Survey and Plan practice manual

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Foreword to this Edition

The Survey and Plan Practice Manual is issued under regulation 5 of the *Licensed Surveyors (Transfer of Land Act 1893) Regulations 1961*. In accordance with the “Directions to Surveyors” issued by the Registrar of Titles on 16 May 2001 (see Appendix 9), every survey document lodged with Landgate must comply with this Manual unless good reason can be shown to the contrary.

The Manual is intended to be a guide to the surveying profession as to the requirements of the Registrar and the Inspector of Plans and Surveys for the presentation of survey documents and the general standards required for cadastral surveys. It is supplementary to any Acts and Regulations currently in force.

The Inspector of Plans and Surveys has the statutory responsibility for the approval of survey documents on behalf of the Registrar of Titles. The professional responsibility for the accuracy of the cadastral survey and related plan resides with the Licensed Surveyor in accordance with the *Licensed Surveyors Act 1909*, the *Transfer of Land Act 1893* and regulations.

In recent times there have been changes to Landgate’s systems and procedures including the move towards complete digital lodgement. This latest edition of the Manual reflects any changes over the past six months.

As always the Manual remains a dynamic document and readers are encouraged to forward any suggestions for improvements and amendments.

Richard Browne
Chief Inspecting Surveyor
March 2013
### Glossary of Abbreviations

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<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tr>
<td>AA</td>
<td>Agricultural Area</td>
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<tr>
<td>AHD</td>
<td>Australian Height Datum</td>
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<tr>
<td>ALO</td>
<td>Authorized Land Officer</td>
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<tr>
<td>CAD</td>
<td>Computer Aided Drafting</td>
</tr>
<tr>
<td>CG</td>
<td>Crown Grant</td>
</tr>
<tr>
<td>CIO</td>
<td>Central Issuing Office</td>
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<tr>
<td>C/L</td>
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<td>CLR</td>
<td>Crown Land Record</td>
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<tr>
<td>CSD</td>
<td>Cadastral Survey Data</td>
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<td>C/T</td>
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<tr>
<td>DLI</td>
<td>Department of Land Information (formerly DOLA now known as Landgate)</td>
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<tr>
<td>DP</td>
<td>Deposited Plan</td>
</tr>
<tr>
<td>DSL</td>
<td>Digital Survey Lodgement</td>
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<tr>
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<td>Electronic Distance Measuring</td>
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<td>Electronic Field Book (CSD File)</td>
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<tr>
<td>ePlan</td>
<td>Electronic Plan (PDF File)</td>
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<tr>
<td>FB</td>
<td>Field Book</td>
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<td>Final Survey Certificate</td>
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<td>Geocentric Datum of Australia</td>
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<td>Geodetic Survey Marks Register</td>
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<td>GPS</td>
<td>Global Positioning System</td>
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<td>Hitachi Data System</td>
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<td>High Water Mark</td>
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<td>MGA</td>
<td>Map Grid of Australia (derived from GDA coordinates)</td>
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Glossary of Abbreviations (cont.)

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<tr>
<td>PCM</td>
<td>Permanent Control Mark</td>
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<td>PDF</td>
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<tr>
<td>PFB</td>
<td>Portable Field Book (PDF file)</td>
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<td>Parcel Identifier</td>
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<td>PSM</td>
<td>Permanent Survey Mark</td>
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<td>Regional Development and Lands</td>
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<tr>
<td>RL</td>
<td>Reduced Level</td>
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<td>Registration Services Branch of Landgate, now known as Registrations</td>
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<td>SCDB</td>
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<td>Survey Data Input</td>
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<td>Survey Data Exchange</td>
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<td>State Forest</td>
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<td>SmartRegister</td>
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<td>SSA</td>
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<tr>
<td>SSM</td>
<td>Standard Survey Mark</td>
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<td>Suburban Lot</td>
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<td>TCM</td>
<td>Temporary Control Mark</td>
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<td>TP&amp;D Act</td>
<td>Town Planning and Development Act 1928</td>
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<td>UCL</td>
<td>Unallocated Crown Land (formerly VCL – Vacant Crown Land)</td>
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<td>WAPC</td>
<td>Western Australian Planning Commission</td>
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Glossary of Terms

Acquisition of Land

Land may be received or bought back by the Crown, Government instrumentalities or Local Governments for a range of public purposes (section 11 of the LAA). The owners are recompensed at the land’s current market value or assessed value OR land may be resumed by the Commonwealth Government under the Lands Acquisition Act 1955. There are special implications for mineral rights in these dealings.

Alienated Land

Land held in Freehold.

Certificate of Crown Land Title

A page of the Register book specifying the ownership (State of Western Australia) of a defined parcel of Crown land and the lodged or registered interests, dealings, caveats or claims (encumbrances) in respect of that parcel of Crown land.

Closed Road

A Public road closed by Taking Order (section 170 and 177 of the LAA), Commonwealth acquisition, or by section 58 of the Land Administration Act 1997. The land may be disposed of to adjoining proprietors under section 87 of the LAA.

Conditional Purchase Lease

These leases relate solely to Agricultural and Grazing land and are for terms varying from 25 to 30 years. Up to 2000 hectares (or 4000 with special approval) may be held by the one party. The lessee pays a rental sufficient to cover the purchase price and if all land development conditions are met they are then entitled to become the owner.

Conditional Purchase License

As for a Conditional Purchase Lease except that the term is limited to 7 years during which development conditions must be met. The holder of the licence then has 12 months in which to pay the purchase money.

Control of Reserve

Reserves are generally under the control of RDL but can be placed under the control of an Authority (Management Body), including the Commonwealth (e.g. Department of Defence).

Crown Grant

A legal document issued in the name of Her Majesty granting, after certain conditions are met, to the proprietor a defined portion of Crown Land in fee simple. There may or may not be restrictions on how the land can be used.

❖ Note

Under the LAA, Crown Grants are no longer issued. Crown Grants have been replaced by the conventional conveyancing process of Offer and Acceptance followed by the registration of a transfer document and the issue of a Certificate of Title.
Crown Lease
A lease issued under the Land Act 1993 for a period of 5 years or more for use of the land. The lease document is registered under the LAA. (See Crown Land Lease.)

Crown Land
All land except for alienated land and includes land within the limits of the State that form the airspace, seabed and subsoil of coastal waters as defined by the Commonwealth’s Coastal Waters (State Powers) Act 1980.

Crown Land Lease
A lease issued under the Land Administration Act 1997 for a period of 12 months or more for using Crown land. The Crown Land Lease will simply be known as a Lease and will be registered under the Transfer of Land Act 1893 (TLA). Note: Leases that are for a term of less than 12 months will be in the form of a license and not registered under the TLA.

Dedicated Road
Road set aside for use by the public, the absolute property of which is vested in the name of the Crown. The care, control and management are the responsibility of a Local Government Authority or Main Roads WA. Roads are set apart for the public use by either registration of a Ministerial Order or upon approval of a diagram or Plan of survey containing the road (also termed a public road).

DLI
Department of Land Information. Now known as the Western Australian Land Information Authority (Landgate).

DPI
Department of Planning and Infrastructure (superseded by the Department of Planning and The Department of Regional Development and Lands).

Easement
Gives a person or a company ‘rights of use or engagement’ over land owned by another.

General Regulations
The Licensed Surveyors (Guidance of Surveyors) Regulations 1961.

Head Tenure
The highest priority land description of a parcel/s of land e.g. Reserve, Pastoral Lease or State Forest.

Joint Venture
The Land Administration Act 1997 provides for Landgate to enter into agreements with other parties private or government, for the purpose of developing and selling Crown land.

Land
All land within the limits of the State including coastal waters and the seabed. It may specifically include or exclude the right to some minerals.

Land Act 1933
Landgate
The Western Australian Land Information Authority trading as Landgate. Formerly known as the Department of Land Information (DLI).

Lease
A grant of possession of property for a number of years at specified rentals and subject to various conditions. The registered proprietor has certain re-entry rights if the lessee defaults by not observing the conditions of the lease or by not paying the specified rentals.

Lease of Reserve
Reserves can be leased direct by the Crown for any purpose under rental conditions specified by the Governor. Reserves may also be leased by parties holding a formal management order, provided the order includes the power to lease.

Licence to Occupy
A Certificate given under the authority of the Minister for Lands authorising the purchaser to enter and hold the land, subject to the terms and conditions specified.

Live Mining Tenure
A parcel of land allocated tenure under the Mines Act, which is currently in use for mining or associated purposes.

Mall Reserve
Crown land (generally a closed road) reserved for the purpose of a ‘Mall Reserve’.

Management Body
Person/s or body in which the care, control and management of a reserve or Mall Reserve is placed (formerly known as a Vestee).

Management Plan
Plan setting out proposed development, management and use of Crown land by a Management body or lessee.

Management of Reserves
Landgate maintains a Crown Reserve database which includes details as to area, purpose, locality, etc. It also shows who controls the reserve. Landgate is responsible for ensuring the correct use of reserves and may require a Management Body to prepare a management plan. A proportion of all reserves are inspected annually to monitor correct usage.

Ministerial Order
An order made by the Minister for Lands authorising disposition and other administrative actions in relation to Crown Land. Ministerial Orders must be registered under the Transfer of Land Act 1893 to be effectual.

National Parks
Usually ‘A’ Class reserves and controlled by the Department of Conservation and Land Management through the National Parks and Nature Conservation Authority.
Nature Reserve

Reserves set aside for the conservation of flora and fauna, and usually controlled by the Department of Conservation and Land Management through the National Parks and Nature Conservation Authority.

Ownership

All land is subject to Tenure which means that the Crown is the ultimate owner. Land holders are tenants in one form or another and are termed Registered Proprietors.

Pastoral Lease

These leases confer on the lessee the right to graze stock on the natural vegetation and gives no right to the soil or timber. The leases are limited to the natural surface of the land only. Up to 500,000 hectares may be leased by the one party. All pastoral leases expire on the 30th June, 2015.

Permits (Pastoral)

May be granted under the *Land Administration Act 1997* by the Pastoral Lands Board to permit use of pastoral lease land for related pastoral and non-pastoral activity (e.g. for tourism, horticulture etc.).

Perpetual Lease

Relates to properties settled by eligible ex-servicemen after World War II. Perpetual leases were granted pursuant to the provisions of the *War Service Land Settlement Act*. The Commonwealth owns the land in Fee Simple and leases it under special arrangements with the State. Provided conditions are met the lessee may pay the agreed option price and receive the Freehold of the land.

Planning

Department of Planning. (formerly the Department of Planning and Infrastructure - DPI)

RDL

Department of Regional Development and Lands (formerly the Department of Planning and Infrastructure- DPI)

Plans

Includes diagrams.

Public Road

A road dedicated to use by the Public. Control and management is placed in Local Authorities or the Main Roads WA. Also referred to as a dedicated road, gazetted road or street.

Public Access Route

A route across Crown land declared by the Minister, well sign posted and deemed a 144 Easement providing access to the public to recreational and tourism sites. A plan of the route showing the width is created after advertising and the consents of interested parties is secured.

“No liability by the Minister, use at your own peril” (section 63-71 of the LAA)
Qualified Certificate of Crown Land Title

A Qualified Certificate of Crown Land Title (QCLT) can be created for Crown allotments where pre-Land Administration Act 1997 issued interests may not be known at the time of issue. QCLTs may be upgraded to a Certificate of Crown Land Title upon completion of a validation process. Crown Land Records (pre-LAA) automatically became QCLTs upon proclamation of the Land Administration Act 1997.

Reserves

Areas of Crown Land set apart for various public purposes e.g. Parks, Recreation, Drainage or Church sites. The reserve is identified by a number, for example Reserve No. 12345. Reserves may be vested or leased.

There are three different categories of reserves:

- **Class ‘A’**: Those classified as being Class ‘A’ forever remain dedicated to the purpose declared until by an Act of Parliament it is otherwise amended. Class ‘A’ is used where there is a need perceived for the highest form of protection, for example Kings Park or National Parks.
- **Class ‘B’**: Some reserves were seen as warranting higher protection than usual but not to the extent of Class ‘A’. Class ‘B’ reserves could be varied by the Governor in Executive Council, and amendment be notified to Parliament.
- **Class ‘C’**: This category of reserves was dealt with as the Governor in Executive Council determined. The vast majority of reserves were Class ‘C’.

Under the Land Administration Act 1997, new reserves are Class ‘A’ or simply a reserve. Class ‘B’ and ‘C’ are no longer allocated.

Resumptions

See Taking

Revestment of Land

Freehold land acquired by the Crown whether by transfer or taking, or pursuant to other provisions such as those in the Local Government Act 1995 relating to forfeiture of land for non-payment of rates, may be revested in the Crown pursuant to section 243 of the Transfer of Land Act 1893.

The relevant Certificate of Title is cancelled and the subject land is re-identified by a new lot or location number and may be dealt with by Landgate as unallocated Crown land.

The Land Administration Act 1997 provides for the Minister for Lands to revest Freehold land back to the Crown by Ministerial Order with or without existing encumbrances (section 82 of the LAA).

Revestment may be specified in relation to land, the subject of special Acts. (Eg. Bunbury Railway Lands Act 1985, Forrest Place and City Station Development Act 1985, Geraldton Foreshore and Marina Development Act 1990, and various Railway Closure Acts and Reserves and Land Revestment Acts)

Right of Way (ROW)

A right of way is a strip of land available either for use by the general public or a restricted section of the community and may be created by subdivision, specific transfer or continued use over a period of years.
Road Casement

The cadastral boundaries of a land parcel created for road purposes.

Rural

A locality where the land parcels are generally larger than 2 hectares.

Special Lease

Refer to Crown Land Lease.

Staged Approval

Allows the issue and registration of Crown Titles for the allotments the subject of the first stage of the Plan approval, in turn enabling registration of any Notice of Intention to Take documents.

State Forest

A portion of the Crown Estate wholly devoted to forestry purposes. These are controlled by the Department of Conservation and Land Management through the Lands and Forests Commission.

Stock Route

A strip of land reserved for the droving of livestock from farm to port or market. Generally within the northern regions of the State. It is not a public road unless so dedicated.

Subsidiary Certificate of Crown Land Title

A Certificate of Crown Land Title issued for registration of subsidiary interests. (e.g. multiple leases within a single reserve)

Superlot (Crown)

A term commonly applied to a large parcel of Crown land which is being disposed of whether by lease or sale, for subsequent subdivision and sale by the lessee or purchaser for Townsite lots. The Land Administration Act 1997 makes provision for disposal of superlots (section 85 of the LAA).

Taking

The term used under the Land Administration Act 1997 in lieu of ‘resumption’ or ‘compulsory acquisition’. It relates to the taking or acquisition of interests in land whether by agreement or compulsion.

TLA Regulations


Torrens System

The present system of Land Title Registration used by Landgate. This system has simplified the registration of land dealings and guarantees the Title of the land owner. It ensures that a person need not look further than the original Certificate of Title to ascertain all the registered interests in the land.

Transfer of Land Act 1893

An Act of Parliament which sets up a public register of title to land, maintained by the Registrar of Titles.
Unallocated Crown Land

Crown land which is not subject to any interest (aside from Native Title interests) and which is not reserved or dedicated. (Replaces VACANT CROWN LAND.)

Unmanaged Reserve

A reserve which is not formally placed under the care and control of a management body. (Formerly UNVESTED RESERVE.)

Urban

A locality where land parcels are generally 2 hectares or smaller.

Vacant Crown Land

Crown Land not currently being used or not reserved for any future purpose. Replaced by Unallocated Crown Land (UCL) under the Land Administration Act 1997.

Vesting Orders

See Management Order

- The Commissioner of Titles may issue an order vesting Freehold land in an applicant.
- The Courts (Supreme and Family Court of WA) can issue orders vesting Freehold land in an applicant.
1. Introduction to the Practice Manual

Introduction

Chapter 1 gives a general introduction to the systems and legislation under which the Survey and Plan Practice Manual has been developed as well as a précis of the changes that have driven the processes.

1.1 Relevant Legislation and Directions

This manual covers information related to surveys and plans prepared under the *Transfer of Land Act 1893* (TLA) and the *Land Administration Act 1997* (LAA) and associated regulations. It is also the “Survey and Plan Practice Manual”, referred to in the Registrar’s of Titles Directions to Surveyors relating to the verification of authorised surveys. (See Appendix 9).

Surveys and plans prepared for purposes of the *Strata Titles Act 1985* are covered by a separate publication - the *Strata Titles Practice Manual*.

1.2 SmartRegister Titling System

Since 1992 Landgate (previously known as DLI and DOLA) has used image technology to provide its core searching services and in June 1997, the then DOLA reviewed its future directions for moving into the electronic commerce environment. The key outcome was the need to establish a digital register that would provide the foundation for electronic commerce applications. This would allow conveyancers, in particular, to capitalise on the functionality already provided as part of the Electronic Advice of Sale system.

SmartRegister (based on the NSW Integrated Titling System) was developed by the then DOLA into an automated title registration process suitable for Western Australia that supported a digital register in a text title format with an associated survey plan.

SmartRegister (SMR) is an internal Landgate system to automate the recording of changes to interests on a Certificate of Title. SmartRegister has not changed the customers’ business processes: they continue to use existing document forms and lodge them as normal.

The introduction of SmartRegister resulted in major changes to the practices undertaken by surveyors. The main changes being:

- The SmartRegister titling system does not allow part lots so, except for some situations involving takings, no new part lots can be created. Surveyors are to show any residue land arising from a subdivision as a balance lot. (See chapter 9.15 and 20.4).

- SmartRegister provides certificates of title without a sketch of the parcel or any easement sketches, and this change relies on plans showing more information. Surveyors are required to bring forward onto new plans most existing interests of a spatial nature and list them, together with any new interests being created, in a schedule. (See chapter 14.1).
1.3  Changes to Plan Presentation

In addition to the changes necessitated by SmartRegister, the opportunity was taken to incorporate other improvements to the content, format and presentation of Freehold and Crown plans in keeping with modern Records Management, clearer search copying and suggestions from the survey industry.

The main changes introduced were:

- multiple sheets on plans
- Freehold and Crown plans now use the same forms
- A2 and A3 sized forms replaced the old A1, A2 and A3 sized plans and diagrams
- the amount of colouring on plans was significantly reduced
- the fundamental concept of the ‘Land Description’ heading on freehold plans was changed to the Crown ‘Outcome’ type heading
- Freehold plans can now show land in multiple ownership
- plans showing sole subject roads are now limited.

1.4  Land Administration Act 1997

The Land Administration Act 1997 (LAA) modernised Crown land administration in Western Australia. The legislation introduced new practices and policies for the release and protection of the Crown estate facilitating the development of a unique Crown land tenure system supported by a document registration process. Established conveyancing procedures used for freehold land have been applied to Crown land.

The result is a Single Registration System, which simplifies and streamlines many processes relating to the Crown estate. Once the system is fully established a title will be created for all land parcels in the State. This will result in a consolidated register of all Crown and Freehold tenure and interests.

In modernising Crown land administration, relevant Acts relating to the administration of Crown land have been incorporated into the LAA.

The LAA amalgamated:

- provisions in the Land Act 1933 still appropriate for present day requirements,
- sections of the Local Government (Miscellaneous Provisions) Act 1960 dealing with roads, and
- those parts of the Land Acquisition and Public Works Act 1902 dealing with the taking of land for a public work and subsequent leasing, disposal and compensation.

Land-related provisions in the Land Acquisition and Public Works Act 1902 were removed from that Act and placed in the LAA. There were no changes to the basic principles of road dedications/closures, resumptions and compensation.

The Acts Amendment and Repeal (Native Title) Act 1995 amended the Public Works Act 1902 to enable native title interests to be compulsorily acquired, prior to affected areas of Crown land being dealt with (whether used for a public work, or reserved, leased or granted in freehold).
1.5 **Single Registration System**

A major outcome of the *Land Administration Act 1997* (LAA) is a single registration system for both Crown and Freehold land in Western Australia.

The LAA resulted in extensive consequential amendments to the *Transfer of Land Act 1893* (TLA).

