature was physically destroyed (e.g. the demolition of a building). The active features have a null ***Retirement Date***. Please note that *GEODATA TOPO 100K ACT Region* only contains current features.

4.2.2 Orientation Attribute

Some point features contain an ***Orientation*** attribute so that they can be represented as close to the real word as possible (e.g. orientation of a bridge symbol in relation to a road). The values used to represent the angle of orientation in the ***Orientation*** field follow an anti-clockwise direction starting from 0 degrees and as illustrated in Figure 3.

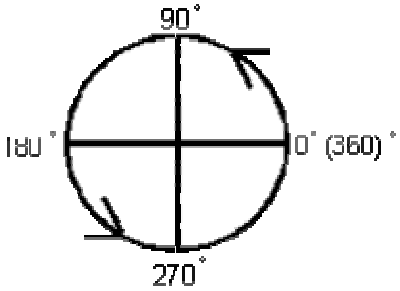


Figure 3: Orientation model

Figure 4 illustrates the effect of orientation on the bridge symbol.

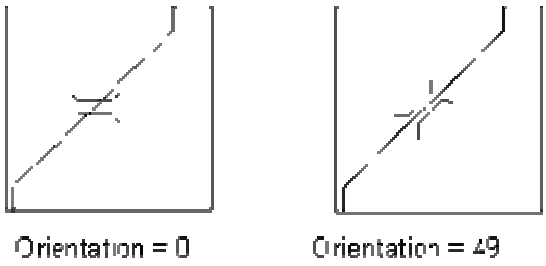


Figure 4: Impact of orientation

5. Geodatabase Model and Content

5.1 Geodatabase Model

A geodatabase stores spatial data, both vector and raster, and attribute data in a relational database. A geodatabase can exist as either an enterprise geodatabase or a personal geodatabase. Their structure is generally the same, but the differences are in the size restrictions and the ability to edit in a multi-user environment.

- **Enterprise geodatabase**
  The data is stored in a Relational Database Management System (RDBMS) which is accessed through an ArcSDE client via ArcGIS (this will be the case for 100K NTDB once it is populated). The powerfulness and potential size of RDBMS' makes transactions faster and provides the ability for the data to be viewed and edited by multiple users at once. Enterprise geodatabases are generally used by organisations that have large centralised datasets. Geoscience Australia uses Oracle's RDBMS through SDE to manage and revise its 250K topographic data through 250K NTDB.
- **Personal geodatabase**
  The data is stored in a Microsoft Access database which can be directly accessed by the ArcGIS suite of products. Unlike an enterprise geodatabase, there is a two gigabyte size limit due to Microsoft Access database restrictions. Personal geodatabases are generally intended for a single user and for organisations that cannot store the data in an RDBMS. Although it supports viewing by multiple users at once, it only enables a single user to edit. *GEODATA TOPO 100K ACT Region* is provided as a personal geodatabase.

5.1.1 Geodatabase Model Components

The geodatabase structure for both types of geodatabases, including GEODATA TOPO 100K ACT Region, is a feature-based data model and was developed using Unified Mark-up Language (UML). The features are arranged in a hierarchy of feature classifications including features datasets, feature classes and feature types which are described in more detail in Figure 5.

- **Feature dataset**
  A collection of feature classes of various geometries that share topological relationships and a common theme (e.g. Administration).

  A feature dataset exists as a container that holds feature classes and provides the association between the feature classes and a common spatial reference. There are 18 feature datasets in the *GEODATA TOPO 100K ACT Region* (Refer to Table 1).
- **Feature class**
  A collection of feature types that share common geometry and convey the topological relationships of the data (e.g. Reserves).

  Each feature class has a specific geometry (i.e. point, line or polygon) and exists as a table that includes a geometry column. All features within a feature class have behaviour rules associated with them. There are around 100 feature classes in *GEODATA TOPO 100K ACT Region* and each exists as either a:

- **Point feature class** that contains point features (e.g. buildings or lighthouses);
- **Linear feature class** that contains line features (e.g. windbreaks or pipelines);
- **Polygon feature class** that contains area features (e.g. lakes or built–up areas); or
- **Annotation feature class** that contains blob elements representing textual information required for map face production purposes.

- **Feature type**
  A collection of features within a feature class that share specific characteristics (e.g. Forestry reserve). In the feature class table, the feature type is defined by the 'FEATURETYPE' column.
- **Feature subtype**
  An ESRI implementation of feature grouping within a feature class to increase editing efficiency and maintain the integrity of attributes. The subtypes are based on an attribute value, and domains (e.g. a list of acceptable attribute values or value range) can be associated with them. There can only be one subtype field for each feature class.

  In Figure 5, the subtype field also happens to be the feature type field (i.e. FEATURETYPE). Although the subtype is stored as a numeric value, the subtype (e.g. NatureConservation) is displayed to the user as text via a look-up table in the geodatabase.
- **Feature instance**
  An abstraction of a real world entity represented in digital form. Feature instances can also be referred to as 'Features'. Features exist as a row in a feature class and its associated geometry is stored in a separate table (e.g. Digital representation of Lake Binney Forest Reserve).

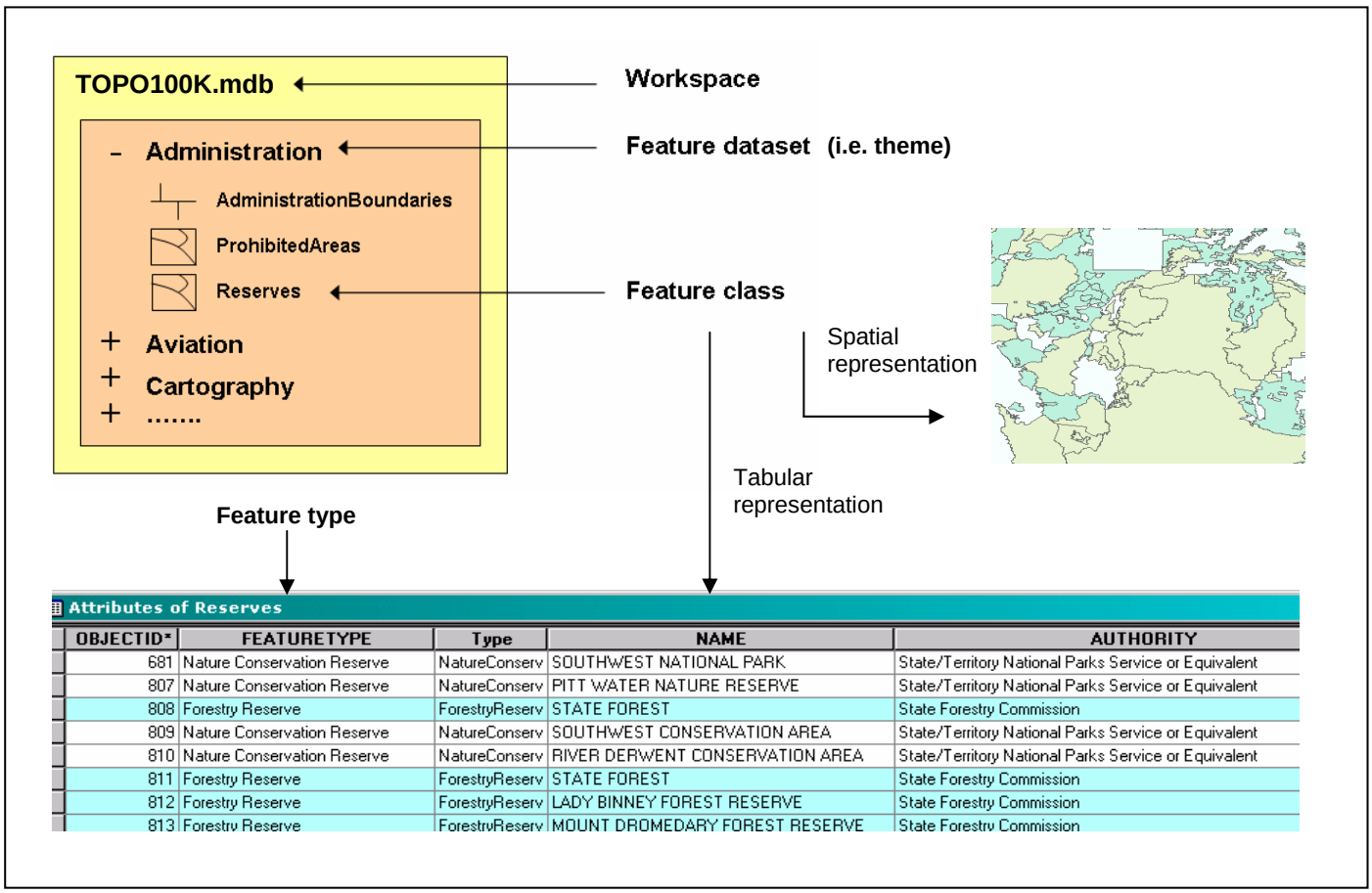


Figure 5: Geodatabase structure and components

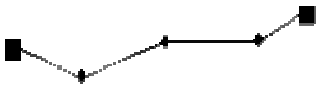
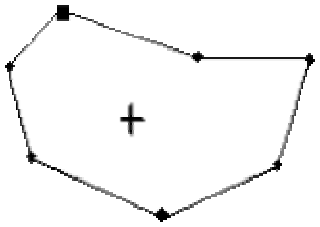
5.2 Feature Instance Details

A feature instance (or feature) in a feature based model such as *GEODATA TOPO 100K ACT Region* is structured as:

feature instance = [spatial object + attribute object]

Spatial object:
The spatial object is defined by the locational attributes of the feature in the form of geometry (Table 2) and x and y coordinates couplets. The topological relationships are also carried as part of the spatial object whenever the transfer formats support them.

