Section 2 - NTMS Specifications

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1. Scope of this Document

This document, the NTMS Specification, provides the rules and guidelines for the generation of the Geoscience

Australia 1:100 000 and 1:250 000 Topographic Map Series maps products. It includes the relevant standards expected for map accuracy, datum control, map generalisation principles, map symbology and masking rules, type selection and placement rules, type (font & size) specification and standard type abbreviations.

Conformance to these specifications will assure uniformity through all mapping elements and agencies engaged in the production and maintenance programs for these series.

2. Introduction

2.1 Use of Maps

The topographic map is a graphic representation of a portion of the earth's surface generalised to allow significant detail to be shown with clarity and without ambiguity. Detail is systematically plotted to scale on a selected map projection to present the horizontal and vertical position of topographic features in an identifiable and measurable form.

2.2 Map Accuracy

The term 'map accuracy' refers to the positional and vertical accuracy of information contained within the map. The term may also describe the quality and completeness of the information shown on a map. To the map user, the quality and completeness of the information is of prime importance and may take precedence over absolute positional accuracy. Thus the map maker must exercise maximum care in ensuring that the detail plotted is complete, correctly classified and portrayed with shape fidelity. Generalisation, although necessary in derived products, must be kept to a minimum.

2.2.1 Positional Accuracy

The positional accuracy of features on a map is an estimate of the degree to which the coordinates of that feature agree with the true values or values accepted as being true. The error in the position of a feature results from :

- The errors inherent in the reference data used in the map production process;
- The errors in the digitising process used to capture the data during the map production process; and
- The errors inherent in the process of generalisation that forms part of the map production process.

The measure of accuracy given for topographic maps is the standard deviation.

Well-Defined Points:

Well-defined points can be accurately identified on the map. Most commonly the well-defined points used in tests are at feature intersections. Geoscience Australia has carried out both error analysis and field tests to verify the positional accuracy of features on the existing mapping.

NTMS maps will comply with the following statement of planimetric accuracy:

At 1:250 000 scale, the summation of errors from all sources results in map detail with a standard deviation of 85 metres for well-defined features.

An alternative and equal way of expressing this error is:

- Not more than 10% of well-defined features are in error by more than 140 metres

At 1:100 000 scale, the summation of errors from all sources results in map detail with a standard deviation of 34 metres for well-defined features.

An alternative and equal way of expressing this error is:

- Not more than 10% of well-defined features are in error by more than 56 metres

2.2.2 Vertical Accuracy

The National Mapping Council of Australia *Standards of Map Accuracy* (2nd edition, 1975) stated in general terms that, **90% of tested contours and elevations interpolated from contours will be accurate to within one half a contour interval of their true height**. A definitive statement on map accuracy, both horizontal and vertical, is included in the marginal information of all maps.

2.2.3 Impact of Generalisation

Some features are subject to cartographic generalisation. Features may be 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. At the time of compilation a hierarchy determines which features are held in the correct position. The following features may be 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 will be given precedence over constructed features. Features not on the list may be displaced unless otherwise stated in Appendix A, Feature Class Dictionary. In such circumstances the position of features on the list will be maintained over the position of features not listed. If two features need to be offset to one another and neither is listed, the position of the feature with greater landmark value will be maintained.

- Hydrographic lines such as coastlines, watercourses and lakes
- Railways
- Principal roads
- Secondary roads
- Minor roads
- Vehicular tracks
- Buildings
- Vegetation boundaries

For example, if a railway and road were coincident at the scale being produced, the road would be displaced. Where two or three features are close and adjacent, one may be displaced by up to 225 metres at 1:250 000 scale and 90 metres at 1:100 000 scale. In the worst case when all these features are close and adjacent, one may be displaced by up to 675 metres at 1:250 000 scale and 270 metres at 1:100 000 scale.

Such displacement must maintain the correct alignment and spatial relationship of one feature to the other. Point features such as buildings in close proximity to linear features should be displaced in such a way that they retain, as far as possible, their positional relationship relative to other features. Where displacement of buildings will result in unnecessary clutter they may be deleted from the map. After displacement, these symbolised features will not remain within accuracy tolerances and therefore cannot be included in accuracy tests.

For example, at the scale of 1:100 000 and using the prescribed symbolisation (0.5mm x 0.5mm), the typical Australian house would cover an area on the ground equivalent to 50m x 50m, and the symbol for a single-track railway would occupy a width equivalent to 250 metres. The portrayal of many other features requires similar exaggeration.

2.3 Use of Map Symbols

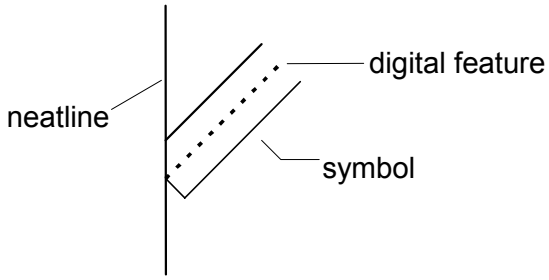
Symbols and colours to be used are set out in Appendix A; Symbol dictionary.

2.3.1 Positioning of Symbols

Normally the centre of a symbol will correspond with the position of the centre of the feature on the ground and unless otherwise specified, the orientation of the symbol will correspond with the orientation of the feature on the ground.

When, for the sake of clarity, it is necessary to displace a symbol, the amount of displacement will be kept to a minimum. In situations where it is not possible to correctly position all the symbols for a group of features, only the symbol for the most important feature will be shown.

The symbology for linear features will not extend beyond the map neatline. Symbology for features that meet the neatline will be truncated at right angles to the feature within the neatline. Treatment of the symbology for linear features meeting the tile edge is shown below.



2.4 Map Projection and Grid

The maps are published on the Universal Transverse Mercator projection. The projection, spheroid and grid zones are as specified for the Geocentric Datum of Australia 1994 (GDA94). A brief description is available in Appendix M and additional information on GDA94 is available on the World Wide Web at:

http://www.ga.gov.au/nmd/geodesy/datums/gda.jsp

2.5 Map Extents

Generally, each standard 1:100 000 map will cover a half degree of latitude by a half degree of longitude. An extension to the North and the East is included to compensate for the transition from the AGD66 to the GDA94 Datum. Extensions have been made to include large cities into one map and also to minimise the areas of sea contained on a map.

At 1:250 000 scale each standard map will cover a one degree of latitude by one and a half degrees of longitude. The maps will also have a ‘bleed edge’ of approximately three minutes to the north and around 5 minutes to the east. Extensions have been made to include large cities into one map and also to minimise the area of sea contained on a map.

For a detailed list of non-standard map areas, sheet extents and paper sizes refer to Appendix H.

2.6 Map Sheet Numbers and Names

The map indexes will be included in Appendix G.

2.7 Datum for Map Control

Horizontal control coordinates are based on the Geocentric Datum of Australia - 1994 (GDA94).

Vertical control values are based on the Australian Height Datum 1971, which is based on mean sea level 1966-1968.

2.8 Contour Interval

Generally, the standard contour interval for 1:100 000 scale maps is 20 metres. Occasionally omission of contours from the map (but not the data) will be necessary due to the nature of the terrain; variations to the standard interval will be advised on the map.

1:250 000 scale maps generally have a contour interval of 50 metres. Where omission of contours from the map (but not the data) is necessary due to the nature of the terrain in certain areas, variations to the standard interval will be advised on the map.

2.9 Masking

This chapter provides rules so that masking of features is applied uniformly to reproduction material. These rules come into force where overprinting between symbols of different colour is undesirable and clashes between features are unavoidable, see chapter 2.2.3 Impact of Generalisation and chapter 5 Type Selection and Placement. These rules do not affect features in the Working Database but will be applied in the processes that produce the reproduction material.

Specific instructions have been included in Appendix A, Feature class dictionary and these will take precedence over these guidelines. Care should be taken in reading Appendix A to differentiate between:

- Map rules which require masking (features to be broken) on the repromat but do not affect the features in the working database;
- Map rules or general rules which require a feature to be symbolised to 0 in certain circumstances; and
- Data rules or general rules that control the presence of a feature in the working database.

General rules for masking are:

- Unless covered by another general rule or a specific rule in Appendix A, Feature class dictionary, all symbols will overprint one another.
- Unless otherwise stated features will be masked with no gaps around the feature which is maintained.
- Solid black point, linear and area symbols and solid black pattern screens will be masked out for black type with a 0.2 mm gap around the type. Screened black features will not be masked for type.
- Area features will be masked out for Prohibited Area line verges.
- All other features will be masked for Route Marker – National, and Route Marker – State symbols and for Locality code 10 symbols.

3. Information to be included

3.1 Information Internal to the Map

Those features specified in Appendix A - Data Dictionary will be included on the map. The Feature Class Dictionary establishes criteria for inclusion of features. In complex areas care should be taken when adding new features to avoid clutter and ambiguity on the map.

3.1.1 Grid

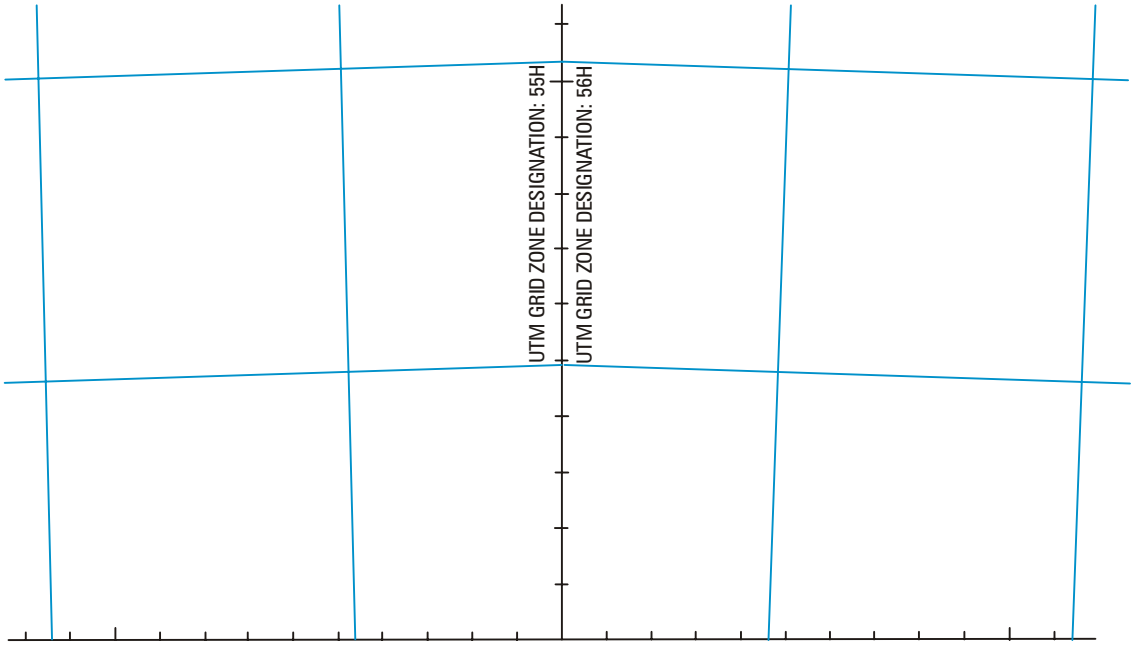
For 1:250 000 scale maps, grid lines at ten thousand metre intervals of the Map Grid of Australia (MGA94) will be shown as specified on the relevant 1:250 000 NATMAP Series Format Sheet, Appendix B.

For 1:100 000 scale maps, grid lines at one thousand metre intervals of the MGA94 will be shown as specified on the 1:100 000 NATMAP Series Format Sheet, Appendix B.

Where the eastern bleed edge crosses the grid zone boundary or the sheet is extended to the east across a zone boundary, all data will be plotted on the primary zone. However, in the bleed or extended area the appropriate grid for the adjacent zone, properly georeferenced will be plotted rather than the primary grid. For example, the Bega or Dubbo 1:250 000 would be plotted on Zone 55 with the Zone 56 grid in the correct orientation plotted for the area east of 150 degrees east.

Where a map overlaps two or more zones the zones will be labelled at the boundary. The label will be in black UMC 7 point type all in caps. The label will be offset 2.5 mm from the graticule line where the zone change occurs.

Example (1: 250 000 only)



The ‘UTM Grid Zone Designation’ note will not be included on 1:100 000 scale maps.

3.1.2 Graticule

For 1:250 000 scale maps, graticule lines at one minute intervals will be shown as specified on the relevant 1:250 000 NATMAP Series Format Sheet, Appendix B.

For 1:100 000 scale maps, graticule lines at one minute intervals will be shown as specified on the 1:100 000 NATMAP Series Format Sheet, Appendix B.

3.2 Map Surround Information

Information to be shown will conform to the format sheets at Appendix B.

4. Feature Names

Inclusion of names on the map does not imply approval by the relevant Geographic Names Board. However, an authoritative source should be used. Names appearing on the latest previous edition map at the same scale will be shown unless the named feature no longer exists. Additional names may be included from source material supplied, larger scale topographic mapping or from the controlling authority.

4.1 Type

Type styles and sizes to be used inside the neatline are specified in chapter 8 (1:250 000 Scale Type Specifications) and chapter 9 (1:100 000 Scale Type Specifications).

Specifications for type styles, sizes and placement of grid and marginal information are contained in the appropriate format sheets in Appendix B (for both 1:250 000 and 1:100 000 scale).