Certificates of Crown Land Title (CLT) and Qualified Certificates of Crown Land Title (QCLT) are created under the LAA for each parcel of Crown land and are issued in the name of the State of Western Australia. Suitable graphics are required to produce these titles.

All dealings, interests, rights and powers affecting Crown land must be lodged with the Registrar of Titles and registered against these CLTs under the TLA to be effective. This reflects the same principles as Freehold land. Crown land records produced since 1989 under the Single Recording System automatically became QCLTs under the LAA and are systematically validated and upgraded to a CLT.

Under the LAA, all interests and other dealings relating to Crown land must be registered at Landgate. This provides customers with the ability to search such dealings in a similar manner as Freehold land.

Crown Grants are no longer issued. Freehold status is given by way of a transfer document registered under the TLA. A Freehold Certificate of Title for that parcel of land is created and registered under the TLA.

There was a transitional period provided in the LAA in which all existing transactions affecting Crown land had to be lodged and registered under the TLA. At the end of this 5-year period, any transactions or interests entered into prior to the commencement of the LAA, that are not yet registered, will still be valid, but such transactions or interests lose priority and are void against any prior registered interest.

It is proposed that Landgate will work towards obtaining certainty of title for all interests in Crown land. CLTs will be indefeasible and guaranteed as to the transactions and interests registered on CLTs in the same way as Certificates of Title for Freehold land.

The Plan Approval process is identical to that for Freehold Plans i.e. Certified Correct – In Order For Dealings - Approved.

Unlike Freehold land, many interests registered on Crown land remain subject to survey.
1.6 Changes Introduced by the LAA

The most significant changes introduced by the *Land Administration Act 1997* (LAA) were:

1. Administrative responsibilities of the Governor devolved to the Minister for Lands.
2. Executive Council/Gazettel was replaced by registration of Ministerial Orders – gazettel is for information purposes only and is to be phased out.
3. Crown Land Records were replaced by Crown Land Titles created under the Land Administration Act and registered under the TLA.
4. All transactions in Crown land registered against a CLT to be effectual.
5. Warnings that there may be a hazard likely to affect land on CLTs.
6. There are no Crown Grants. Freehold status is made by way of a transfer document.
7. Plan approval effectual at time of document registration.
8. Plans of subdivision (sales) require WA Planning Commission approval.
9. Road closure and dedication provisions were removed from the Local Government Act and placed in the LAA (sections 56 and 58).
10. The definition of Crown Land was widened to mean all land other than Freehold land, and include land within the limits of the State that form the airspace, seabed and subsoil of coastal waters as defined by the Commonwealth’s *Coastal Waters (State Powers) Act 1980*.
11. Roads can be created in 3 dimensions. A road can be situated in airspace, over water or underground/water as a tunnel (section 54).
13. Vesting Orders replaced by Management Orders (section 46).
14. Provisions for the creation of Mall reserves – has the nature of a road but managed as a reserve (section 59).
15. Positive and Restrictive Covenants and Memorials which constitute a charge against land can be registered against Crown Land (section 16).
16. Public access routes can be declared over pastoral leases and Crown land (sections 63-71).
17. Transfer of relevant sections from the *Public Works Act 1902* to the LAA.
2. Searching Landgate Records

Introduction

Chapter 2 presents the range of information sources available through Landgate, what they provide and in what formats, and the methods and costs for their access.

2.1 SmartPlan Spatial Viewer

The SmartPlan Spatial Viewer is the digital replacement of Landgate's analogue Public Plans. It provides tools for searching, displaying and printing spatial data together with its associated tenure information.

It is important to understand that Spatial Viewer has certain limitations in search and display capabilities. These limitations include:

- No superseded crown allotment boundaries
- Not all roads have been polygonised
- Road numbers are not shown
- No part lot prefixes for single tenure residue lots.

Spatial Viewer provides access to integrated spatial and related attribute information. The application provides real time access to Landgate's databases for internal Landgate users and the general public attending at the search counter.

The Spatial Viewer system enabled the following analogue plan series to be decommissioned as of the 30th of June, 2000:

1. Public Plans
2. Central Map Agency Transparency Plans.

Spatial Viewer allows Landgate staff and customers to enquire on spatial cadastral information via Street Address, Lot on Plan, Local Government Authority, Locality, Area of Interest, Map sheet number, etc.

Spatial Viewer can display dimensions such as distance and area. Surveyed distances shown with no derivation code, are generally reliable. Derived distances shown as '(v)' and digitised distances shown as '(d)', are not reliable (NB: Landgate only guarantees original survey and title information and these should always be referred to for legal purposes.) Angles and azimuths can also be displayed.

It is advisable to use a combination of the Spatial Viewer and analogue maps (including source survey documents if needed).

Spatial Viewer can be used for searches in rural areas to identify Freehold subdivisions that may not be shown on the relevant Survey Index Plan. (See chapter 2.4).

❖ Note

Searches for legal purposes should always include copies of the relevant Certificates of Title and associated documentation.
2.2 “My Landgate” Website

My Landgate (the website) is Western Australia’s internet gateway to land and property information, and has been developed to provide internet access to a range of government data, products and services. My Landgate’s dedicated Survey Channel includes online map viewing capability and resources most relevant to the survey industry. My Landgate can be accessed at www.landgate.com.au. It is currently only available to registered users. Please contact Landgate’s Online Services Support on +61 (0)8 9273 7341 or email onlinesupport@landgate.wa.gov.au for more information or to subscribe to the service.

2.2.1 Features of My Landgate Survey Channel

1. View and interrogate cadastral information, geodetic survey marks, topographic and Native Title data. This data can then be overlaid with the latest aerial photography using varying levels of transparency, to provide a single image of relevant information.
2. Provision of various search functions including a specific address or lot on survey. Ability to activate individual layers including various cadastral and geodetic data.
3. View cadastral survey indexes as a layer in Map Viewer, and view and download superseded analogue survey index plans as colour JPEG images.
4. Search and enquire on geodetic survey marks, view and download mark details and station summaries, and report missing or damaged marks.
5. Topographic maps including road centrelines, major water features and points and lines of interest e.g. airports, railways.
6. View and enquire about administrative boundaries including local government areas, land districts, localities (suburbs) and townsites.
7. Ability to view and print full-colour customised maps.

2.2.2 General

1. Simple, easy to follow online training modules incorporating self-assessment tutorials.
2. Ability to conduct on-line Title searches and check searches.
4. Forms, Manuals, Legislation and other relevant publications.
5. Latest News, Notices to Surveyors, Customer Information Bulletins, brochures and other relevant communications.
6. Links to useful survey industry websites: government, institutions and references.
7. Contact details of key Landgate personnel.
8. Online enquiry on historical crown allotments, registration matters, survey status and survey index cards.

2.2.3 Benefits

1. Current government data, products and services.
2. Intuitive search, view and query map tools.
3. Simple navigation for accessing relevant applications, tools and publications.
4. Survey industry relevant resources in one easy to use online environment.
2.3 Customer Remote Searching

Remote searching by Surveyors is via Land Enquiry on MyLandgate Survey Channel.

On-Line Requests

Customers are now able to submit a request, on line, utilising the land enquiry option of the Landgate website to obtain copies of Titles, Crown and Freehold surveys, documents, field books and index plans. Such information will be forwarded by email as a PDF attachment.

Order forms for CAS customers and credit card customers are available by request or via Landgate’s website - http://www0.landgate.wa.gov.au/.

Refer to the Land Enquiry User Guide in My Landgate.

2.4 Analogue Survey Index Plan and SmartPlan Survey Index Plan View

The analogue Survey Index Plan (SIP) series indicates the Freehold surveys and Crown surveys but lacks integrity with regard to historical Crown surveys.

The analogue SIPs have been replaced by an electronic Survey Index Plan view in SmartPlan known as SIP View. The SIP View only provides survey information since April 2002 so the existing analogue SIPs must still be searched for historical information. Images of the SIPs can be viewed and saved from My Landgate Survey Channel. (See chapter 2.2).

The cross indexing of new Deposited Plans on existing Freehold duplicate (mini) plans and diagrams, affected by new subdivisions and cancellations no longer occurs. When undertaking searches the SIP View in SmartPlan must be used in conjunction with reference to the images of the Survey Index Plans.

The original Crown Key Sheet. (See chapter 2.6) either superseded or partially superseded, must also be sighted.

Where SIPs/Crown Key Sheets show only Crown Plan and Diagram numbers (ie. no boundary definition or parcel identification) this indicates impending tenure changes (sometimes not occurring for many years) that will not be shown on Spatial Viewer until that Plan or Diagram has been Approved.

It is imperative that the Landgate systems, particularly the analogue Survey Index Plan (SIP) and SIP View are searched when preparing for a survey. The SIP and SIP View should also be referred to immediately prior to lodgement of a Deposited Plan to ensure the plan reflects any changes after the initial search.

2.5 Dual Numbering of Crown Plans and Diagrams

To enable Freehold Titles that exist over lots/locations depicted on the various types of Crown plans and diagrams to be captured in SmartRegister it was necessary to allocate them a Deposited Plan (DP) number. The following table indicates the number ranges allocated to each plan or diagram type.

<table>
<thead>
<tr>
<th>Description</th>
<th>Code</th>
<th>Dp Number (min)</th>
<th>Dp Number (max)</th>
</tr>
</thead>
<tbody>
<tr>
<td>District Diagram</td>
<td>DD</td>
<td>79000</td>
<td>90433</td>
</tr>
<tr>
<td>Reserve Diagram</td>
<td>RD</td>
<td>91000</td>
<td>92447</td>
</tr>
</tbody>
</table>
### 2.6 Key Sheets

Before the advent of the SIP series, two parallel indices of Crown and Freehold surveys existed. Since all of the historical Crown survey information was not able to be transferred, it is imperative that the Imperial and Metric series of Crown Key Sheets be sighted when searching for survey information.

#### Note

*In some areas there may be several map series covering the one search area e.g. 4, 20, 40, 80 & 300 chain series; named townsite; dual metric survey index plans; and key sheets. The 4 chain series of Key Sheet should always be checked in the metropolitan area – a Street Directory index is available at the search counter in the Customer Service Hall at Landgate, Midland.*

Some old townsites are on old LTO Index Plans that are now lodged (recorded) as LTO (Freehold) plan numbers and therefore the register needs to be searched.

### 2.7 Microfiche

As part of the move to a full online service, the Survey Searching Self-Serve Facility in the Customer Hall at Landgate Midland, closed on Friday 17th October 2008.

Two PC’s and a printer will be available at the consulting desks immediately outside the current self-serve area where members of the Survey industry can log into their My Landgate account and search online and order, or print a copy if they wish; this will be charged to their normal online
account. Visitors to Landgate’s Midland offices can also order copies or view originals by ordering across the counter, however this will be at the full document cost of $15.00 as per the gazetted fee.

Landgate will continue to maintain a full set of “Master Microfiche” as a back-up to the scanned images, and of course we still hold the archive of original documents.

2.8 Survey Index Cards (SIC)

The Survey Index Cards (SIC) provide all of the original information on Crown Locations, AA lots, Estates, Town Lots, State Forests and Reserves. The information provided includes Original Plan (OP) and Diagram numbers, Compilations, Key Sheets and File Numbers. The data has been digitally captured and it is available online.

2.9 Geodetic Data

Landgate provides on-line access to standard survey mark (SSM) and benchmark (BM) coordinate information, metadata and graphical summaries through My Landgate Map Viewer. Information is also available through phone, fax, email or personal service from Landgate’s Midland office.

SSM information includes references to field books containing cadastral connections that may not be recorded on the Survey Index. (See chapter 2.4).

My Landgate Map Viewer is a graphic mapping interface that links to the Geodetic On-Line Access (GOLA) system to generate geodetic mark information reports and station access diagrams.

The GOLA system is an Internet based application. The system provides remote access to geodetic data and images of station summaries. GOLA is especially valuable for surveyors in the field who may need to access survey mark details outside office hours. It is available on the Internet through the Landgate homepage at https://www2.landgate.wa.gov.au/gola. The functions of GOLA have been included within My Landgate Survey Channel, which adds a graphical capability to searching information about geodetic survey marks.

2.10 Mining Tenure

Mining tenure and cadastral survey records held by the Department of Industry and Resources (DoIR) should be researched especially if current tenements are involved and the surrender of surface rights is an issue. This is a requirement for Road Casement Surveys by Limited Marking. (See Appendix 1).

2.11 Gazettals

Under the Land Administration Act 1997 all actions against Crown land must be registered to be effectual. This means that where in the past an action was effectual on publication in the Government Gazette, under the LAA it is effectual upon registration of a Ministerial Order - the date of registration being the effective date.

Use of the Government Gazette in the future will be for information purposes only and will gradually be phased out.

Gazettals/registration of reserves, roads, townsites, etc. may need to be referred to the Department of Regional Development and Lands (RDL) Survey Coordinator, before issue of Crown Survey/Drafting contracts if boundary survey detail is vague or not known. Any subsequent problems should be referred to Survey Coordination, State Land Services, RDL.
2.12 Miscellaneous and Reserve Plans

Landgate produces sketch plans depicting land parcels incorporating unsurveyed boundaries. These plans need to be searched and shown on new Deposited Plans.

Since April 1998 all Crown Plans/Diagrams have used a single numbering system and are now lodged and numbered as deposited plans. (See plan examples 72, 73 and 74).

2.13 Renovation Plans for Central Business Districts (CBDs)

Historically, street alignments in CBD areas were not clearly defined. In common with many surveys of the earlier period lot numbers and dimensions were shown while areas and angles were often omitted. In many instances, the dimensions for lots were indeterminate due to conflicting values or the passage of time that has rendered the information illegible (in some cases there is no field book).

Street Corner Plans (SCP) were introduced in response to a demand for clearly defined property boundaries in areas of very high land values. These early SCPs were produced on a needs basis for each particular survey and were basically an alignment sketch. This was a piecemeal approach and Landgate realised that a coordinated effort was necessary, particularly as the State was going through a boom period in construction and also to satisfy user demand.

In 1975, the Inspecting Surveyors introduced a control survey network with all street corners in the CBD of Perth being tied to the geodetic framework.

There was a rigorous identification and re-establishment of all street corners and buildings. With additional marking this provided an excellent base for subsequent surveys.

All these renovation surveys were performed to high levels of accuracies with surround closes of sections having an upper limit of ± 10” angular and 1:75,000 linear. These accuracies enabled the precise identification of every land parcel within any described section.

All available data was evaluated using the strictest survey examination principles based on strength of alignment, the reliability of marks found, proportioning of excess or deficiency, evaluation of C/T dimensions, relevant constraints and variances caused by occupation and the chronological age of sectional surveys.

In 1981 Renovation Plans were introduced and these were a major improvement on the superseded SCPs.

Details shown on Renovation Plans include:

- definition of all land parcels within a described section, depicting original and adopted cadastral values (C/T dimensions shown if they conflict with original values)
- Crown and Freehold lots
- reference to all sources- plans, diagrams, field books, Public Plans, SIPs and C/Ts
- ownership
- building connections (where determined)
- road widths and connections to opposite corners
- connection to renovation control line (Geodetic Network). True azimuths are shown and coordinates are available for the control network.

These plans are the single information source (base) needed for subsequent surveys.
The compilation and maintenance of Renovation Plans ceased in January 1993 with a total of 38 plans being produced for the CBD areas of:

- Perth - 26 (covering 2/3 of Perth CBD)
- West Perth - 7,
- Fremantle - 5.

See Appendix 7 - Renovation Plan Indexes.

2.13.1 Disclaimer

On each Renovation Plan there is a disclaimer stating:

Angles and distances on Renovation Plans to be adopted for compiled plans, excepting where boundary or boundaries have been superseded by subsequent surveys (Post January 1993).
Renovation Plans are not to be used as the sole criteria for the re-establishment of corners.
Building connections to be substantiated before adopting.

P. Beaver
Inspector of Plans and Surveys

2.13.2 Searching

- Unique index sheets, showing Renovation Plans in the CBD areas of Perth, West Perth and Fremantle are available on request at the Public Counter, Customer Services Hall, Landgate. (Copies included herein at Appendix 7 - Renovation Plans exist for the shaded street sections).
- All Renovation Plans are endorsed onto SIPs and can be searched on microfiche. If a Renovation Plan is not shown within a section, then one hasn’t been produced.
- The Manager, Survey Inspection can be contacted for any problems associated with Renovation Plans (Renovation Plan search must have been instigated prior to contact).
- All original Renovation Plans are held in Landgate secondary storage at Midvale.

2.14 Acquiring Digital Data from Landgate

An increasingly common additional search component for cadastral surveys is the acquisition of digital data from Landgate’s Spatial Cadastral Database (SCDB).

This data can be used for mapping and other drafting applications concerning the depiction of land boundaries. In some places the SCDB can be used to assist in the definition of boundaries and can be useful in searching for survey marks in remote locations. However, the range of uses is limited by the spatial accuracy of the SCDB coordinates for the area of interest.

Request forms are available from the Landgate website at www0.landgate.wa.gov.au/. Click on ‘Products & Services’/‘Data’/‘Digital Mapping Data’/‘Cadastral and Tenure Digital Data’/‘order now’. Follow the instructions to obtain the Geospatial Data Request form. The various parts of the Geospatial Data Request form are as follows:

1. Customer details generally self-explanatory and subject to personal preference.
2. Defined Area/Projection refers to the method of describing the area of interest for which an extract is required. It can be in the form of:

- bounding rectangle defined by geographical or MGA coordinates
- standard map sheet e.g. 1:2000 BG 34 16.17
- an existing area of interest such as a suburb or local government boundary

or

- a local area of interest outlined on a map.

3. Geospatial Data - Surveyors will mainly be interested in the Cadastral family. The other families generally won't be necessary for survey purposes. Information about geodetic stations can be obtained from My Landgate Survey Channel, GOLA or from the information counter at the Midland office.

Choose the data and data formats required by checking the appropriate boxes. See chapter 2.15 below for information specific to acquiring digital data in Cadastral Survey Data format.

4. Payment Details - Check the applicable boxes.

5. Delivery and Licence options - The data can be supplied in a variety of media and delivery methods.

The most common method now is email because this enables effective and efficient transfer of electronic data between remote sites.

Licence options can be discussed with a Customer Service officer if necessary.

2.15 Availability and procedure to acquire CSD files

Extracts of the Spatial Cadastral Database (SCDB) from the lodged and integrated layers over any specified spatial extent are available in CSD format.

CSD files of specific DPs or survey-strata plans are also available. Generally only the latest CSD file submission (see figure 2) will be provided because it is the most reliable and in most cases it will include corrections to errors discovered in the lodged file during the plan examination.

It is recommended that the lodged or integrated layer (as applicable) extract is the most reliable method of obtaining a CSD file that agrees with the relevant plan, and which also contains dimensions from subsequent abutting subdivisions.

It is important to be aware that plan CSD files come in a variety of coordinate systems. Watch for:

- P (for plane coordinates)
- T (for Transverse Mercator i.e. “real world” grid coordinates)
- G (for geodetics i.e. latitude and longitude) in record 1.

T coordinates will generally be most useful, and G coordinates are to be avoided unless you are sure the systems you are using can import the file properly. Generally CSD Editor users will not experience any problems, but WESCOM Capture can’t import a geographical file.

When extracting data from the SCDB, it is always important to check the spatial accuracy of the points in the area of interest. Large parts of the State, including much of the metropolitan area, have not yet been spatially upgraded, and most surveys lodged before 1995 did not include digital data. Line dimensions in such areas may not reflect the latest survey information.

CSD files are to be ordered through Geospatial Data Delivery by using the standard Geospatial Data Request form.
2.15.1   For an SCDB extract from the lodged layer
1. specify the DP number in the "Area of Interest/Mapsheet" space
2. specify the PROJECTION required by ticking the appropriate box
3. tick the "Lodged Layer" box on the Cadastre Family line
4. tick the "CSD" box in the Cadastre Format line.

2.15.2   For an SCDB extract from the integrated layer (also called approved layer)
1. specify the DP number in the "Area of Interest/Mapsheet" space
2. specify the PROJECTION required by ticking the appropriate box
3. tick the "Cadastral" box on the Cadastre Family line
4. tick the "CSD" box in the Cadastre Format line.