Table 2: Geometry types

Point Geometric representation defined by a single 'x, y' co-ordinate couplet. Three types of points are used in the data model. • ***Entity Point*** – A point to locate point features or area features represented by a point. • ***Node*** - A point that is an intersection of two or more lines or an end point of a line. • ***Vertex*** - A point that is a change of direction along the length of a line.	
Line A sequence of non-intersecting line segments bounded by nodes (not necessarily distinct) at each end. Lines will reference their start and end nodes. Coordinates along a line are referred to as vertices.	
Polygon A defined continuous region consisting of an interior area. Within a feature class the polygons are mutually exclusive. Multi-polygons are two or more polygons, not abutting each other, treated as a single feature. There are three feature classes where multi-polygon features apply: Reserves; Built Up Areas; and Islands.	

Attribute object:
The attribute object includes the non-spatial (or aspatial) information about a feature, including the feature type. The attribute object is composed of one or more attributes and is defined by an attribute field(s) and its associated attribute value.

Table 4: Example of attribute object (Roads feature class)

Spatial Object	Attribute Object	
	Attribute	**Attribute Value**
Line (x_1,y_1 .....x_n,y_n)	Feature Type:	Road
	Name:	GINNINDERRA DRIVE
	Classification:	Secondary Road
	Formation:	Sealed
	National Route Number:	<null>
	State Route Number:	<null>
	Feature Reliability:	22/04/2003
	Feature Source:	GEOSCIENCE AUSTRALIA
	Attribute Reliability:	22/04/2003
	Attribute Source:	GEOSCIENCE AUSTRALIA
	Planimetric Accuracy:	40
	Source:	GEOSCIENCE AUSTRALIA
	Creation Date:	<null>

Spatial Object	Attribute Object	
	Attribute	**Attribute Value**
	Retirement Date:	<null>
	PID:	0
	Symbol:	256
	Feature Width:	0
	Text Note:	<null>
	Map Number:	S8799

5.3 GEODATA TOPO 100K ACT Region content

Appendix A provides a table listing every *GEODATA TOPO 100K ACT Region* feature dataset, feature class, feature type and their associated spatial object and attribute fields. Please note that not all feature classes may exist in the data as some features are not relevant to the area (e.g. marine feature classes).

GEODATA TOPO 100K ACT Region items are populated in accordance with the Item Formatting and Attribution Table in Appendix B.

6. Data Quality Information

6.1 Lineage

GEODATA TOPO 100K ACT Region was generated from the 100K ACT Region NATMAP hardcopy map released in early 2005. The map was revised from previous editions and revision material including:

- SPOT and Landsat satellite imagery;
- Revision data (i.e. airfields, vegetation, dams, utilities, foot tracks, mines, railways and towers);
- Reproduction material (i.e. map production material from previous maps); and
- Public feedback.

The digital files used to create the map were converted to topographic data in Version 4.0 Specifications.

6.2 Positional Accuracy

The positional accuracy of spatial data is a statistical estimate of the degree to which planimetric coordinates and elevations of features agree with their world values. The planimetric accuracy of *GEODATA TOPO 100K ACT Region* is impacted by three sources of errors:

- **Positional accuracy of the source material**
  GEODATA TOPO 100K ACT Region was generated from the 100K ACT Region NATMAP topographic map. There is an expectation that no more than 10% of well defined points[1] are in error by more than 0.5mm measured on the source material. This relates to a standard deviation on the map (S_m) of 0.31mm
- **Errors due to the conversion processes**
  These errors relate to degradation caused by digitising and scanning processes. They are impacted by errors associated with equipment, software and operator. Therefore, this generally results in a standard deviation of on the map (S_{limit}) of 0.14mm.
- **Errors due to the manipulation processes**
  The processes used during data manipulation introduce an error (S_{man}) of 0.05mm.

[1] Well defined points are points which are readily identified on the ground and in the data and have not been offset to allow for symbolisation and surrounding features. They are usually at intersections.

6.2.1 Absolute Planimetric (horizontal) Accuracy

The total statistical error from the source material and digitising process discussed above is given by:

$$S_{absolute} = \sqrt{(S_m)^2 + (S_{\lim it})^2 + (S_{man})^2}$$
$$= \sqrt{(0.31)^2 + (0.14)^2 + (0.05)^2}$$
$$= 0.34mm$$

This represents an error of 34m on the ground. Alternative and equal ways of expressing this is:

Not more than 10% of well defined points will be in error by more than 56m.

The planimetric accuracy (stated as a standard deviation in metres) is given at the feature level. The deviation has a standard value unless the source of the feature is known to have a different accuracy. A value of 9999 is used when the positional accuracy of the feature is not definable or not applicable (e.g. connector features).

6.2.2 Absolute Elevation Accuracy

The accuracy of the points captured for the Relief layer varies with the source material and the point determination of each particular point. Table 4 summarises these accuracies.

The accuracy of the contours is defined as 1/2 of the contour interval, therefore +/- 10 metres for a 20 metre contour interval.

Table 4: Summary of absolute elevation accuracy

Type of Feature	Printed Map	Compilation Material	Digital Topographic Data
Spot Elevation	±5 metres	±5 metres	±5 metres
Spot Elevation inside Depression contour	±5 metres	±5 metres	±5 metres
Spot Elevation on Sand ridge	±5 metres	±5 metres	±5 metres
Horizontal Control Point			±15 metres

6.3 Feature Level Metadata

GEODATA TOPO 100K ACT Region provides metadata at a feature level. Apart from the standard system generated attribute fields, the following fields always apply for each feature, at the feature level. The exception is for features within the Cartography and Series Index Feature Datasets.

- **Feature reliability** (FEATURERELIABILITY)
  This is the date of the latest source material where the attribute/geometry of a particular feature was verified, or subsequently changed.
- **Feature source** (FEATURESOURCE)
  Primary source used to determine the spatial location of a feature.
- **Attribute reliability** (ATTRIBUTERELIABILITY)
  This is the date of the latest source material used to initially assign, or subsequently change the value of, one of the attributes of the feature. A new date is applied only if the feature's attributes are edited.
- **Attribute source** (ATTRIBUTESOURCE)
  Primary source used to populate the attribute fields of a feature.
- **Planimetric accuracy** (PLANIMETRICACCURACY)
  This is the standard deviation in metres of the position of the feature's horizontal coordinates.
- **Elevation accuracy** (ELEVATIONACCURACY)
  This is the standard deviation in metres of the feature's elevation attribute value. This applies only to those features with an elevation attribute.

Appendix A: Geodatabase Features

1. Feature Types within GEODATA 100K

The following is a listing of features type hyperlinks which link to the relevant features in the Data Dictionary that represents GEODATA 100K. Please note that all features may not exist in *GEODATA TOPO 100K ACT Region* data as they are not relevant for the area.

Aerial Cableway
Airport Area
Annotation
Aquaculture Area
Arrow
Auxiliary Contour
Bay
Beach
Boat Ramp Line
Bore
Breakwater
Building Area
Building Point
Built Up Area
Canal Area
Canal Boundary Line
Canal Line
Cape
Cave
Cemetery Area
Cemetery Point
Civic Square
Cleared Line
Cliff
Communication Device
Connector
Connector Discontinuity
Connector Standard
Conveyor
Crater
Cutting
Dam Wall
Depression Contour
Distance Indicator
Distorted Surface
Dry Dock Point
Embankment
Fence
Ferry Route Line
Flat Boundary Line
Flood Irrigation Storage
Flow Direction Arrow
Foot Bridge
Foot Track
Ford Line
Ford Point
Foreshore Flat
Forest Or Shrub
Forestry Reserve
Gardens
Gate
GeodataIndex
Gnamma Hole
Golf Course
Gorge
Graticule
Graticule Annotation
Grid
Grid Annotation
Heliport
Homestead
Horizontal Control Point
Hypsometric Area
Indigenous Reserve
International Boundary
Interpolated Contour
Island
Jetty
Junction (Framework)
Junction (Waterbody)
Lake
Lake Boundary Line
Land Subject To Inundation
Landing Ground
Landmark Area
Large Area Feature
Levee
Lighthouse
Limit Of Data (Administration)
Limit Of Data (Framework)
Limit Of Data (Relief)
Limit Of Data (Waterbody)
Lock
Lock Line
Mainland
Mangrove
Map Grid
Map Index
Marine Swamp
Mine Area
Mine Point
Miscellaneous Area
Mountain
Multiple Use
Native Well
Nature Conservation Reserve
Offshore Rock
Orchard
Outcrop
Oval Area
Pass
Petroleum Well
Pinnacle
Pipeline
Place Name
Plantation
Pointer
Pondage Boundary Line
Pool
Populated Place
Powerline
Prohibited Area
Prohibited Area Boundary Line
Race Course
Railway
Railway Bridge Line
Railway Bridge Point
Railway Causeway
Railway Overpass
Railway Station
Railway Tunnel Line
Railway Tunnel Point
Rainforest
Rapid Area
Rapid Boundary Line
Rapid Line
Razorback
Recreation Area
Reef
Rescue Point
Reserve Boundary Line
Reservoir Boundary Line
Rifle Range
Road
Road Bridge Line
Road Bridge Point
Road Causeway
Road Junction
Road Marker National
Road Marker State
Road Overpass
Road Tunnel Line
Road Tunnel Point
Rockhole
Rubbish Tip
Runway Edge
Saline Coastal Flat
Salt Evaporator
Salt Evaporator Internal Line
Sand Area
Sand Dune
Sand Ridge
Sea
Sea Wall
Settling Pond
Settling Pond Internal Line
Shoal
Shoreline
Show Ground
Signage
Soak
Spillway
Spot Elevation
Spring
Standard Contour
State Border
Storage Tank
Swamp
Tarmac
Taxiway
Town Rural Storage
Transition Point
Tropic Of Capricorn
Vertical Obstruction
Water Access
Water Supply Reserve
Water Tank
Waterbody Island
Watercourse
Watercourse Area
Watercourse Boundary Line
Waterfall Point
Waterhole
Wharf Line
Windbreak
Windpump
Wreck
Yard