5. Type Selection and Placement

Names and descriptive notes are integral components of a map, which are essential aids to the identification and qualification of features depicted on the map. They also provide information that cannot be shown by mapping symbolisation.

The final map should not be cluttered or ambiguous in content. Names and descriptive notes should be in a size and style relevant to the prominence and/or of the relative importance of the depicted features.

5.1 General

The proper selection and placement of type is of extreme importance and will not only benefit the map user but also the final appearance of the map. Poor or careless labelling of features can cause complications in map reading and negate the cartographic quality of the map.

Only standard abbreviations listed in Chapter 10 Authorised Abbreviations, will appear on the map.

Type selection and placement is governed by the nature, size and relative importance of the feature to be identified.

The examples provided illustrate preferred and less desirable approaches to map labelling, and in the interests of clarity, reflect optimum conditions. However, it must be realised that what is deemed incorrect or less desirable may be the only alternative under abnormal conditions.

Preferred positioning of type, as outlined in these specifications, is established to ensure a standard treatment of definitive labelling.

5.2 Selection of Names and Descriptive Notes

The selection of names and descriptive notes will be based on the source material supplied by Geoscience Australia.

Names used on the latest previous edition map should be maintained unless there is strong evidence that they are incorrect or that the named feature no longer exists.

When considering the selection of names to be included on the map, every effort should be made to ensure that they are compatible with the particular map area, scale and use.

Factors that must be considered are:

(1) Date and reliability of the data,
(2) Density of names and detail,
(3) Legibility of the final product,
(4) Name placement relative to the depicted feature,
(5) The relative prominence and/or importance of topographical features within the area,
(6) The amount of descriptive notes necessary for clear portrayal, and,
(7) Consistency with adjoining maps.

Common failings in the selection of names and descriptive notes include:

(1) Undue emphasis being given to minor features,
(2) Lack of consistency between similar features,
(3) Clutter,
(4) Ambiguous type placement, and,
(5) Inconsistency between adjoining maps.

5.3 Principles of Type Placement

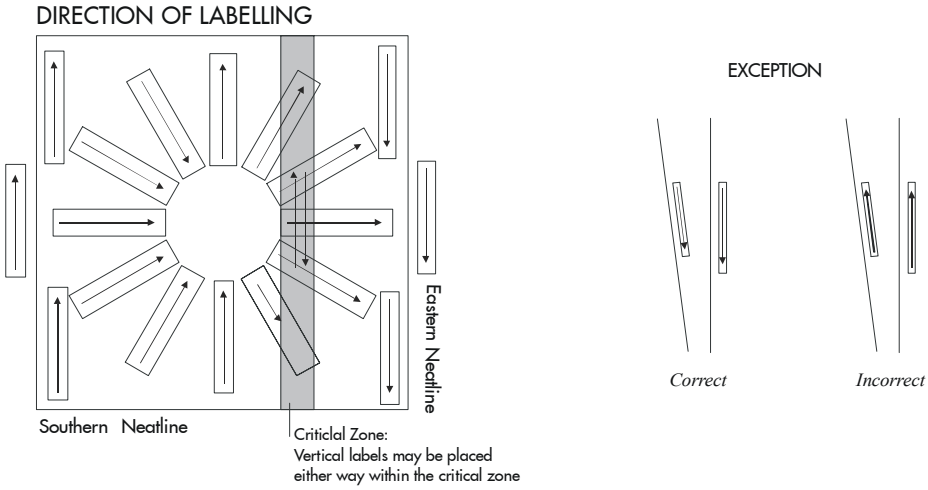
This chapter establishes the basic rules for type placement. These rules are subject to exceptions. Frequently more than one rule may apply to a particular situation and these rules may be in conflict with one another. In these situations the overriding factors in assessing which rule(s) takes precedence are determined from a standpoint of graphic legibility and order of importance. The rules are given in their order of importance.

1. Internal type is positioned to assure immediate and unmistakable identification of the features being labelled. Where possible, labelling is placed in areas of sparse symbolisation to avoid obscuring important land formations and other detail.
2. For most features labelling should be placed in a straight line. Where a feature constitutes a simple curve, the associated type should be broken into its individual word components and each component positioned parallel to the part of the feature to which it is adjacent. When labelling complex curves (eg. rivers, ranges) the individual components are to be positioned so that they are parallel to the generalised shape of the feature. In both cases the components should appear to flow into one another and not have a disjointed appearance.

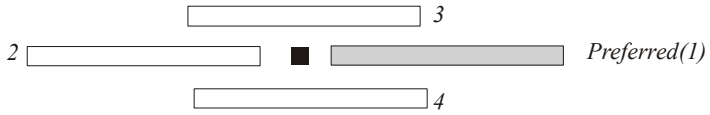
3. The maximum spacing between successive words of a feature name will be approximately one and a half (1½) times the length of the unspaced feature name. In many instances it will be practical to exceed the 1½ times rule providing word continuity is kept. Where practicable the word spacing should be the same for all words in a name.

4. Type positioned parallel to the easting grid line is aligned to read to its best advantage when viewed from the south neatline. The one exception to this rule occurs when adjacent features are nearly parallel and only one diverges from the perpendicular. In such cases, the direction of labelling is not reversed for the perpendicular feature.

Examples:

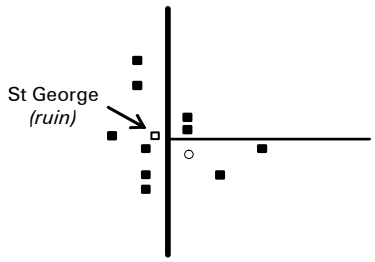


5. When labelling individual symbols or small concentrated groups of symbols comprising a single feature, the type is to be placed adjacent to the symbol or symbols and aligned parallel to the northing grid lines. Where a map crosses a zone boundary, type will be aligned parallel to the northing grid lines for the grid covering the majority of the map. Preferred and acceptable alternate positioning of type is illustrated in the following diagram. Numbers indicate priority order for the type position.



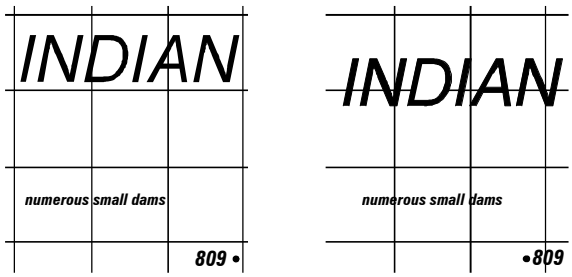
6. Instances will occur due to density of detail where type must be placed a distance from the feature to be identified. In these instances a feature pointer extending from the type to the feature is required. However, this practice is kept to a minimum.

Example:



7. An integral part of any map is the grid and/or graticule. As such it is preferable that type be positioned in such a manner as to avoid overprinting grid/graticule lines (particularly the northing grid lines) or numbers. Obviously this will be impossible in some cases (eg. ocean names, areas of dense detail etc.). In these cases it is preferable that type does not overprint grid/graticule intersections, as these are important measurement points when calculating grid references. When labelling spot features it is preferable that both the symbol and the relating type fall within the confines of the same grid square. Where this is not possible due to length of type, the type should be positioned so that the grid/ graticule line does not impair its legibility. In extreme cases the grid/graticule may be broken to accommodate type.

Examples:



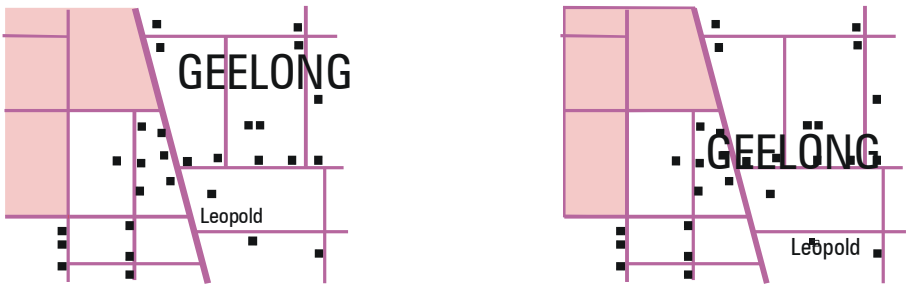
Preferred *Less desirable*

8. Where possible, overprinting of type and detail, which print in the same colour, is to be avoided. In unusual cases, particularly where smaller type sizes are involved, it is necessary to block out features when legibility of type would otherwise be impaired.

   The overprinting of type (letter touching letter) regardless of printing colour is not permissible in any circumstances.

9. Type should be positioned to avoid overprinting features that are to be printed in black, especially where such features are parallel to the type. When it becomes necessary to position labelling across linear features that are at right or near right angles to one another, the type is placed so that the letters of the label clear the perpendicular features.

Examples:



Preferred *Less Desirable*

10. Names consisting wholly of capital letters are centred within the area being identified, built-up areas excepted. If the area is extensive letter spacing is desirable.

    Line spacing between words (leading) to be equal.

EXAMPLE: Type is generally centred, if possible, when placed within the area feature.

If the name does not fit within the area then the following rules apply:

EXAMPLE: Type is left justified when placed to the right of the area feature.

EXAMPLE: Type is right justified when placed to the left of the area feature.

If the area is extensive, letter spacing is desirable. When spacing type, the spacing between letters is not to exceed four (4) times the point size of the letters. Where letter spacing is used and the name consists of two or more words, the space between words is equal to three (3) times the space between the letters. Type that is letter or word spaced must be positioned so that the name stands out distinctly as a complete name. In congested areas, caution is advised on the use of maximum spacing since the continuity of names may be disrupted.

EXAMPLE:

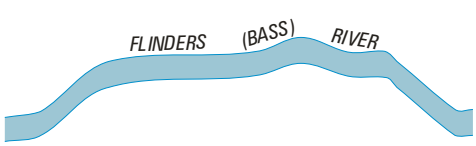
RESERVE (12 point)
R E S max letter spacing 36 point (3 times type size for 2 words)
36 point
It is not permissible to letter space names shown in both capital and lower case lettering.

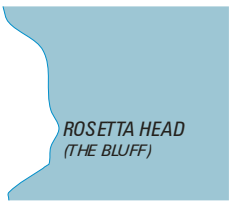
Descriptive labels should be centred within or adjacent to the features area. Labels are aligned parallel to the northing grid line, however, in unusual cases they may be positioned to follow the general shape of the feature.

11. Alternate names are preferably positioned below the primary name in the case of point or area features, and following the primary name in the case of linear features. Alternate names are shown in parentheses and in the same style of type as the primary name, but one point size smaller. An exception to this Rule occurs when the primary name is in the smallest type available or is in the smallest legible size.

    In cases where the primary name includes a generic term (eg. 'River', 'RANGE'), the alternate name is placed between the primary and the generic term. Single word alternatives are placed adjacent to the primary name.

Examples:





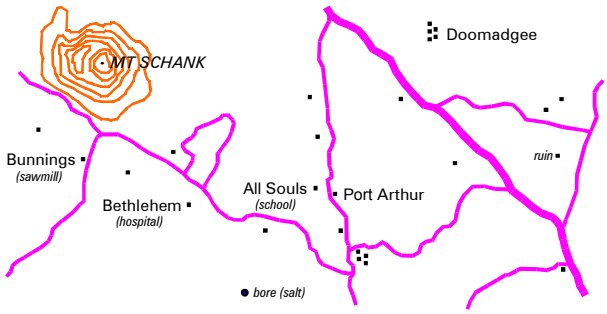
12. Descriptive terms may be added for the purpose of clarifying a primary name (eg. 'ruin', 'walled', 'abandoned'). For point and linear features descriptive terms are enclosed by parentheses. The parenthesised type is preferably centred directly below or positioned immediately following the primary name it clarifies.

    A descriptive term included where there is no primary name or label will not be parenthesised.

    All descriptive labels on point and linear features, parenthesised or not, will be shown entirely in lower case lettering and italicised.

    See chapter 5.7 Descriptive Notes on Area Features for handling of descriptive notes on area features.

    Example:



13. Punctuation is omitted except for hyphens and apostrophes that are integral parts of official designations. Full stops are not to be used with abbreviations.

14. At 1:250 000 feature names should be placed so as to be wholly within or wholly outside the areas of overlap within adjacent maps. At 1:100 000 no annotation should exist in the bleed (map overhang).

15. Case sensitive names: Lower and uppercase letters will be used if they are an integral part of the proper name. For example: McLarty Hills or McLARTY HILLS; St George or St GEORGE. In all instances, the lower case letter will be aligned at the bottom of the other letters.