2.15.3   For a CSD file of a specific plan
1. specify the DP number in the "Area of Interest/Mapsheet" space
2. specify the PROJECTION required by ticking the appropriate box
3. state “CSD file export from SMP Browse Survey” in the Special Instructions line.

Surveyors are requested to advise Landgate if they find any errors in the digital data with which they are supplied. Landgate will provide a corrected CSD file at no extra charge.
Figure 2: Screen shot of SmartPlan Browse Survey CSD file information and functions

3. Survey Guidelines

Introduction

Chapter 3 provides guidance to surveyors on a range of topics to assist them in achieving best practice in the course of carrying out authorised surveys.
3.1 Disclosure

General Regulation 4 and TLA regulation 2 confirm the professional responsibilities of surveyors to disclose information and to act in the interests of the State.

Particular examples of these requirements, and which the surveyor should consider and disclose, are:

- Easements (whether documented or apparent).
- Presence of encroaching power lines.
- Encroachments, including positions of fences.
- Other irregularities which may affect title.

3.2 Minimum Acceptable Re-establishment

Sufficient permanent marks should be found to provide enough redundancy:

- To prove that none of the adopted marks could have moved,
- To prove that there was not a mistake in the original work and to allow distribution of the errors in that work, and
- To detect any mistakes in your own work and manage the errors.

The above criteria are necessary for every original alignment of the subdivision, although reduced a little for successive alignments because of redundancies provided by the other alignments.

General Regulation 23 requires at least three well-spaced marks in agreement. Two unsupported intersection spikes is not sufficient pickup. Intersection spikes referenced only by a spike protection that did not verify the alignment are considered to be unsupported.

In Special Survey Areas the pickup is to include at least three PSMs or PCMs in agreement.

3.3 Urban Re-establishment

A surveyor, when subdividing or re-marking all or a portion of a lot abutting on a road where the total distance between the road corners disagrees with the original subdivision (whether Crown or otherwise) by more than one part in eight thousand should re-establish sufficient of the section to prove the marks found; allow the distribution of excess or deficiency; and allow the calculation of all of the boundaries of the old allotment. The ratio of 1:8,000 should be substantially tightened in commercial areas.

Substantial improvements on or near the boundaries of nearby lots (and that may be affected by the distribution of excess or deficiency) should be located. Suitable measurements from existing lodged surveys may be used to assist in meeting the requirements of this guideline.

Guidelines under General Regulation 22B issued by the Land Surveyors’ Licensing Board outline how Standard Survey Marks can be used for re-establishment.

3.4 Priorities of Re-establishment Evidence

The following order of priority of evidence is recommended in re-establishing street corners:

1. Reliable marks or monuments (i.e. connections to buildings etc.) on the subject alignment.
2. Reliable marks/monuments on other side of the road. Then using original connections across road.
3. Proportioning distances (whilst maintaining alignment) over two or more sections. This method is usually only reliable when both sections are part of the same original survey but it is the only method to be used where deficiencies are involved.

4. Proportioning distances whilst maintaining original angle/s within street section.

5. Maintaining original distances.


7. Producing street alignments.

8. Maintaining original angles.

❖ Note

Items 3 - 8 are mathematical solutions and must be considered together with improvements on or near boundaries and previous surveys carried out within the section.

Where marks at a bend or a series of bends are gone, the corner/s can be refixed by adopting the original angle/s at the bend/s to be re-established and proportioning the distances between the marks found. See chapter 3.16 for guidance on distribution of excess and deficiency.

3.5 Excess Adjacent to Deficiency

An excess distance should not be created adjacent to a deficiency unless this is made necessary by reliable marks at the corner being re-established. In all other circumstances every effort should be made to minimise the deficiency as a first priority. An excess adjacent to a deficiency usually indicates an error in the method of re-establishment (see chapter 3.4 above).

3.6 Conformity between Adjacent Plans

In surveys carried out by traditional conventional means it has been accepted that adjacent surveys separated by a period of years can differ in their re-establishment of their common alignment. Because each was based on direct measurements to original marks found the differences were (and still will be) accepted.

The situation is different when:

1. modern methods using a control survey are used
2. the original marks can be subject to disturbance during the construction phase of the subdivision, and
3. the field records are necessarily summarised.

In the case of large urban subdivisions (especially Special Survey Areas) it is not acceptable for adjacent surveys to differ in the dimensions of their common boundary without justification for the adoptions and resolution of the discrepancy, particularly when both adjacent surveys were carried out by the same firm or used a common control network. It is the surveyor's responsibility to ensure that the definition of the common boundary is reliable.

3.7 Closest Pickup is Best

In resolving difficult re-establishment problems, apparent from large differences from original in recently lodged surveys, the inspecting surveyors are usually able to find reliable original marks close to the subject survey (but which were not found or used by that surveyor). The use of these extra marks usually resolves the problem simply.
The closest original marks should always be used (not necessarily adopted); and a determined search for all close marks should be made when there seem to be significant differences from original dimensions.

3.8 Discrepancies with Original

All discrepancies with original values outside regulatory limits should be fully investigated with adoptions, measurements, offsets and calculations checked. Where re-established corners do not fit with improvements (e.g. fencing) there is a risk that an error has been made and therefore it is recommended that adequate check measurements be undertaken. (See chapter 8.4 also.)

3.9 Included Angle is a Check Only

In re-establishing adjacent street alignments of an urban section with sparse pickup, agreement with an original angle alone is an unreliable basis for re-establishment. Commonly both adopted alignments are incorrect by amounts that compensate in angular terms. Use the angle only as a check, not as a basis for re-establishment.

Adopting original angles and thereby causing deficiencies on original distances should be avoided, however in some old rural areas the original angles may be more reliable than the original distances.

3.10 Erroneous Original Values

Where it is found that an original ‘legal’ dimension of the parent parcel (ie. shown on latest plan) is in error it is recommended that the relevant adopted corners of the parent parcel are re-marked to enable the correct dimensions to be shown on the plan that is to be lodged.

3.11 Calibration of Instruments

Calibration of measuring instruments is particularly important when the function of measurement is hidden from the surveyor who must simply rely on the manufacturer's claims. Regular calibration of EDM units, total stations, electronic theodolites and GPS receivers should be an integral part of the measurement process. It is an important part of a surveyor's quality control system and provides legal traceability back to the national standard for length measurement.

As well as the particular recommendations of the manufacturer, client or employer (and as well as any needs dictated by accident, transport, repair or loss of control over the instrument) electronic measuring instruments should be calibrated at least once a year. Historical as well as current calibration records should be retained and may be required to be produced to support a lodged survey.

Log on to My Landgate Survey Channel for current details about the calibration facilities and services available in WA.

3.12 Accuracy

To maintain accuracy of angular and linear measurements, procedures should be adopted such that:

1. the standard deviation of an angular measurement should not exceed $+10^\circ$ of arc; and

2. the standard deviation of a distance measurement should not exceed $+1:16,000$ of the distance on an urban survey or $+1:10,000$ of the distance on a rural survey.

If the standard deviation calculated from either of the above ratios is less than 5 millimetres on an urban survey or 10 millimetres on a rural survey, then these latter limits may apply.
3.13 Closures

Surveys should be tested by computation of the angular and linear closures in a surround and may be tested by comparison with coordinated permanent marks. (See chapter 8.5 also.) Misclosures outside the following limits should be recorded in the field book and noted on the Surveyor’s Report.

3.13.1 Angular Misclose

The angular misclosure in a survey should not exceed:

For urban surveys, 20" times the square root of the number of angles or 1'30" whichever is the lesser. However, if the surround includes existing surveys and if the new work is proven then a misclosure of up to 2 minutes may be accepted,

or

For rural surveys, 30" times the square root of the number of angles or 2 minutes, whichever is the lesser. However, if the surround includes existing surveys and if the new work is proven then a misclose of up to 3 minutes may be accepted, or greater in the case of surveys before 1910.

3.13.2 Linear Misclose

The linear misclosure in a survey should not exceed:

For urban surveys

0.02 metre or 1:12,000 of the perimeter whichever is the greater provided that if the surround includes existing surveys and if the new work is proven then a misclosure of up to 1:6,000 may be accepted.

For rural surveys

0.04 metre or 1:6,000 of the perimeter whichever is the greater provided that if the surround includes existing surveys and if the new work is proven then a misclosure of up to 1:4,000 may be accepted or greater in the case of surveys before 1910.

3.14 Old Fences as Pickup

In some older areas where it is not possible to find the original or later survey marks, it is valid to adopt long established occupation provided it is consistent with the relevant surveyed dimensions. This method of re-establishment should only be used after an exhaustive search for the original survey marks has been carried out. Section 154 of the TLA requires that the occupation must have existed for more than 20 years.

3.15 Sketch on Transfer Boundaries

Transfers of portions of lots or locations without survey have been accepted in the past, usually by description in the transfer with reference to a sketch in the margin or on an annexure (generally referred to as a ‘sketch on transfer’).

Should the unsurveyed boundary subsequently have to be pegged (or if the portion is later subdivided) and if it is found that there is excess or deficiency in the whole lot or location, the transferee is entitled to his transfer distances (ie the transferred portion is usually described as being of a certain width) but no more (and no less) unless his boundaries have been described by abuttals. The transferee is therefore not given any excess or deficiency. The total excess or deficiency goes to the balance portion of the lot or location. If the transferred portion is described as being of a certain width, no excess or deficiency is allocated to the width but the depth (which is usually defined by the abuttals) is still given the appropriate amount of excess or deficiency.
It is necessary to search the Titles and/or transfer document to determine which Title is the transferred portion and which is the balance.

Where the transferred portion is described by abuttals, the abuttal prevails and that portion receives its share of any excess or deficiency. If the transfer is described as a moiety (an equal portion, generally a half) and not by defined distances, then both portions must receive their proportion of any excess or deficiency.

A sketch on transfer situation can usually be recognised by the presence of a boundary, but without any survey record of its creation. Both the transferred and balance portions were named ‘part lot (or location)...’ on their respective paper Titles, but most of these have now been amended as part of the Multi Poly Multi Tenure Project carried out during 2005. Surveyors will still need to allocate any excess or deficiency in accordance with the above criteria. See chapter 9.47 for Landgate’s requirements on how these unsurveyed boundaries are to be depicted on plans.

### 3.16 Distribution of Excess and Redefinition Plans

New procedures for depicting more accurate/modern dimensions for parcels eligible for a distribution of allowable excess were introduced in July 2001. Past practices that allowed Title graphics to be amended by Landgate as a result of surveyors lodging a field book showing new dimensions for a parcel based on a distribution of excess or deficiency are no longer available. As Titles no longer have sketches included in them it was not possible to continue with past practices. The current practice is as follows:

1. Surveyor undertakes survey to determine the position of boundaries and occupation. If the dimensions surveyed vary significantly from the Title dimensions because of excess or deficiency in the section the surveyor may lodge a deposited plan (DP) with a purpose of ‘Redefinition’ which shows the adopted surveyed dimensions, and an application for a new title can be made. A “Redefinition Plan” is recommended when the differences are outside the ‘margin of error’ covered by section 155 of the TLA, and necessary if the parcel is subject to a subdivision under the *Strata Titles Act 1985*. A CSD file is required for the DP.

2. If the survey is based on a proportionate distribution of excess/deficiency (after allowing for any sketches on transfer) then the plan is to be processed in accordance with the Commissioner’s policy on the ‘Correction of Errors on Approved Plans’ and the associated levels of authority (see schedule below).

3. If the survey is based on a disproportionate distribution of excess to fit boundaries with occupation (not allowed for deficiencies) then an application under section 159 of the TLA is required. Physical evidence of occupation for a period of not less than 15 years must be demonstrated before the application can be processed.

### Schedule

#### Table 3: Extent of Correction for Areas and Distances

<table>
<thead>
<tr>
<th>Type (a)</th>
<th>Level</th>
<th>Description</th>
<th>Extent</th>
<th>Authorised by</th>
</tr>
</thead>
<tbody>
<tr>
<td>1(a)(i)</td>
<td>Minor (s.155 of the TLA)</td>
<td>Increasing Area – no impact on any other lot; subject to 1(a)(ii) and 1(a)(iii)</td>
<td>No more than 0.2%</td>
<td>Plan Examiner</td>
</tr>
<tr>
<td>1(a)(ii)</td>
<td>Minor (s.155 of the TLA)</td>
<td>Increase or decrease of distance of a boundary 40 metres or less</td>
<td>50mm or less 50mm of less</td>
<td>Plan Examiner</td>
</tr>
<tr>
<td>1(a)(iii)</td>
<td>Minor (s.155 of the TLA)</td>
<td>Increase or decrease of distance of a boundary over 40 metres</td>
<td>.2% or less</td>
<td>Plan Examiner</td>
</tr>
<tr>
<td>1(b)</td>
<td>Intermediate</td>
<td>Increase in area or length with no impact on any other lot</td>
<td>1% or less</td>
<td>IPS or other Officer appointed</td>
</tr>
</tbody>
</table>
Where uneven distribution of excess is undertaken accurate connections to all walls on, or near boundaries, is required and referencing of the lot boundary being fixed by the redistribution is recommended. A field book must be lodged. In all cases the field book must clearly show the adopted distribution of excess and the relationships between boundaries and walls or other improvements.

A common situation where an uneven distribution of excess within a street section (or across several street sections) is required is where there have been separate subdivisions by different surveyors. In older areas, especially rural, the differences between subdivisions can be quite large. Surveyors should distribute excess unevenly (between adjacent original plans) when this situation occurs.

The long-standing procedures for distributing excess over previous subdivisions carried out using ‘sketches on transfer’ (see chapter 3.15) are to continue. They are only affected by the above procedure in how an uneven distribution of excess would be applied to the parent parcel of such a ‘paper subdivision’.

3.17 Special Surveys

Regulation 26A of the Licensed Surveyors (Guidance of Surveyors) Regulations 1961 allows the Surveyor General (defined as including officers authorised by the Governor to approve plans of authorised surveyors) to authorise surveys conducted by methods other than in accordance with the regulations. The Land Surveyors’ Licensing Board may authorise types of surveys by alternative methods.

The Surveyor General or the Board may issue directions or guidelines applying to a ‘Special Survey’ or an alternative type of survey. The Board has currently approved the following guidelines for various types of special survey:

- Survey Practice Guidelines for Subdivisions Within Special Survey Areas. (See plan examples 24, 25, 26, 27, 28)
- Survey Practice Guidelines for Surveys of Roads through Open Country. (See plan examples 70, 71, 104)
- Survey Practice Guidelines for Surveys of Roads through Forest (See. plan example 52)
- Survey Practice Guidelines for Surveys of Unfenced Pastoral Lease Boundaries
- Survey Practice Guidelines for Connections to Standard Survey Marks
- Survey Practice Guidelines for Re-establishment using Standard Survey Marks


Regulation 21(1) of the Land Administration Regulations 1998 provides another option for surveys involving Crown land where variation from the guidelines is necessary. Regulation 26A can still be
applied to Crown surveys but usually in the more common circumstances where guidelines have been published.

The Board’s approval of a set of guidelines (including the Board’s consultation process with the profession) makes the government agency/authority far more accountable; and the publication of the guidelines allows many surveyors to use them for both survey and tendering purposes. The regulation 26A structure allows an open, visible and accountable control over variation from the regulations.

3.18 Surveys Involving Crown Land

Surveyors undertaking surveys over, or involving Crown land under the control of the Minister for Lands, must obtain formal instructions or have a contract obtained from the Survey Coordination section within State Land Services of the RDL.

Formal instructions or a contract from Landgate is needed where, for example:

- Freehold subdivisions have included a portion of Crown land (e.g. a ROW, a Road - to be closed - and /or a small portion of a reserve)
  
  *or*

- A government agency (including local government) contracts a surveyor to undertake work over Crown land.

Where surveys that involve Crown land under the control of the Minister for Lands are undertaken, surveyors must ensure they consult in the first instance with the relevant Regional Team, State Land Services of RDL. Surveyors must confirm that State Land Services of RDL has given:

- approval for the proposal
  
  *or*

- completed all administrative actions before proceeding to survey.

Compliance with the above can avoid lengthy delays in the processing of subdivisions as actions involving Crown land usually involve complex negotiations.

The Surveyor’s report must outline what actions have been undertaken with respect to Crown land involved in a Freehold subdivision and what arrangements or approvals have been made by State Land Services of RDL. The Plan and the Surveyor’s report must include a reference to the relevant WAPC file number.

3.19 Special Survey Areas

Following extensive consultation with the industry, through the Survey Industry Working Group, the Land Surveyors’ Licensing Board has approved guidelines under regulation 26A for Special Survey Areas. These guidelines replace those previously issued under Regulations 55A- 55F for urban subdivisions using the Early Issue of Title process.

3.20 Subdivisions of Private Roads and Drains Using Regulation 26A

In accordance with long established practice (originally carried out under section 297A of the Local Government Act 1960 for the closure and amalgamation of private roads), survey marking will not be required to subdivide private roads or drains and amalgamate with adjoining Freehold lots providing the land sharing arrangement is an equal half share or adjoining full width, or the new boundaries can be drawn between existing survey marks. Where this is not the case a survey is necessary.
The normal drafting guidelines for surveyed and compiled plans apply. The Deposited Plan must show new whole lots comprising the portions of the private road, ROW or drain amalgamated with the adjoining lots. The Plan must also show any residue balance lots as new lots. The options/procedures outlined in chapter 9.22.4 under ‘Excisions from Corridors’ may be adopted where necessary.

A ‘Reg 26A’ annotation is to be added to the Deposited Plan approval box. (See plan example 31).

### 3.21 Connections to State Geodetic Network

The Land Surveyors’ Licensing Board has approved guidelines under General Regulation 22A requiring certain authorised surveys to be connected to the State Geodetic Network.

Surveyors do not need to connect to the geodetic network when undertaking an authorised survey if an alignment re-established by that survey was previously connected directly to the geodetic network. Details of the previous survey (ie. field book and page numbers) that made the connection must be entered in the field book for the new survey.

Surveyors wishing to defer or avoid making such a connection must apply in writing to the Manager Survey Inspection before lodging the survey. Applications for deferral must provide information about the timeframe involved until the connection is to be made.
4. Marking Guidelines

Introduction

Chapter 4 details standard and non-standard marking guidelines for the use of Surveyors undertaking work within the scope of their daily surveying activities.

4.1 Referencing of Urban Pickup

It is considered important that in urban subdivisions, not within Special Survey Areas, surveyors comply with TLA regulations 23 and 32 by referencing all unreferenced street corners that are re-established. Plans may be delayed until this protection is done.

4.2 Protection of Urban Pickup

Surveyors have a professional obligation to support the cadastral referencing system and General Regulation 24A requires surveyors to duplicate existing referencing at street corners which they have re-established as a part of their surveys, if that referencing is vulnerable (for example if spikes are in the one metre corridor). Plans may be delayed until this protection is done.

It is suggested that the use of spikes instead of nails to mark offset lines is an effective and efficient way of meeting this obligation.

Guidelines under General Regulation 22A and that require connections to the geodetic network or the placement of control marks may reduce or replace the need for additional referencing in some situations.

4.3 Referencing of Rural Pickup (Road Corners)

Although not as critical as the urban environment, TLA regulation 23 also requires surveyors to reference re-established road corners on rural surveys.

4.4 Referencing of Rural Re-establishment

In the course of any survey when it is necessary to re-establish, re-mark or connect to an unreferenced corner of a rural lot or location (the area of which exceeds four hectares) the surveyor should reference such corner.