2. Data (feature type) Dictionary Table

Data dictionary layout

Feature dataset (The feature dataset in which the feature classification is contained)

Feature class	Geometry	Feature type	Definition	Size criteria	Attributes
The feature class in which the feature type classification is contained.	The spatial object type (i.e. polygon, line, point, annotation).	The feature type classification to which the entry relates. **Please note:** • Where a feature subtype exists, the name is followed by the feature type number (e.g. 'LimitOfData (3)'). • Shapefiles and MapInfo mid/mifs contain the numeric subtype values, not the text. • Not all feature classes have subtypes.	The definition which applies to the feature type.	The size criteria for inclusion.	The applicable fields for each feature class. **Please note:** • Shapefile field names are truncated .

Common attributes across feature classes

The following are attributes which are common to all feature classes.

FEATURETYPE: Feature type classification to which the feature relates.

FEATURERELIABILITY: Reliability date of the spatial object. Only adjusted for spatial change/verification of an existing feature or capture of a new feature.

FEATURESOURCE: Primary source used to determine the spatial location of a feature.

ATTRIBUTERELIABILITY: Reliability date of the attribute object. Only adjusted for attribute change/verification of an existing feature or capture of a new feature.

ATTRIBUTESOURCE: Primary source used to populate the attribute fields of a feature.

PLANIMETRICACCURACY: Standard deviation of the horizontal positional accuracy.

CREATIONDATE: Date of creation of the feature in the database (currently empty as this data is not from the 100K NTDB).

RETIREMENTDATE: Date of retirement of the feature in the database (currently empty as this data is not from the 100K NTDB).

PID: Persistent identifier (currently empty as this data is not from the 100K NTDB).

SYMBOL: Symbol number that relates to the feature. (Refer to the Symbol Dictionary).

MAPNUMBER: Number that defines the map index to which the feature is related

Data dictionary

Administration (Feature dataset)

Feature class	Geometry	Feature type	Definition	Size criteria	Attributes
AdministrationBoundaries	Line	Prohibited Area Boundary Line (1)	The boundary of a prohibited area.		TYPE FEATUREWIDTH TEXTNOTE
		Reserve Boundary Line (2)	The line bounding a Reserves feature class polygon.		
		Limit Of Data (3)	The line bounding the limits of known source material or the edge of the defined NTDB.		
ProhibitedAreas	Polygon	Prohibited Area	Area into which entry is prohibited without permission from the controlling authority.	707m^2 (500,000sqm)	NAME AUTHORITY
Reserves	Polygon	Forestry Reserve (2)	Public land reserved for forestry purposes.	707m^2 (500,000sqm)	TYPE NAME AUTHORITY
		Nature Conservation Reserve (3)	Land reserved for the conservation of native species.	707m^2 (500,000sqm)	
		Indigenous Reserve (1)	Land reserved due to its Indigenous significance excluding freehold land.	707m^2 (500,000sqm)	
		Water Supply Reserve (4)	Land reserved to protect water supply catchments.	707m^2 (500,000sqm)	

Aviation

Feature class	Geometry	Feature type	Definition	Size criteria	Attributes
AircraftFacilityAreas	Polygon	Tarmac (1)	A well constructed surface upon which aircraft take off and land, associated with a licenced Aerodrome or Airport.		TYPE NAME TEXTNOTE
AircraftFacilityLines	Line	Taxiway (4)	A route for the movement of Aircraft and vehicles which service them.		TYPE NAME TEXTNOTE
		Landing Ground (3)	A paved or cleared strip on which aircraft take off and land.		
AircraftFacilityPoints	Point	Heliport (2)	A constructed and maintained area for Helicopter take off and landing.		TYPE NAME FEATUREWIDTH

Feature class	Geometry	Feature type	Definition	Size criteria	Attributes
					ORIENTATION
AirportAreas	Polygon	Airport Area	An area set aside for use as a licenced facility by the Civil Aviation Safety Authority for the movement of aircraft and the receipt and discharge of cargo and passengers.		NAME

Cartography

Feature class	Geometry	Feature type	Definition	Size criteria	Attributes
Annotations	Annotation	Annotation	Type that appears on the map not related to the graticule or grid feature classes.		MAPNUMBER + specific annotation attributes (No SYMBOL)
CartographicLines	Line	Salt Evaporator Internal Line (6)	A levee bank or small canal within a salt evaporator.	500m (5mm on map)	TYPE MAPNUMBER TEXTNOTE
		Tropic Of Capricorn (8)	The parallel of latitude 23°26.5'S.		
		Runway Centreline (5)	A symbol used to indicate the length and orientation of an airport's runway.		
		Settling Pond Internal Line (7)	Levee banks within settling ponds.	500m (5mm on map)	
		Pointer (4)	A symbol used to graphically link text to a feature where the density of detail may result in ambiguity.		
		Lock Line (9)	A line used to complete the representation of a lock and ensure the impression of an obstruction across the full width of the water passage (i.e a watercourse area).		
		Runway Edge (12)	A line defining the limits of a landing ground, runway or tarmac.		
		International Boundary (3)	Boundaries defining the territorial sovereignty of a country. The international boundary will be taken to be the line of sea bed jurisdictions.		
		Arrow (1)	A symbol at the neatline of the map within the margin indicating the direction of a road's destination or objective.		
CartographicPoints	Point	Transition Point (6)	The point where a road or railway enters/exits a tunnel.		TYPE MAPNUMBER FEATUREWIDTH ORIENTATION TEXTNOTE
		Road Marker State (5)	The symbol printed over a road indicating a state route.		
		Distance Indicator (1)	A symbol used to indicate points between which road distances are given (in kilometres).		
		Road Marker National (4)	The symbol printed over a road indicating a national route.		

Feature class	Geometry	Feature type	Definition	Size criteria	Attributes
		Flow Direction Arrow (2)	A symbol used to indicate the direction of flow of water through a river system where it is unclear using the topological relationships shown on the map face.		
GraticuleAnnotations	Annotation	Graticule Annotation	Type that appears on the map related to the Graticule feature class.		MAPNUMBER + specific annotation attributes (no SYMBOL)
Graticules	Line	Graticule	A line on a map or chart representing a parallel of latitude or a meridian of longitude including cross ticks.		MAPNUMBER
GridAnnotations	Annotation	Grid Annotation	Type that appears on the map related to the Map Grid feature type.		MAPNUMBER + specific annotation attributes (no SYMBOL)
Grids	Line	Map Grid	A line forming part of a rectangular Cartesian coordinate system that is superimposed on maps and charts to permit identification of ground locations with respect to other locations and the computation of direction and distance to other points.		MAPNUMBER

Culture

Feature class	Geometry	Feature type	Definition	Size criteria	Attributes
AerialCableways	Line	Aerial Cableway	A conveyor system in which carrier units run on wire cables strung between supports.	300m (3mm on map)	NAME TEXTNOTE
CemeteryAreas	Polygon	Cemetery Area	An area of land for burying the dead.	150m^2 (22,500sqm)	NAME TEXTNOTE
CemeteryPoints	Point	Cemetery Point	An area of land for burying the dead		NAME FEATUREWIDTH ORIENTATION TEXTNOTE
DamWalls	Line	Dam Wall	A barrier of earth and rock, concrete or masonry constructed to form a reservoir for water storage purposes or to raise the water level.	100m (1mm on map)	NAME FEATUREWIDTH TEXTNOTE
EmergencyFacilityPoints	Point	Signage (3)	A Sign or Signage structure which has been designated as a useful or informative feature during an emergency response or rescue mission by emergency service representatives.		TYPE AUTHORITY DESCRIPTION IDCODE ORIENTATION
		Water Access (4)	A device or construction to enable the transfer or use of stored water in an emergency situation.		