5.4 Populated Centres

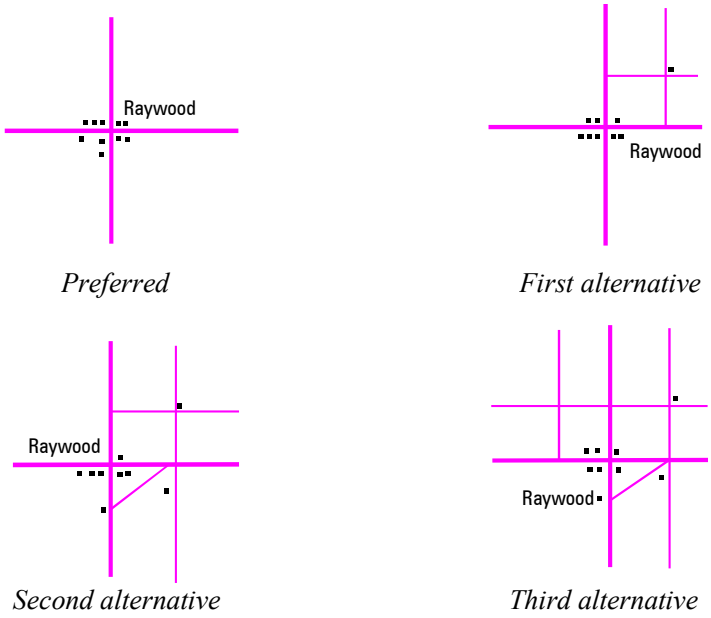
Populated centres are depicted on the map by either individual buildings, clusters of buildings, built-up areas or built-up area symbols. The type size and style for place names are selected to fit predetermined classifications relative to population. See Chapter 8 (1:2500 000 Scale Type Specifications) and Chapter 9 (1:100 000 Scale Type Specifications).

When identifying a built-up area, it is preferred that the name be positioned entirely within the limits of the area, provided that the legibility of type or continuity of cultural features is not impaired. When preferred positioning cannot be adhered to, the name is placed adjacent to the feature and aligned in accordance with 5.3 rule 5.

When naming localities, the term 'mission' and 'homeland' should be avoided - refer to Geoscience Australia for correct name. Indigenous community names also need to be checked against geographic source information as many have changed in recent years. The word 'Community' may be used if it is the official name, eg: Burringah Community.

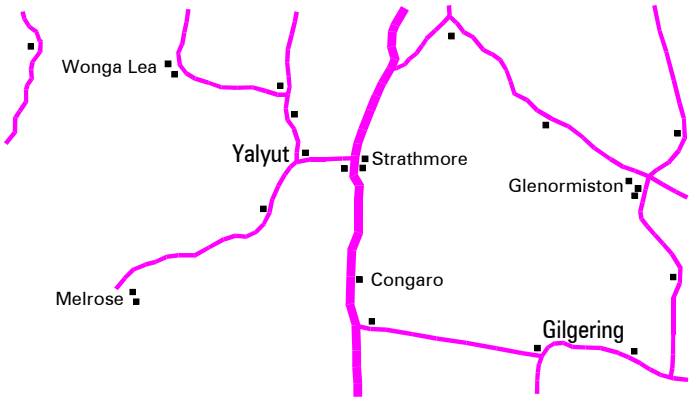
The names for localities represented by concentrated groups or clusters of building symbols are positioned in close proximity to the subject area. Type is preferably placed at, or near, the junction of the most heavily travelled route(s) passing through the populated centre.

Example:



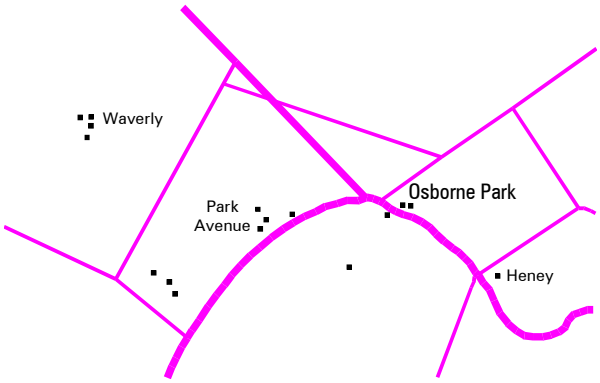
A locality comprised of several individual homesteads requires unique treatment in that the name is placed over the approximate centre of the area covered by the locality. It is preferable that the type be placed parallel to the northing grid line (See over page for example …)

Example:



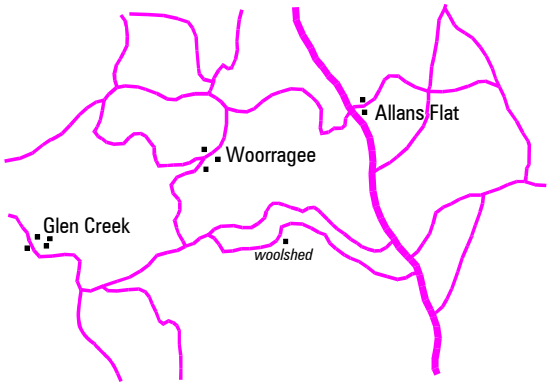
Instances will occur, particularly in flat areas, where localities are comprised of semi-scattered buildings strung out along the major communication routes. When labelling this type of locality the name is placed adjacent to the junction of the main thoroughfares bisecting the locality.

Example:



In some rural areas, localities are comprised of widely dispersed buildings. These areas are often identified by references to prominent local features. Where this occurs, the name is positioned in the immediate vicinity of the feature referenced and extended toward the general area it serves to identify.

Example:



Proper names of well-known sections within a city, or outlying suburban areas, are shown in populated place type. The type is shown in capital and lower case lettering and is centred in the area concerned. The type size is scaled relative to the size of the subject area.

Names of places located along shorelines are placed entirely in the open-water area. Where developed areas are located adjacent to (but inland from) the shoreline, the name is placed entirely on the land area.

Examples:

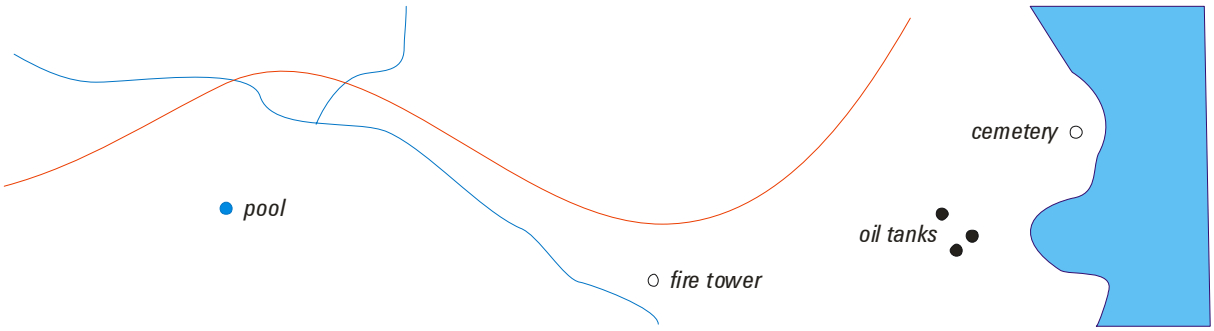
Preferred

Less desirable

5.5 Point Features

An individual symbol or small concentrated groups of symbols may be labelled. The labels for features are usually descriptive. When labelling point features the type is positioned in accordance with chapter 5.3 rule 5. Where there are large numbers of instances of a feature, a general descriptive note may be included so as to reduce clutter, for example ‘pools’. Care will be taken to avoid ambiguity when this is done.

Examples:



5.6 Linear Features

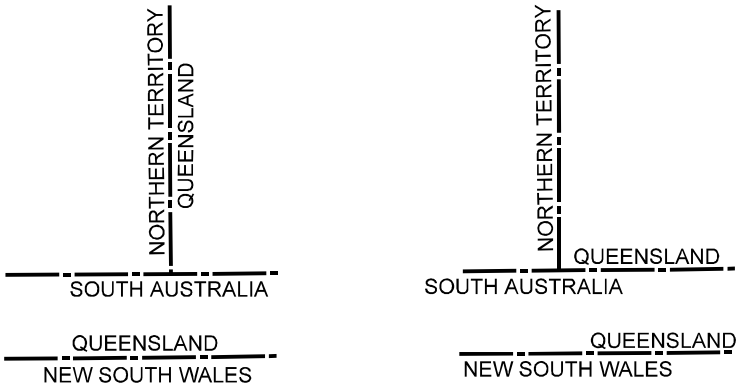
Linear features include such items as roads, railways, power transmission lines, pipelines, double and single line watercourses, and similar features. When labelling linear features, it is preferable that the type be placed parallel to and above the upper side of the symbol as viewed from the south neatline.

Names for linear features are never letter spaced or extended. When a name placed at the middle point of a linear feature does not identify it sufficiently, the name is repeated at appropriate intervals to further clarify the symbol.

Where possible, labelling is placed along the straight segments of linear features rather than the curved portions. Where there is no alternative but to label the curved portions, type is to be positioned in accordance with chapter 5.3 rule 2.

When labelling boundaries, the names are placed on the side of the boundary that corresponds with the area being identified. It is preferred that the names be positioned adjacent to one another and parallel to the boundary symbol separating them.

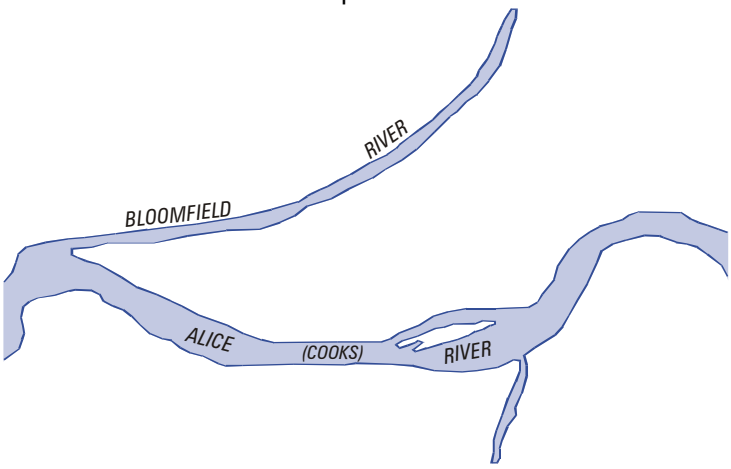
Examples:



Preferred *Less desirable*

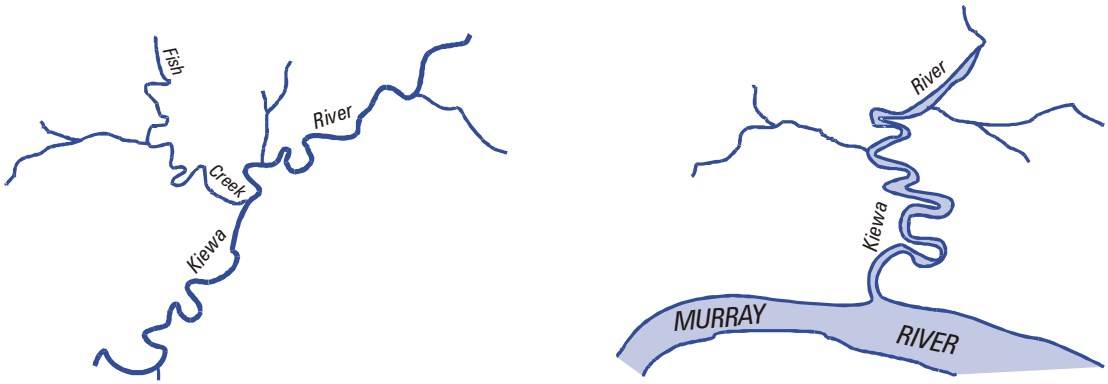
In the placement of type referring to drainage features, "U" or inverted "U" shaped labelling is to be avoided. When labelling double line watercourses, it is desirable to have the names within the shorelines, provided the feature is wide enough to accommodate the entire name. Type is never positioned partially in or out of double line streams.

Example:



When labelling watercourses that are predominantly double line, the name is shown wholly in capital letters. The names for single line watercourses are shown in capital and lower case lettering.

Examples:



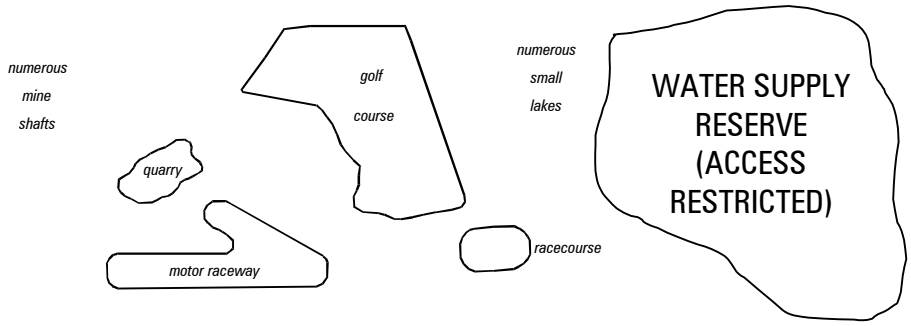
Where a feature is too small to show the identifying type in its entirety, the authorised abbreviation given in Chapter 10 Authorised Abbreviations is to be used.

5.7 Descriptive Notes on Area Features

Included in this category are features that are indicated only by descriptive labelling or where a descriptive label gives more information on the feature. The type should be centred within or adjacent to the features area. Labels are aligned parallel to the grid, however, in unusual cases they may be positioned to follow the general shape of the feature. See Appendix A, feature class dictionary, Park, Distorted surface, Open Cut/Mining area and Rocky Outcrop. Descriptive notes may also be used for areas not stored as features in the database.

For unnamed and otherwise unlabelled area features the descriptive notes will be as specified in chapters 8 (1:250 000 Type Specifications) and 9 (1:100 000 Type Specifications). For large areas the descriptive note may be repeated. For named or otherwise labelled areas such as reserves the descriptive notes will be in the same style and size as the name.

Examples:



5.8 National Parks and Similar Features

When labelling national parks and similar features, it is preferable that the type be centred within the feature, space permitting. When the area is extensive, letter spacing is desirable (see Example 1).

