



## rural development & land reform

Department:  
Rural Development and Land Reform  
REPUBLIC OF SOUTH AFRICA

**Chief Directorate:**  
National Geo –spatial Information

### Standard for the Map Sheet Reference System

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Version:

QLAS.SD.7  
v5

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**SECTION A**  
**Preliminary Informative Elements**

## A 1 Document Control

### Version and Amendment Schedule

Version No.	Version Date	Versioned By
v1	08 July 2008	S. Kay
v2	06 August 2009	S. Kay
v3	29 June 2011	S. Kay
v4	15 March 2015	M. Poole
v5	09 October 2019	M. Poole

### Approval and Control Schedule

Version No.	Approved By	Designation	Signature	Date Approved	Copy Status
v1	Dr. D Clarke	Chief Director		08 July 2008	<i>Master Copy</i>
v2	Dr. D Clarke	Chief Director		06 August 2009	<i>Master Copy</i>
v3	Dr. D Clarke	Chief Director		29 June 2011	<i>Master Copy</i>
v4	Dr. D Clarke	Chief Director		15 March 2016	<i>Master Copy</i>
v5	Aslam Parker	Acting Chief Director		09 October 2019	<i>Master Copy</i>

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## A 3 Foreword

This standard covers the Map Sheet Reference System produced by the Chief Directorate: National Geo –spatial Information (CD:NGI), Department of Rural Development and Land Reform. The CD:NGI is mandated by the Land Survey Act, Act 8 of 1997 to provide mapping that covers the Republic of South Africa.

It is applicable at various scales and describes the Map Sheet Referencing System used to identify each map by its unique number and/or name and scale.

An index reflecting the Map Sheet Reference Systems is updated and published annually.

### **Acknowledgement**

This standard was reviewed by the following members of the Standards Committee:

Matthew Napoleon	(Convenor)
Wally Kunhert	
Sifiso Shange	
Raoul Duesimi	Professional resource
Shakir Deal	Professional resource
Shaun Aimes	(Quality Assurance - Staff Member)
Michelle Poole	(Quality Assurance - Manager)

## A 4 Terms and Definitions

[Refer to Glossary](#)

## A 5 Symbols and Abbreviations

Refer to Glossary

## A 6 Introduction

### A 6.1 General

#### Name of the Standard

The standard described in this document shall be known as the Standard for the Map Sheet Reference System

The shortened name, Map Sheet Reference Standard, may be used

### A 6.2 Scope and Purpose

The Standard for the Map Sheet Reference System comprises all the specifications required for map sheet referencing as required by the CD:NGI and its status is mandatory. This document outlines the requirements for the referencing of all maps of the National Map Series. This document excludes rectified imagery and customised maps. The purpose of this document is to outline the requirements to be met by the Chief Directorate and Contractors for map sheet referencing of the maps produced by the CD:NGI.

### A 6.3 Audience

The primary audience of this document is the CD:NGI and map users. The secondary audience of this document are contractors.

### A 6.4 Applicability

This document is applicable to all role players, activities and processes involved in the production of maps of the National Series within the CD:NGI.

### A 6.5 Assumptions

It is assumed that the provisions of this document may be applied by users outside CD:NGI for referencing of maps and/or other geo-spatial data.

### A 6.6 Normative References, other standards and related documents

- The document Recommended Practice for the Structure and Drafting of Standards and Related documents is used to guide the format and structure of this document.
- The Map Reference System of Aeronautical Charts is based on the International Standard and Recommended Practice – Annex 4 to the Convention on International Civil Aviation.

### A 6.7 Maintenance Authority

Maintenance of the Standard for Map Sheet Reference System is the responsibility of the Division: Quality Assurance of CD:NGI. Changes to this Standard will be instructed by the Chief Director as improvements or amendments become necessary, or as required. Any request for amendments to this Standard may be submitted by any institution, body or individual to the Chief Director for consideration. All such requests and any other comments on the Standard must be addressed to:

Chief Director: National Geo –spatial Information  
Private Bag X 10  
Mowbray  
7705

and be referenced as : Amendment - Standard for the Map Sheet Reference System

The Quality Assurance Division shall maintain the provisions and structure of this document through amendment and revision activities.



## A 6.8 Roles and Responsibilities

The roles and responsibilities of the main role players as it pertains to the drafting and maintenance of this document are stated below.

### A 6.8.1 Quality Assurance Division

- To maintain the provisions of this document.
- Keeping track of all amendments to this document
- Providing assistance and guidance to the Standards Development Committees and CD:NGI Management in interpreting the provisions of this document
- Provisionally approving a proposed revision of this standard with respect to its structure and format.
- Ensuring that the use and purpose of this document is communicated effectively.