4.5 Risk in Adjacent Spikes

Two spikes close together will eventually cause a mistake. It is recommended that no reference spike is ever placed within 0.5m of another earlier spike, even if the earlier spike is confidently believed to be gone. This does not apply to the situation of a spike replacing an earlier one (nominally in the same position) but in the case of reference marks even that situation is best avoided to preserve a clear examination trail and to avoid the risk of two spikes adjacent at different depths.
4.6 Secure Positions

To ensure long term viability of re-establishment, reference marks should be placed in a variety of safe locations throughout the survey. For Special Survey Areas the SSA Guidelines provide information about the placement of permanent marks. Inspecting Surveyors’ experience is that security of reference mark positions can be ranked as follows:

- In the verge (after services have been laid) on the street tree line or overhead power line or about 0.3 metres behind the back of the kerb or in another safe corridor.
- Connections to SSM’s within reasonable distance.
- Marks in walls in new subdivisions or connections to buildings or walls in established suburbs.
- Substantial in-situ concrete (driveways, pram-ramps, etc. not necessarily kerbs or paths).
- Spikes in bitumen roads (but do not rely solely on bitumen roads as modern maintenance programs can completely reconstruct some roads within about 25 year).
- Marks in old deep kerb.
- Nails in the bricks of brick paved paths (not between the bricks).
- Nails in brick paved roads (not between the bricks).
- A Land Surveyors’ Licensing Board notice has recommended against marks in modern cast in-situ kerbs. Marks in slabs are a last resort only. Nails driven between brick paving or between slabs are not acceptable as reference marks.

4.7 Brick Paving

Inspections of many subdivisions incorporating brick paved roads and paths indicate that brick paving (even in roads) is not sufficiently stable to contain reference marks and that heavy traffic during house construction has in many cases disturbed that paving and the kerbs. It is recognised that at brick paved intersections the scope for placement of reference marks is limited but often there are isolated safe places such as in-situ concrete pram ramps or the referencing could be put away from the intersection where there are verges, bitumen roads or concrete paths.

4.8 Independent Reference Marks

Modern survey practices and modern calculating procedures are such that there are increasing benefits in being able to redefine a corner using only one reference mark (ie. for line and distance). Dependence on distances from two reference marks to set up a corner is becoming less practical.

It is recommended that whenever practical, reference spikes be established whose position is accurately known (not just a distance from a corner).

It is considered that in most circumstances the value of such a coordinated spike is worth two ‘distance only’ reference marks (although a redundancy is still required in the re-establishment).

4.9 Reference Spikes on Road Secants

Special care has been shown to be necessary to avoid gross mistakes (most commonly transpositions) in the distances to new reference marks on road bend secants.

It is strongly recommended that surveyors adopt methods which will eliminate the risk of such mistakes. Such precautions might include:

- always measuring the distances between the spikes on line on the secant to give a redundancy (and calculating the check)
• measuring another redundant ('between') measurement not on the secant line to prevent transpositions (and calculating the check before you lodge)

• making one RM a spike in bitumen and one a spike in the verge possibly 0.3m behind the back of the kerb

• avoiding two similar spike distances on the secant (a transposition between grossly different distances becomes obvious to the next surveyor)

• independently checking the RMs for gross mistakes on another day, after inking in the field book.

4.10 Non-Standard Marking- A Caution

A disciplinary hearing of the Land Surveyors' Licensing Board in 1994 found a surveyor guilty of certifying to the accuracy of an authorised survey knowing it to be inaccurate - because the certification stated that the survey was in accordance with the Regulations but the corners were not marked with the specified marks and the difference was not recorded on the Plan.

It was held that it was not accurate to state that the survey was in accordance with the Regulations unless the exceptions were recorded on the Plan. This ruling could have severe implications for any job where the marking does not strictly comply with the Regulations. Prudence suggests that any variations should be recorded on the plan as well as in the field book. This caution applies to chapters 4.12, 4.13, 4.17 and 4.19.

4.11 Mark the ‘Lot’ Side of Walls

It is common in modern large urban subdivisions for very high brick or limestone walls to be built on the boundaries of major roads abutting the subdivision. Often the wall is within the lot so that the lot corner peg falls on the far side of the wall (or on top of the wall) where it is a useless indicator to the proprietor. In such circumstances it is recommended that the surveyor place an additional mark or permanent indicator on the ‘lot’ side of the wall to identify the side boundary to the proprietors, builders, fencers, etc. In some circumstances this ‘lot’ side mark may suffice in lieu of marking of the actual lot corner (provided the offset is shown on the plan). The situation should be recorded in the referencing field book.

4.12 Alternative Marks

Where ‘alternative marks’ are used on a survey they should be fully described and justified in the field book and described on the Plan.

4.13 Hallmarks and Star Pickets

Hallmarks, steel posts or pegs are approved corner marks in specified situations under the General Regulations.

Inspecting surveyors will take action against surveyors that use plain star pickets as corner marks because:

• they can be confused with construction marks,
• they cannot be unambiguously numbered, and
• they are not recognised by the public as a cadastral mark.

It is the surveyor's responsibility to ensure that Hallmarks are not used in a situation or in a manner in which they become a hazard. It is permissible to place a shield around the exposed portion of the Hallmark. Hallmarks should never be used in the vicinity of underground services especially electricity, gas or petroleum reticulation.
It is recommended that the use of steel pegs is described in the lodged field book to assist future searching with metal detectors.

4.14 Numbering of Pegs

The numbers of all relevant land parcels should be marked on the post or peg on the side or top (respectively) facing the parcel and in the direction to be read from within the parcel. In rural lands ‘R’ should be marked towards any road abuttal. In urban lands ‘R’ need only be shown where it would add clarity.

The numbering of timber and steel pegs may be impressed into a horizontal aluminium plate rigidly attached to the peg. The use of small numbers on bare timber should be avoided.

4.15 Obliteration of Previous Subdivision

When a previous lodged or un lodged survey is superseded by a new survey with amended boundaries any of the existing visible marks that could cause confusion should be removed or obliterated by the surveyor who makes the new survey. Original (Crown) marks should only be removed if they are misleading and, the surveyor shall record such removal. Reference spikes should not be removed. Intermediate spikes may remain if not apparent. (Please record in the field book whether each intermediate has been removed.)

4.16 Intervisibility between Marks

Intermediate spikes should be placed on every boundary where necessary such that (in addition to the requirement of General Regulation 39) from each end mark or intermediate mark on that boundary another mark should be visible on line in both directions (allowing that a pole up to 4 metres high may be used). This need applies in both rural and urban surveys and regardless of the length of the boundary. It is a practical requirement to allow fencing of the boundary or its identification by the public.

4.17 Clearing of Boundaries

Refer to General Regulation 52 as amended September 2000.

All boundaries likely to be fenced should be cleared sufficiently to enable clear identification. It is recognised by Landgate that for fencing purposes, visibility is not required below about 1.7 metres high and that in some topography a tall pole can be used by the fencing contractor.

Even when fencing is not required the proprietor or occupant needs to know roughly where the property ends so the marking should enable this. It is suggested that an indicated intermediate mark close to each end of each uncleared boundary will assist in this regard.

Nothing in this paragraph is intended to save work in clearing. It is intended only to save vegetation in those circumstances where that is an issue.

Boundaries not cleared to the standard required by the regulations should be stated so in the field book (with the justification) and stated on the Plan.

4.18 Visibility of Marks

It is recommended that standing natural scrub within a metre of pegs, posts and intermediate spikes be removed. The surveyor should take all such steps as the circumstances may require and permit to render corner and boundary marks conspicuous. Chapters 4.11, 4.17, 4.19 and 4.20 indicate how this may be achieved.
4.19 Trenching

Trenches or rock pointers are a good indicator of a boundary's direction but they should not be used where they are likely to be a risk to livestock or the public. Staking is a useful alternative.

4.20 Staking

The use of stakes and flagging to indicate a mark's position is desirable when they are not a threat to stock. In rural areas it is recommended that star pickets or fence droppers are used when they are not a threat to stock.

4.21 Timing of Marking

All of the pegs or posts and most of the reference marks (including Permanent Survey Marks and Permanent Control Marks in Special Survey Areas) of each subdivision should be placed or remain in place after substantial completion of the servicing of the subdivision (generally after roads have been kerbed and sealed, sewers and drainage installed and the verge surfaces smoothed).

On normal subdivisions the surveyor should check that all the corners are marked before the plan is lodged and that sufficient referencing remains for accurate re-establishment after the site works have been completed.

The initial survey should be planned such that at least three solid control points/reference marks will survive the site works to enable re-pegging and additional referencing when safe from further disturbance.

4.22 Deferred Final Marking / Deferred Referencing

Landgate has an approval system in place (under regulation 26A of the Licensed Surveyors (General Surveying Practice) Regulations 1961) that enables surveyors to defer the final marking/referencing of bonded subdivisions until after the works have been completed. It can be applicable to normal and SSA subdivisions, including Survey/Stratas.

The plan can be placed in order for dealings and allow the Registrar of Titles to issue certificates of title for lots on that plan after the surveyor has certified that the corners of all the lots on that plan have been marked and that the final marking will be completed within 14 days after practical completion of the bonded works.

An approval for deferred final marking/referencing (DFM) requires that a network of ‘permanent’ marks connected to the State Geodetic Network controls the survey. Initial pegging of all of the lots on the Plan will enable Landgate to endorse the Plan In Order for Dealings once final approval from WAPC has been obtained. When the site works have been completed, permanent referencing and permanent survey and control marks in accordance with the regulations and the SSA guidelines (as applicable) can then take place.

Deferred final marking provides benefits for the developer and for the purchasers of lots within the subdivision. The developer can gain a cash flow which facilitates completion of the development works which in turn benefits the purchasers by improving the timeframes for occupation of the land. Each purchaser also benefits by being able to settle at the original fixed price of the land, and by being able to commence the building process by engaging a builder and making application for a building licence.

By virtue of the approval for DFM, the surveyor takes on a responsibility to the Registrar of Titles to take reasonable steps to ensure that prospective purchasers are advised that access to the land may not be possible at the time of settlement. That is, the surveyor now has a duty to the State and to the public in addition to the duties to the surveyor’s client (the developer) and which will remain until the final marking has been completed. The surveyor who evades these duties can be subject to disciplinary action for negligence under the Licensed Surveyors Act 1909.
The use of this procedure requires approval from the Inspector of Plans and Surveys (or delegate).

The following information must be provided for an application for deferred final marking/deferred referencing to be considered:

1. A copy of the plan, or draft of the plan, or other graphic that shows the position, size and nature of the subdivision.
2. The date you expect to lodge the DP or date of lodgement if already lodged.
3. If fully bonded, the nature of the works being bonded and the bodies with which the bonds have been arranged.
4. If not fully bonded, the nature of the remaining works being bonded and the bodies with which the bonds have been arranged.
5. The date the bonds were in place, or are expected to be in place.
6. The date clearances are expected to be available.
7. The date dealings (e.g. application for new titles) are expected to be lodged.
8. The timeframe for practical completion.
9. The timeframe for final marking.

This information is used in considering the merits of the application, whether any special conditions are appropriate, and for follow up if necessary.

The standard conditions for this procedure are as follows:

- The development has adequate connections to the State Geodetic Network in accordance with ‘Survey Practice Guidelines for Subdivisions within Special Survey Areas’ (the guidelines);
- The corners of all the lots are marked prior to the plan being In Order for Dealings. Notification to Landgate can be by an ‘Initial Survey Certificate’, similar to the form of the ISC in the guidelines stating that the marks are in place and referencing/final marking will be carried out when the subdivision has been completed;
- Sufficient control points are placed in safe and protected positions to survive the development works;
- Placement of referencing/final marking to be completed not more than 14 days after practical completion of the engineering and construction works;
- A field book recording the referencing and renovation survey (for normal subdivisions), survey sheets (for SSA subdivisions) and a ‘Final Survey Certificate’ similar to the form of the FSC in the Guidelines to be lodged within 14 days of completion of fieldwork;
- The plan and field book(s) to be annotated ‘Reg. 26A’ referencing/final marking deferred (<Approval ID>, <Landgate file>) and the notation ‘Reg. 26A’ to be shown in the “Approved” box of the plan title block; and
- The surveyor must take reasonable steps to ensure that it is disclosed to purchasers of lots on the plan that access to the land may not be possible at the date of settlement, and to ensure that any changes to the timeframe for practical completion is advised to those purchasers.

Enquiries about using the deferred referencing or final marking procedures should be directed in the first instance to the Inspector of Plans and Surveys on telephone +61 (0)8 9273 5949 or email murray.dolling@landgate.wa.gov.au.

Applications must be emailed in the following form:
Our Ref: 
Landgate Ref: 05956-2016 (DP <insert number>)

Inspector of Plans and Surveys  
Location Data Services  
Landgate  
C/o planreg@landgate.wa.gov.au Attention: Noreen Tucker  
Subject: DEFERRED FINAL MARKING/REFERENCING FOR DP/SP(<insert number>), stage name, locality

DEFERRED FINAL MARKING/REFERENCING FOR DP/SP(<insert number>), stage name, locality

I <insert name of licensed surveyor> apply for approval to defer the final marking/referencing on this project and make the following undertakings to the Registrar of Titles:

1 I undertake that the survey and plan will comply with the "Survey Practice Guidelines for Subdivisions within Special Survey Areas" (the guidelines) under Regulation 26A of the Licensed Surveyors (General Surveying Practice) Regulations 1961.

2 I undertake that the corners of all the lots will be marked prior to the plan being in order for dealings. Notification to Landgate shall be by way of an "Initial Survey Certificate" (ISC), in accordance with section 9.3 of the guidelines, stating that the marks have been placed.

3 I undertake that sufficient control points will be placed in safe and protected positions to survive the civil works still underway.

4 I undertake that final marking is to be completed on ……/……/…… which is not more than 14 days after the practical completion of the civil works on ……/……/…… . I further undertake that I will promptly notify you of any changes to the date of practical completion and the date of lodgement.

5 I undertake that the Survey Sheet(s), an eFB depicting the final control survey, and a "Final Survey Certificate" certification on the survey sheets will be lodged within 14 days of completion of fieldwork – that date being ……/……/…….

6 I anticipate that applications for new titles for <insert number of lots> (or other dealings) will be lodged on ……/……/……

7 I undertake that the plan including the Survey Sheet(s), will be annotated "Reg. 26A (1) – final marking deferred <insert the approval number>; Landgate file 05956-2016" and the notation "Reg. 26A (1), (4)" is to be shown in the "Approved" box of the plan title block. "Reg. 26A (1)" refers to the special approval for deferred final marking and "Reg. 26A (4) refers to the Special Survey Area.

8 I will take all reasonable steps to ensure that it is disclosed to purchasers of lots on the plan that access to the land may not be possible at the date of settlement, and to ensure that any changes to the timeframe for practical completion are advised to those purchasers.

9 In support of this application the following information is provided and consolidated into a single PDF file:
## Check List for Deferred Referencing/Final Marking

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<thead>
<tr>
<th>Serial</th>
<th>Action</th>
<th>Date, details or number</th>
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</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Completed Application letter</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Copy of DP&lt;.............&gt; (preliminary acceptable if not already lodged)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Number of Lots for which certificates of title will be required</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Bonding Details (nature of works; agencies involved)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Date bonds in place</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Date clearances expected to be available</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Timeframe for practical completion (&gt; 14 days from this application)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Timeframe for final marking/referencing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Timeframe for lodgement of survey sheets/referencing details</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Date of Lodgement for “Lot Sync”</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Date of applications for titles (if not “Lot Sync”)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<signed by licensed surveyor>

<date of this application>
5. Surveys of Water Boundaries

Introduction

Chapter 5 presents current and historical information concerning the existence and creation of water boundaries under a range of legislation.

5.1 Introduction

Surveys of land bounded by water can involve complex legal situations and surveyors need to be aware of the principles involved. Obviously any survey to locate a high water mark boundary must not only adhere to legal principles but such practical considerations as cost limitation factors must also be considered. The practice adopted by some surveyors in the past has been to select a position on the ground, taking due regard of local evidence in the form of debris etc. This approach is a practical one, cost effective and tending to preserve what many believe is the basic intention of such boundaries, i.e. alienated land shall seldom if ever, be subject to inundation, although surveyors would need to comply with the accuracy requirements of the Licensed Surveyors Act 1909 and Regulations (in particular regulation 5 of Licensed Surveyors Regulations 1961).

5.2 Tidal Waters

The current statutory definition (i.e. LAA) of High Water Mark for tidal waters is the ‘ordinary high water at spring tides’ and it is generally accepted that this is equivalent to the definition of Mean High Water Springs in the Australian National Tide Tables. A recent Queensland case has confirmed this assumption.

It is considered good survey practice to carry out high water mark surveys of tidal waters by using levelling techniques to set out an adopted high water mark contour and relating the survey to a recoverable datum, preferably AHD. Survey performed in this way is usually recoverable and more consistent within itself and with other surveys. The Survey Inspection Team of Landgate can make available to surveyors AHD values of high water mark for any part of the State. These values have been determined from the Australian National Tide Tables and Public Works Department of Western Australia publication 47574-2, and are accepted by the Inspector of Plans and Surveys as being in accordance with the LAA definition of high water mark for tidal waters.

In situations that require greater accuracy a field survey should be carried out. The field survey should establish an adequate amount of tide data for the specific area from which the horizontal location of mean high water, or any other required datum, at specific points on the shore may be obtained. The Survey Inspection Team can advise on the methods of determining a reduced level of high water mark from observations made.

5.3 High Water Mark on a Tidal River or Estuary

In a tidal river or estuary the tidal range could be expected to be less than the open sea and the times of high and low tide could be expected to lag behind those of the open sea. Winter flow would make the observation of tide heights less reliable so more cycles would need to be observed. Because tidal phenomena reflect cyclical astronomical conditions, elevations based solely on tidal data are usually permanent and recoverable.

The introduction of non-tidal constituents into the calculation process may compromise the reliability of the datum. The masking of the tidal effect by non-tidal forces such as seiche is an example of this condition. Seiche, which occurs in bays and harbours, is the oscillation of water due to barometric pressure and other non-astronomic forces and should be ignored in determining
mean high water mark. Where the tidal influence in a river or stream is minimal and in fact negativied by fresh water run-off, a mean water level elevation should not be used for boundary purposes. This situation would require the use of the ordinary high water mark (ie. non-tidal waters definition) for boundary determination purposes.

The accuracy of these determinations is related to the factors involved. Errors could range from a few centimetres to a few decimetres depending on the care taken and the length of the period of observations.

5.4 Inland (Non-Tidal) Waters

There are significant differences in the legal definitions of high water mark for tidal and non-tidal waters. For non-tidal waters the common law states that the ordinary high water line (mark) is an observable physical mark that can be evidenced by terrestrial vegetation, changes in the soil, surface markings (erosion, shelving and litter) and geological characteristics.

The use of ‘ground evidence’ for locating the position of high water mark is valid if such determinations are based on the principle of ‘the limit of useable land’. In most cases, by this method for non-tidal waters, surveyors have adopted the ‘top of bank’ position as defining the ordinary high water line (mark).

Some surveyors, especially last century, erroneously adopted the top of the ‘high bank’ (ie the bank of the floodplain) as the position of the ordinary high water line. As a result, some surveys have been found to be up to hundreds of metres in error.

Where a parcel extends to the centre thread of an inland watercourse (ad medium filum aquae) the survey should define both banks and the centreline of the watercourse.

5.5 Survey Method

In the past, survey regulations have required that high water mark surveys be carried out using offsets or insets at regular intervals from a traverse line. The use of radiations to each bend in the water boundary from selected traverse stations is considered a more reliable and efficient method compatible with modern survey equipment including GPS.

5.6 Doctrine of Accretion and Erosion

The doctrine of accretion and erosion applies to tidal and non-tidal boundaries where the change in the position of the boundary is gradual and imperceptible. Where this situation does not apply, the bank must be defined in the same position as immediately before the change. Generally reclaimed land from tidal waters becomes Unallocated Crown Land and inundated land retains its previous tenure.

5.7 Title Amendment for Water Boundaries

Where large differences from original are encountered in the position of a water boundary and the change has occurred gradually and imperceptibly, a certificate of title can be amended by an application made under section 170 of the Transfer of Land Act 1893. The application would normally need to be based on a new survey plan (see plan example 42) and the survey should identify the impact of the application on any affected adjoining parcels, including those across a watercourse, if applicable. To meet the requirements of section 77 of the Legal Practitioners Act 1893, a section 170 of the TLA application should be prepared by a ‘certificated practitioner’.
5.8 Freshwater Bay Surveys

Surveyors should be aware that the *Melville Water and Freshwater Bay Road Act 1912* (the Act) empowered the Surveyor General to ascertain and determine the high water mark at Freshwater Bay and Melville Water (i.e. from Mosman Park to Nedlands) for the purposes of the Act. On approval of the Minister for Works such determination became final and conclusive.