Descriptive labels such as (ACCESS RESTRICTED) will be shown in the same type size as the reserve name label (see Example 2).

It is not uncommon to find smaller designated land tracts as integral parts of larger designated land areas. Labelling of the smaller designated areas is to be in a type size appropriate to the size of the area.

Where a national park or other reserve consists of several separate areas each area is named. In cases where a national park or other reserve includes several offshore islands or both mainland and offshore island(s), type pertaining to the national park or other reserve will also be placed below the island name in a size relative to the size of the island. Where a reserve includes areas of both land and sea the type will be placed in which ever is the larger of the land or sea area (see Example 3).

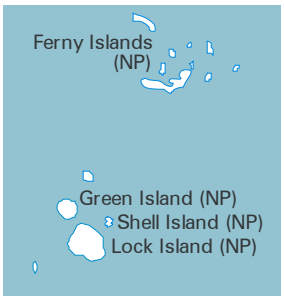
Situations may occur where a large number of islands form a National Park or Reserve and the Islands have the same name as the National Park or Reserve. Where the addition of the Park or Reserve name to each island would result in clutter, the abbreviation '(NP)' may be added after the island names. In this case the name of the reserve must appear at least once on the map (see Example 4).

Examples:

Example 1

Example 2

Example 3



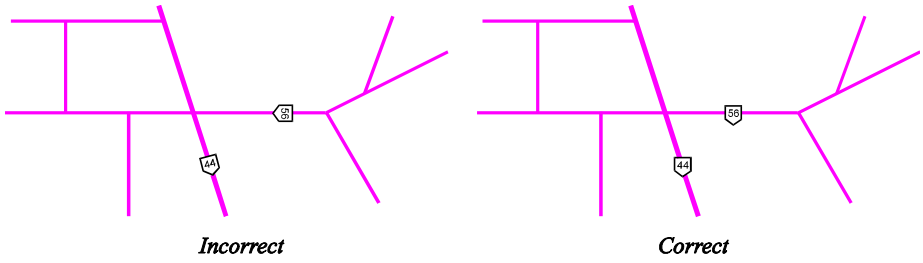
Example 4

A descriptive note may be added on the map (space and legibility permitting) where a reserve or prohibited area boundary is not displayed because it follows the coastline, for example ' *reserve boundary follows coastline*' or ' *prohibited area boundary follows coastline'*.

5.9 Route Markers and Distance Indicators

Route markers are centred on their respective road symbols and aligned parallel to the grid line. Route markers are positioned so as to avoid grid lines, linear drainage symbols, and congested map detail. All other detail is blocked out of route markers.

National Route Marker example:



The following are guides for placement of route markers to assure maximum effectiveness.

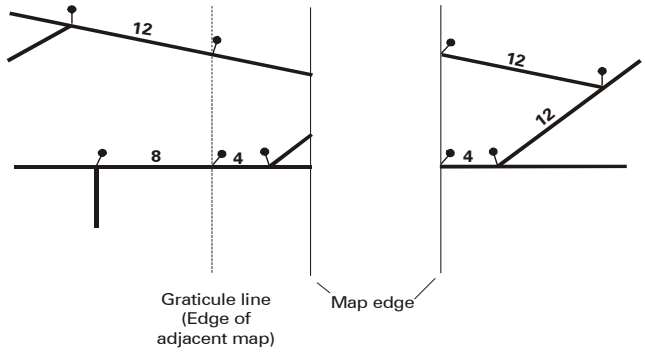
(1) Route markers are positioned in areas free of congested map detail.
(2) On roads that continue onto adjoining sheets, route markers are shown close to the map neatline.
(3) Route markers are shown close to populated places.
(4) Route markers are shown as often as required to ensure identification and reader continuity.
(5) Route markers are shown in the vicinity of road junctions and intersections.
(6) Individual route markers are shown for each route value when roads have a designated combination of two or
more routes. When this occurs, the markers should be shown close together.

Kilometric distance indicators and the associated distances will be placed to avoid ambiguity and allow the calculation of route distances. Particular care should be taken around the map edges with the placement of kilometric distance indicators. Placement of indicators should be consistent between adjacent sheets and allow calculation of distances to continue from one sheet to another.

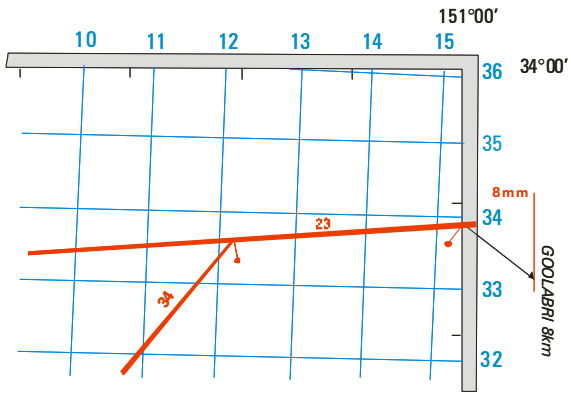
1:250 000 map distance measurement
On the south and west sides of the map, measurements will be shown to the edge of the map. On the north and east sides, distances will be shown to the graticule line which forms the edge of the adjacent map. Where there is a destination point to be indicated within the bleed edge a distance will be given to that point from the graticule line which forms the edge of the adjacent map.

1:100 000 map distance measurement
On the south and west sides of the map, measurements will be shown to the edge of the map. On the north and east sides distances will be shown to the GDA94 graticule line which forms the edge of the adjacent GDA94 map. No destination point will be indicated within the area between the GDA94 and AGD66 graticule lines.

1:250 000 Scale example:



1:100 000 Scale example:



5.10 Relief Features

Features included in this category are: mountains, mountain ranges, ridges, valleys, plains, gorges, peaks, hills, bluffs, tors, and topographic surface characteristics.

In labelling relief features that are extensive in size, the type is positioned slightly above the axis of the landform as viewed from the south neatline. The name may be letter spaced and is aligned parallel to the general formation of the feature.

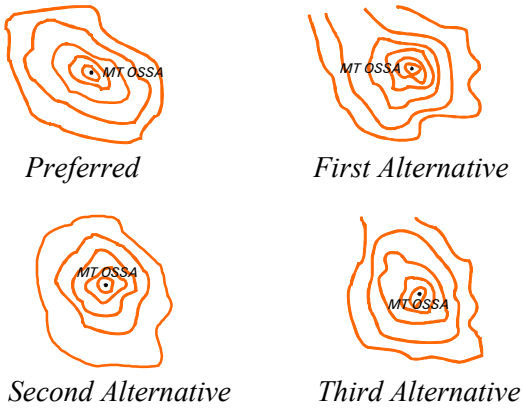
Example:

The names for narrow valleys, gorges, and similar features are preferably placed on the upper side of, and parallel to the axis of the feature identified.

The words ‘Mount’ and ‘Mountain’ will be abbreviated in all cases for these relief features as per the following examples; ‘Mount Donald’ would be shown as ***MT DONALD*** and ‘Glendower Mountain’ as ***GLENDOWER MTN*** on the map. Where ‘Mount’ and ‘Mountain’ form part of the name for a Range relief feature, this abbreviation will not be applied. For features other than relief features, the normal rules for use of abbreviations apply.

When labelling hills, peaks, pinnacles, and similar features, the type is placed in accordance with chapter 5.3 rule 5 provided it does not obscure other prominent detail, and the continuity of the relief remains unchanged. To avoid ambiguity, a spot elevation symbol may be used. Preferred and acceptable alternate positioning of names is established by the following examples:

Examples:



Preferred *First Alternative*

Second Alternative *Third Alternative*

Terms describing the nature of terrain, such as "gilgai" or "lava" are required when such features cannot be precisely identified with reference to the map symbol legend or where definitive labels must serve as the only means of area identification. When supported by a symbol pattern, labels are centred within the subject area. When labelling large areas void of distinctive symbolisation, the term is repeated as often as necessary to properly define area coverage and the approximate limits of the feature.

5.11 Contour Values

Contour values provide a convenient means of reading elevations portrayed by contour lines. The number and location of contour values is governed by the nature of the terrain, density of contours, and the number of horizontal control points and spot elevations. Areas of complex topography require a greater number of contour values than do areas of simple terrain.

Contours above the datum plane are labelled with positive numerals bearing no prefix. Contours below the datum plane are prefixed with the negative sign (-). Contours that are level with the datum plane are labelled with the numeral 0 (zero). Contours are not broken for contour values.

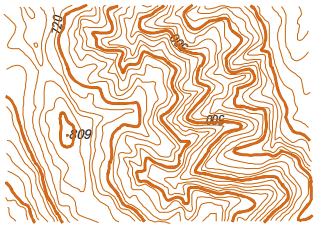
Contours will be labelled with the values reading uphill. Preference is given to them being legible from either the south or east neatline. Values for negative and zero contours are positioned in the same manner.

In the majority of cases, preferential treatment should be given to labelling index contours. In flat areas, however, most contours should be labelled so as to facilitate interpretation of the terrain.

Contour values are centred on the axes of contour lines, and are not positioned in the immediate vicinity of horizontal control points, bench marks, or spot elevations.

Examples:

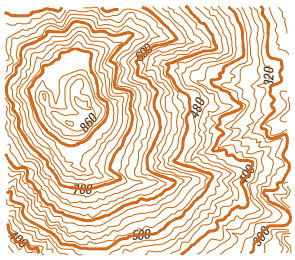
Preferred



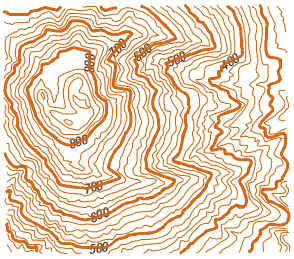
Less Desirable

When labelling contours, sets of numerals are positioned so that a mechanical or stepladder like appearance is avoided.

Examples:



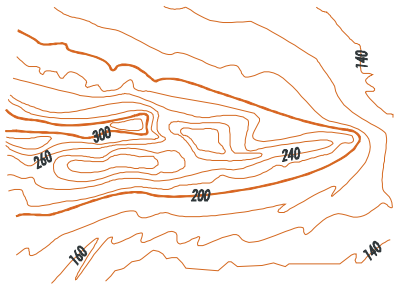
Preferred



Less Desirable

Contour values are most effective when positioned near the ends of spurs, the sides of ridges, and at pronounced changes in topography. Under no circumstances are values positioned in mirror like sequence on each side of a particular ridgeline or landform.

Example:



Contour values are evenly distributed throughout the map sheet thus enabling the user to determine elevation without a prolonged search for reference points. When labelling contours portraying major landforms, values are repeated at distances of from 10 to 15 centimetres. Contour values will be positioned clear of all other detail.

Space permitting, contour values are added to auxiliary and depression contours wherever they are shown.

Isolations should be labelled where possible.

Sufficient values should be positioned near the neatline so that it is possible to determine the value of any contour crossing the neatline. Descriptive labelling will always take precedence over contour labelling.

5.12 Spot Elevations

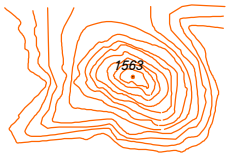
Spot elevation values are positioned in close proximity to the symbol they identify. Where possible, the elevation values are placed to avoid obscuring features of importance to the map user; for example, peaks, ridges and saddles. It is preferred that the values be positioned to the right of the defined point with the centre of the numerals aligned with the horizontal centre of the referenced symbol.

Examples:

Elevation only:

Preferred

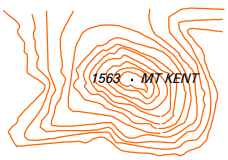
First alternative



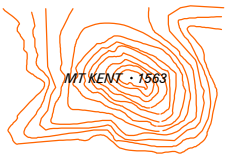
Second alternative

Third alternative

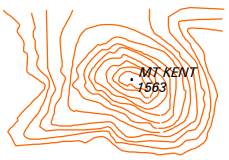
Elevation and feature name:



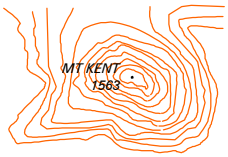
Preferred



First alternative



Second alternative



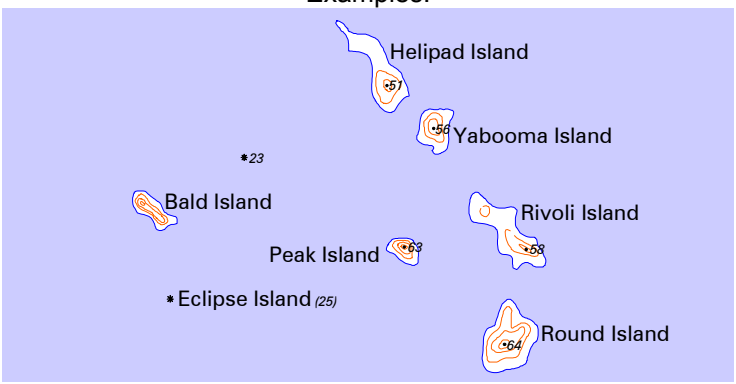
Third alternative

Fourth alternative

Fifth alternative

Instances will occur where spot elevations are provided for islands too small to accommodate the values. In such cases the value is positioned adjacent to the island and aligned in accordance with the previous paragraph. When the island is identified by a proper name, the value is shown at the end of the name and in parenthesis.

Examples:



5.13 Horizontal Control Points

Values of horizontal control points are positioned in accordance with chapter 5.3 Principles of Type Placement rule 5.