Feature class	Geometry	Feature type	Definition	Size criteria	Attributes
		Rescue Point (2)	A location designated as a suitable or acknowledged rescue and recovery point by emergency service representatives.		TEXTNOTE
		Communication Device (1)	A device to provide communication services, generally in remote locations, during an emergency response or rescue mission.		
Fences	Line	Fence	A structure which encloses, bounds or divides a property or part thereof. Includes vermin proof fences.	1,000m (10mm on map)	FEATUREWIDTH TEXTNOTE
LandmarkAreas	Polygon	Landmark Area	Man-made or defined permanent features having landmark value or useful for navigation.	200m^2 (40,000sqm)	NAME DESCRIPTION TEXTNOTE
RecreationAreas	Polygon	Recreation Area (8)	A general purpose or large park in a residential area.	150m^2 (22,500sqm)	TYPE NAME TEXTNOTE
		Civic Square (1)	A normally rectangular formal open area within a town centre, usually surrounded by buildings, designated by the towns governing body for use by its citizens.	150m^2 (22,500sqm)	
		Golf Course (3)	An area of land developed and purposely designed for the playing of golf.	150m^2 (22,500sqm)	
		Multiple Use (4)	An area of land developed for a combination of recreational purposes.	150m^2 (22,500sqm)	
		Show Ground (10)	Show ground arenas and buildings for the formal presentation of primary production and related activities.	150m^2 (22,500sqm)	
		Miscellaneous Area (5)	An area of land developed for miscellaneous or undefined recreational purposes.	150m^2 (22,500sqm)	
		Oval Area (6)	An area of land developed as a sporting ground for the playing of football, athletics, cricket and the like.	150m^2 (22,500sqm)	
		Gardens (2)	Formally laid out public botanical or ornamental grounds.	150m^2 (22,500sqm)	
		Race Course (7)	An area of land allocated & developed for the racing of horses.	150m^2 (22,500sqm)	
		Rifle Range (9)	An area specifically designated for rifle shooting.	150m^2 (22,500sqm)	
RubbishTips	Polygon	Rubbish Tip	An area above ground for the disposal of rubbish.	150m^2 (22,500sqm)	TEXTNOTE
VerticalObstructions	Point	Vertical Obstruction	Prominent man-made features of a permanent nature that either have landmark value, are useful for navigation or may constitute a danger to aircraft. Such features will have a height above the local terrain.		NAME DESCRIPTION HEIGHT FEATUREWIDTH ORIENTATION

Feature class	Geometry	Feature type	Definition	Size criteria	Attributes
					TEXTNOTE
WaterTanks	Point	Water Tank	A feature constructed on or below the ground for the storage of water.		NAME FEATUREWIDTH ORIENTATION TEXTNOTE
Windpumps	Point	Windpump	A tower fitted with a wind-driven pump.		NAME FEATUREWIDTH ORIENTATION TEXTNOTE
Yards	Point	Yard	A small area of land enclosed by a fence and generally used for confining stock.		NAME FEATUREWIDTH ORIENTATION TEXTNOTE

Drainage

Feature class	Geometry	Feature type	Definition	Size criteria	Attributes
CanalLines	Line	Canal Line	An artificial watercourse conveying water for inland navigation, irrigation or drainage purposes.	500m (5mm on map)	NAME TEXTNOTE
Locks	Point	Lock	An enclosure in a water body with gates at both ends to raise or lower the water level to enable vessels to pass from one level to another.		NAME FEATUREWIDTH ORIENTATION TEXTNOTE
RapidLines	Line	Rapid Line	An area of broken, fast flowing water in a watercourse, where the slope of the bed increases (but without a prominent break of slope which might result in a waterfall), or where a gently dipping bar of harder rock outcrops.	100m (1mm on map)	TEXTNOTE
Spillways	Line	Spillway	A channel or duct formed around the side of a reservoir past the end of the dam, to convey flood discharge from the watercourse above the reservoir into the watercourse below the dam.	100m (1mm on map)	TEXTNOTE
WatercourseLines	Line	Watercourse (2)	A natural channel along which water may flow from time to time.	1,000m (10mm on map)	TYPE NAME PERENNIALITY HIERARCHY TEXTNOTE
		Connector (1)	An artificial line used to connect linear Hydrographic features across an area feature to allow network analysis of riverine networks.		

Feature class	Geometry	Feature type	Definition	Size criteria	Attributes
WaterfallPoints	Point	Waterfall Point	A sudden descent of water over a step or ledge in the bed of a watercourse.		NAME FEATUREWIDTH ORIENTATION TEXTNOTE

Framework

Feature class	Geometry	Feature type	Definition	Size criteria	Attributes
FrameworkBoundaries	Line	Shoreline (2)	A line depicting the boundary of a mainland, island or sea.		TYPE
		Junction (1)	An artificial line used to separate adjacent hydrographic areas which have differing attributes and across which flow can occur.		
		State Border (3)	The boundary defining the division of the Commonwealth of Australia into State/Territory administrations.		
		Limit Of Data (4)	The line bounding the limits of known source material or the edge of the defined NTDB.		
Islands	Polygon	Island	An area of land fully surrounded by the sea.	$25m^2$ (625sqm)	NAME STATE
LargeAreaFeatures	Polygon	Large Area Feature	A representation that is indicative of the extent of nationally recognized significant regions.		NAME
Locations	Point	Place Name (9)	A named place or area.		TYPE NAME FEATUREWIDTH ORIENTATION TEXTNOTE
		Waterbody Island (8)	A named island within an inland waterbody or forming part of the shoreline.		
		Mountain (5)	A named markedly elevated landform bounded by steep slopes and rising to prominent ridges and individual peaks.		
		Pass (6)	A named low and passable gap through a mountain range.		
		Cape (3)	A named prominent headland projecting into the sea or inland waterbody.		
		Beach (2)	A named strip of land or terrace bordering the sea, usually lying between high and low tides.		
		Bay (1)	A named wide, open and curving indentation into the land formed by the sea or inland waterbody.		
		Road Junction (7)	A named intersection of two or more roads.		
		Gorge (4)	A named deep and narrow, steep-sided, usually rocky river valley.		
Mainlands	Polygon	Mainland	The area of continental Australia including Tasmania.		STATE

Feature class	Geometry	Feature type	Definition	Size criteria	Attributes
Seas	Polygon	Sea	The water area surrounding the Australian continent and its offshore islands.		OCEANNAME SEANAME OTHERWATERNAME

Habitation

Feature class	Geometry	Feature type	Definition	Size criteria	Attributes
BuildingAreas	Polygon	Building Area	A permanent walled and roofed construction or the ruin of such a construction, capable of being represented at scale.	150m^2 (22,500sqm)	NAME BUILDINGFUNCTION CLASS TEXTNOTE
BuildingPoints	Point	Building Point	A permanent walled and roofed construction or the ruin of such a construction.		NAME BUILDINGFUNCTION CLASS FEATUREWIDTH ORIENTATION TEXTNOTE
BuiltUpAreas	Polygon	Built Up Area	An area where buildings are close together and have associated road and other infrastructure networks.	250m^2 (62,500sqm)	NAME
Homesteads	Point	Homestead	A named prominent building or set of buildings which is/are the place of permanent residence in rural areas.		NAME FEATUREWIDTH ORIENTATION TEXTNOTE
PopulatedPlaces	Point	Populated Place	A named settlement with a population of 200 or more persons.		NAME FEATUREWIDTH ORIENTATION TEXTNOTE

Industry

Feature class	Geometry	Feature type	Definition	Size criteria	Attributes
Conveyors	Line	Conveyor	A continuous belt or series of belts mounted on rollers and used to move large quantities of goods, especially grain or ore.	300m (3mm on map)	TEXTNOTE
MineAreas	Polygon	Mine Area	An excavation made by the removal of stone, gravel, clay or mineral from the ground for commercial or industrial purposes and tailings dumps from mining operations.	150m^2 (22,500sqm)	NAME TEXTNOTE

Feature class	Geometry	Feature type	Definition	Size criteria	Attributes
MinePoints	Point	Mine Point	An excavation for the extraction of minerals.		NAME FEATUREWIDTH ORIENTATION TEXTNOTE
PetroleumWells	Point	Petroleum Well	A pipe sunk in the ground for the purpose of obtaining subterranean oil or gas.		FEATUREWIDTH ORIENTATION TEXTNOTE
StorageTanks	Point	Storage Tank	Large vessel for the storage of liquids (not water) or gases, usually associated with refineries or chemical plants.		NAME FEATUREWIDTH ORIENTATION TEXTNOTE

Marine

Feature class	Geometry	Feature type	Definition	Size criteria	Attributes
ForeshoreFlats	Polygon	Foreshore Flat	That part of the seabed or estuarine areas, between mean high water and the line of lowest astronomical tide.	250m^2 (62,500sqm)	
MarineHazardAreas	Polygon	Shoal (2)	A detached area of any material the depth over which constitutes a danger to surface navigation of marine craft. The term shoal is not generally used for dangers which are composed entirely of rock or coral.	250m^2 (62,500sqm)	TYPE NAME RELATIONSHIP TEXTNOTE
		Reef (1)	An area of rock or coral that is exposed between mean high water and lowest tide, or just below approximate lowest tide, which is visually prominent or a hazard to shipping.	250m^2 (62,500sqm)	
MarineHazardPoints	Point	Offshore Rock (1)	A rock located offshore that represents a hazard to shipping.		TYPE NAME RELATIONSHIP FEATUREWIDTH ORIENTATION TEXTNOTE
		Wreck (2)	A disabled vessel, either submerged or visible, which is attached to, or foul of, the bottom or cast up on the shore.		
MarineInfrastructureLines	Line	Wharf Line (5)	A structure built from the land parallel to shore to provide for the berthing of vessels.	100m (1mm on map)	TYPE NAME TEXTNOTE
		Sea Wall (4)	A solid structure usually of concrete masonry or earth, built to prevent erosion or encroachment by the sea.	100m (1mm on map)	
		Boat Ramp Line (1)	A sloping construction to facilitate launching or retrieving vessels from water.	100m (1mm on map)	
		Breakwater (2)	A solid structure to break the force of the waves, sometimes detached from the coast, protecting a harbour or anchorage.	100m (1mm on map)	