Although the Act was repealed in 1966 a survey of the high water mark at Freshwater Bay (shown on Original Plan 5982) was approved by the Minister for Works in 1955. This determination of the high water mark has fixed the boundary between the Swan River at Freshwater Bay and the land (Freehold and Crown) above high water mark. Unfortunately, the Act provided no specific mechanism as to how the Freehold Titles to the land abutting this section of the river were to be amended. The result today is that a number of Freehold Titles reflect a direct access to the Swan River that is not the true legal position.

The river boundaries of land affected by Original Plan 5982 can be defined with some certainty following a renovation of the survey in 1993 by the Inspecting Surveyors. Surveyors should ensure they have a full search when working in the area.

Surveyors defining any river boundaries affected by the Act but outside Original Plan 5982 should seek advice from the Surveying Inspectors at Landgate.
6. Surveys Using Global Positioning System (GPS)

Introduction

Chapter 6 presents guidelines for the requirements for field survey and the presentation of field books containing authorised surveys carried out using Global Positioning System

6.1 General

Amendments to the General Regulations (gazetted 5.9.2000) removed the technology specific provisions that prevented the use of GPS for cadastral surveys without first obtaining special approval from the Surveyor General. The Regulations are now technology independent and allow for the use of GPS technology in all cadastral surveys. Surveyors responsible for surveys are to ensure the accuracy requirements of the Regulations are met and that the field records accurately reflect the methods and results of the surveys.

6.2 Control Surveys

The Special Survey Area Guidelines under General Regulation 26A include material specifically covering control surveys by GPS.

6.3 Geodetic Connection

Generally, each GPS survey for cadastral purposes should be connected to the State Geodetic Network. Landgate can provide verified coordinates for geodetic survey marks that can be used as datum stations. If it is not reasonably practical to connect to a geodetic mark the origin of the coordinates for the datum station, and the nature of that station must be provided in the field record.

In urban areas the two closest State Geodetic Survey Marks should be used as datum stations and to provide redundancies for the survey.

In rural areas a State Geodetic Survey Mark within 10 km of the land the subject of the survey should be used as the datum station. If there is another State Geodetic Survey Mark within 7 km of the survey, that station should be used to provide a redundant connection.

If the State Geodetic Network is considered inadequate for efficient GPS surveys in a particular area it is recommended that the Geodetic Survey section of Landgate be contacted for advice. Consideration may be given to an extension or densification of the network in that area.

6.4 Permanent Marking of GPS Stations

At least two GPS stations within each small subdivision (more on larger rural subdivisions) should be permanently marked or referenced (horizontally, to cadastral standards of visibility and stability).

If, to get satellite visibility, stations outside the subdivision need to be occupied each should be in a secure place and be permanently marked or referenced as above.
In all cases the relationships between these reference stations and the cadastre and the geodetic control used should be recorded in the field book.

6.5 Distant Reference Marks

In any situation where a GPS station is established individually and an azimuth is not otherwise obtainable on the ground (either by sight to another GPS station or from other lines of the survey) then a distant reference mark should also be established. The reference mark should be visible from that GPS station and ideally at least 150 metres away from it.

6.6 Field notes

6.6.1 Equipment

The following details for each item of equipment used in the survey are required for legal traceability purposes (see example 4 in Appendix 3):

- Manufacturer
- model number
- serial number
- calibration details and certificate number (if applicable).

This requirement is applicable, where relevant, to the following equipment types:

- GPS receivers,
- Theodolites,
- EDM units,
- Electronic tacheometers ('total stations'), and
- Steel bands.

6.6.2 Method

The methods and equipment used for making measurements for each line within the survey shall be clearly recorded in the field book. (See example 13 in Appendix 3.)

Examples of methods are as follows:

- traversing
- Pseudo-Kinematic Baselines
- Real Time Kinematic (RTK) Baselines
- open radiations
- Rapid Static Baselines
- Differentially derived point positions (DGPS).
- Static Baselines
- Kinematic Baselines

Examples of the information that is required for each of these methods include:

- single or dual frequency
- number of common satellites observed
- duration of common observations.

A summary sketch to illustrate the relationship of the baselines (GPS vectors) shall be recorded in the field book. (See examples 13 and 16 in Appendix 3). It is essential that an independent check be made at each new parcel corner. Suitable checks include:
• re-initialisation
• re-occupation at a later time
• observations from two reference stations.

6.6.3  Processing

6.6.3.1  Datum
The following information shall be recorded in the field book:
• The datum station for the survey.
• Starting coordinates and source.
• The spatial reference system upon which the coordinates are based.

6.6.3.2  Software
The title and version number of the software used for processing the GPS observations shall be recorded in the field book.

6.6.4  Results

6.6.4.1  Control Networks
The GPS baseline observed values and adjustment results shall be recorded in the field book as follows (see examples 13 and 15 in Appendix 3):
• the observed mean ground level distance and
• pseudo observed mid azimuth for each line;
• the adjusted mean ground level distance and adjusted mid azimuth for each line;
• the adjusted three-dimensional coordinates of all points in the survey, and the horizontal and vertical datum's upon which they are based;
• a description of the adjustment method, constraints and software; and

6.6.4.2  Parcel Boundaries
The following dimensions and values relating to the parcel boundaries shall be recorded in the field book (see example 16 in Appendix 3):
• Mid-azimuth of each straight line and of the long chord of curved boundaries,
• Ground level distances,
• Calculated spheroidal angles at corners (calculated from the end azimuths),
• Parcel closure and area, and
• GPS derived height of each boundary mark.

Grid bearings may be shown but must be either MGA or a Transverse Mercator Project Grid recognised by Landgate (e.g. PCG94).
6.6.4.3 Real Time Kinematic (RTK) Surveys

- In addition to the requirements of 6.6.4.1 and 6.6.4.2 above, surveys by RTK shall also include the base station input coordinates, output coordinates and height of each rover station. (See examples 17 in Appendix 3.)

- Where corner and intermediate marks have been set out at predetermined positions, and the plan dimensions are pre-calculated, it is recommended that the field book contain a table comparing the design coordinates with the surveyed coordinates. (See example 18 in Appendix 3.)

- The coordinate system adopted for the survey (e.g. arbitrary plane system) should be defined by reference to points on a geodetic datum compatible with that of the State Geodetic Network (e.g. GDA94).

- Heights can be expressed in terms of the ellipsoid or the geoid. Heights above the reference ellipsoid or spheroid (ellipsoidal, or spheroidal, heights) are derived directly from GPS observations. Heights above the geoid (orthometric heights, generally equivalent to AHD) are calculated from ellipsoidal heights by applying the geoid-ellipsoid separation (N value). If AHD heights are chosen, then the derivation of the adopted N values used in the conversion shall be stated.

- Inter-station vector information in the form of grid bearings or mid-azimuths and ground level distances is preferred for spatial integration of the survey. It is sufficient to provide this information for key points within the survey, as long as the coordinates of every point have been supplied. (See examples 17 and 18 in Appendix 3.)

6.6.4.4 Geodetic Survey Controls

GPS baselines between State Geodetic Survey Marks such as Standard Survey Marks and Trigonometrical Stations are useful to Landgate for verifying and upgrading the existing geodetic network. It is also possible that Benchmarks and key cadastral points can be added to the network if reliable inter-mark relationships are provided. The best way to provide the three components of a 3D vector for this purpose is in the form of dx, dy and dz (and the standard deviations) (see example 14 in Appendix 3). It is important to specify the geodetic datum (e.g. GDA94) on which the data is based.

See chapter 19.3 for information on field book examinations and chapter 19.3.3 for checklists.

6.6.4.5 Virtual Reference Station (VRS) Surveys

- In addition to the requirements of 6.6.4.1 and 6.6.4.2 above, surveys by VRS shall also include output coordinates, number of epochs observed and height of each observed station. (See example 19 in Appendix 3.)

- VRS observations of the survey control network and the State Geodetic Network should be carried out concurrently.

- Where corner and intermediate marks have been set out at predetermined positions, and the plan dimensions are pre-calculated, it is recommended that the field book contain a table comparing the design coordinates with the surveyed coordinates. (See example 18 in Appendix 3.)

- The coordinate system adopted for the survey (e.g. arbitrary plane system) should be defined by reference to points on a geodetic datum compatible with that of the State Geodetic Network (e.g. GDA94).

- Heights can be expressed in terms of the ellipsoid or the geoid. Heights above the reference ellipsoid or spheroid (ellipsoidal, or spheroidal, heights) are derived directly from GPS observations. Heights above the geoid (orthometric heights, generally equivalent to AHD) are calculated from ellipsoidal heights by applying the geoid-ellipsoid separation (N value). If AHD heights are chosen, then the comparison with the published height of any State Geodetic Survey Mark visited shall be stated.
• Inter-station vector information in the form of grid bearings or mid-azimuths and ground level distances is preferred for spatial integration of the survey. It is sufficient to provide this information for key points within the survey, preferably as long as the coordinates of every point have been supplied. (See examples 17 and 18 in Appendix 3.)

• All calculations are to use the observed values from the survey in question. Connections from at least two observed stations of the survey network to the two closest observed positions of the State Geodetic Marks, in accordance with 6.3 should be shown in a schematic format. (See examples 20 in Appendix 3.) A comparison between the State Geodetic Marks visited (LANDGATE published coordinates) and the observed coordinates are to be shown, preferably in a tabular format.

• Show a comparison of any redundancies, re-observations and checks using suitable survey methods.

6.7 References

The guidelines in this chapter are considered to describe the minimum requirements for the survey and for the presentation of field books containing authorised surveys utilising GPS, and do not absolve the surveyor from requirements under other relevant Regulations, Guidelines and Survey Instructions.

The surveyor is encouraged to include in the field book any information additional to that required under these guidelines to demonstrate that the above mentioned requirements have been satisfied. The surveyor is also encouraged to maintain archive copies of the raw GPS data files and processed output files and adjustment input and output files, for at least 2 years from the date of lodgement.

The two references below specify observational and processing requirements for surveys by GPS for legal purposes:

• Survey Practice Guidelines for Subdivisions within Special Survey Areas (see LSLB website).

• Standards and Practices for Control Surveys (SP1), Inter-governmental Committee on Surveying and Mapping.
7. Easement Surveys

Introduction

Chapter 7 presents the methods by which surveys for easement purposes may be carried out in the various situations that arise.

7.1 Scope

These guidelines are applicable to the following two situations of determining the spatial definition of easements:

- by survey and ground marking, and
- by calculation from the Spatial Cadastral Database (SCDB).

These guidelines are applicable to easements over both Crown and Freehold land.

These guidelines are particularly applicable to easements created under the Land Administration Act 1997 and the Petroleum Pipelines Act 1969 for depiction on ‘Interest Only’ plans.

The provisions in these guidelines can be adopted where authorised and applicable for the definition of other easements including those registered under the Transfer of Land Act 1893.

7.2 Easements by Survey and Ground Marking

7.2.1 General provisions

It is the surveyor’s responsibility to ensure that the survey method used is appropriate for the circumstances of that particular job and that the work is proven.

Survey methods should conform to the basic principles of survey as defined in the Licensed Surveyors (Guidance of Surveyors) Regulations 1961 (the General Regulations).

Definition is to be achieved by surveying one side of the proposed easement, the centre line, or some other offset line. If the utility is in position at the time of survey, connections to it are required at every survey mark placed.

To facilitate verification of the easement survey and integration with the SCDB, rigorous connections to the State Geodetic Survey (geodetic connections) are required. In remote areas a surveyed connection should be made to each geodetic station within 5km of the easement route. In areas with a greater density of geodetic stations, geodetic connections should be made at intervals of not more than 5km.

The geodetic connections should be in accordance with chapter 7.4.

7.2.2 Marking

Generally, easements protecting services within Crown Land in rural and pastoral areas, or access routes to those services, should be marked in accordance with the following provisions.

For other easements, ground marking is at the discretion of the surveyor and the other interested parties:
• One side of the easement should be marked.

• Angle points, surveyed intersections with existing cadastral boundaries and points at one kilometre intervals on long straights, should be marked in accordance with paragraph (a) of the Table to General Regulation 36.

• Intersections with unsurveyed boundaries do not generally need to be marked. In the case where the boundary is accurately represented on the ground by improvements such as a fence, then a single reference mark is to be placed on the intersection of the surveyed line with the improvement.

• Placement of one reference mark exactly on line, line produced, or half angle is recommended. Intermediate marks are required at 500 metre intervals or at other distances necessary to maintain line of sight. Reference marks and intermediate marks are to be sunk at least 0.3 metres where ploughing or other disturbance is likely.

• Posts are to be stamped with 'E' as viewed from inside the easement. It is preferred that each post is stamped with a unique identifier and the reference to that identifier is shown in the field notes and included on the easement plan.

• Trenching of posts will not be necessary but the use of a steel fence dropper, star picket or similar, positioned adjacent to each post as a marker is recommended where such placement does not endanger stock, people or property.

7.2.3 Field notes

The field notes of the survey must be lodged in a standard cadastral field book certified by a licensed surveyor holding a current practising certificate.

Where GPS is used, the survey must be recorded in the field book as specified in Landgate’s current Survey and Plan Practice Manual.

7.2.4 The Plan

The ‘Interest Only’ Plan should be drafted as generally indicated in Landgate’s current Survey and Plan Practice Manual.

Traverses from geodetic stations to the easement must be shown on the Plan, not necessarily to scale.

If the survey is mostly based on GPS surveys, the Plan should bear the following statement – ‘Dimensions derived from GPS observations’, but expanded to show the appropriate detail, for example ‘RTK’.

7.3 Easements by Calculation from the SCDB

7.3.1 General provisions

The ground definition and marking of the boundaries of many easements that protect public and private assets such as pipelines or powerlines by normal survey methods is expensive and, in terms of physical identification and spatial accuracy, generally unnecessary.

A method that satisfies the key factors of certainty of position (within adequate tolerances) and reasonable cost is a calculation of the easement boundaries using the SCDB. This method relies upon the spatial relationship of the physical infrastructure with the boundaries defined in the SCDB.

Only areas where the SCDB have been spatially upgraded are suitable for this method of easement definition. Easements defined by calculation from the SCDB can be accepted on ‘Interest Only’ plans where the following conditions exist:
• the accuracy of the SCDB is sufficient to provide certainty of position within tolerances adequate for the type of easement,
• the costs of easement definition by normal survey methods are demonstrated to be either exorbitant or grossly disproportionate to the value of the asset, and
• the owner of the asset has consented to this method of spatial definition

7.3.2 Procedure

7.3.2.1 Spatial Upgrade

If the area of interest has not been spatially upgraded arrangements can be made for the spatial upgrade to be performed by the surveyor.

Additional geodetic connections would normally be required to achieve a suitable spatial accuracy of the upgraded SCDB.

7.3.2.2 Spatial Accuracy

In general, a nominal accuracy of 0.5 metres in rural and pastoral areas and 0.1 metres in urban areas for the upgraded SCDB is required to achieve an adequate degree of positional certainty.

If the area has been spatially upgraded but not achieved the aforementioned accuracies, additional geodetic connections will be necessary.

The geodetic connections should be in accordance with chapter 7.4.

7.3.2.3 Spatial Extent of Easement

If the infrastructure has already been constructed, a survey to determine the geographic position of all the physical elements that need to be contained within the easement must be carried out.

This ‘as-constructed’ survey must provide positions that are compatible with the boundary definition. The aim is to achieve certainty that the structure falls completely within the easement. This would mean that a margin of error depending upon the expected relative accuracy is allowed when determining the clearance between the structure and the boundary.

The easement dimensions are calculated within the spatially upgraded SCDB to completely enclose the existing infrastructure, based upon the ‘as-constructed’ position. Intersections with other land boundaries are also calculated and shown on the plan.

If the infrastructure has not yet been constructed, then the easement dimensions are calculated within the spatially upgraded SCDB in accordance with the requirements of the owner of the asset to be protected. Sufficient survey control and marking is required to accurately define the easement at any time in the future.

7.3.2.4 Spatial Verification

The SCDB is a digital cadastral model that has been constructed from a limited number of surveyed connections between cadastral marks and State geodetic stations.

An estimate of the spatial accuracy of any point in this model can be given by a statistical analysis of the least square adjustment results. This is expressed in the SCDB as the ‘circular error’ (arithmetic mean of the major and minor semi-axes of the error ellipse).

The accuracy of this estimate can be tested by comparing the positions of a set of surveyed boundary points that have not been included in the adjustment with the modelled position.
The method of survey and the accuracy of measurements shall be such that there is less than a 5% probability that the actual error in position of any surveyed boundary point within the area of interest exceeds the accuracy statement for that point in the SCDB.

Verification can be achieved by making redundant geodetic connections to cadastral points within the area of interest that are not used in the spatial upgrade process. These can be used to verify the reliability of the adopted geodetic connections, and to provide a ground truth for upgraded points in the SCDB.

7.3.2.5 Field Notes

The field notes of the survey, including geodetic connections, pickup of the infrastructure and ground truthing connections, must be in a standard cadastral field book certified by a licensed surveyor holding a current practising certificate.

Where GPS is used the survey must be recorded in the field book as specified in Landgate’s current Survey and Plan Practice Manual.

7.3.2.6 The Plan

The ‘Interest Only’ Plan is to be drafted in accordance with the requirements of Landgate’s current Survey and Plan Practice Manual.

The following additional notations are to be placed within the graphic area of the Plan:

- Surveyed in accordance with Survey Practice Guidelines for Easements under regulation 26A of the Licensed Surveyors (Guidance of Surveyors) Regulations 1961’.
- ‘Dimensions derived from the Spatial Cadastral Database as at <date of final adjustment/calculation>’.
- ‘Calculations have been made on the GDA94 and distances reduced to mean ground level’.
- ‘Easement boundaries are completely unmarked but related to the SSMs shown’.
- The notation ‘Reg 26A’ is to be added to the ‘approved’ panel in the title block.

7.4 Geodetic Connections

7.4.1 Survey

For each connection provide, sufficient data to enable MGA coordinates to be derived for at least two points on a cadastral alignment. Where practicable these points should be separated by 200 metres or more.

Locate and validate existing cadastral points. Marks must be renovated or replaced in accordance with the requirements of the Licensed Surveyors (Guidance of Surveyors) Regulations 1961.

Additional reference marks are to be placed at cadastral points occupied with GPS.

Validate the horizontal stability of the controlling SSM from reference marks.

Survey the connection using the following technique:

- observe a GPS baseline between the controlling SSM and one cadastral point, and
- observe a GPS baseline between the selected cadastral points. Note that it is not acceptable to calculate a connection between the cadastral marks on the basis of individual GPS observations from the controlling SSM.

Where practicable, provide redundant measurements that will confirm the connection.
The GPS baseline observation may be of any type (static, rapid static, kinematic) as long as the required precision is achieved.

### 7.4.2 Accuracy

Horizontal ground distances and azimuths as calculated from GPS observations between the selected cadastral points should agree with original values within the limits specified in the **Licensed Surveyors (Guidance of Surveyors) Regulations 1961**. Where such agreement is not attained then further pickup is recommended to prove the alignment.

The method of survey and accuracy of measurements shall be such that there is less than a 5% probability that the actual error in the positional accuracy (co-ordinate) of the cadastral mark with respect to the SSM will exceed r millimetres provided by the formula:

\[ r = c(d + 0.2) \]

where \( d \) is the direct distance between the two points in kilometres and \( c \) is as specified in Table 7.1 below.