The following outlines the procedure for labelling and portraying horizontal control points:

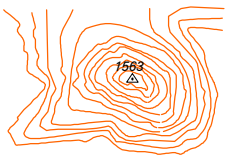
(1) Only three types of information can be added to a horizontal control point.
  (a) elevation,
  (b) name of the feature where horizontal control point is located, and
  (c) alphanumeric code
(2) Only two of the above are shown at any one time.
(3) The order of importance of the type of information is as listed in (1) above.
(4) A horizontal control point can be shown provided one of the pieces of information above is available.
(5) A horizontal control point is not to be shown regardless of classification, if no information is available.
(6) Fourth order horizontal points are not to be shown, however, if height and co-ordinates are known, a spot elevation and dot may be shown.
(7) Destroyed horizontal control points are not to be shown, however, if height and co-ordinates are known, a spot elevation and dot may be shown, and
(8) The horizontal control point identification name is not to be shown.

Examples:

Elevation only:

Preferred

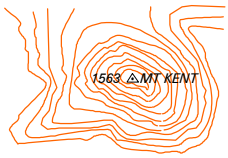
First Alternative



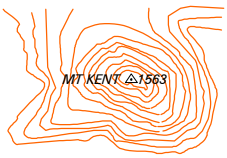
Second Alternative

Third Alternative

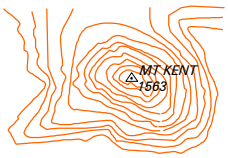
Elevation and feature name:



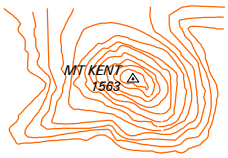
Preferred



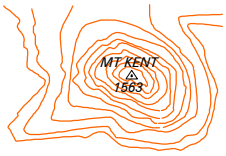
First Alternative



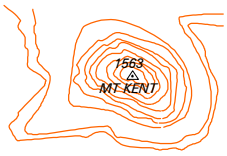
Second Alternative



Third Alternative



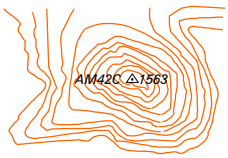
Fourth Alternative



Fifth Alternative

Elevation and alphanumeric identifier:

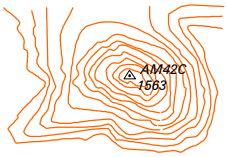
Preferred



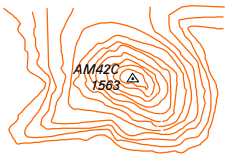
First Alternative

Second Alternative

Third Alternative



Fourth Alternative

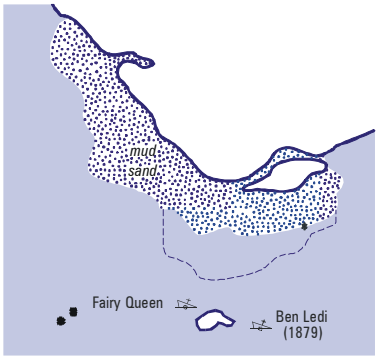


Fifth Alternative

5.14 Coastal Hydrographic Features

Coastal hydrographic features require the use of descriptive notes. Notes will appear wherever they convey information pertinent to the map user or where they clarify situations that could otherwise be confusing. Definitive labels for coastal hydrographic features are positioned as close to their precise location as map detail will allow. The type is positioned to avoid overprinting grid lines and hydrographic map symbols. Where two different characteristics are identified in the same location, such as mud and sand, they are centred one over the other.

Example:

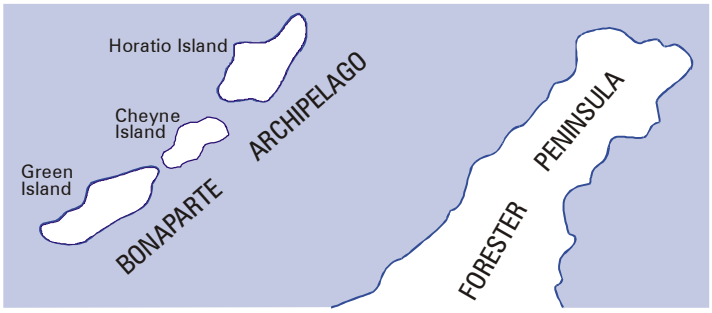


5.15 Capes and Islands

In labelling capes and islands that are of extensive size, the type is centred within the land area and positioned parallel to the northing grid line and, if necessary, letter spaced.

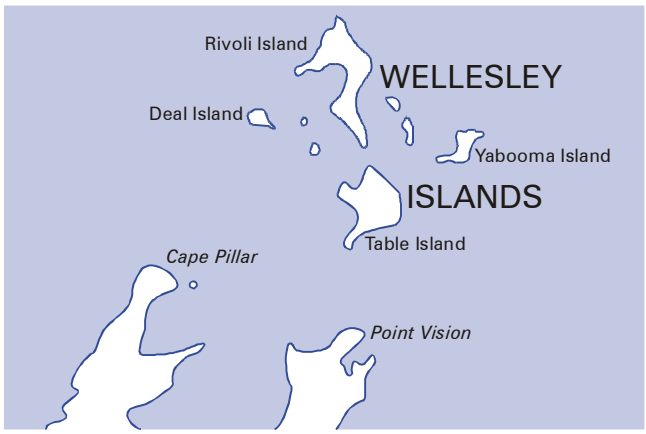
The names for peninsulas and island chains are placed parallel to the general formation of the feature. Where possible, the type identifying peninsulas is positioned within the land area.

Example:



The names for capes, points, and small islands are placed in the open water adjacent to the feature. Wherever possible, the type is placed to the right of the feature. Names are always positioned to avoid overprinting the shoreline.

Example:

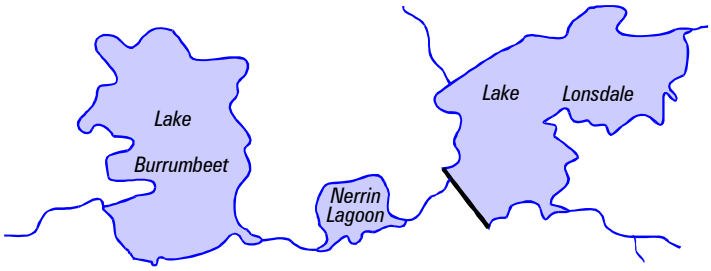


5.16 Waterbodies and Watercourses

In labelling bodies of water whose limits can accommodate the entire name, the type is centred within the limits of the feature. Names are aligned parallel to the northing grid line. When labelling large expanses of water, letter

spacing is desirable.

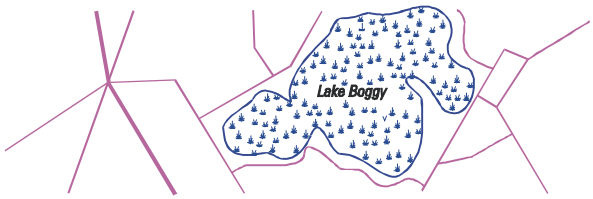
Example:



When labelling small lakes and ponds, the names are positioned in accordance with chapter 5.3 Principles of Type Placement, rule 5.

The identifying names for marshes, swamps, bogs, and similar features are centred within the limits of the feature defined. The type is preferably aligned parallel to the northing grid lines, and, when the area is extensive, letter spacing is desirable.

Example:



For rules on labelling Watercourses and Anabranches, refer to Section 1 chapter 3.8.8 and Section 3 chapter 6.10.1.

5.17 Vegetation Features

The proper names for forests and rainforests are shown wherever there is sufficient space to accommodate the labelling. When labelling vegetation features, the type is centred within the overall limits of the area to be identified. The names are aligned either parallel to the northing grid lines or placed to follow the general shape of the feature. When labelling large expanses of vegetation, letter spacing is desirable.

6. Type Size Selection Criteria

The type sizes and styles prescribed in the following **1:250 000 and 1:100 000** Type Specification sections are to be maintained. In exceptional circumstances, when space prohibits the use of a prescribed size, or the size indicated would distort the relative importance of the feature, a more appropriate size is to be selected.

The appropriate type size will be based on the size of the feature as it appears on the face of the map. For example, if the Murray River appears as one long feature across the face of the map and warrants a 0large type size, and a small section reappears at the neatline, the type size for the small section is based on the length of that small section. Similarly, for area features the type size will be chosen according to the area of the section that is being labelled.

All type is to be shown in black if not otherwise specified.

7. Type Style (Font) Abbreviations

In the following **1:250 000 and 1:100 000** Type Specification sections, styles are abbreviated as follows:

Font abbreviation	***Font***
Z	Zurich
ZI	Zurich Italic
ZB	Zurich Bold
ZBC	Zurich Bold Condensed
ZC	Zurich Condensed
ZCI	Zurich Condensed Italic
SM	Stymie Medium
ZExB	Zurich Extra Bold

Case abbreviation	***Case description***
C	all capitals
CL	capitals and lower case
L	all lower case

Alternative type styles are:

- Acceptable substitute for Stymie is Rockwell. Such substitutions will be consistent across a map sheet.
- Times Bold Italic (see Map Layout Guide requirements) may be substituted by Times New Roman Bold Italic.

The following digital representations of the type may vary from that required depending on system specifications. Hard copy representations of type will be supplied if required.

8. 1:250 000 Scale Type Specifications

8.1 Cultural Features

ROADS, RAILWAYS AND RELATED FEATURES				1:250 000
FEATURE DESCRIPTION / CRITERIA	**POINT SIZE**	**STYLE**	**CASE**	**EXAMPLE**
Dual carriageway, Principal Roads, other roads	6	ZI	C	*SOUTHERN FREEWAY* *STUART HIGHWAY* *MILLS ROAD*
Descriptive text notes can be used in areas where many private roads have restricted access, or cleared/seismic lines	8	ZC	C	SOME ROADS IN THIS AREA HAVE RESTRICTED ACCESS NUMEROUS CLEARED LINES MAY POSE A NAVIGATION HAZARD
Foot track	6	ZCI	CL	*Bicentennial National Trail*
Descriptive text (with name included)	6	ZCI	CL	*Bicentennial National Trail follows road*
Descriptive text (without name)	6	ZCI	L	*foot track*
National and state route marker	6	ZC		1 B940
Kilometric distance (red PMS 485)	6	ZB		**35**
Named bridge/tunnel	6	ZC	CL	Westgate Bridge
Named: Railway station, siding, marshalling yard; crossing, landing, underpass/overpass	7	ZC	CL	Mungar Junction Cobbity
Railway gauge	6	ZCI	L	*gauge 1435mm*

AIRCRAFT FACILITIES				1:250 000
FEATURE DESCRIPTION / CRITERIA	**POINT SIZE**	**STYLE**	**CASE**	**EXAMPLE**
Airport, International	7	ZC	C	BRISBANE AIRPORT
Airport, domestic and Licensed Aerodrome	7	ZC	CL	Orange Creek Aerodrome

MISCELLANEOUS CULTURAL FEATURES				1:250 000
FEATURE DESCRIPTION / CRITERIA	**POINT SIZE**	**STYLE**	**CASE**	**EXAMPLE**
Named cultural features eg. racecourse, yard, quarry, cemetery, mine, ski lift, aerial cableway, golf course, fire tower, lighthouse, automatic weather station etc where space permits	6	ZC	CL	Birdsville Racecourse Point Cook Lighthouse Golden Shoe Mine
Named cultural features in congested areas	5	ZC	CL	Dookie Agricultural College
Wreck	6	ZC	CL	Ben Ladi (1879)

CULTURAL FEATURES DESCRIPTIVE NOTES				1:250 000
FEATURE DESCRIPTION / CRITERIA	**POINT SIZE**	**STYLE**	**CASE**	**EXAMPLE**
Generally, features not shown in the map legend will attract a descriptive note and will label the content and/or use of a feature, eg *'pipeline (oil)', 'four wheel drive, chimney (65m)',* etc	6	ZCI	L	*oil refinery* *racecourse* *chimney (65m)* *tower (50m)* *vermin proof fence* *position approximate*

POPULATED PLACES AND BUILDINGS				1:250 000
FEATURE DESCRIPTION / CRITERIA	**POINT SIZE**	**STYLE**	**CASE**	**EXAMPLE**
Capital city	16	ZB	C	**ADELAIDE**
City 100 000 and over	16	ZC	C	GEELONG
City 50 000 to 100 000	14	ZC	C	BENDIGO
City 25 000 to 50 000	12	ZC	C	ORANGE
City 5 000 to 25 000	10	ZC	C	DEVONPORT
Town 1 000 to 5 000	10	ZC	CL	Nambour
Town or settlement less than 1000	8	ZC	CL	Cobar
Locality or area name (cultural feature)	8	ZC	CL	Ravenswood
Suburb within BUA	7	ZC	CL	Enoggera

POPULATED PLACES AND BUILDINGS (continued ……)				1:250 000
FEATURE DESCRIPTION / CRITERIA	**POINT SIZE**	**STYLE**	**CASE**	**EXAMPLE**
Named outstation, outcamp	6	SM	CL	Kennedy Outstation
Named homestead in Closely Settled Area as indicated in Appendix C	6	SM	CL	Carinyah
Named homestead in Moderately and Sparsely Settled Area as indicated in Appendix C	7	SM	CL	Carinyah
Very large homestead in remote areas where there are no populated places.	8	SM	CL	Brunette Downs
Named building; group of buildings forming one entity. The type size should be tailored to suit the importance/size of the feature.	6, 7	ZC	CL	Kurnell Oil Refinery Exon Brickworks