Feature class	Geometry	Feature type	Definition	Size criteria	Attributes
		Jetty (3)	A structure projecting into a body of water for use as a promenade or as a platform alongside which vessels may be secured for loading and unloading passengers/cargo.	100m (1mm on map)	
MarineInfrastructurePoints	Point	Lighthouse (8)	A building or structure housing a light used as a navigation aid to shipping.		TYPE NAME FEATUREWIDTH ORIENTATION TEXTNOTE
		Dry Dock Point (6)	A structure or basin providing support for a vessel and from which water can be removed so that the bottom of the vessel is exposed.	$150m^2$ (22,500sqm)	

Physiography

Feature class	Geometry	Feature type	Definition	Size criteria	Attributes
Caves	Point	Cave	A naturally formed, subterranean open area or chamber.		NAME FEATUREWIDTH ORIENTATION TEXTNOTE
Craters	Polygon	Crater	A bowl shaped natural depression with steep slopes at the rim, formed by volcanic activity or meteor impact.	$100m^2$ (10,000sqm)	NAME TEXTNOTE
DeformationAreas	Polygon	Distorted Surface (1)	An area over which vehicular movement is difficult or impossible due to the fractured nature of the ground, or rock debris lying on the surface.	$250m^2$ (62,500sqm)	TYPE NAME TEXTNOTE
		Outcrop (2)	An area of land where large rocks or boulders protrude from or rest on the surface.	$250m^2$ (62,500sqm)	
Discontinuities	Line	Cutting (2)	An open excavation of the Earth's surface to provide passage for a road, railway, canal or similar entity.	½ contour int. and 200m long (2mm on map)	TYPE TEXTNOTE
		Cliff (1)	A high, steep, significant or overhanging face of rock.	500m (5mm on map)	
		Embankment (3)	An artificial bank of earth and or stone built above the natural surface.	½ contour int. and 200m long (2mm on map)	
		Levee (4)	A low earth wall erected to restrain flood waters or to contain irrigation water.	2m high and 200m long (2mm on map)	
		Razorback (8)	A long and narrow upland with steep sides.	500m (5mm on map)	
Pinnacles	Point	Pinnacle	A tall, slender spire shaped rock; projecting from a level or gently sloping surface, or the top of a mountain.		NAME FEATUREWIDTH

Feature class	Geometry	Feature type	Definition	Size criteria	Attributes
					ORIENTATION TEXTNOTE
SandRidges	Line	Sand Ridge	Sand drifts in long ridges tending parallel to and elongating in the direction of the prevailing winds.	100m (1mm on map)	AVERAGEHEIGHT
Sands	Polygon	Sand Dune (2)	Mounds of loose sand usually crescent shaped transverse to the prevailing winds.	250m^2 (62,500sqm)	TYPE
		Sand Area (1)	An area predominantly covered with sand and devoid of vegetation.	250m^2 (62,500sqm)	

Rail transport

Feature class	Geometry	Feature type	Definition	Size criteria	Attributes
RailwayBridgePoints	Point	Railway Bridge Point	A structure erected over a depression or obstacle to carry rail traffic.		FEATUREWIDTH ORIENTATION TEXTNOTE
RailwayCrossingLines	Line	Railway Bridge Line (1)	A structure erected over a depression or obstacle to carry rail traffic.	40m (.4mm on map)	TYPE FEATUREWIDTH TEXTNOTE
		Railway Overpass (3)	A separation of surface levels constructed to prevent direct intersection with other rail or road networks.	40m (.4mm on map)	
		Railway Causeway (2)	An embankment of earth or masonry erected across open water or area subject to inundation and carrying a railway.	200m (2mm on map)	
Railways	Line	Railway	A transportation system using one or more rails to carry freight or passengers.	500m (5mm on map)	NAME GAUGE STATUS TRACKS TEXTNOTE
RailwayStopPoints	Point	Railway Station (1)	A recognised stopping place for trains where passengers may board or alight or freight be loaded or unloaded. There may or may not be a platform. The railway station may not be in use.		TYPE NAME FEATUREWIDTH ORIENTATION TEXTNOTE
RailwayTunnelLines	Line	Railway Tunnel Line	An artificial underground/ or underwater passage carrying a railway.	100m (1mm on map)	FEATUREWIDTH TEXTNOTE
RailwayTunnelPoints	Point	Railway Tunnel Point	An artificial underground or underwater passage carrying a railway.		FEATUREWIDTH ORIENTATION TEXTNOTE

Relief

Feature class	Geometry	Feature type	Definition	Size criteria	Attributes
Contours	Line	Standard Contour (5)	A line which represents an imaginary line on the ground joining points of equal elevation in relation to the AHD.		TYPE ELEVATION
		Interpolated Contour (4)	A line which represents an imaginary line on the ground joining points of equal elevation in relation to the AHD. Interpolated contour to be utilised to join discontinued contours or to replace a contour absent in the source material for cartographic reasons. This feature type is not to be utilised where contours have been broken for cliffs.		
		Depression Contour (3)	A line which represents an imaginary line on the ground joining points of equal elevation in relation to the AHD. Depression contours are to be utilised where a portion of a landform dips below its surrounding area crossing a contour interval. The depression must be fully contained within the surrounding landform.		
		Connector Standard (2)	A line which represents an imaginary line on the ground joining points of equal elevation in relation to the AHD. Connector Standard is to be utilised where the contour's position is not known, for example in a Watercourse Area or Mine Area.		
		Connector Discontinuity (1)	A line which represents an imaginary line on the ground joining points of equal elevation in relation to the AHD. Connector Discontinuity is to be utilised where contours on the repromat were broken for either a cliff, cutting, embankment or razorback symbol.		
		Limit Of Data (6)	The line bounding the limits of known source material or the edge of the defined NTDB.		
		Auxiliary Contour (7)	A line augmenting relief presentation where significant topographic features are not shown by the prescribed contour interval. The line represents an imaginary line on the ground joining points of equal elevation in relation to the AHD.	500m (5mm on map)	
HypsometricAreas	Polygon	Hypsometric Area	The area enclosed between adjacent contours, with the exception of auxiliary contours.		ELEVATION
SpotElevations	Point	Spot Elevation	A point on the earth's surface, of known elevation, above or below the AHD.		CLASS ELEVATION FEATUREWIDTH ORIENTATION

Road transport

Feature class	Geometry	Feature type	Definition	Size criteria	Attributes
BarrierPoints	Point	Grid (2)	A grid at the opening in a fence to prevent livestock crossing but allowing for the free passage of vehicles.		TYPE FEATUREWIDTH ORIENTATION TEXTNOTE
		Gate (1)	An opening in a fence or wall for the passage of vehicles, people or animals and which may contain a device to limit passage.		
FerryRouteLines	Line	Ferry Route Line	A route across a river, lake, reservoir or sea used by a vessel for the regular transport of vehicles or passengers from one terminal point to another.		NAME TEXTNOTE
FootBridges	Line	Foot Bridge	A structure erected over a depression or obstacle to carry foot traffic.	100m (1mm on map)	TEXTNOTE
FootTracks	Line	Foot Track	A track designed to carry pedestrian traffic only.	500m (5mm on map)	NAME TEXTNOTE
RoadCrossingLines	Line	Road Causeway (3)	An embankment of earth or masonry erected across open water or an area subject to inundation and carrying a road.	200m (2mm on map)	TYPE FEATUREWIDTH TEXTNOTE
		Road Bridge Line (2)	A structure erected over a depression or obstacle to carry road traffic.	40m (.4mm on map)	
		Road Overpass (5)	A separation of surface levels constructed to prevent direct intersection with other road or rail networks.	40m (.4mm on map)	
		Ford Line (1)	A shallow or flat portion of the bed of a watercourse or lake where a crossing may be effected.		
RoadCrossingPoints	Point	Ford Point (1)	A shallow or flat portion of the bed of a watercourse or lake where a crossing may be effected.		TYPE FEATUREWIDTH ORIENTATION TEXTNOTE
		Road Bridge Point (2)	A structure erected over a depression or obstacle to carry road traffic.		
Roads	Line	Road	A route for the movement of vehicles, people or animals.	500m (5mm on map)	NAME CLASS FORMATION NRN SRN FEATUREWIDTH TEXTNOTE
RoadTunnelLines	Line	Road Tunnel Line	An artificial underground or underwater passage carrying a road.	100m (1mm on map)	FEATUREWIDTH TEXTNOTE
RoadTunnelPoints	Point	Road Tunnel Point	An artificial underground or underwater passage carrying a road.		FEATUREWIDTH ORIENTATION TEXTNOTE

Series index

Feature class	Geometry	Feature type	Definition	Size criteria	Attributes
GeodataIndexes	Polygon	GeodataIndex	The line defining the limits of each GEODATA product tile supplied to the public.		TILENUMBER TILENAME
MapIndexes	Polygon	Map Index	An area defined for the production of a single map sheet whether as a singular production or as part of a series such as the National Topographic Map Series.		LAYOUTGUIDE MAPNUMBER