### A 6.8.2 Standards Development Committee – Map Sheet Reference System

- To draft revised specifications to the provisions of this document
- To make recommendations on the update and amendment of the provisions of this document.
- Refer to the relevant section in the Terms of Reference of the Standards Development Committee for more details in this regard.

### A 6.8.3 Deputy Director: Management Support Service and Quality Assurance, and the Geomatics Manager: Quality Assurance

- Evaluate proposed amendments and revisions of this Standard.
- Provisionally approving proposed amendments to this Standard.
- Refer to the relevant section in the Terms of Reference pertaining to the Deputy Director: Management Support Service and Quality Assurance, and the Geomatics Manager: Quality Assurance for more details in this regard.

### A 6.8.4 CD:NGI Senior Management

- To approve, amendment and revise this Standard.

**SECTION B**  
**Normative Elements**

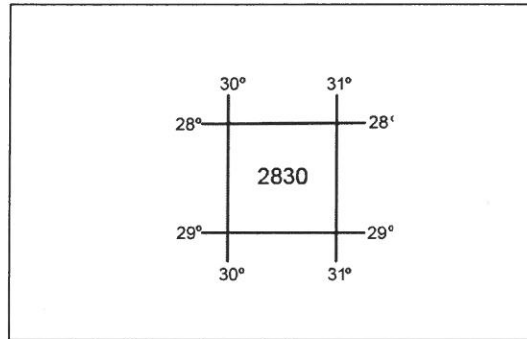
## B 1 Map Sheet Referencing

### B 1.1 General

- (a) Each map of the National Map Series shall be identified by its unique number (e.g. 2830CB) and scale, or by name (e.g. 3318 Cape Town, 1: 250 000).
- (b) The naming conventions prescribed in B 1.1 (a) and (b) above are reflected in the index to the maps published by the CD:NGI.
- (c) All maps produced by the Chief Directorate shall be referenced to the Hartebeesthoek94 Datum (WGS84 ellipsoid).

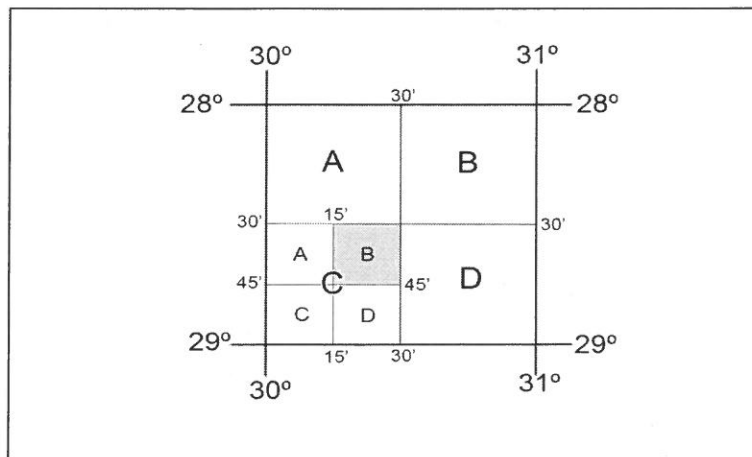
### B 1.2 Degree Square Breakdown

- (a) All aspects of degree measurement mentioned within this section of this standard are based on the geographical coordinate system (graticule, defined by degree squares).
- (b) Each degree square is designated by a 4-digit number, made up of the integer values of the Latitude and Longitude respectively, at its NW corner (e.g. 2830) as indicated in Figure B 1.2.1



**Figure B 1.2.1 – Degree square designation**

- (c) Each degree square is further divided into four quadrants, each covering an area of 30' latitude x 30' longitude (quarter degree square). These quadrants are lettered A,B,C and D (capital letters) respectively in a top down, left to right sequence as indicated in Figure B 1.2.2 . This will form the fifth alphanumeric identifier for maps of the National Map Series (e.g. 2830C).