AREA FEATURES Prohibited Areas, Reserved Areas etc.				1:250 000
FEATURE DESCRIPTION / CRITERIA	**POINT SIZE**	**STYLE**	**CASE**	**EXAMPLE**
Small area where type will not fit or where type will just fit in. Size will depend on area.	5, 6	ZC	C	PROHIBITED AREA PROHIBITED AREA
Area up to 7 cm in any direction	7	ZC	C	BELAIR RECREATION PARK
Area up to 12 cm in any direction	9	ZC	C	COURADDA STATE FOREST
Area up to 18 cm in any direction	12	ZC	C	CONDALE NATIONAL
Area covering more than 18 cm in any direction	14	Z	C	LAMINGTON NAT
Area between 30% and 60% of map area	18	Z	C	DEUA NATIONAL
Area covering more than 60% of map area	24	Z	C	KAKADU NA

AREA FEATURES Indigenous Land names				1:250 000
FEATURE DESCRIPTION / CRITERIA	**POINT SIZE**	**STYLE**	**CASE**	**EXAMPLE**
As named on 'Indigenous Land Names' Guide				
Area between 20% and 60% of map area	18	Z	C	NGAANYATJARA
Area greater than 60% of map area	24	Z	C	NGAANYATJ

AREA FEATURES **Large Area names / Regional names**				**1:250 000**
FEATURE DESCRIPTION / CRITERIA	**POINT SIZE**	**STYLE**	**CASE**	**EXAMPLE**
Large Areas as named on the Appendix F - 'Large Area Feature' Guide.				
Area less than 30% of map area.	14	ZI	C	*KIMBERLEY*
Area between 30% and 60% of map area	18	ZI	C	*KIMBERLEY*
Area greater than 60% of map area	24	ZI	C	*KIMBERLEY*

AREA FEATURES **Large Area names/Regional names (Continued ….)**				**1:250 000**
FEATURE DESCRIPTION / CRITERIA	**POINT SIZE**	**STYLE**	**CASE**	**EXAMPLE**

Wherever possible letter spacing should be used for type sizes 14 point and above to enable large or irregularly shaped areas to be labelled in a balanced fashion. This requirement may not be applicable in all cases due to varying density of map detail and other aesthetic considerations.

Notes for areas of restricted access such as Commonwealth Areas proclaimed under the Defence (Special Undertakings) Act Specified maps within the Northern Territory (see the relevant Project File 'Special Instructions' and Appendix O – 'Indigenous Land Names' Guide) will include one or more labels where sufficient space allows	8	ZC	C	THIS AREA LIES WITHIN THE COMMONWEALTH PERMITS MAY BE REQUIRED FOR ENTRY INTO OR TRAVELLING THROUGH INDIGENOUS LANDS & COMMUNITIES

BOUNDARIES and similar features				**1:250 000**
FEATURE DESCRIPTION / CRITERIA	**POINT SIZE**	**STYLE**	**CASE**	**EXAMPLE**
International name along boundary Letter spacing may be applied	9	ZB	C	**AUSTRALIA** **A U S T R A L I A**
State or Territory name along boundary Letter spacing may be applied	8	Z	C	QUEENSLAND Q U E E N S L A N D
Tropic of Capricorn	6	Z	CL	Tropic of Capricorn

8.2 Hydrographic Features

FORESHORE AND OFFSHORE FEATURES **Ports, Harbours, Bays, Inlets, Estuaries and similar features**				**1:250 000**
FEATURE DESCRIPTION / CRITERIA	**POINT SIZE**	**STYLE**	**CASE**	**EXAMPLE**
Small features or congested areas	6	ZCI	CL	*Laguna Bay*
Small features where type will not fit within	7	ZCI	CL	*Sydenham Inlet*
Small features where type will just fit or where size is up to 3cm in any direction	8	ZCI	CL	*Jervis Bay*
Features up to 7cm in any direction	8	ZCI	C	*PORT JACKSON*
Features up to 12cm in any direction	10	ZCI	C	*PORT JACKSON*
Features up to 18cm in any direction	12	ZCI	C	*PORT JACKSON*
Features in excess of 18cm in any direction. Larger type may be used if the 14 point label is not sufficiently prominent	14, 16	ZCI	C	*PORT JACKSON* *BOTANY BAY*

OCEAN, SEA, GULF, STRAITS and similar features				**1:250 000**
FEATURE DESCRIPTION / CRITERIA	**POINT SIZE**	**STYLE**	**CASE**	**EXAMPLE**
Features up to 12 cm in any direction	10	ZI	C	*STORM BAY*
Features up to 18 cm in any direction	12	ZI	C	*EXMOUTH GULF*
Features up to 25 cm in any direction	14	ZI	C	*BASS STRAIT*
Oceans and seas up to 30% of map area. Gulfs, bays, straits etc in excess of 25 cm where there is no ocean or sea name	18	ZI	C	*SPENCER GULF*
Oceans and seas covering more than 30% of map area	20	ZI	C	*CORAL SEA*
Oceans and seas more than 60% of map area	30	ZI	C	*PACIFIC*

Wherever possible letter spacing should be used for type sizes 14 point and above to enable large or irregularly shaped areas to be labelled in a balanced fashion. This requirement may not be applicable in all cases due to varying density of map detail and other aesthetic considerations.

Where space permits, areas of sea will include the caution note	10 & 5	ZC	C & CL	CAUTION: THIS MAP IS NOT TO BE USED FOR MARITIME NAVIGATION PURPOSES Refer to the appropriate hydrographic chart for depth information

ISLANDS				1:250 000
FEATURE DESCRIPTION / CRITERIA	**POINT SIZE**	**STYLE**	**CASE**	**EXAMPLE**
Very small features or congested areas	6	Z	CL	Tom Thumb Island
Small features where type will not fit within	7	Z	CL	Althorpe Island
Small features where type will just fit or where size is up to 3 cm in any direction	8	Z	CL	Tasman Island
Features up to 7 cm in any direction	8	Z	C	ROTTNEST ISLAND
Features up to 12 cm in any direction	10	Z	C	BATHURST ISLAND
Features up to 18 cm in any direction	12	Z	C	GROOTE EYLANDT
Features in excess of 18 cm in any direction	14	Z	C	FRASER ISLAND
Features between 30% and 60% of map area	18	Z	C	KANGAROO ISL
Features covering more than 60% of map area	24	Z	C	MELVILLE IS

Wherever possible letter spacing should be used for type sizes 14 point and above to enable large or irregularly shaped areas to be labelled in a balanced fashion. This requirement may not be applicable in all cases due to varying density of map detail and other aesthetic considerations.

ROCKS, REEFS, SHOALS and similar features				1:250 000
FEATURE DESCRIPTION / CRITERIA	**POINT SIZE**	**STYLE**	**CASE**	**EXAMPLE**
Very small features or congested areas	6	ZC	CL	Llewellyn Reef
Small features where type will just fit or where size is up to 3 cm in any direction	8	ZC	CL	Darley Reef
Features up to 7 cm in any direction	8	ZC	C	STANLEY REEF
Features up to 12 cm in any direction	10	ZC	C	OTTER REEF
Features up to 18 cm in any direction	12	ZC	C	EGRET REEF
Features in excess of 18 cm	14	ZC	C	GREAT BARRIER REEF

Wherever possible letter spacing should be used for 14 point type to enable large or irregularly shaped areas to be labelled in a balanced fashion. This requirement may not be applicable in all cases due to varying density of map detail and other aesthetic considerations.

CAPES, POINTS, HEADLANDS, BEACHES, CAVES, FLATS, BLOWHOLES, CLIFFS				1:250 000
FEATURE DESCRIPTION / CRITERIA	**POINT SIZE**	**STYLE**	**CASE**	**EXAMPLE**
Small features	6	ZI	CL	*Cape Freycinet*
Prominent features	6	ZI	C	*CAPE JAFFA*
Very prominent features	8	ZI	C	*CAPE YORKE*

PROMONTORIES, PENINSULAS				1:250 000
FEATURE DESCRIPTION / CRITERIA	**POINT SIZE**	**STYLE**	**CASE**	**EXAMPLE**
Small features up to 3 cm in any direction or congested areas	6	ZI	C	*YOUNGHUSBAND PENINSULA*
Features up to 7 cm in any direction	8	ZI	C	*PERON PENINSULA*
Features up to 12 cm in any direction	10	ZI	C	*WILSONS PROMONTORY*
Features up to 18 cm in any direction	12	ZI	C	*GOVE PENINSULA*
Features in excess of 18 cm	14	ZI	C	*TASMAN PENINSULA*
Features between 30% and 60% of map area	18	ZI	C	*COBOURG PENI*
Features covering more than 60% of map area	24	ZI	C	*YORKE PENI*

Wherever possible letter spacing should be used for type sizes 14 point and above to enable large or irregularly shaped areas to be labelled in a balanced fashion. This requirement may not be applicable in all cases due to varying density of map detail and other aesthetic considerations.

INLAND HYDROGRAPHIC FEATURES Creeks, Rivers, Irrigation channels				1:250 000
FEATURE DESCRIPTION / CRITERIA	**POINT SIZE**	**STYLE**	**CASE**	**EXAMPLE**
Short feature up to 10 cm long	7	ZCI	CL	*Sandy Creek*
Single line features up to 30 cm long reducing to 7pt CL at the source	8	ZCI	CL	*Maroochy River*
Double line features up to 30 cm long. Single line features over 30 cm long, reducing 8pt CL to 7pt CL at the source	8	ZCI	C	*RIVER TORRENS*
Large double line features reducing successively towards its source	12	ZCI	C	*MURRAY RIVER*

LAKES, DAMS, LAGOONS, SWAMPS, LARGE WATER AREAS, CLAYPANS, WATERHOLES, ROCKHOLES, FALLS, SPRINGS, RAPIDS etc				1:250 000
FEATURE DESCRIPTION / CRITERIA	**POINT SIZE**	**STYLE**	**CASE**	**EXAMPLE**
Point or small feature where type will not fit within	7	ZCI	CL	*Wallenjoe Swamp*
Small feature where type will just fit or where size is up to 3 cm in any direction	8	ZCI	CL	*Lal Lal Falls*
Features up to 7 cm in any direction	8	ZCI	C	*LAKE PEDDER*
Features up to 12 cm in any direction	10	ZCI	C	*THE COORONG*
Features up to 18 cm in any direction	12	ZCI	C	*LAKE ARGYLE*
Features in excess of 18 cm	14	ZCI	C	*LAKE GAIRDNER*
Features between 30% and 60% of map area	18	ZI	C	*LAKE TORRENS*
Features covering more than 60% of map area	24	ZI	C	*LAKE TORRE*

Wherever possible letter spacing should be used for type sizes 14 point and above to enable large or irregularly shaped areas to be labelled in a balanced fashion. This requirement may not be applicable in all cases due to varying density of map detail and other aesthetic considerations.

CONSTRUCTED HYDROGRAPHIC CULTURAL FEATURES				1:250 000
FEATURE DESCRIPTION / CRITERIA	**POINT SIZE**	**STYLE**	**CASE**	**EXAMPLE**
Named single line irrigation channel, canal, drain, pipeline etc	6	ZCI	CL	*Mulwala Canal*
Named double line irrigation channel	6	ZCI	C	*MULWALA CANAL*
Named bore, well, water tank, small dam and similarly constructed point features	7	ZCI	CL	*McDougall Tank*
Dam, weir, or reservoir wall, wharf, groyne, pier, jetty, mole, breakwater, lighthouse, beacon, lock, seawall and pipeline etc	6	ZC	CL	Forrester Jetty

HYDROGRAPHIC FEATURES DESCRIPTIVE NOTES				1:250 000
FEATURE DESCRIPTION / CRITERIA	**POINT SIZE**	**STYLE**	**CASE**	**EXAMPLE**
To be used on all unnamed features not shown in the map legend and to describe a feature	6	ZCI	L	*numerous soaks* *bore (alkaline)* *numerous small dams* *areas subject to rapid tidal change*

8.3 Relief Features

MOUNTAIN RANGES, DESERTS, PLAINS, PLATEAUX, RIDGES, BLUFFS, SCARPS etc				1:250 000
FEATURE DESCRIPTION / CRITERIA	**POINT SIZE**	**STYLE**	**CASE**	**EXAMPLE**
Small features up to 4 cm in any direction	6	ZI	C	*BLACKALL RANGE*
Features up to 7 cm in any direction	8	ZI	C	*ATHERTON TABLELANDS*
Features up to 12 cm in any direction	10	ZI	C	*BLUE MOUNTAINS*
Features up to 18 cm in any direction	12	ZI	C	*BARKLY TABLELAND*
Features in excess of 18 cm	14	ZI	C	*GREAT DIVIDING RAN*
Features between 30% and 60% of map area	18	ZI	C	*GIBSON DESERT*
Features covering more than 60% of map area	24	ZI	C	*TANAMI DES*

Wherever possible letter spacing should be used for type sizes 14 point and above to enable large or irregularly shaped areas to be labelled in a balanced fashion. This requirement may not be applicable in all cases due to varying density of map detail and other aesthetic considerations.