**Table 7: Accuracy**

<table>
<thead>
<tr>
<th>Section</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urban</td>
<td>25</td>
</tr>
<tr>
<td>Rural</td>
<td>40</td>
</tr>
<tr>
<td>Pastoral</td>
<td>90</td>
</tr>
</tbody>
</table>

### 7.4.3 Field notes

For GPS baselines, both the ellipsoidal (GRS80) and mean ground level distances and the calculated mid-azimuths are to be clearly documented in the field book. Also to be recorded is the angle, as calculated from end azimuths between the SSM connection and the re-established alignment (or offset).

MGA coordinates are not generally to be shown in field notes as they are subject to change should any readjustment of the controlling SSMs be undertaken. However, a listing of the base station input coordinates and the cadastral points and their derived MGA coordinates is required in the case of a GPS RTK survey.

Details of the GPS hardware type including serial numbers of receivers and antennae plus the software version used for reduction of observations must be recorded on the index page of the lodged field book/s together with calibration details for EDM and bands, if used.

Sufficient information should be recorded to demonstrate that the required accuracy has been achieved.

To facilitate cross referencing it is important that the following details are clearly shown in the field notes for each connection:

- Original (Orig) distances between the GPS connection point and adjacent cadastral bends or corners
- Lot `numbers, road names or numbers, reserve numbers, etc.
- Clear details of the search used including the page number/s of field book/s together with details of the field book/s containing the centreline or ‘as-constructed’ survey
- Survey Index Plan reference.
7.5 Transmission Line Easements

7.5.1 Scope

These guidelines are applicable to the following two situations of determining the spatial definition of transmission line easements:

- by local re-establishment and calculation, and
- by calculation from the Spatial Cadastral Database (SCDB).

The survey methods for each of the above situations will be similar, but there will be some data transfer processes to consider if calculating from the SCDB.

No ground marking of easements for transmission lines will be required. These guidelines are applicable to easements over both Crown and Freehold land.

7.5.2 Local re-establishment and calculation

7.5.2.1 General Provisions

It is the surveyor's responsibility to ensure that the survey method used is appropriate for the circumstances, and that the work is proven.

Survey methods should conform to the basic principles of survey as defined in the *Licensed Surveyors (Guidance of Surveyors) Regulations 1961*.

To facilitate verification of the survey and integration with the SCDB, rigorous connections to the State Geodetic Survey (geodetic connections) are required. In remote areas a surveyed connection should be made to each geodetic station within 10km of the transmission line. In areas with a greater density of geodetic stations, geodetic connections should be made at intervals of not more than 5km. The geodetic connections should be in accordance with chapter 7.4.

Where GPS is used the survey must be carried out in accordance with Landgate's current Survey and Plan Practice Manual.

7.5.2.2 Field Notes

The field notes of the survey must be lodged in a standard cadastral field book certified by a licensed surveyor holding a current practising certificate. The following information is to be recorded in the field book:

- Normal requirements of cadastral re-establishment.
- Validation of SSMs from reference marks.
- All connections from SSMs to cadastral points.
- Any additional control placed and connections from that control to cadastral points whether measured or calculated.
- Marking and referencing details with relevant abutting information (e.g. lot on plan, C/T, road name).
- Feature information (e.g. fences, terrain, access).
- Any other relevant information.

It will not be necessary to include all the easement dimensions in the field book.
7.5.2.3 The Plans

The plans should be drafted as specified for 'Interest Only' Plans in Landgate's current Survey and Plan Practice Manual. The Plan type will be 'Freehold' and the purpose will be 'Interest'.

Each Plan must be compatible with the easement documents that the Service Provider intends to register. The extent of each plan must be consistent with the proposed registration actions of the Service provider such that upon registration of the documents, the whole of the plan can be approved. Surveyors need to consult with the Service Provider as to the registration requirements. Where any uncertainty exists surveyors should prepare individual easement plans for each affected parcel.

CSD files based on MGA coordinates are to be prepared in accordance with the requirements specified by the Inspector of Plans and Surveys for each individual Plan and lodged at Landgate.

Where the survey is based on GPS observations, the relevant Plans should bear the following statement:

“Survey dimensions derived from GPS observations.”

The following notations are to be placed within the graphic area of the plan:

“Surveyed in accordance with Survey and Plan Practice Guidelines for Transmission Line Easements under regulation 26A of the Licensed Surveyors (Guidance of Surveyors) Regulations 1961.”

“Reg 26A” is to be added to the approved box in the title block.

7.6 Calculations from the SCDB

7.6.1 General provisions

A method that satisfies the key factors of certainty of position (within adequate tolerances) and reasonable cost is a calculation of the easement boundaries using Landgate’s Spatial Cadastral Database (SCDB). This method relies upon the spatial relationship of the physical infrastructure with the boundaries defined in the SCDB.

The SCDB must be spatially upgraded using the surveyed easement alignment and/or control traverse before definition of the easement can be undertaken. Areas of the SCDB that are upgraded for this purpose must be done in accordance with Landgate’s requirements. Definition of easements by calculation from the upgraded SCDB can only be accepted where the accuracy of the SCDB is sufficient to provide certainty of position within adequate tolerances. (See chapter 7.4.2.)

7.6.2 Procedure

In the case of existing transmission lines a survey to determine the position of all the physical elements of the infrastructure that need to be contained within the easement must be carried out. For new lines where easement definition is required prior to construction a centreline survey is necessary.

This survey must provide positions that are compatible with the boundary definition. The aim is to achieve certainty that the structure falls completely within the easement. This would mean that a margin of error depending upon the expected relative accuracy is allowed when determining the clearance between the structure and the boundary.

The easement dimensions are calculated within the spatially upgraded SCDB to completely enclose the existing infrastructure based upon the surveyed position. Intersections with other land boundaries are also calculated and shown on the plan. See chapters 7.3.2.4, 7.3.2.5 and 7.3.2.6 for other provisions that apply to transmission line easements.
8. Field Notes

Introduction

Chapter 8 details the requirements for field notes to accurately reflect the work undertaken by surveyors.

8.1 Standard of Field Notes

The figure size, density and contrast of the field notes must allow legible copies to be made by digital scanning and monochrome photocopying. Pencil must be erased from beneath inked figures.

Pencil notes must not be relied on. The surveyor should decide which notes may be of any future value and should ink those in. The rest should be erased. Pencil notes do not always scan legibly and this worries searchers enough that they request the original field book thereby defeating the purpose and convenience of scanning the field book. Pencil on clearly and totally cancelled pages is acceptable.

Each page of the field notes should bear the real date or dates of the work and should be initialled by the licensed surveyor and also by the supervised surveyor if relevant. In the latter case the supervised surveyor's full name should be recorded at least once in the field book.

Each page of the field notes should bear a north point and should be cross referenced to the other pages.

Colour must not be used to impart information, for example:

- NOT ‘adjusted values in red’,
- OR ‘measurements in green added on 1.996”,
- OR ‘amended as in red’.

Coloured ink must not be used because:

- colours may not scan or copy clearly,
- some colours, especially some reds, have been found to fade badly after many years, and
- purple ink in field notes is reserved for Landgate examiners.

The use of coloured borders is discouraged. If they are used they:

- should not extend underneath figures or letters because they might obscure the text on the scans or copies,
- should be separated enough from any lines that their image is separate from the image of the line, and
- should be pale colours which can be expected not to show on the scan or copy.

Blue highlight pen (e.g. ‘textliner’, ‘textmarker’ etc.) must never be used in field books.

The use of point numbers can be a useful method of making field notes clear and unambiguous especially in descriptions of adoptions or comparisons.
Because of the importance of legible copies of the field notes for search purposes, original field notes that do not meet the requirements may be refused lodgement or be delayed until a requisition is satisfied.

See chapter 19.3 for information on field book examinations and chapter 19.3.3 for checklists. See Appendix 3 for specific examples of field book presentation.

8.2 Field Book Index

Field books must have an index or contents page which includes a short descriptive title of each survey and contains adequate page number referencing. (See examples 1, 2, 3 & 4 of Appendix 3.)

The land description should match that used on the parent Certificate of Title. Other information to be recorded for each survey on the index page is as follows:

- For Freehold Surveys the parent survey plan, WAPC reference number and certificate of title number
- or
- For Crown Surveys the Landgate and/or RDL file number and job number
- and
- The Survey Index Plan and the survey information (search) used. It may also have a reference to the suburb or a street name where appropriate

To ensure that all jobs in the field book are recorded on the various Landgate indexes, only one index page that lists all the surveys in the book is to be used. If this list is long the search and other details can be shown on other, appropriate pages within the field book.

Each field book for a check survey, amendment survey or additional work should also quote the subject plan on the index page.

The surveyor's company telephone and facsimile numbers and the postal address should be included for contact purposes, and any 'in-house' referencing (e.g. job number or field book reference number) may be recorded. It is recommended that this information is stamped or written on the inside front cover of the field book. If placed on the index page, care should be taken that if a stamp is used it does not soak through the page and obscure figures on the back.

In the case of a job in the field book not being the subject of a survey plan it is important that the wording in the field book clearly indicates the purpose of the survey. The use of the wording ‘repeg’, ‘identification survey’, ‘spike protection’, ‘cadastral connection’ or similar will initiate the recording of the field book on the Index Plans. (See example 1 of Appendix 3.) The words ‘subdivision’ or ‘survey of’ will defer indexing until a survey plan is lodged, except surveys for strata plans which are cross-indexed immediately. See chapter 8.10 for the situation where a field book is prepared for a subdivision that does not proceed through to plan lodgement.

Surveyors who are lodging a field book for a subdivision well in advance of lodging the plan can request that the field book be cross-indexed immediately to enable it to be made available to others in a timely manner.

Details of instruments used (manufacturer, model and serial number) and details of the latest calibration (calibration date, place, certificate number and the results of the calibration) should be recorded in the field book on the index page to assist in legal traceability to the standard for length.

8.3 Surveyor's Certificate

It is necessary for the surveyor to ensure that the ‘Surveyor's Certificate’ in the front of the field book has been correctly signed. Only the non-relevant phrase in paragraph (a) may be struck out.
Deletion of the whole of paragraph (a) is not acceptable and will require the surveyor to rectify the certificate. Supervised surveyors are to avoid putting their signature and name in the places reserved for the licensed surveyor.

Only licensed surveyors with a practising certificate current at the time of lodging can lodge field books with Landgate.

8.4 Re-Establishment of Alignments

The nature, age, material and condition of old marks that have been found should be described and it should be stated which ones were adopted.

It is necessary for the surveyor to show all true line dimensions (distances and angles) of the pickup (calculated from offsets, traverses and radiations). It is also necessary for a comparison to be shown between these calculated true line (distance and angle) values and the original values (and possibly other existing values). This will allow a searcher to quickly evaluate each survey.

It is the surveyor's responsibility to demonstrate (preferably in the field notes) the proof of the re-establishment of the alignments. The above information will usually provide that proof, but in some cases the logic of adoptions may need to be described. If the surveyor wishes to lodge a separate report it will be filed on the examiner's docket and cross referenced in the field book by Landgate.

It should be remembered that not all field books are fully examined, so any surveyor using your work as pickup needs to be satisfied as to its reliability from the records you provide in that field book. Providing that visible proof in your field notes will enhance your reputation.

8.5 Closures

To allow rapid appraisal of the survey it is requested that the surveyor record in the field notes the misclosure of any figures for which a closure has been calculated (pickup as well as new parcels) (see chapter 3.13). It is especially important that any miscloses outside the specified limits are recorded together with an explanation of why the miscloses were accepted. It is useful to record brief details about the extent of the investigation that led to that decision.

8.6 Bearings in Lieu of Angles in Field Books

It is acknowledged that the use of arbitrary plane bearings is compatible with modern surveying equipment, computational software, the use of coordinates, and field practices but care must be taken in the way they are recorded.

The recording of arbitrary plane bearings instead of angles in field books is a means of showing the positions of lines unambiguously but the traditional method of showing the angles which were measured records an additional redundancy. In the event of a mistake the extra redundancy helps to locate it.

The recording of only bearings in field books cannot indicate how many angles were observed or which angles were observed. The risks in recording only bearings are magnified when some of these recorded bearings are not calculated from observed angles but are calculated from linear closures. The situation is even more risky if some of these bearings are calculated from original work. If either of the above two sources of bearings are used, they should always be clarified by annotations such as ‘cal’, ‘cal from closure’, ‘adj’, ‘cal from orig’, or similar.

Where bearings are set out the annotations ‘obs’ or ‘set’ could be used for clarity.

It is accepted that on a Special Survey Area subdivision (or a job based on a control network and with layout made at various times during progress of construction) it is not practicable for the surveyor to record the layout of new work. In that situation the surveyor's responsibility for the survey is recognised and the work is accepted unrecorded, and the use of bearings instead of angles is accepted as a legitimate practice.
The recording of clearly labelled directions from a single station is different from the recording of only bearings. Recording of directions is acceptable as long as there is no ambiguity in their use. Directions can be clear while being economical of space.

8.7 Improvements

Improvements of a permanent nature (ie. buildings and brick walls) within one metre of a surveyed boundary should always be located and recorded in the field book. They are excellent reference marks.

Connections to buildings and walls are regarded as monuments and have precedence over measurements so the recording of such connections will allow the surveyor's intention to prevail in the future if discrepancies are found.

Connections to fencing with a description of the nature of the fence on rural surveys, is very useful information for later surveyors.

In all cases the nature of the improvement/s must be clearly described.

In the Perth CBD, building fascias are often renovated so it is important to indicate the type of material connected to and the height of the connection.

8.8 Oversize Pages

The use of fold-out sketch plans glued into the field book is to be avoided. These make reproductions difficult and information on or near the folds soon become illegible.

8.9 Mark Gone

The term ‘gone’ should not be used unless the mark has conclusively been proven to be gone. When any doubt remains the term ‘not found’ should be used with a suitable description, or an alternative (for example, ‘presumed gone’ or ‘did not search’) if a competent search was not made.

8.10 Field books Lodged for Surveys that do not ‘Proceed’

Occasionally surveyors lodge field books for surveys of subdivisions that for some reason do not proceed and no plan is ever lodged at Landgate. In this situation the field book would never get cross-indexed onto the Survey Index Plan View within SmartPlan, because subdivisional field books are linked to plans for automatic cross-indexing when the plan is lodged. If the index page of the field book indicates a ‘Subdivision’ is proposed, Landgate would expect a plan to follow the field book to trigger the automatic cross-indexing.

If this situation arises (or has even occurred in the past) surveyors should contact the Survey Inspection team at Landgate on +61 (0)8 9273 7423 and request the field book be cross-indexed onto the SIP View.

If for some reason a subdivision does not proceed and a field book has been prepared, surveyors are encouraged to still lodge the book at Landgate but strike through the word ‘Subdivision’ and add the words ‘Spike Protection’ or ‘Repeg’. This will ensure the field book is cross-indexed as soon as it is lodged.

Surveyors are also encouraged to request that a field book be cross-indexed if it is lodged a long time (e.g. several months) before the plan is expected to be lodged. This will ensure that the survey information is available to others at the earliest possible time.
9. General Drafting Practices

Introduction

Chapter 9 covers the general drafting practices applicable to surveying in Western Australia.

9.1 Plan Forms

In 2000 the then Department of Land Information (now known as Landgate), in conjunction with representatives of the Surveying profession, developed a new Deposited Plan format for Crown and Freehold surveys. The new format provides greater flexibility for surveyors and addressed a number of concerns that have previously been raised by the surveying profession. The removal of the sketch from certificates of title and improved parcel identification under the ‘SmartRegister’ (SMR) electronic land titling system increased the role of the survey plan in Western Australia's land registration process.

The main features of the plan format are as follows:

- plans are limited to sizes A3 and A2. The A1 Plan size for Crown surveys was not accepted after 1 December 2000
- a Plan includes a reference to its ‘type’ (i.e. Crown or Freehold) and ‘purpose’. (See chapter 10.1.)
- to assist on-line viewing of images of the plans the new forms are in landscape view and include borders
- the plan format has two alternative title block positions – either right side or bottom of the Plan. That is, there are two different forms for A2 size and two for A3 size. The differences allow for surveys of different shapes
- there is also a new form for the second or later sheets of multiple sheet plans
- plans are given version numbers to assist in the tracking of changes
- the previous limitations on the orientation of Crown Plans are removed. They can now be rotated on the form in the same manner as Freehold Plans.

Plan form masks are available from My Landgate Survey Channel, e-Plans are to be lodged in accordance with the e-Plan Guidelines in Appendix 6 (APX-06 Survey Practice Guidelines for the Preparation and Electronic Lodgement of Plans and Field Records).

There is no need to include the redundant surveyor certificate/s. A company stamp (which includes telephone numbers, address and email address) may be placed on the Plan form and preferably be small and not obscuring detail.

9.2 Pre-Allocation of Plan and Field book Numbers

Surveyors must obtain from Landgate pre-allocated numbers for Deposited Plans, Strata and Survey-Strata Plans and field books. Pre-allocation enables surveyors to lodge later in the Freehold Land development process when their Plans are more stable and less likely to require amendments. It also provides developers (and their agents) with more control and flexibility in early preparation of sales brochures, Contracts of Sale and conveyancing documents. Crown Plan
projects such as Main Roads or pipeline easements also benefit because the abutting plans can be annotated at the time of drafting.

To avoid or minimise enquiries being made at Landgate about unlodged Plans and/or field books using pre-allocated numbers surveyors should stamp, or otherwise indicate on any copy of a Plan provided to a client or conveyancer that the copy is an ‘unlodged version’.

Plan numbers and/or field book numbers will be pre-allocated to survey firms or practising licensed surveyors in batches of 10, 20 or 50 by applying to the Lead Consultant Plan Lodgement at Landgate via email at planreg@landgate.wa.gov.au. The subject heading of each email should be ‘Pre-allocated Numbers Request’. Landgate response is a reply email advising the numbers that have been pre-allocated. Note also that this contact point should be used to obtain pre-allocated Deposited Plan numbers for ‘Interest Only’ Plans.

Note that Crown Plans are lodged in the first instance with Survey Coordination, State Land Services, RDL.

Surveyors must avoid using duplicated numbers for any plans or field books that they lodge. Surveyors should avoid applying for numbers they are unlikely to use within 6 months of the number being pre-allocated.

Surveyors must ensure that the names of Strata Scheme are unique when preparing Strata and Survey-Strata Plans.

The surveyor must record the number used for any Plan or field book in the appropriate location/s within the survey document and also on the ‘Survey Lodgement Self-Assessment’ form. Where an eFB is lodged in accordance with the Special Survey Area Guidelines it must contain a reference to the Deposited Plan number in record 1 of the CSD file. See chapter 17 and appendix 5.

9.3  Digital Plans

The strategic direction of Landgate is to receive all its title and survey data in digital form to enable accurate, faster and efficient processing of that data which in turn will deliver a better service to its customers.

Consistent with that strategic direction surveyors are advised that lodgement of hard copy Deposited Plans and Strata/ Survey- Strata Plans will no longer be available as an option from Monday 1 February 2010

9.4  Lots on a Plan Sheet

Surveyors should avoid overcrowding the graphic area of a Plan with too many lots and enlargements. Multiple sheets should be used if the graphic area becomes overcrowded (see chapter 9.5 below).

9.5  Multiple Sheet Plans

Regulation 10 of the Transfer of Land (Surveys) Regulations 1995 limits the number of sheets in a deposited plan to 4 unless the Inspector of Plans and Surveys or an Authorised Land Officer approves a greater number of sheets. The Inspector of Plans and Surveys has approved Deposited Plans with a purpose of ‘Subdivision’ to be comprised of an unlimited number of sheets. The principal criteria to use when preparing such Plans is the clarity and accuracy of the information depicted. Plans for subdivisions within Special Survey Areas require additional sheets to be added to Plans after lodgement.

After a successful pilot, the Electronic Transfer of Deposited Plans (etDP) Process between Landgate and Western Australian Planning Commission (WAPC) was implemented on 26 July 2010.
As a consequence, WAPC now only endorses the first sheet of a Deposited Plan.

Landgate requests that the “Approved by Western Australia Planning Commission” panels for sheet 2 onwards of a multi-sheet Deposited Plan be struck out or removed for the DP template.

The amendments to the *Transfer of Land Act 1893* in 1996 made provision for the creation of Automatic Easements and the notation of Restrictive Covenants on subdivisional Plans. The information about the easement or restrictive covenant can be either on the Plan or in the instrument lodged in relation to the Plan.