Survey marks

Feature class	Geometry	Feature type	Definition	Size criteria	Attributes
HorizontalControlPoints	Point	Horizontal Control Point	A point on the ground, the geographical position of which has been determined by geodetic survey.		NAME ELEVATION CODE ORDEROFACCURACY FEATUREWIDTH ORIENTATION TEXTNOTE

Utility

Feature class	Geometry	Feature type	Definition	Size criteria	Attributes
Pipelines	Line	Pipeline	A pipe used for carrying gases and/or liquids.	500m (5mm on map)	NAME PRODUCT RELATIONSHIP TEXTNOTE
Powerlines	Line	Powerline	Wire or wires supported on poles, towers or pylons, used for the transmission of high voltage electricity.	1,000m (10mm on map)	TEXTNOTE

Vegetation

Feature class	Geometry	Feature type	Definition	Size criteria	Attributes
ClearedLines	Line	Cleared Line	A graded path in a straight line.	1,000m (10mm on	TEXTNOTE

Feature class	Geometry	Feature type	Definition	Size criteria	Attributes
				map)	
CultivatedAreas	Polygon	Orchard (1)	An area covered by an orderly planting of trees, vines or bushes which yield fruits, nuts or other edible products.	250m^2 (62,500sqm)	TYPE PRODUCT TEXTNOTE
		Plantation (2)	Intensively managed stands of trees of either native or exotic species, created by the regular placement of seedlings or seeds.	250m^2 (62,500sqm)	
NativeVegetationAreas	Polygon	Mangrove (2)	A dense growth of mangrove trees, which grow to a uniform height on mud flats in estuarine or salt waters. The land upon which the mangrove is situated is a nearly level tract of land between the low and high water lines.	250m^2 (62,500sqm)	TYPE COVERDENSITY GROWTHFORM TEXTNOTE
		Forest Or Shrub (1)	An area of land with woody vegetation greater than 10% foliage cover (includes trees and shrubs).	200m^2 (40,000sqm)	
		Rainforest (3)	Vegetation community which contains key rainforest species, with a foliage cover greater than 70%.	250m^2 (62,500sqm)	
Windbreaks	Line	Windbreak	A narrow strip of natural or planted trees, or scrub, positioned so as to break the force of the prevailing wind.	500m (5mm on map)	

Waterbodies

Feature class	Geometry	Feature type	Definition	Size criteria	Attributes
Bores	Point	Bore	A small diameter hole in the ground for the purpose of obtaining subterranean water by natural flow or mechanical pumping.		NAME FEATUREWIDTH ORIENTATION TEXTNOTE
CanalAreas	Polygon	Canal Area	An artificial watercourse conveying water for inland navigation, irrigation or drainage purposes.	224m^2 (50,000sqm)	NAME TEXTNOTE
Flats	Polygon	Marine Swamp (2)	That low lying part of the backshore area of tidal waters, usually immediately behind saline coastal flat, which maintains a high salt water content, and is covered with characteristic thick grasses and reed growths.	200m^2 (40,000sqm)	TYPE NAME TEXTNOTE
		Swamp (4)	Land which is so saturated with water that it is not suitable for agricultural or pastoral use and presents a barrier to free passage.	500m^2 (250,000sqm)	
		Saline Coastal Flat (3)	That nearly level tract of land between mean high water and the line of the highest astronomical tide.	250m^2 (62,500sqm)	
		Land Subject To Inundation (1)	Low lying land usually adjacent to lakes or watercourses, which is regularly covered with flood water for short periods.	250m^2 (62,500sqm)	

Feature class	Geometry	Feature type	Definition	Size criteria	Attributes
Lakes	Polygon	Lake	A naturally occurring body of mainly static water surrounded by land.	100m^2 (10,000sqm)	NAME PERENNIALITY TEXTNOTE
PondageAreas	Polygon	Settling Pond (3)	Shallow beds, usually segmented by constructed walls, for the treatment of sewage or other wastes.	250m^2 (62,500sqm)	TYPE TEXTNOTE
		Aquaculture Area (1)	Shallow beds, usually segmented by constructed walls, for the use of aquaculture.	250m^2 (62,500sqm)	
		Salt Evaporator (2)	A flat area, usually segmented, used for the commercial production of salt by evaporation.	250m^2 (62,500sqm)	
RapidAreas	Polygon	Rapid Area	An area of broken, fast flowing water in a watercourse, where the slope of the bed increases (but without a prominent break of slope which might result in a waterfall), or where a gently dipping bar of harder rock outcrops.	100m (1mm on map)	TEXTNOTE
Reservoirs	Polygon	Town Rural Storage (2)	A body of water collected and stored behind a constructed barrier for some specific use (with the exception of Flood Irrigation Storage).	150m^2 (22,500sqm)	TYPE NAME TEXTNOTE
		Flood Irrigation Storage (1)	A body of water collected and stored behind a constructed barrier for the specific use of Flood Irrigation Farming	150m^2 (22,500sqm)	
Springs	Point	Spring	A place where water issues from the ground naturally.		NAME FEATUREWIDTH ORIENTATION TEXTNOTE
WaterbodyBoundaries	Line	Canal Boundary Line (1)	A line completing the boundary of a canal area feature dependant on its hierarchy in the WaterbodyBoundaries feature class.		TYPE
		Limit Of Data (9)	The line bounding the limits of known source material or the edge of the defined NTDB.		
		Rapid Boundary Line (6)	The line used to complete the boundary of a rapid area polygon which has not yet been addressed by other features in the WaterbodyBoundaries feature class.		
		Watercourse Boundary Line (8)	A line depicting the boundary of a Watercourse Area feature.		
		Reservoir Boundary Line (7)	A line completing the boundary of a Reservoir feature dependant on its hierarchy in the WaterbodyBoundaries feature class.		
		Lake Boundary Line (4)	A line completing the boundary of a Lake feature dependant on its hierarchy in the WaterbodyBoundaries feature class.		
		Flat Boundary Line (2)	A line completing the boundary of a feature in the Flats feature class dependant on its hierarchy in the WaterbodyBoundaries feature class.		

Feature class	Geometry	Feature type	Definition	Size criteria	Attributes
		Pondage Boundary Line (5)	A line completing the boundary of a feature in the PondageAreas feature class dependant on its hierarchy in the WaterbodyBoundaries feature class.		
		Junction (3)	An artificial line used to separate adjacent hydrographic areas which have differing attributes and across which flow can occur.		
WatercourseAreas	Polygon	Watercourse Area	A natural channel along which water may flow from time to time.	316m^2 (100,000sqm)	NAME PERENNIALITY HIERARCHY TEXTNOTE
Waterholes	Point	Waterhole	A natural depression which holds perennial water, within a non-perennial watercourse or a non-perennial lake.		NAME PERENNIALITY FEATUREWIDTH ORIENTATION TEXTNOTE
WaterPoints	Point	Rockhole (4)	A hole excavated in solid rock by water action.		TYPE NAME FEATUREWIDTH ORIENTATION TEXTNOTE
		Pool (3)	A small body of still or standing water, permanent or temporary in an isolated natural depression, not within Watercourses.		
		Gnamma Hole (1)	Small holes of varying shape, diameter and depth, found in hard granite outcrops and in the decomposed granite of a breakaway, which can and usually does hold water.		
		Native Well (2)	An isolated natural depression which holds water, not within Watercourses. The natural phenomena is sometimes improved by indigenous persons for their own water collection purposes.		
		Soak (5)	A depression holding moisture after rain, especially the damp or swamp spots around the base of granite rocks.		

Appendix B: Item Formatting and Attribution

Attribute items are populated in accordance with the table below. The item name and item type is listed, together with a sample attribute and the case of the attribute where applicable (ie. for text strings).

Case is assigned as per the following abbreviations in the table:

C Caps only
CL Caps & Lower
L Lower case
N/A Not Applicable
MR Annotation item - to be shown in the same case as required for map production

Note:

- The following list represents the total number of items existing for all feature classes in the geodatabase. Therefore, more items are shown than what would normally appear against each individual feature class.
- Individual feature classes are not identified in this table. This list is intended to provide information on the format and attribution of all attribute items in the geodatabase. The items are alphabetically ordered for ease of reference, and are not shown in the order they appear in the geodatabase model.