MOUNTAINS, CRESTS, KNOBS, HILLS, PEAKS, TORS, PINNACLES etc				1:250 000
FEATURE DESCRIPTION / CRITERIA	**POINT SIZE**	**STYLE**	**CASE**	**EXAMPLE**
Normal feature	5	ZI	C	*QUOIN HILL*
Prominent feature (use sparingly)	7	ZI	C	*MT KOSCIUSZKO*

VALLEYS, GAPS, CANYONS, GORGES, CHASMS, RAVINES, ROCKS, CLIFFS, LOOKOUTS, SINKHOLES, FLATS etc				1:250 000
FEATURE DESCRIPTION / CRITERIA	**POINT SIZE**	**STYLE**	**CASE**	**EXAMPLE**
Small feature	6	ZI	CL	*Wrights Lookout*
Prominent feature	7	ZI	CL	*Stanley Chasm*
Very prominent feature	7	ZI	C	*KIEWA VALLEY*

RELIEF FEATURES DESCRIPTIVE NOTES				1:250 000
FEATURE DESCRIPTION / CRITERIA	**POINT SIZE**	**STYLE**	**CASE**	**EXAMPLE**
To be used on all unnamed features not shown in the map legend or to describe a feature or a group of features	6	ZCI	L	*numerous sinkholes* *numerous anthills* *average height of sand ridges 18 metres* *gilgai* *lava flow* *rocky outcrop*

CONTOURS AND CONTROL DATA				1:250 000
FEATURE DESCRIPTION / CRITERIA	**POINT SIZE**	**STYLE**	**CASE**	**EXAMPLE**
Contour / Auxiliary Contour value	5	ZCI		*300*
Horizontal control point and elevation	5	ZI		*NSW 389*
Bench mark and elevation	5	ZI	C	*BM 1902*
Normal spot elevation	5	ZI		*753*
Highest known elevation in map area	8	ZI		*2229*
Small island elevation	6	ZI		Green Island *(21)*

8.4 Vegetation Features

RAINFORESTS, FORESTS etc				1:250 000
FEATURE DESCRIPTION / CRITERIA	**POINT SIZE**	**STYLE**	**CASE**	**EXAMPLE**
Small features up to 4cm in any direction	6	ZI	C	*EVELYN RAINFOREST*
Features up to 6cm in any direction	8	ZI	C	*FROME RAINFOREST*
Features up to 12cm in any direction	10	ZI	C	*HOGARTH RAINF*
Features up to 18cm in any direction	12	ZI	C	*KNIGHTS RAINF*
Features in excess of 18cm	14	ZI	C	*EVELYN RAINF*
Features covering more than 30% of map area	18	ZI	C	*FROME RAINF*

Wherever possible letter spacing should be used for type sizes 14 point and above to enable large or irregularly shaped areas to be labelled in a balanced fashion. This requirement may not be applicable in all cases due to varying density of map detail and other aesthetic considerations.

8.5 Marginalia

Diagrams: Magnetic Declination Diagram Climatic Graphs Grid Reference Diagram Map of Australia Locality Diagram Graticule and Grid Colours for Logos, Miscellaneous Marginalia and Bar code type Rules for map names and State names Road destination arrows guidelines	Refer to Appendix B for type specifications associated with each diagram.
Surround details including: About this Map Map Reliability & Copyright About the NATMAP Series About Geoscience Australia Your Feedback is Welcome Acknowledgments Production note Logos GEOCAT reference number Map names on cover Legend Scale bar and map titles Marginalia text placement	Refer to the 1:250 000 NTMS Map Layout Guides for type specifications associated with each panel.

9. 1:100 000 Scale Type Specifications

9.1 Cultural Features

ROADS, RAILWAYS AND RELATED FEATURES				1:100 000
FEATURE DESCRIPTION / CRITERIA	**POINT SIZE**	**STYLE**	**CASE**	**EXAMPLE**
Dual carriageway and Principal Roads	6	ZI	C	*SOUTHERN FREEWAY* *STUART HIGHWAY* *PRINCES HIGHWAY*
Other roads	5	ZI	C	*MILLS ROAD*
Descriptive text notes can be used in areas where many private roads have restricted access, or cleared/seismic lines	8	ZC	C	SOME ROADS IN THIS AREA HAVE RESTRICTED ACCESS NUMEROUS CLEARED LINES MAY POSE A NAVIGATION HAZARD
Foot track	6	ZCI	CL	*Bicentennial National Trail*
Descriptive text (with name included)	6	ZCI	CL	*Bicentennial National Trail follows road*
Descriptive text (without name)	6	ZCI	L	*foot track*
National and state route marker	6	ZC		1 B940
Kilometric distance (red PMS 485)	6	ZB		**35**
Named bridge/tunnel	6	ZC	CL	Westgate Bridge
Named: Railway station, siding, marshalling yard; crossing, landing,underpass/overpass	7	ZC	CL	Mungar Junction Cobbity
Railway gauge	6	ZCI	L	*gauge 1435mm*

AIRCRAFT FACILITIES				1:100 000
FEATURE DESCRIPTION / CRITERIA	**POINT SIZE**	**STYLE**	**CASE**	**EXAMPLE**
Airport, International	7	ZC	C	BRISBANE AIRPORT
Airport, domestic and Licensed Aerodrome	7	ZC	CL	Orange Creek Aerodrome

MISCELLANEOUS CULTURAL FEATURES				1:100 000
FEATURE DESCRIPTION / CRITERIA	**POINT SIZE**	**STYLE**	**CASE**	**EXAMPLE**
Named cultural features eg. racecourse, yard, quarry, cemetery, mine, ski lift, aerial cableway, golf course, fire tower, lighthouse, automatic weather station etc where space permits	7	ZC	CL	Birdsville Racecourse Point Cook Lighthouse Golden Shoe Mine
Named cultural features in congested areas	6	ZC	CL	Dookie Agricultural College
Wreck	6	ZC	CL	Ben Ladi (1879)

CULTURAL FEATURES DESCRIPTIVE NOTES				1:100 000
FEATURE DESCRIPTION / CRITERIA	**POINT SIZE**	**STYLE**	**CASE**	**EXAMPLE**
Generally, features not shown in the map legend will attract a descriptive note and will label the content and/or use of a feature, eg *'pipeline (oil)', 'four wheel drive, chimney (65m)',* etc	6	ZCI	L	*oil refinery* *racecourse* *chimney (65m)* *tower (50m)* *vermin proof fence* *position approximate*

POPULATED PLACES AND BUILDINGS				1:100 000
FEATURE DESCRIPTION / CRITERIA	**POINT SIZE**	**STYLE**	**CASE**	**EXAMPLE**
Capital city.	18	ZB	C	**ADELAIDE**
City 100 000 and over	16	ZB	C	**GEELONG**
City 50 000 to 100 000	16	ZC	C	BENDIGO
City 25 000 to 50 000	14	ZC	CL	Orange
City 5 000 to 25 000	12	ZC	CL	Devonport
Town 1 000 to 5 000	10	ZC	CL	Nambour
Town or settlement less than 1000	8	ZC	CL	Cobar
Locality or area name (cultural feature)	8	ZC	CL	Ravenswood
Suburb within BUA	7, 8	ZC	CL	Enoggera Dapto

Proper names of well-known sections within a city, or outlying suburban areas are centred in the area concerned. 8 point type may be used if the 7 point label is not sufficiently prominent

POPULATED PLACES AND BUILDINGS (Continued)				1:100 000
FEATURE DESCRIPTION / CRITERIA	**POINT SIZE**	**STYLE**	**CASE**	**EXAMPLE**
Named outstation, outcamp	6	SM	CL	Kennedy Outstation
Named homestead in Closely Settled Area as indicated in Appendix C	6	SM	CL	Carinyah
Named homestead in Moderately and Sparsely Settled Area as indicated in Appendix C	7	SM	CL	Carinyah
Very large homestead in remote areas where there are no populated places.	8	SM	CL	Brunette Downs
Named building; group of buildings forming one entity. The type size should be tailored to suit the importance/size of the feature.	6, 7, 8	ZC	CL	Kurnell Oil Refinery Exon Brickworks Port Kembla Steel Works

AREA FEATURES Prohibited Areas, Reserved Areas etc.				1:100 000
FEATURE DESCRIPTION / CRITERIA	**POINT SIZE**	**STYLE**	**CASE**	**EXAMPLE**
Small area where type will not fit or where type will just fit in. Size will depend on area.	5, 6	Z	C	PROHIBITED AREA PROHIBITED AREA
Area up to 7 cm in any direction	7	Z	C	BELAIR RECREATION PARK
Area up to 12 cm in any direction	9	Z	C	COURADDA STATE FOREST
Area up to 18 cm in any direction	12	Z	C	CONDALE NATIONAL
Area covering more than 18 cm in any direction	14	Z	C	LAMINGTON NAT
Area covering more than 30% of map area	18	Z	C	DEUA NATIONAL

Wherever possible letter spacing should be used for type sizes 14 point and above to enable large or irregularly shaped areas to be labelled in a balanced fashion. This requirement may not be applicable in all cases due to varying density of map detail and other aesthetic considerations.

AREA FEATURES Indigenous Land names				1:100 000
FEATURE DESCRIPTION / CRITERIA	**POINT SIZE**	**STYLE**	**CASE**	**EXAMPLE**
As named on 'Indigenous Land Names' Guide				
Area between 20% and 60% of map area	18	Z	C	NGAANYATJARA
Area greater than 60% of map area	24	Z	C	NGAANYATJ

AREA FEATURES **Large Area names / Regional names**				**1:100 000**
FEATURE DESCRIPTION / CRITERIA	**POINT SIZE**	**STYLE**	**CASE**	**EXAMPLE**
Large Areas as named on the Appendix F - 'Large Area Feature' Guide.				
Area less than 30% of map area.	14	ZI	C	*KIMBERLEY*
Area between 30% and 60% of map area	18	ZI	C	*KIMBERLEY*
Area greater than 60% of map area	24	ZI	C	*KIMBERLEY*

Wherever possible letter spacing should be used for type sizes 14 point and above to enable large or irregularly shaped areas to be labelled in a balanced fashion. This requirement may not be applicable in all cases due to varying density of map detail and other aesthetic considerations.

Notes for areas of restricted access such as Commonwealth Areas proclaimed under the Defence (Special Undertakings) Act Specified maps within the Northern Territory (see the relevant Project File 'Special Instructions' and Appendix O – 'Indigenous Land Names' Guide) will include one or more labels where sufficient space allows	8	ZC	C	THIS AREA LIES WITHIN THE COMMONWEALTH PERMITS MAY BE REQUIRED FOR ENTRY INTO OR TRAVELLING THROUGH INDIGENOUS LANDS & COMMUNITIES

BOUNDARIES and similar features				**1:100 000**
FEATURE DESCRIPTION / CRITERIA	**POINT SIZE**	**STYLE**	**CASE**	**EXAMPLE**
International name along boundary Letter spacing may be applied	9	ZB	C	**AUSTRALIA** **A U S T R A L I A**
State or Territory name along boundary Letter spacing may be applied	8	Z	C	QUEENSLAND Q U E E N S L A N D
Tropic of Capricorn	6	Z	CL	Tropic of Capricorn

9.2 Hydrographic Features

FORESHORE AND OFFSHORE FEATURES **Ports, Harbours, Bays, Inlets, Estuaries and similar features**				**1:100 000**
FEATURE DESCRIPTION / CRITERIA	**POINT SIZE**	**STYLE**	**CASE**	**EXAMPLE**
Small features or congested areas	7	ZCI	CL	*Laguna Bay*
Small features where type will just fit or where size is up to 3cm in any direction	8	ZCI	CL	*Jervis Bay*
Features up to 7cm in any direction	8	ZCI	C	*PORT JACKSON*
Features up to 12cm in any direction	10	ZCI	C	*PORT JACKSON*
Features up to 18cm in any direction	12	ZCI	C	*PORT JACKSON*
Features in excess of 18cm in any direction. Larger type may be used if the 14 point label is not sufficiently prominent	14, 16	ZCI	C	*PORT JACKSON* *BOTANY BAY*

OCEAN, SEA, GULF, STRAITS and similar features				**1:100 000**
FEATURE DESCRIPTION / CRITERIA	**POINT SIZE**	**STYLE**	**CASE**	**EXAMPLE**
Features up to 12 cm in any direction	10	ZI	C	*STORM BAY*
Features up to 18 cm in any direction	12	ZI	C	*EXMOUTH GULF*
Features up to 25 cm in any direction	14	ZI	C	*BASS STRAIT*
Oceans and seas up to 30% of map area. Gulfs, bays, straits etc in excess of 25 cm where there is no ocean or sea name	18	ZI	C	*SPENCER GULF*
Oceans and seas covering more than 30% of map area	20	ZI	C	*CORAL SEA*

Wherever possible letter spacing should be used for type sizes 14 point and above to enable large or irregularly shaped areas to be labelled in a balanced fashion. This requirement may not be applicable in all cases due to varying density of map detail and other aesthetic considerations.