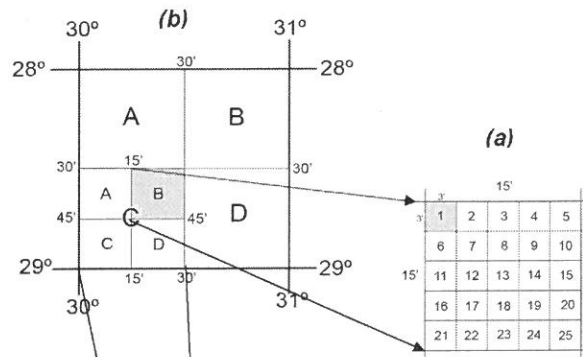


**Figure B 1.2.2 – Degree square sub-division**

- (d) Each quarter degree square is further divided into four quadrants, each covering an area of 15' latitude x 15' longitude. These shall be lettered A, B, C and D respectively as indicated in Figure B 1.2.2. This shall form the sixth alphanumeric identifier for maps of the National Map Series. The area highlighted in Figure B 1.2.2 and Figure B 1.2.3 section (b) indicates the coverage of sheet 2830CB of the 1:50 000 map series.
- (e) Each 15' latitude x 15' longitude area shall be further divided into 25 components, each covering an area 3' latitude x 3' longitude. Each of these components shall be numbered from 1 to 25, increasing in a top down, left to right sequence. These numbers shall form the seventh and eighth alphanumeric identifiers that are preceded by the six-digit identifier as depicted in Figure B 1.2.3 section (a) and shall be made up of integer values. This map reference shall be specific to the 1:10 000 Orthophoto map series. In the Figure B 1.2.3 section (a), the highlighted area indicates the coverage of sheet 2830CB1 of the 1:10 000 Orthophoto map series.

Scale: 1 : 50 000

2830 CB

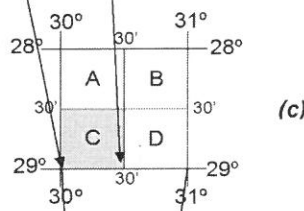


Scale: 1 : 10 000

2830 CB (1-25)

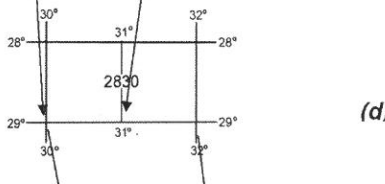
Scale: 1 : 100 000

2830 C



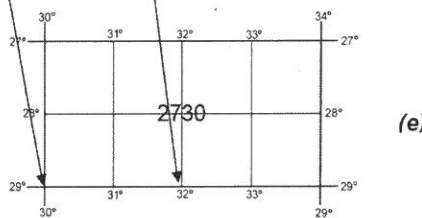
Scale: 1 : 250 000

2830



Scale: 1 : 500 000

2730



Scale: 1 : 1 000 000

ICAO - Sheet 3300

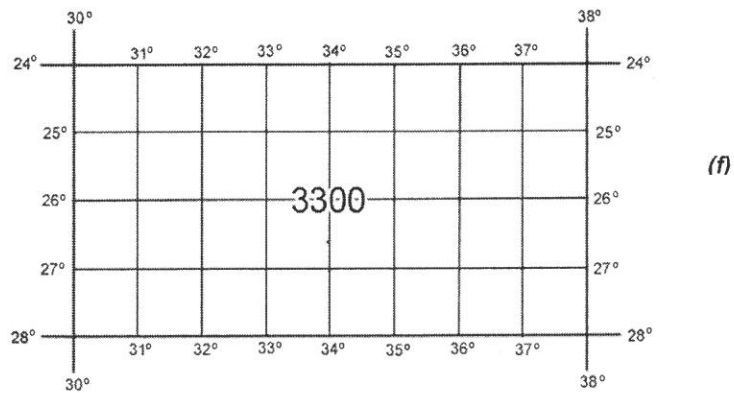


Figure B 1.2.3 – Degree square breakdown

## B 2 Map Series

### B 2.1 The 1: 10 000 Orthophoto Map Series

- (a) Each orthophoto map shall cover an area of exactly 3' of latitude by 3' of longitude.
- (b) The graticules of sheet extents shall be divisible by 3', except in cases of extended maps.
- (c) The graticule limits of extended maps are listed in the document – "Schedule of Map Extent Exceptions", and shall be named according to the naming conventions listed.
- (d) Each orthophoto map shall have a unique seven or eight digit alphanumeric identifier as detailed in Fig B 1.2.3 (a). In addition to the alphanumeric identifier, each orthophoto map shall have a name that is derived from the most prominent feature that the respective sheet covers.

### B 2.2 The 1: 50 000 Topographical Map Series

- (a) Each 1: 50 000 topographical map shall cover an area of exactly 15' of latitude by 15' of longitude.
- (b) The graticules of sheet extents shall be divisible by 15', except in cases of extended maps.
- (c) The graticule limits of extended maps are listed in the document – "Schedule of Map Extent Exceptions", and shall be named according to the naming conventions listed.
- (d) Each 1: 50 000 topographical map shall have a unique six digit alphanumeric identifier as detailed in Fig B 1.2.3 (b), eg 2830CB.
- (e) In addition to the alphanumeric identifier, each 1: 50 000 topographical map shall have a name that is derived from a prominent feature that the respective sheet covers.
- (f) Both the six digit alphanumeric identifier and the name shall be unique across entire the 1: 50 000 topographical map series.