Feature Class Item Name	Item Type	Allow Nulls	Precision	Scale	Length	Example Attribute	Case
ANNOTATIONCLASSID	Long Integer	Yes	10			<null>	N/A
ATTRIBUTERELIABILITY	Date	Yes	0	0	36	1/10/2000	N/A
ATTRIBUTESOURCE	String	Yes	0	0	50	GEOSCIENCE AUSTRALIA	C
AUTHORITY	String	Yes			100	State Forestry Commission	CL
AVERAGEHEIGHT	Short Integer	Yes	2			6	N/A
BUILDINGFUNCTION	String	No			50	Police Station	CL
CLASS	String	No			40	Secondary Road	CL
CODE	String	Yes			24	NSW1274	C
COVERDENSITY	String	Yes			20	Sparse	CL
CREATIONDATE	Date	Yes	0	0	36	16/11/2003	N/A
DALIGN	String	Yes			10	LEFT	C
DESCRIPTION	String	Yes			30	tower	L
DFIT	String	Yes			4	OFF	C
DID	Long Integer	Yes	9			14	N/A
DJUSTIFY	String	Yes			2	LR	C
DLEVEL	Long Integer	Yes	9			1	N/A
DOFFSETX	Double	Yes	18	11		300	N/A
DOFFSETY	Double	Yes	18	11		20	N/A
DSIZE	Double	Yes	18	11		787.5	N/A
DSYMBOL	Long Integer	Yes	9			10	N/A
DTEXT	String	Yes			254	No. 19 Bore	MR
ELEMENT	Blob	Yes	0	0	21474 83647	Images & general graphics etc	N/A
ELEVATION	Double	No	7	2		250	N/A
ELEVATIONACCURACY	Short Integer	No	4			25	N/A
FEATURECLASSNAME	String	Yes			50	Sea	C/L
FEATUREID	Long Integer	Yes	10			14744	N/A
FEATURERELIABILITY	Date	Yes	0	0	36	1/02/2000	N/A

Feature Class Item Name	Item Type	Allow Nulls	Precision	Scale	Length	Example Attribute	Case
FEATURESOURCE	String	Yes	0	0	50	GEOSCIENCE AUSTRALIA	C
FEATURETYPE	String	No			32	Pipeline	CL
FEATUREWIDTH	Double	Yes/No (variable)	8	4		0.25	N/A
FORMATION	String	No			18	Unsealed	CL
GAUGE	String	No			20	Standard: 1435mm	CL
GROWTHFORM	String	Yes			20	Mallee Shrub	CL
HEIGHT	Float	Yes	6	2		51.82	N/A
HIERARCHY	String	No			14	Minor	CL
MAPNAME	String	Yes			60	PORT PHILLIP SPECIAL	C
MAPNUMBER	String	Yes/No (variable)			8	H5002	C
NAME	String	Yes/No (variable)			60	ALBURY	C
NRN	String	Yes			12	A31, 26	N/A
OBJECTID (*system generated)*	Object ID					2453	N/A
OCEANNAME	String	Yes			60	SOUTH PACIFIC OCEAN	C
ORIENTATION	Short Integer	Yes	3			135	N/A
OTHERWATERNAME	String	Yes			60	BASS STRAIT	C
PERENNIALITY	String	No			14	Non-perennial	CL
PID	Long Integer	Yes	8			83202692	N/A
PLANIMETRICACCURACY	Short Integer	No	4			100	N/A
RELATIONSHIP	String	Yes			12	Underground	CL
RETIREMENTDATE	Date	Yes	0	0	36	12/01/2004	N/A
SEANAME	String	Yes			60	ARAFURA SEA	C
SHAPE	Geometry	Yes				Polygon	N/A
SHAPE.AREA	Double	No	0	0		0.738476	N/A
SHAPE.LEN	Double	No	0	0		0.409136	N/A
SOURCETYPE	String	No			24	PRINTED MAP	C
SRN	String	Yes			12	M13, 64	N/A
STATE	String	No			3	NSW	C
STATUS	String	No			18	Operational	CL
SYMBOL	Short Integer	No	4			209	N/A
TEXTNOTE	String	Yes			50	gauge 1435mm	L
TILENAME	String	Yes			60	MELBOURNE	C
TILENUMBER	String	No			8	F5416	C
TRACKS	String	No			8	One	CL
TYPE	Long Integer	No	5			2	N/A
TYPE_DESCRIPTION	String	No			32	NatureConservation Reserve	CL
ZORDER	Long Integer	Yes	10			0	N/A

Appendix C: Metadata

DATASET

Title: GEODATA TOPO 100K ACT Region

Custodian: Geoscience Australia

Jurisdiction: Australia

DESCRIPTION

Abstract:
GEODATA TOPO 100K ACT Region is a vector data representation of the ACT Region NATMAP 1:100,000 (100K) scale topographic map and has been developed to conform to Geoscience Australia's Topographic Data and Map Specifications Version 4.0, February 2006. Themes include: Administation; Aviation; Cartography; Culture; Drainage; Framework; Habitation; Industry; Physiography; Rail transport; Relief; Road transport; Series index; Survey marks; Utility; Vegetation; and Waterbodies.

It has been specifically designed for use in Geographic Information Systems (GIS) and provides high quality data for mapping and GIS professionals. The data is available in three popular GIS formats (ESRI Personal Geodatabase, ESRI Shapefiles and MapInfo mid/mifs) as well as a raster (ECW).

Search Words:

BOUNDARIES
ENERGY
FORESTS
HERITAGE Natural
HUMAN ENVIRONMENT
LAND
MARINE
TRANSPORTATION
UTILITIES
VEGETATION
WATER

Geographic Bounding Box:
North Latitude: -35
South Latitude: -40
East Longitude: 149.5
West Longitude: 148.5

Geographic Extent Polygon: 148.5 -35, 149.5 -35, 149.5 -36, 148.5 -36, 148.5 - 35

DATA CURRENCY

Beginning Date: Not Known

Ending Date: 31DEC2005

DATASET STATUS

Progress: Complete

Maintenance and Update Frequency: As required

ACCESS

Stored Formats:

DIGITAL	egeodatbas Enterprise Geodatabase Geographic GDA94 GRS80

Available Formats:

DIGITAL	pgeodatbas Personal Geodatabase Geographic GDA94 GRS80
DIGITAL	mif MapInfo Interchange Format (MIF) Geographic GDA94 GRS80
DIGITAL	shp ArcView shape file Geographic GDA94 GRS80
DIGITAL	ecw ER Mapper Enhanced Compressed Wavelet (ECW) Geographic GDA94 GRS80

Access Constraint:
The data is subject to Commonwealth of Australia Copyright. A licence agreement is required and a licence fee is also applicable for packaged data.

DATA QUALITY

Lineage:
GEODATA TOPO 100K ACT Region was generated from the 100K ACT Region NATMAP hardcopy map released in early 2005. The map was revised from previous editions and revision material including:
- SPOT and Landsat satellite imagery;
- Revision data (i.e. airfields, vegetation, dams, utilities, foot tracks, mines, railways and towers);
- Reproduction material (i.e. map production material from previous maps); and
- Public feedback.

The digital files used to create the map were converted to topographic data to be in line with Version 4.0 Specifications.

Positional Accuracy:
The positional accuracy is the statistical estimate of the degree to which planimetric coordinates and elevations of features agree with their world values. It is impacted by three sources of errors: positional accuracy of the source material; errors due to the conversion processes; and errors due to the manipulation processes.

This represents an errors of 34 meters on the ground for 100K data. Alternative and equal ways of expressing this error is 'not more than 10% of well defined points will be in error by more than 56m for 100K data'.

Attribute Accuracy:
Attribute accuracy is a measure of the degree to which the attribute values of features agree with the information on the source material. The allowable error in attribute accuracy ranges from 0.5% to 5%, at a 99% confidence level. Where less than 1% of attribute errors are permissible the entire population is tested. Where a less stringent limit is set for allowable errors, a random subset of the relevant features is tested.

Logical Consistency:
Logical consistency is a measure of the degree to which data complies with the technical specification. This involves tests to check that the table and file/field names are set out as in the data dictionary. It also involves graphical test to check intersections, polygon closure, minimum sizes of polygons and topological relationships. The allowable error in logical consistency ranges from 0% to 5%.

Completeness:
All instances of a feature and its attribute values that appear on the source material have been captured unless otherwise indicated in the selection criteria for that feature.

CONTACT INFORMATION

Contact Organisation: Geoscience Australia

Contact Person: Director, Sales and Distribution, CIMA

Contact Mail Address: GPO Box 378 Canberra ACT 2601

Telephone: +61 2 6249 9966

Facsimile: +61 2 6249 9960

Electronic Mail Address: sales@ga.gov.au

METADATA DATE: 07APR2006

ADDITIONAL METADATA:

Size of dataset: 201MB for personal geodatabase and around 100MB for Shapefiles and Mid/Mifs.