In addition, the implementation of the LAA in March 1998 required inset sketches of road closures, private road or right of way closures for amalgamation and Crown Land for amalgamation to be shown on subdivisional Plans.

This new legislation, together with the introduction of SmartRegister and Special Survey Areas has made some subdivisional Plans more detailed and complex. The use of multiple sheets for this additional information is recommended for clarity. There are no additional Landgate fees if extra sheets are used. They are treated as a single Plan. This will benefit the public and surveyors when searching, as well as provide clear, legible copies from Landgate's imaging system.

The preferred practice for depicting surveys on Plans involving more than two sheets is for Sheet 1 to be an index to subsequent sheets. Where a subdivision creates a substantial ‘balance lot’ then that lot, with its dimensions, should be shown on the first sheet.

Sheets must be individually numbered and cross-referenced to the other sheets for that Plan. Special instructions may apply to large individual projects (e.g. MRWA road casement surveys, gas pipeline projects and power line easements).

The Department for Planning and Infrastructure require the WAPC reference number to be shown on each sheet of a multiple sheet Plan.

Where a schedule of interests and notifications is shown on the Plan (see chapter 14.1), the schedule must point to the relevant sheet for each interest or notification.

### 9.6 Scale should be Suitable to Show Detail

An appropriate metric representative fraction should be chosen and should be sufficiently large, such that when Plans are reduced to A4 size, all detail is clear and legible.

The preferred scales are:

- 1:750
- 1:1500
- 1:3000
- 1:6000
- 1:1000
- 1:2000
- 1:4000
- 1:8000
- 1:1250
- 1:2500
- 1:5000
- 1:10000

or multiples or divisions of 10 thereof.

It is preferred that enlargements are drawn at a larger scale but where this is not practicable the enlargement must be clearly annotated as being ‘NOT TO SCALE’.

### 9.7 Graphical (Bar) Scale

Because Plans are photo-reduced for search purposes a graphical (bar) scale suitable for measuring distances on the Plan shall be shown on each Plan. It is best practice to show the Bar Scale close to and under the Representative Fraction.
9.8 Orientation

The orientation of the Plan is to be indicated by a north point arrow which should be at least 100mm long. It is preferable although not necessary that the north point is parallel to the side edge of the Plan form. The north point should never point generally downwards. The orientation may be rotated in order to incorporate a best scale, however the free text annotations must be inserted parallel to the bottom of the Plan regardless of the direction of the north point. All sheets of the plan should be on the same orientation.

9.9 Line Styles

Table 9.1: The Line Styles listed below should be used

<table>
<thead>
<tr>
<th>Line Type</th>
<th>Usage</th>
</tr>
</thead>
<tbody>
<tr>
<td>❇ x</td>
<td>Interest boundary</td>
</tr>
<tr>
<td>❇ ❇ ❇ ❇</td>
<td>Surveyed boundary</td>
</tr>
<tr>
<td>❇ ❇ ❇ ❇</td>
<td>Mining Lease boundary</td>
</tr>
<tr>
<td>❇ x</td>
<td>Road extent or connections across roads</td>
</tr>
<tr>
<td>❇ ❇ ❇ ❇</td>
<td>State Forest boundary</td>
</tr>
<tr>
<td>❇ ❇ ❇ ❇</td>
<td>Traverse</td>
</tr>
<tr>
<td>❇ ❇ ❇ ❇</td>
<td>Unsurveyed boundary</td>
</tr>
<tr>
<td>❇ ❇ ❇ ❇</td>
<td>Agricultural Area, Suburban Area and Estate boundaries</td>
</tr>
<tr>
<td>❇ ❇ ❇ ❇</td>
<td>Land District boundary (To be shown on roads by limited marking only)</td>
</tr>
<tr>
<td>❇ ❇ ❇ ❇</td>
<td>Local Government Area boundary (To be shown on roads by limited marking only)</td>
</tr>
<tr>
<td>Line Type</td>
<td>Usage</td>
</tr>
<tr>
<td>-----------</td>
<td>-------</td>
</tr>
<tr>
<td><img src="image" alt="Port Authority boundary" /></td>
<td>Port Authority boundary</td>
</tr>
<tr>
<td><img src="image" alt="Townsite boundary" /></td>
<td>Townsite boundary</td>
</tr>
<tr>
<td><img src="image" alt="Structure (annotation required)" /></td>
<td>Structure (annotation required)</td>
</tr>
<tr>
<td><img src="image" alt="Fence" /></td>
<td>Fence</td>
</tr>
<tr>
<td><img src="image" alt="Telegraph line" /></td>
<td>Telegraph line</td>
</tr>
<tr>
<td><img src="image" alt="Power line" /></td>
<td>Power line</td>
</tr>
<tr>
<td><img src="image" alt="Reduced Level break" /></td>
<td>Reduced Level break (refer to Section Error! Reference source not found.)</td>
</tr>
</tbody>
</table>
9.10 Text Styles

The text sizes and styles listed are those recommended to ensure readability of plans when photo-reduced, reproduced or faxed.

Table 9.2: Text Sizes and Styles

<table>
<thead>
<tr>
<th>Text</th>
<th>Height</th>
<th>Thickness (mm)</th>
<th>Styles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lot Numbers, the subject of the plan</td>
<td>3.5 or 5</td>
<td>0.35 or 0.5</td>
<td>Italics</td>
</tr>
<tr>
<td>(includes Crown parcels)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Road Names (Subject and Abuttal)</td>
<td>3.5 or 5</td>
<td>0.35 or 0.5</td>
<td>Upper Case &amp; Upright</td>
</tr>
<tr>
<td>Road Widening</td>
<td>2.5</td>
<td>0.25</td>
<td>Upper Case &amp; Upright</td>
</tr>
<tr>
<td>Subdivided Crown Parcel</td>
<td>3.5 or 5</td>
<td>0.35 or 0.5</td>
<td>Broken Italics</td>
</tr>
<tr>
<td>Numbers (parent to the plan)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reserves &amp; UCL Notations</td>
<td>3.5</td>
<td>0.35</td>
<td>Upright</td>
</tr>
<tr>
<td>Current Mining Tenement Numbers</td>
<td>3.5</td>
<td>0.35</td>
<td>Upright (dotted)</td>
</tr>
<tr>
<td>Pastoral Lease Names</td>
<td>2.5</td>
<td>0.35</td>
<td>Upright (broken)</td>
</tr>
<tr>
<td>Pastoral Lease Numbers</td>
<td>3.5</td>
<td>0.35</td>
<td>Upright</td>
</tr>
<tr>
<td>State Forest (S.F. No)</td>
<td>3.5</td>
<td>0.35</td>
<td>Upright</td>
</tr>
<tr>
<td>Townsites</td>
<td>3.5</td>
<td>0.35</td>
<td>Upright</td>
</tr>
<tr>
<td>Water Feature</td>
<td>3.5</td>
<td>0.35</td>
<td>Italics</td>
</tr>
<tr>
<td>Water Features (x2)</td>
<td>2.5 &amp; 3.5</td>
<td>0.25 &amp; 0.35</td>
<td>Italics</td>
</tr>
<tr>
<td>Abutting Lot Numbers</td>
<td>3.5</td>
<td>0.35</td>
<td>Italics</td>
</tr>
<tr>
<td>C/T Numbers</td>
<td>2.5</td>
<td>0.25</td>
<td>Italics</td>
</tr>
<tr>
<td>Abutting plan</td>
<td>2.5</td>
<td>0.25</td>
<td>Upright</td>
</tr>
<tr>
<td>Areas &amp; areas ex lots</td>
<td>2.5</td>
<td>0.25</td>
<td>Italics</td>
</tr>
<tr>
<td>General Text &amp; Legal Notations</td>
<td>2.5</td>
<td>0.25</td>
<td>Upright Uppercase</td>
</tr>
<tr>
<td>‘Traverse Only’ notation</td>
<td>2.5</td>
<td>0.25</td>
<td>Italics</td>
</tr>
</tbody>
</table>
The font used for these texts is to be of a type such that the first priority is optimum legibility of a reduced size copy. It should be an open style without serifs and with clear distinction between similar shaped figures and with a readily visible decimal point. The preferred font style is ISO 3098 or similar. Black text and line work only is to be used on Plans.

### 9.11 Symbols

All posts, pegs and intermediate spikes (or their replacements) should be shown on the Plan as circles (preferably 1.5 mm diameter). Any variation from standard centred mark, as per general regulation 36, should be described in an annotation.

All old posts, pegs or intermediate spikes of Crown Surveys are to be shown on the plan as OM. If adjusted then OM adj. If renewed then OMR. If gone then OMG. If gone and replaced then OMGR.

All old posts, pegs or intermediate spikes of Freehold Subdivisional Surveys are to be shown on the Plan as MF. If adjusted then MF adj. If renewed then MFR. If gone then MG. If gone and replaced then MGR.

Where marks are gone and it is not possible to place a mark at the original position (new mark is offset from the original position), then the mark is shown as MG or DMG—not MGR or DMGR.

The survey type when a mark is originally placed determines the annotation from then on. Marks placed at corners created by Crown surveys will always be either OM, OMR, OMG or OMGR regardless of whether they are replaced by a freehold survey. Similarly corners marked during a freehold survey will always be MF etc.

In rural surveys mile-posts and kilometre posts should be shown as a double circle and the notation 1 MP, 1 KMP or if found or replaced 1 MPF, 1 KMPF, 1 MPR, 1 KMPR. (See plan example 29.)

### 9.12 Old Lines to Complete Surround

Where existing angles and distances are used to complete the surround of a survey dimensions from the latest existing registered surveys should be used.

In some instances, field book information can be used where it is clearly proven and differs considerably from original registered surveys. A reference needs to be made in the new field book to the original field book/s adopted for the surround dimensions.
Where angles and complete distances are shown, these shall be labelled ‘orig’ and no existing intermediate distances and marks shall be shown. It is not necessary to include the ‘orig’ labelling on deposited plans for Special Survey Area subdivisions provided the survey/s have been carried out by the same survey firm. The surround field book number/s must be shown in the field book box on the Plan. If the surround or part of the surround of a Special Survey Area subdivision is measured by a different survey firm, the ‘orig’ labelling must be used.

Where a line is composed of both existing and new work, the existing portion is labelled orig and is shown without intermediate distances and marks. The total distance should be labelled ‘per orig’ (as should any angles and distances calculated from a combination of existing and new measurements).

Circles (indicating survey pegs or posts) should not be shown at original lot corners unless marks were found at those corners. Corners not marked should be shown without a circle.

Connections Between Severances

Where practical, connections between severances should be shown on Deposited Plans. Ideally severances should have separate lot numbers but this may not always be possible as planning approval would usually be required or there may be taxes or charges involved. The position of parcel severances is defined by the abuttals. Any connections between severances shown on a Plan are subsidiary to the abuttals.

CSD files need to supply ‘relativity’ between any severances captured unless real world coordinates are provided. This could be achieved by a traverse through cadastral alignments or a single calculated tie.

9.13 Measurement Content

The total length of each individual lot boundary line must be shown on the plan. Distances to and between intermediate marks must be shown. Rounding off of intermediate distances should be such that these add up to the total distance, which is the total measured distance.

9.14 Measurement Presentation

- Distances should be shown in metres to the nearest 0.01 metre. Distances on SSA Plans only may be shown to the nearest millimetre.
- For distances less than one metre the decimal point should be preceded by a ‘0’ (e.g. 0.75 not .75).
- ‘0’ need not be shown as the last character of a length; to the right of the decimal point (e.g.15.10 is expressed as 15.1).
- Angles should be shown to the nearest second.
- Nil seconds or nil minutes and seconds need not be shown (e.g.170º0’0” is expressed as 170º and 170º11’0” is expressed as 170º11’).

See chapter 9.20 for the presentation of areas.

9.15 Balance Lots

Regulation 5(1) to (3) of the Transfer of Land (Surveys) Regulations 1995 requires surveyors to include in plans of subdivision, acquisition and amalgamation (this includes amalgamations of Crown land with freehold land) any residue land as a separate lot or lots. See plan examples 2, 11 and 53.

Where a road has an existing lot number and a portion is to be closed, a balance lot must be created showing any existing interests carried forward. The heading to include:
See plan example 85.

Sub-regulation (5) states that if the boundaries of the residue are extensive the Registrar of Titles, Inspector of Plans and Surveys or an Authorised Land Officer (ALO) may allow the part of the Plan showing the residue to be compiled and the distances, angles or bearings (where applicable) for the boundaries, easements or covenants to be omitted. At this stage, this option has been limited to ‘sketch Plans’ under the LAA.

Sub-regulation (6) states that the Registrar of Titles or an ALO may direct that sub-regulations (1) to (5) do not apply to a particular Plan (or specific types of Plan) of Crown Land. Such situations will most likely occur where UCL, Pastoral leases, State Forests and large reserves are involved. Where surveyors encounter this situation in circumstances other than those where the survey instructions are issued from Survey Coordination, RDL, a formal application for an exemption under regulation 5(6) is necessary. (See plan example 100.) The Registrar of Titles or an ALO will need to approve the application before the exemption can be used.

To meet the requirements of this regulation it may be necessary to use several sheets for a single plan. (See chapter 9.5.)

To avoid planning and valuation problems surveyors must now identify any balance lots that are not to receive servicing facilities, by using a lot number in the 9000 number range. Any ‘super lots’ that are the subject of future stages in the subdivision must be identified using the 9500 number range.

Where a large balance lot has many abutting lots and roads such that it is difficult to show all the abutting lot numbers and road names at a suitable scale, the abuttals may be depicted by line-work and references to the relevant plan numbers only.

9.16 Multiple Owner Subdivision

The repealing of regulation 44 of the Licensed Surveyors (Transfer of Land Act 1893) Regulations 1961 has allowed for Plans to show land in multiple ownership without the need for conveyancing action to bring the land into single ownership.

Plans involving multiple owners will require all the relevant transfer documents and consents pertaining to encumbrances to be lodged before the Plan is approved. New Titles will be issued in accordance with a single application (signed by all the affected owners).

SmartRegister amendments to the Transfer of Land Act 1893 allow for disposition statements to enable clarity in the allocation of encumbrances in land transfers.

A new Plan feature for subdivisions of land involving multiple owners or titles is the inclusion of a ‘former tenure table’ which clearly indicates the previous tenure of each lot. (See chapter 10.7.) The schedule assists in the preparation of the conveyancing documentation and new folio creation.

9.17 Freehold: Land Acquisitions

Where an acquiring authority has reached agreement with the affected registered proprietors the process can be treated in a similar manner to a normal subdivision. The Plan would show the complete details of the residue parcels which would be given a new parcel identifier. The application for Titles, including the Titles of the residue lots, would need to contain the signatures of all the registered proprietors of the subject land. The acquired lot/s then transfer to the acquiring authority or the ‘State of Western Australia’. If the acquired land is to be a road, another option would be road dedication.

It may be possible to allocate only one lot number to the whole of the acquired land, in which case the taking orders would refer to the relevant portions of the lot.
No partial approvals are permitted with acquisition Plans affecting Freehold Land– the application for titles would need to include all lots shown on the Plan.

Where an acquiring authority is unable to reach agreement with the registered proprietors there would be a need for the registration of a ‘Notice of Intention to Take’ against the affected Title. The registration of a ‘Taking Order’ will cause the issue of Titles to the acquiring authority for the acquired land. The ‘Taking Order’ will also trigger the ‘automatic’ creation of any balance Titles but no duplicate Titles for the balance lots will issue until applied for by the registered proprietors – no fees apply. No sundry documents are required.

It is not possible to show sole subject road dedications on Survey Plans where a residue (i.e. part lot) is created. Such dedications will need to be carried out in the same manner as a normal subdivision with the residue land being allocated a unique parcel identifier. section 168(5) P & D Act can be used for sole subject road dedications where the subject is a whole lot or all of an existing part lot. See plan examples 5, 11, 85, 95 and 102. Also see chapter 11.1.

### 9.18 Crown Land Acquisitions

A Crown Plan type must be used where Crown Land is involved and it is intended that the land acquisition lead to road dedication or Crown easement creation. In this case there is a requirement for a Crown Land Title to be prepared for registration of the ‘Notice of Intention to Take’ and the ‘Taking Order’. Where Native Title rights exist, staged plan approval may be required. See plan examples 54, 61, 70, 71, 100 and 104.

### 9.19 Rural Road Dedications and the Non-Extinguishment of Native Title

Section K of the Native Title Act 1993 (NTA) deals with the provision of facilities to the public and allows for the non-extinguishment of Native Title.

Landgate, in accordance with a Government Task Force’s recommendations, uses Section K of the NTA and the non-extinguishment principle for rural road dedications. This means that during the currency of a rural road dedication Native Title exists but is suppressed whilst the road is, and remains dedicated, and the public has the right to use the road. Authorities have the ability to maintain the road. Once the road or portion of it, is closed it reverts to Unallocated Crown land, Native Title re-asserts itself and takes precedence.

Plan examples 104 and 105 indicate how the non-extinguishment principle is to be depicted on deposited plans, within the Interests and Notifications schedule. Where a specific Native Title holder exists they should be shown in the ‘Benefit To’ column.

### 9.20 Adverse Possession Claims

The plans for Possessory Title applications (see chapter 15) need to be prepared in the same manner as multiple owner subdivisions with all portions of land uniquely identified on one Plan. As the landowner adversely affected by a successful claim is unlikely to sign any documentation, balance Title/s automatically issue on registration of a sundry document or on direction from the Commissioner of Titles.

Where a successful claim adversely affects a Strata/Survey-Strata Scheme the procedures are more complex. A Plan of re-subdivision for the Strata/Survey-Strata Scheme, paid for by the claimant, will be required (i.e. the same as if a resumption had occurred).

### 9.21 Isolated Crown Surveys

The Registrar of Titles or an Authorised Land Officer may authorise for an isolated Crown parcel to be shown on a Plan without the residue land being shown on the plan. (See chapter 9.15.)
Plans of isolated parcels that are not connected to the State Geodetic Network must show bearings and an azimuth source. (See chapter 9.26 also.)

9.22 Residue Land Solutions

There are some situations where the depiction and/or definition of residue land in a subdivision results in difficulties for surveyors. The following should assist surveyors in dealing with most of the difficult situations that are likely to occur.

9.22.1 Multiple Lot Titles

The SmartRegister digital titling system can process multiple lot Titles (i.e. multiple land parcels held in a single Title) at this time. Surveyors and landowners/developers should note that the following options are currently available when undertaking subdivisions or acquisitions of land held in multiple lot titles:

- in the case of a subdivision the landowner/developer proposing may elect to have the residue land shown on the plan as a new single balance lot. This option is not currently available for a proposed acquisition for public purposes
- alternatively the landowner/developer proposing to subdivide a multiple lot Title may opt to apply for separate Titles or a single balance title for the residue land
- A Plan may be lodged where the former tenure includes a whole individual lot (or lots) within a multi-lot Title (i.e. does not cover all lots contained in the Title). Any remaining original lots will continue to exist on a multi lot title
- for acquisitions/takings under the LAA this may be achieved by a sundry document. The former tenure table on the Deposited Plan must clearly show that only a ‘part’ of the multi-lot Title is included in the Plan. A further sundry document may be required following registration of the taking to create a balance of the multi-lot Title
- in some situations involving acquisitions/takings under the LAA, it may be more practical for Landgate to partially cancel the multi lot Title. In these situations Regulation 5(6) of the Transfer of Land (Surveys) Regulations 1995 will apply and no residue land is to be depicted on the acquisition Plan. See plan example 85.

9.22.2 Possessory Applications Claiming Part of a Multiple Lot Title

Where a possessory application is lodged claiming part of the land contained in a multiple lot Title, the resultant Deposited Plan must show the residue of any affected lots as new lots. Lots not affected by the claim should not be depicted on the Deposited Plan.

The former tenure table on the Deposited Plan must clearly show that only a ‘part’ of the multi-lot Title is included in the Plan. Landgate will register a sundry document following registration of the possessory application to include the unaffected lots and the new balance lots from the old multi-lot Title in a new multi-lot Title.