Where space permits, areas of sea will include the caution note	10 & 5	ZC	C & CL	CAUTION: THIS MAP IS NOT TO BE USED FOR MARITIME NAVIGATION PURPOSES Refer to the appropriate hydrographic chart for depth information

ISLANDS				1:100 000
FEATURE DESCRIPTION / CRITERIA	**POINT SIZE**	**STYLE**	**CASE**	**EXAMPLE**
Very small features or congested areas	6	Z	CL	Tom Thumb Island
Small features where type will not fit within	7	Z	CL	Althorpe Island
Small features where type will just fit or where size is up to 3 cm in any direction	8	Z	CL	Tasman Island
Features up to 7 cm in any direction	8	Z	C	ROTTNEST ISLAND
Features up to 12 cm in any direction	10	Z	C	BATHURST ISLAND
Features up to 18 cm in any direction	12	Z	C	GROOTE EYLANDT
Features in excess of 18 cm in any direction	14	Z	C	FRASER ISLAND
Features covering more than 30% of map area	18	Z	C	KANGAROO ISL

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ROCKS, REEFS, SHOALS and similar features				1:100 000
FEATURE DESCRIPTION / CRITERIA	**POINT SIZE**	**STYLE**	**CASE**	**EXAMPLE**
Very small features or congested areas	6	ZC	CL	Llewellyn Reef
Small features where type will just fit or where size is up to 3 cm in any direction	8	ZC	CL	Darley Reef
Features up to 7 cm in any direction	8	ZC	C	STANLEY REEF
Features up to 12 cm in any direction	10	ZC	C	OTTER REEF
Features up to 18 cm in any direction	12	ZC	C	EGRET REEF
Features in excess of 18 cm	14	ZC	C	GREAT BARRIER REEF

Wherever possible letter spacing should be used for 14 point type to enable large or irregularly shaped areas to be labelled in a balanced fashion. This requirement may not be applicable in all cases due to varying density of map detail and other aesthetic considerations.

CAPES, POINTS, HEADLANDS, BEACHES, CAVES, FLATS, BLOWHOLES, CLIFFS				1:100 000
FEATURE DESCRIPTION / CRITERIA	**POINT SIZE**	**STYLE**	**CASE**	**EXAMPLE**
Small features	6	ZI	CL	*Cape Freycinet*
Prominent features	6	ZI	C	*CAPE JAFFA*
Very prominent features	8	ZI	C	*CAPE YORKE*

PROMONTORIES, PENINSULAS				1:100 000
FEATURE DESCRIPTION / CRITERIA	**POINT SIZE**	**STYLE**	**CASE**	**EXAMPLE**
Small features up to 3 cm in any direction or congested areas	6	ZI	C	*YOUNGHUSBAND PENINSULA*
Features up to 7 cm in any direction	8	ZI	C	*PERON PENINSULA*
Features up to 12 cm in any direction	10	ZI	C	*WILSONS PROMONTORY*
Features up to 18 cm in any direction	12	ZI	C	*GOVE PENINSULA*
Features in excess of 18 cm	14	ZI	C	*TASMAN PENINSULA*
Features covering more than 30% of map area	18	ZI	C	*COBOURG PENI*

Wherever possible letter spacing should be used for type sizes 14 point and above to enable large or irregularly shaped areas to be labelled in a balanced fashion. This requirement may not be applicable in all cases due to varying density of map detail and other aesthetic considerations.

INLAND HYDROGRAPHIC FEATURES Creeks, Rivers, Irrigation channels				1:100 000
FEATURE DESCRIPTION / CRITERIA	**POINT SIZE**	**STYLE**	**CASE**	**EXAMPLE**
Short feature up to 10 cm long	7	ZCI	CL	*Sandy Creek*
Single line features up to 30 cm long reducing to 7pt CL at the source	8	ZCI	CL	*Maroochy River*
Double line features up to 30 cm long. Single line features over 30 cm long, reducing 8pt CL to 7pt CL at the source	8	ZCI	C	*RIVER TORRENS*
Double line features across or almost across a map sheet, reducing through 8pt C, 8pt CL to 7pt CL at the source	10	ZCI	C	*DARLING RIVER*
Large double line features reducing successively towards its source	12	ZCI	C	*MURRAY RIVER*

LAKES, DAMS, LAGOONS, SWAMPS, LARGE WATER AREAS, CLAYPANS, WATERHOLES, ROCKHOLES, FALLS, SPRINGS, RAPIDS etc				1:100 000
FEATURE DESCRIPTION / CRITERIA	**POINT SIZE**	**STYLE**	**CASE**	**EXAMPLE**
Point or small feature where type will not fit within	7	ZCI	CL	*Wallenjoe Swamp*
Small feature where type will just fit or where size is up to 3 cm in any direction	8	ZCI	CL	*Lal Lal Falls*
Features up to 7 cm in any direction	8	ZCI	C	*LAKE PEDDER*
Features up to 12 cm in any direction	10	ZCI	C	*THE COORONG*
Features up to 18 cm in any direction	12	ZCI	C	*LAKE ARGYLE*
Features in excess of 18 cm	14	ZCI	C	*LAKE GAIRDNER*
Features covering more than 30% of map area	18	ZI	C	*LAKE TORRENS*

Wherever possible letter spacing should be used for type sizes 14 point and above to enable large or irregularly shaped areas to be labelled in a balanced fashion. This requirement may not be applicable in all cases due to varying density of map detail and other aesthetic considerations.

CONSTRUCTED HYDROGRAPHIC CULTURAL FEATURES				1:100 000
FEATURE DESCRIPTION / CRITERIA	**POINT SIZE**	**STYLE**	**CASE**	**EXAMPLE**
Named single line irrigation channel, canal, drain, pipeline etc	6	ZI	CL	*Mulwala Canal*
Named double line irrigation channel	6	ZI	C	*MULWALA CANAL*
Named bore, well, water tank, small dam and similarly constructed point features	7	ZCI	CL	*McDougall Tank*
Dam, weir, or reservoir wall, wharf, groyne, pier, jetty, mole, breakwater, lighthouse, beacon, lock, seawall and pipeline etc	6	ZC	CL	Forrester Jetty

HYDROGRAPHIC FEATURES DESCRIPTIVE NOTES				1:100 000
FEATURE DESCRIPTION / CRITERIA	**POINT SIZE**	**STYLE**	**CASE**	**EXAMPLE**
To be used on all unnamed features not shown in the map legend and to describe a feature	6	ZCI	L	*numerous soaks* *bore (alkaline)* *numerous small dams* *areas subject to rapid tidal change*

9.3 Relief Features

MOUNTAIN RANGES, DESERTS, PLAINS, PLATEAUX, RIDGES, BLUFFS, SCARPS etc				1:100 000
FEATURE DESCRIPTION / CRITERIA	**POINT SIZE**	**STYLE**	**CASE**	**EXAMPLE**
Small features up to 4 cm in any direction	6	ZI	C	*BLACKALL RANGE*
Features up to 7 cm in any direction	8	ZI	C	*ATHERTON TABLELANDS*
Features up to 12 cm in any direction	10	ZI	C	*BLUE MOUNTAINS*
Features up to 18 cm in any direction	12	ZI	C	*BARKLY TABLELAND*
Features in excess of 18 cm	14	ZI	C	*GREAT DIVIDING RAN*
Features covering more than 30% of map area	18	ZI	C	*GIBSON DESERT*

Wherever possible letter spacing should be used for type sizes 14 point and above to enable large or irregularly shaped areas to be labelled in a balanced fashion. This requirement may not be applicable in all cases due to varying density of map detail and other aesthetic considerations.

MOUNTAINS, CRESTS, KNOBS, HILLS, PEAKS, TORS, PINNACLES etc				1:100 000
FEATURE DESCRIPTION / CRITERIA	**POINT SIZE**	**STYLE**	**CASE**	**EXAMPLE**
Normal feature	6	ZI	C	*QUOIN HILL*
Prominent feature (use sparingly)	8	ZI	C	*MT KOSCIUSZKO*

VALLEYS, GAPS, CANYONS, GORGES, CHASMS, RAVINES, ROCKS, CLIFFS, LOOKOUTS, SINKHOLES, FLATS etc				1:100 000
FEATURE DESCRIPTION / CRITERIA	**POINT SIZE**	**STYLE**	**CASE**	**EXAMPLE**
Small feature	6	ZI	CL	*Wrights Lookout*
Prominent feature	8	ZI	CL	*Stanley Chasm*
Very prominent feature	8	ZI	C	*KIEWA VALLEY*

RELIEF FEATURES DESCRIPTIVE NOTES				1:100 000
FEATURE DESCRIPTION / CRITERIA	**POINT SIZE**	**STYLE**	**CASE**	**EXAMPLE**
To be used on all unnamed features not shown in the map legend or to describe a feature or a group of features	6	ZCI	L	*numerous sinkholes* *numerous anthills* *average height of sand ridges 18 metres* *gilgai* *lava flow* *rocky outcrop*

CONTOURS AND CONTROL DATA				1:100 000
FEATURE DESCRIPTION / CRITERIA	**POINT SIZE**	**STYLE**	**CASE**	**EXAMPLE**
Contour / Auxiliary Contour value	5	ZCI		*300*
Horizontal control point and elevation	6	ZI	C	*NSW 389*
Bench mark and elevation	6	ZI	C	*BM 1902*
Normal spot elevation	6	ZI		*753*
Small island elevation	6	ZI		Green Island *(21)*

9.4 Vegetation Features

RAINFORESTS, FORESTS etc				1:100 000
FEATURE DESCRIPTION / CRITERIA	**POINT SIZE**	**STYLE**	**CASE**	**EXAMPLE**
Small features up to 4cm in any direction	6	ZI	C	*EVELYN RAINFOREST*
Features up to 6cm in any direction	8	ZI	C	*FROME RAINFOREST*
Features up to 12cm in any direction	10	ZI	C	*HOGARTH RAINF*
Features up to 18cm in any direction	12	ZI	C	*KNIGHTS RAINF*
Features in excess of 18cm	14	ZI	C	*EVELYN RAINF*
Features covering more than 30% of map area	18	ZI	C	*FROME RAINF*

Wherever possible letter spacing should be used for type sizes 14 point and above to enable large or irregularly shaped areas to be labelled in a balanced fashion. This requirement may not be applicable in all cases due to varying density of map detail and other aesthetic considerations.

9.5 Marginalia

Diagrams: Magnetic Declination Diagram Climatic Graphs Grid Reference Diagram Map of Australia Locality Diagram Graticule and Grid Colours for Logos, Miscellaneous Marginalia and Bar code type Rules for map names and State names Road destination arrows guidelines	Refer to Appendix B for type specifications associated with each diagram.
Surround details including: About this Map Map Reliability & Copyright About the NATMAP Series About Geoscience Australia Production note Logos GEOCAT reference number Map names on cover Legend Scale bar and map titles Neatline and associated text such as: Grid and Graticule specifications Road destination arrows guidelines	Refer to the1:100 000 NTMS Map Layout Guides for type specifications associated with each panel.

10. Authorised Abbreviations

This listing is in alphabetical order by term. The term is given first followed by the abbreviation.

Unless otherwise stated, abbreviations will only be used where use of the full word would cause clutter or ambiguity.

The case of the abbreviation will be the case specified for the feature name in chapter 6 Type Selection Criteria.

Abandoned	Aband
Aeronautical	Aero
Anchorage	Anch
Approximate	Approx
Archipelago	Arch
Australia	Aust
Avenue	Ave
Bay	B
Beach	Bch
Bench Mark	BM
Boundary	Bdry
Bridge	Br
Brook	Bk
Building	Bldg
Built-up Area	BUA
Cape	C
Cemetery	Cem
Channel	Chan
Construction	const
Creek	Ck
Department	Dept
East	E
Electric	elec
Elevation	elev
Estuary	Est
Expressway	Exwy
Factory	Facty
Fire Station	FS
Forest	For
Four Wheel Drive	FWD
Freeway	Fwy
Gulf	G
Great	Gt

Ground	gnd
Group	Gp
Harbour	Har
Head	Hd
Headland	Hd
Height	ht
Highway	HWY
Homestead	HS
Hospital	Hosp
Inlet	In
Intermittent	Int
Island	Is
Islet	It
Junction	Junc
Lagoon	Lagn
Lake	L
Landing	lndg
Light	Lt
Metre(s)	m
Millimetre(s)	mm
Mount	Mt *Use for relief features only*. No abbreviation is to be used for Mount when part of a Range name or a Place name. *Examples:* *MOUNT LOFTY RANGES* Mount Barker
Mounts	Mts, *Use for relief features only*.
Mountain	Mtn *Use for relief features only*.
Mountains	Mtns *Use for relief features only*.
Mouth	Mth
National Park	NP
Nature Reserve	NR
North	N
North-east	NE
North-west	NW
Number	No/no
Orchard	orch
Outstation	OS

Passage	Pass
Peak	Pk
Peaks	Pks
Peninsula	Pen
Perennial	Per
Permanent	perm
Place	Pl
Plantation	pltn
Plateau	Plat
Point	Pt
Police Station	PS
Position	posn
Post Office	PO
Prohibited	prohib
Promontory	Prom
Quarantine	Quar
Railway	Rly
Range	Ra
Recreation Reserve	Rec Res
Reserve	Res
Reservoir	Resvr
River	R
Road	Rd
Rock	Rk
Rockhole	RH
Runway	Rwy
Saint	St
School	Sch
South	S
South-east	SE
South-west	SW
State Forest	SF
Station	Stn
Stock Route	SR
Strait	Str
Street	St
Submerged	submd
Suspension	susp

Tank	Tk
Temporary	temp
Tower	Twr
Underground	Ugd
Vehicle Track	VT
Waterhole	WH
Waterholes	Whs
Water Tank	Wtk
West	W
Wharf	Whf
Wreck	Wk
Yard	Yd