Scale/resolution: 1:100 000

Glossary

Term	Definition
Accuracy	The degree of conformity with a standard, or the degree of perfection attained in a measurement. Accuracy relates to the quality of a result, and is distinguished from precision, which relates to the quality of the operation by which the result is obtained.
Aerodrome	An area for the movement of aircraft and for the receipt and discharge of cargo. Aerodromes may be licensed by Airservices Australia.
Airport	Technically an aerodrome at which facilities exist for the shelter, servicing and repair of aircraft, and at which major navigation aids are installed. Note: Airport is used generically in these specifications to include licensed Aerodromes.
Alignment	The direction or position of a linear feature (e.g., road or railway), on a map in relation to surrounding topographic detail.
Approximate	Very near, fairly correct, near to the actual. 'Approximate Position' is used as a descriptive note on a map to indicate detail, the position of which cannot be determined to the accuracy of the map accuracy statement.
Area feature	A feature, which is portrayed as a region or surface. An area feature is bounded by one or more polygons.
Attribute	A descriptive characteristic of a feature. An attribute has a defined set of attribute values.
Attribute object	The attribute object holds the non-locational information about the feature instance
Australian Height Datum (AHD)	The datum used for the determination of elevation in Australia. The determination used a national network of benchmarks and tide gauges and set Mean High Water as zero elevation.
Azimuth	The azimuth of a point is the angle reckoned clockwise in a horizontal plane between the local meridian and that point.
Chart	A special purpose-map, generally designed for navigation or other particular purposes, in which essential map information is combined with other data critical to the intended use.
Compilation	The production of a new or revised map or chart, or portion thereof, from existing maps, aerial photographs, satellite imagery; surveys, and other source data.
Connector feature	An artificial linear feature used to connect a linear network across an area feature. This allows continuity of the feature and assists the process of linear network analysis.
Control	A collective term for a system of marks or objects on the earth or on a map or photograph, whose positions or elevations, or both, have been determined.
Datum	A point, plane, or surface to which systems of measurement are referred or related to one another. Hence: • GEOCENTRIC DATUM A reference frame which has its origin as the Earth's centre of mass, which is directly related to the orbits of satellites. Positioning from these satellites is a critical element in modern surveying, mapping, geographic information systems, navigation, aviation, land and sea transport, emergency services, law enforcement and recreation. • GEODETIC DATUM The position of a reference spheroid as defined by the position of one selected station, usually near the centre of the survey area, known as the origin, and the azimuth from the origin to an adjoining station. • VERTICAL DATUM A level surface to which elevations are referred, usually, but not always, mean sea level.
Edge	The interior and exterior definition of polygon extents inherent in the construction of the polygon. (In terms of this specification it is not used to indicate the related bounding line feature (geometry type line))
Elevation	Vertical distance from a datum, usually Mean Sea Level to a point or object on the earth's surface.
Enterprise geodatabase (egdb)	A geodatabase stored in a Relational Database Management System (RDBMD) which is accessed through an ArcSDE client via ArcGIS. It enables multi-user viewing and editing. Geoscience Australia's working national topographic geodatabase is stored as an egdb.
Feature	Cartographic feature. Spatial data feature. An abstraction of a real world phenomenon selected properties of which are illustrated on a map or held as spatial digital data.
Feature class	A group of features defined by a set of rules and which have common characteristics and

	relationships that are properties of the corresponding real world phenomena.
Feature instance	An occurrence of a feature class that has a unique set of attribute and relationship values.
Gauge	A dimensional standard, especially the distance between the two inside edges of the rails of a railway line.
Gauge (railway)	Broad gauge 1600 mm Narrow gauge 1067 mm Standard gauge 1435 mm
GDA94	See Geocentric Datum of Australia (GDA94)
Generalisation	A process by which features which cannot be separated at a given map scale are displaced from their true positions or simplified for the sake of cartographic clarity.
Geocentric Datum of Australia (GDA94)	Geocentric Datum of Australia 1994. A geocentric datum used for the determination of geographic co-ordinates. GDA94 is now in use for GEODATA TOPO 250K Series 2 and 3 products and GEODATA TOPO 100K ACT Region as well as associated topographic map products.
GEODATA	The commercial name adopted by Geoscience Australia, for its range of quality digital data products.
Geographical coordinates	A position given in terms of latitude and longitude.
Geoscience Australia	An Australian Government Agency responsible for geoscience research and geospatial information.
GIS	Geographic Information System. A spatial database, which is manipulated with a set of spatial operators or commands.
Graticule	A network of lines on a map or chart representing the parallels of latitude and meridians of longitude of the earth.
Grid	Two sets of parallel lines intersecting at right angles and forming squares; a rectangular Cartesian coordinate system that is superimposed on maps, charts, and other similar representations of earth's surface in an accurate and consistent manner to permit identification of ground locations with respect to other locations and the computation of direction and distance to other points.
Height	The vertical distance from the base to the top.
Heliport	A constructed and maintained landing area for helicopters.
Highest astronomical tide	The highest tide level, which can be predicted to occur under average meteorological conditions and under any combination of astronomical conditions.
Horizontal Control	A network of stations of known positions referred to a common horizontal datum (in Australia, AGD) and which control the horizontal position of mapped features.
Hydrography	Those features both natural and constructed of which water is the main constituent, either permanently or intermittently. Also, a GEODATA theme consisting of features pertaining to the drainage and run-off of water.
Infrastructure	A GEODATA theme consisting of features pertaining to transportation systems and also includes named localities and places.
Landing ground	Unlicensed facility with clearly marked runway but no airport facilities.
Latitude	The latitude of a place is its angular distance on a Meridian, measured northwards or southwards from the terrestrial Equator.
Layer	Subdivision of a theme into one or more layers of data on the basis of topological relationships. Linear networks, polygons and point/line features are placed in separate layers.
Longitude	A linear or angular distance measured east or west from a reference meridian (usually Greenwich) on a sphere or spheroid.
Lowest astronomical tide	The lowest level, which can be predicted to occur under average meteorological conditions and under any combination of astronomical conditions. For reasons of safety lowest Astronomical Tide is the datum used by Navy's Hydrographic Surveys.
Map	A representation of part or whole of the earth's surface usually to scale showing both natural and artificial features.
Map series	A group of map sheets usually having the same scale and cartographic specifications and collectively identified by the producing agency.
Map sheet	An individual map, either complete in itself or part of a series.
Margin	The area of a map sheet, which lies outside the Neatline.

Mean High Water (MHW)	The average height of all high waters at a place over an 18.6 year period. On small and medium scale maps MHW coincides with the coastline.
Meridian	A Great Circle arc of 180° terminated by the geographic poles.
MHW	See Mean High Water (MHW).
Minor road	Access, residential or local road.
National park	An area subject to strict control of the activities, which may take place in it, and under Government supervision to maintain its value to the public.
National Topographic Database (NTDB)	A database containing detailed spatial and attribute information on a national basis, its primary focus being on topographic information. The NTDB currently comes in two scales (1:250,000 and 1:100,000) and is managed by its custodian Geoscience Australia.
National Topographic Map Series (NTMS)	A civilian map series comprising a set of consistent topographic maps nationwide, at scales of 1:100 000 and 1:250 000.
NATMAP	A product name for topographic 1:100 000 and 1:250 000 scale map products using the NATMAP product name.
Neatline	A line, usually on the grid or graticule, which encloses the detail of a map.
Node	A point that is a junction of two or more lines or which is the end point of a line.
Node/line structure	The structuring of linear features in a theme layer so that they consist of lines broken by nodes at intersections or at the point where an attribute of the feature changes.
Non-perennial	Contains water for several months of each year or only contains water intermittently.
Parallel	A Small Circle parallel to the equator, on which all points have the same Latitude.
Perennial	Where an area normally contains water for the whole year, except during unusually dry periods, in at least nine years out of ten.
Personal geodatabase (pgdb)	A geodatabase stored in a Microsoft Access database which can be accessed directly by the ArcGIS suite of products. It enables multi-user viewing, but single-user editing. GEODATA TOPO 100K ACT Region is provided as a pgdb.
Polygon	A set of lines used to define the boundaries of an area. There is one external polygon and there may be one or more internal, non-nested polygons.
Positional accuracy	Statistical estimate of the degree to which planimetric co-ordinates and elevations of features agree with their real world values.
Principal road	Highway, regional and through road.
Prohibited area	An area into which entry is prohibited without the prior permission of the controlling authority.
Relief (GEODATA)	A GEODATA theme consisting of features defining the elevation and shape of the terrain.
Relief	The deviation of an area of the earth's surface from a plane. It refers to the physical shape of the surface of the earth.
Repromat	Material, generally in the form of positive or negative copies on film of each colour plate, from which a map may be reprinted without redrafting.
Scale	The relationship between the distance on a photograph, map or other graphic to its corresponding distance on the ground or to another graphic. See also Representative Fraction.
Secondary road	Linking and distributor road.
Segment	A direct line between a pair of vertices or a vertice and a node.
Source material	Data of any type required for the production of maps and charts including, but not limited to ground control, aerial and terrestrial photographs, satellite imagery, sketches, maps and charts; meteorological information; intelligence documents and written reports pertaining to natural and constructed features of the area to be mapped or charted.
Spatial object	The spatial object holds the locational information of a feature instance. For GEODATA it is composed of either a point, node, line or polygon.
Specification	A document, which sets out the standards to be adhered to in, the production of a particular dataset, map or map series. This generally contains information, which describes or represents data structure, the sheet layout, marginal information, symbols, lettering and colours to be adopted.
State forest	A tract of forest land gazetted as such by a government.
Symbol	A letter, character or other graphic device representing some feature, quality or characteristic on a map.
Terrain	A tract of country considered with regard to its natural features and configuration.

Theme	The information contained in the map production material is divided into four themes, which contain logically related geographic information (Hydrography, Infrastructure Relief and Vegetation). Each theme is capable of being used as a data set in its own right.
Tile	The area of a spatial database included in a data transfer.
Tile Edge	An artificial linear feature, which indicates the boundaries of the tile. The tile edge closes off polygon features, which are situated in more than one tile.
Topographic map	A map whose principal purpose is to portray and identify the features of the Earth's surface as faithfully as possible within the limitations imposed by scale.
Topography	The detailed description, especially on a map, of a locality; including its relief and any relatively permanent objects, whether natural or of human origin, thereon. The configuration of a surface, including its relief, the position of its streams, lakes, roads, cities, and other features. The earth's natural and physical features collectively.
Track (railway)	The number of sets of rails.
Track (vehicular)	Public or private roadway of minimum or no construction, not necessarily maintained.
UFI	Unique Feature Identifier.
Vegetation	A GEODATA theme consisting of features describing the vegetation cover.
Vertice	An intermediate point on a line for which coordinates are held in the data.