### B 2.3 The 1: 100 000 Topographic/Land Cover Map Series

- (a) With the exception of combined/extended maps, each 1: 100 000 topographic/land map shall cover an area of exactly 30' of latitude by 30' of longitude.
- (b) The graticules of sheet extents shall be divisible by 30', except in cases of extended maps.
- (c) The graticule limits of combined/extended maps are listed in the document – "Schedule of Map Extent Exceptions", and shall be named according to the naming conventions listed.
- (d) Each 1: 100 000 topographic/land cover map shall have a unique five digit alphanumeric identifier as detailed in Fig B.1.2.3 (c) eg 2830C.
- (e) In addition to the alphanumeric identifier, each 1: 100 000 topographic/land cover map shall have a name that is derived from a prominent feature that the respective sheet covers.
- (f) Both the five digit alphanumeric identifier and the name shall be unique across entire the 1: 100 000 topographic/land cover map series.

#### B 2.4 The 1: 250 000 Topographical Map Series

- (a) With the exception of combined/extended/overlapping maps, each 1: 250 000 topographical map shall cover an area of exactly 1° of latitude by 2° of longitude.
- (b) The latitude defining the sheet extents shall be devisable by 1°.
- (c) The longitude defining the sheet extents shall be devisable by 2°.
- (d) The graticule limits of combined/extended/overlapping maps are listed in the document – “Schedule of Map Extent Exceptions”, and shall be named according to the naming conventions listed.
- (e) Each 1: 250 000 topographical map shall have a unique four digit alphanumeric identifier derived from the 4-digit number made up of the integer values of the Latitude and Longitude respectively at its NW corner.
- (f) In addition to the 4 digit alphanumeric identifier, each 1: 250 000 topographical map shall have a name that is derived from a prominent feature that the respective sheet covers.
- (g) Both the four digit alphanumeric identifier and the name shall be unique across entire the 1: 250 000 topographical map series.

#### B 2.5 The 1: 500 000 Topographical / Aeronautical Map Series

- (a) With the exception of combined/extended/overlapping maps, each 1: 500 000 topographical/aeronautical map shall cover an area of exactly 2° of latitude by 4° of longitude.
- (b) The graticule limits of combined/extended/overlapping maps are listed in the document – “Schedule of Map Extent Exceptions”, and shall be named according to the naming conventions listed.
- (c) Each 1: 500 000 topographical/aeronautical map shall have a unique four digit alphanumeric identifier derived from the 4-digit number made up of the integer values of the Latitude and Longitude respectively at its NW corner.
- (d) In addition to the alphanumeric identifier, each 1: 500 000 topographical/aeronautical map shall have a name that is derived from a prominent feature that the respective sheet covers.
- (e) Both the four digit alphanumeric identifier and the name shall be unique across entire the 1: 500 000 topographical/aeronautical map series.

#### B 2.6 The 1: 1 000 000 International Civil Aviation Organisation World Aeronautical Charts

All provisions listed within this sub-section (B 2.6) is subject to the International Standard and Recommended Practice – Annex 4 to the Convention on International Civil Aviation

- (a) Each 1: 1 000 000 ICAO Aeronautical chart shall cover an area of 4° of latitude by 6° of longitude with a north and east overlap of 15'.
- (b) Each 1: 1 000 000 ICAO Aeronautical chart shall have a unique four digit numeric identifier according to Appendix 5 – Sheet layout index for the world Aeronautical chart – ICAO 1:1 000 000.
- (c) In addition to the numeric identifier, each 1: 1 000 000 ICAO Aeronautical chart shall have a name that is derived from a prominent city or town that the respective sheet covers.
- (d) The 1: 1 000 000 ICAO Aeronautical chart numbering system is based on Annex 4 Appendix 5 of the ICAO International Standards and Recommended Practices.

**SECTION C**

**Supplementary Informative Elements**



## C 1 References

Chief Directorate: Surveys Mapping, 2008. *Aerial Photography and 1:10 000 Orthophoto Mapping*. South Africa: Chief Directorate Surveys Mapping

International Civil Aviation Organization., 2001. *International Standards and Recommended Practices*. 10<sup>th</sup> ed. Canada: International Civil Aviation Organization.

Chief Directorate: National Geo-spatial Information, 2010. *Maps of South Africa*. [Annual Publication] South Africa: Chief Directorate: National Geo-spatial Information:

## C 2 Schedule of Map Extent Exceptions

Schedule of Map Extent Exceptions 10000

Schedule of Map Extent Exceptions 50000

Schedule of Map Extent Exceptions 250000

Schedule of Map Extent Exceptions 500000

Schedule of Map Extent Exceptions Prince Edward Islands

Schedule of Map Extent Exceptions Robben Island