9.22.3 Roads and Road Widenings from Extensive Freehold Parcels

Where a road or road widening is proposed to be acquired from an extensive Freehold parcel such as a golf course an application in writing may be made to the Registrar of Titles to utilise regulation 5(6) of the Transfer of Land (Surveys) Regulations 1995 and if the application is approved, no residue land needs to be depicted on the Acquisition Plan. (See plan example 85.)

The Plan is to be annotated ‘Lot ____ to be acquired under Part 9 of the LAA is Crown land for the purposes of Transfer of Land (Surveys) Reg 5(6)’. 
9.22.4 Excisions from Corridors

Where a new development requires an excision from a road, railway, drain or similar infrastructure corridor for which no Title exists, it is not necessary to show the residue of land in the corridor on the new Deposited Plan depicting that development.

If an excision occurs from an extensive road, railway, private Right of Way, drain or similar corridor, that is held in a paper Certificate of Title early contact with the Inspector of Plans and Surveys at Landgate must be made to allow an assessment on whether a balance lot for the residue land is required.

Some of the options available in such situations include:

- Landgate resolving the situation by amending the original Plan by allocating a ‘lot on plan’ identifier to a manageable portion of the corridor (usually a portion within a street section).
- Landgate preparing a new graphic to allow digital Titles to capture the corridor or part of the corridor, in manageable portions.
- In some cases it may be more practical for Landgate to maintain the paper Title and the relevant graphic. In these situations regulation 5(5) of the Transfer of Land (Surveys) Regulations 1995 will apply and the new Deposited Plan is to contain an annotation stating that the residue land in the Title for the corridor is not fully depicted on the Plan.

9.23 Road Widths

Road widths within the Plan must be shown. See chapter 13.13.

For Crown Grant roads, see chapter 13.14.

9.24 Road Names

Any road created on a Plan requires a name approved by Landgate on behalf of the Minister for Lands. This approved name should be shown on the Plan and in relevant field book/s. For any further information as to this procedure, refer to the Geographic Names Committee’s ‘Principles, Guidelines and Procedures’ document available from Landgate. New road names require the support of the relevant local government, and it is essential that the names are proposed early in the land development process and conform to the guidelines to avoid delays in the approval process. The extent of road names for both newly created roads and existing roads must be easily recognised on the face of the Plan. See plan example 53.

As of 1 September 2012, all lodging parties are required to include all relevant road approval documents at the time of lodgement of the Plan, where the Plan contains a new Road or Road Extension.

Names of existing roads should be obtained from the Smart Plan Spatial viewer. If there is conflict or uncertainty regarding road names, contact the Secretary, Geographic Names Committee.

Where a previously dedicated road is being defined by survey, the heading of the Plan is to include:

“& DEDICATED ROAD”

9.25 Connections across Roads

Connections across roads, consisting of an angle from an alignment and the distance across the road, must be recorded on the plan at each angle point; at a suitable scale, using enlargements and additional sheets as necessary for clarity.
It is acceptable to omit the half angles in the case of parallel road alignments. Connections between the angle points of a series of shorter boundaries that comprise the sides of a parallel road in a town or suburban subdivision may be omitted such that there is no more than 50 metres between connections, and providing that there is a connection across the road at the end of each straight section longer than 50 metres.

These distances may be extended to 100 metres for rural and rural-residential subdivisions.

### 9.26 Truncations and Road Widening

Regular and irregular truncations (i.e. unequal set back distances) on a Plan of subdivision must be labelled ‘ROAD WIDENING’. If the road widening does not automatically dedicate, a parcel identifier (i.e. Lot Number) must be added.

Land for the purpose of adding to a public street or road is to be labelled ‘ROAD WIDENING’. See plan example 56.

### 9.27 Areas

For areas less than 10,000 square metres area is shown to the nearest square metre (e.g. 9446 m²).

For areas of 10,000 square metres or greater, area is shown in hectares to four decimal places (e.g. 9.2713 ha).

‘0’ need not be shown as the last character of an area to the right of the decimal point (e.g. 6.4500 ha to be shown as 6.45 ha).

Areas are to be shown for each distinct parcel of land shown on the Plan with the exception of roads that automatically dedicate under section 168(1), (2) of the P & D Act and areas are to be shown for all road widenings that automatically dedicate under section 168(3) of the P & D Act and section 28(1) of the LAA.

### 9.28 Subject Land Total Distance

A distance must be shown along each external boundary of the subject land in order to define the extent of the subject land. This distance may be in addition to any total land parcel distances. If the subject land total distance is the sum of two or more land parcels then the distance is put in brackets.

### 9.29 Abuttals

All lots abutting the land the subject of the Plan must be identified by their lot on Plan numbers.

Where a large balance lot has many abutting lots and roads such that it is difficult to show all the abutting lot numbers and road names at a suitable scale, the abuttals may be depicted by line-work and references to the relevant Plan numbers only.

A Plan must show as abuttals the number of any abutting lot for which certificates of title have issued at the time of lodgement of that Plan. Lots on Plans that have been lodged but not yet approved (shown on “lodged layer” of SCDB) must not be shown as abuttals unless sound knowledge is demonstrated by the surveyor that lodgement of dealings for those lodged Plans is imminent.

Freehold Plan numbers are to be prefixed by either ‘P’ or ‘DP’ as appropriate. Freehold diagrams lodged prior to 1 July 2000 are to be numbered with a prefix ‘D’ and Strata/Survey Strata Plans as ‘SP’. Crown plan and diagram numbers are to be shown as their DP number only.
Where the duplicates ("mini-plans") of subdivisional Plans were drafted as multiple sheets for convenience, Plan sheet numbers need not be shown. If the original Plan is a multi-sheet 'Deposited Plan' using the new Plan format, the sheet number should not be included because any or all of the sheets may contain relevant information.

The numbers of all adjoining Crown reserves should be shown.

❖ Note

For abutting private rights of way and private roads, see chapter 14.6.

If an abutting road is necessary for access into the subject Plan, then the name of that abutting road should be shown on the subject Plan, and the subject Plan will be made In Order for Dealings subject to the approval of that abutting Plan if it is not already approved.

In many country townsites, for example Kalgoorlie, there are many public undesignated accessways created on Crown survey plans. These are shown with the Plan number and designated 'Public ROW' in brackets.

When a lot abuts a public or private road, ROW, PAW (even 0.1metre wide), drain reserve or waterway the extent and location of that abuttal is of consequence to the proprietor. The information is usually provided incidentally by the dimensions of the subject lot and the placement of the name or description of the abuttal.

In those infrequent cases where an abutting public or private road, ROW, PAW, drain reserve or waterway is not located exactly by other dimensions sufficient extra external surround dimensions should be added to the Plan to indicate the position and extent of that abuttal.

Where main roads or highways are abuttals the notation 'Proclaimed Highway' or 'Main Road under the Main Roads Act' is to be shown with the Plan number and a lot identifier if there is one. If the highway has a name it should be shown also. Typical examples of these highways are Tonkin, Roe, Reid and the Bunbury-Busselton Bypass. Some of these roads are not dedicated and remain under the TLA and owned by the Crown or the Commissioner of Main Roads.

Section 14 of the Main Roads Act 1930 proclaims these roads as highways, open to the public. Under section 28A 1(b), on the recommendation of the Commissioner, the Governor may by proclamation declare:

- that such a section or part of a road is subject to control of access, and
- the places only at which it may be entered or departed from.

To verify if the above proclamations have been effected, contact the Land Tenure Manager (MRWA) on telephone 9323 4168.

Abutting railway reserves (Crown or Freehold) are shown with the Plan number and labelled ‘RAILWAY’.

Abutting drain reserves (Crown or Freehold) are shown with the Plan number and labelled ‘DRAIN’.

Where an abuttal is the subject of a Strata Scheme; the Strata or Survey-Strata Plan number should be placed (in brackets and prefixed) under the DP number under the parent lot number for the abuttal.

9.29.1 Depiction of Part Lots as Abuttals

To allow most of the existing lots described as part lots (as a result of road excisions etc.) to be captured as digital Titles in SmartRegister it was necessary for them to be captured as whole lot Titles endorsed with an exclusion notation (e.g. excludes road shown on CP1234). These same lots were also converted en masse in the spatial database to be shown as whole lots.
New Deposited Plans should show these lots (i.e. former part lots that have been captured in SmartRegister as whole lots), as whole lots, where they exist as abuttals.

9.29.2 Dual Numbering of Crown Plans and Diagrams

To enable Freehold Titles that exist over lots/locations depicted on the various types of Crown Plans and diagrams to be captured in SmartRegister it has been necessary for Landgate to allocate them a Deposited Plan (DP) number. The table in chapter 2.5 indicates the number ranges allocated to each Plan or diagram type.

If any abuttals involve land on a dual numbered plan then only the DP number needs to be shown.

9.30 Enlargements and Displaced Detail

In order to maintain clarity or overcome a lack of space, enlargements or arrowing in detail may be used. The arrowed in, displaced detail should be parallel to the line in the case of a linear measure and on the half angle in the case of an angular measure. Enlargements need not be drawn to scale.

Ambiguous labelling of enlargements is to be avoided. If other components in a plan (e.g. easements, cross-sections or access restrictions) require labelling, different letters of the alphabet should be used.

In remote areas it is often required to depict a small parcel at the end of a long traverse. It is necessary to depict the entire survey at scale (parcel and traverse) with suitable enlargements for the small parcel.

Insets are usually required for:

- Lands for Revestment
- Crown Land Amalgamations
- Closed Roads within the subject
- Easements over Crown Land for inclusion.

9.31 Water Features

Where lines of coasts, rivers, lakes, swamps or watercourses form part of the boundary to a lot these should be shown by full black lines and suitably named where appropriate. See plan examples 9, 57 and 59.

Both sides of non-tidal watercourses should be shown where reasonable and an arrow denoting the direction of flow of the stream.

Showing a water boundary as an abuttal requires the annotation HWM or if high water mark is not the boundary then this must be stated (e.g. ‘Boundary is low water mark’ or ‘not a riparian boundary’). If any ambiguity exists or boundaries are determined from aerial photography then an annotation should be used (e.g. in the case of a retaining wall, ‘High Water Mark’ or in the case of aerial photography ‘HWM drawn from 1979 aerial photography’).

If inconsistencies in the boundary definition are found, the situation should be resolved with Inspecting Surveyors before lodgement.

When tidal boundaries are located on the ground by setting out a contour at a height above AHD calculated to be at the definition of HWM; that boundaries on the plan should carry the annotation- ‘High Water Mark (at.......m above AHD)’, quoting the actual height adopted above the Australian Height Datum.

Refer chapter 5 for information on surveys of water boundaries.
9.32 Colouring

The colouring required on both Crown and Freehold Plans is as follows:

- A green border is to be shown along the boundaries of the subject land.
- New section 167 of the P & D Act easements in favour of a local government are uncoloured.
- New section 167 of the P & D Act easements in favour of the Water Corporation are uncoloured.
- New section 167 of the P & D Act easements in favour of the holder of a gas distribution license (such as Alinta Gas) or Electricity Generation Corporation, Electricity Networks Corporation, Electricity Retail Corporation, Regional Power Corporation are uncoloured.

New roads within the subject land, pedestrian accesses, both private and public ROWs, abutting vested PAWs and ROWs, abutting private ROWs, abutting public road and public ROWs (those created on a Crown survey Plan/diagram), abutting Crown reserves, abutting railway reserves, abutting drain reserves, water features and abutting State forests are all to be left uncoloured. Full descriptions of private road abuttals are required in lieu of colouring. (See chapter 9.22.)

9.33 Fixation of Surveys

The Plan of an isolated survey must show a connection or tie to an existing cadastral boundary so that the survey can be located in relation to the existing cadastre. In order to help locate surveys it may be useful on survey Plans to show connections to nearby road intersections or other distinctive survey features.

9.34 Lot Number Duplication

See chapter 21.10.

9.35 SSM Depiction

On rural Crown surveys all SSMs (including Trig stations) connected to, must be shown on the Plan.

For GPS surveys the calculated mid-azimuth derived from the GPS observation shall be shown to seconds.

Due to the dynamic nature of coordinate information MGA coordinates of SSMs are not to be shown. The only information to be shown is the SSM name. See plan example 64.

9.36 Azimuths and Grid Bearings

Azimuths or Grid Bearings need only be shown on Plans when specific guidelines for a type of survey require that they be shown (e.g. Isolated Crown Surveys, Road Casement Surveys).

The source of any adopted azimuth or bearing shown on Plans is to be included in the graphic area of the Plan form. Examples of possible sources include:

- an existing Plan or diagram,
- an observation for azimuth (astronomic or GPS),
- geodetic connection,
9.37 Administrative Boundaries on Crown Plans

The following administrative boundaries are to be shown on Crown survey Plans:

9.37.1 Townsite Boundaries

Townsites were created by both the former Land Act 1933 (LA) and by the Local Government Act 1960 (LGA). Upon proclamation of the LGA in 1995 all LGA townsites became LA townsites. RDL is proceeding to rationalise all the former LGA townsites (i.e. cancel, amalgamate or create). The State Land Services will instruct in each situation.

9.37.2 State Forest Boundaries

When creating:

- Lot ex State Forest - boundary to be shown around the subject ceasing at road (indicating that State Forest also exists on the other side of road).
- Roads (sole subject) through State Forest - no boundary to be shown.
- Roads (sole subject) with one State Forest boundary - boundary to be shown.

❖ Note

The depiction of State Forest boundary must indicate one side of the boundary is State Forest.

9.37.3 Other Administrative Boundaries

- Agricultural Area, Suburban Area and Estate Area boundaries may be shown.
- Port Authority Boundary must be shown.
- Local Government boundaries (only for Road Casement Surveys by Limited Marking – regulation 26A as issued by Main Roads WA).

❖ Note

Refer chapter 9.9 for line styles.

9.38 Permanent Improvements as Boundaries

When permanent improvements are intended to form a boundary (e.g. building or fence line) then graphic depiction of that improvement is required along with detail of corner definition.

9.39 Encroachments, Building Connections

If part of a building, wall or other significant improvement is built such that it crosses over the boundary between the subject land and an abutting lot, the encroachment must be recorded on the plan. Connections to buildings, walls and other types of significant improvements that are close to, but do not cross over, the boundary of the subject land may be recorded on the plan at the surveyor’s discretion.
### 9.40 Parcel Identifier within Subject

Wherever possible the Parcel Identifier is to be shown within the subject and orientated parallel to the base of the Plan.

If the subject land includes a reserve, there is no need to show the reserve number as the reserve may be cancelled during the dealing of the Plan.

### 9.41 Pastoral Leases

A broken station name is to be shown e.g. ‘IDA VALLEY STATION’ along with any current lot number/s.

On Spatial Viewer a broken PI number signifies that the lease extends over more than one Land District. PI numbers for pastoral leases are not to be shown broken on a Crown Plan.

Any surrenders/excisions from leases require the Plan to be presented to the leaseholder. Therefore connections must be shown to the nearest pastoral lease boundary in order to locate the area of the surrender/excision. See chapter 9.25 also.

### 9.42 Unmarked Defined Boundaries

Boundaries which have been spatially determined but which have not been fully marked by a survey will be symbolised by an unbroken line. The annotation ‘Reg 26A’ or ‘Reg. 21(1)’ (as appropriate) shall be shown within the ‘Approved’ panel.

Examples of these are:

- surveys using GPS methods, providing monuments and / or DRMS have been placed at each corner
- road surveys through State Forest and timber reserves, where the boundaries have only been partially marked
- road surveys where one boundary has been marked by traditional methods with the opposite side being calculated
- boundaries with distances between intermediate marks exceeding 250 metres
- limited marking road casement surveys. See plan examples 70 and 71.

In all of these cases the boundary dimensions are accurately determined by survey and can be accurately fixed on the ground in the future.

Boundaries that have no mathematical or spatial integrity and have not been surveyed can be shown on certain Crown Plans usually where the land is not to be alienated by a broken line.

Additionally, unmarked boundaries of very large parcels that are defined by geographical coordinates and long connections from existing geodetic survey marks should be shown with broken lines to indicate that a survey specifically for defining those boundaries has not been carried out.

See chapter 9.47 for the depiction of ‘Sketch on Transfer’ boundaries and boundaries created from subdivisions by description.
9.43 Compiled Plans

Compiled Plans may be used in some situations where the boundaries of the subject land have previously been defined by approved Plans, cancelled surveys and superseded surveys or Plans certified correct but not yet dealt on. Surveyors are reminded of the strict procedural guidelines associated with the usage of Operational Directives such as Executive Minutes 10/92, 17/90 and Survey Registration Minute 1/98, when creating Compiled Plans.

Survey Coordination of RDL issue survey drafting instructions to utilise these Operational Directives, however, any enquires regarding these guidelines are to be referred to the Inspector of Plans and Surveys. See Appendix 2 - Operational Directives and plan examples 58, 66 and 67.

Angles and distances used in the compilation are derived from the latest information for the subject land boundaries. The information is to be obtained from the latest measurements shown on both Crown and Freehold Plans whether or not these Plans are parent Plans or abutting Plans for either part or all of an existing boundary; and also DMP Plans (mining tenements) where appropriate. In the case of sketch on transfer boundaries then the title distance is used in the compilation.

Where imperial distances have been metricated on the working copies (duplicates) of Plans and diagrams, for example, 100 links and 90 links, which convert to 20.117 and 18.105 respectively, they are shown as 20.12 and 18.11 respectively on the "duplicates". An amalgamation of lots with these distances would give a total imperial distance of 190 links which, when metricated, gives a total distance of 38.22 metres, and not the 38.23 metres obtained from a sum of the metricated values. So, when compiling from imperial surveys add the required imperial distances to give a total and then convert that total to metric. In some cases it may require the field book to be searched to determine the correct dimensions.

On older Crown Plans the practice was to round off the total boundary distance to the nearest link. In these cases Title distances take precedence.

Note

The exception to this rule is when the shape of the original Title is changing by compilation of a couple of lots. In this case use the original measured distance before the rounding.

Field book values may be used on the compiled plan in some situations (e.g. in the case of excessive miscloses or where a repreg field book provides more accurate values than the latest original plan or diagram).

Boundaries for compiled lots may be calculated (see plan example 8) providing:

- the calculated boundary is less than 250 metres in length (i.e. does not require an intermediate mark),
- the calculated boundary is between two previously marked corners or bends of parcels with live titles, and
- a site inspection has been made to ensure that there is no conflict caused by the proposed boundary position and that the new boundary can be identified by the proprietor.

Compiled plans cannot be used to re-instate boundaries that have been extinguished by an amalgamation or re-subdivision. "Boundary lines" that were surveyed in the past but which have not been used to define land boundaries for a period of time must be re-surveyed for them to become boundaries again – see Figure 9.1 below for an example of such a situation.

Where a distance on a compiled Plan comprises partly calculated/about and partly surveyed components the separate components must be shown along with a ‘cal’/‘abt’ total distance.

As a compiled Plan does not involve a survey all the angles and distances are original. By convention the suffix ‘ORIG’ should not be shown on any dimension. Survey marks and intermediate distances are not shown. A notation stating from the Plans/diagrams, Certificate of
Title, survey graphic, field book or other sources from which the compilation was derived is necessary.

Circles (indicating survey pegs or posts) should not be shown at lot corners on compiled plans.

A licensed surveyor with a practising certificate is to sign the correct certificate on the face of the plan – labelled ‘SURVEYOR’S CERTIFICATE – Compiled’. The plan may need to be countersigned if the certifying surveyor is not eligible to verify the plan. (See chapter 10.12.) The ‘FIELD BOOK’ section of the heading should show the notation ‘COMPILED’ to indicate a compiled Plan.

For the preparation of compiled Plans within the CBD areas of Perth, West Perth and Fremantle see chapter 2.13.

Compiled plans are not to be used to re-instate boundaries that were removed by an amalgamation or re-subdivision.

Figure 9.1: Amalgamation and subsequent re-subdivision

9.44 Depiction of Mineral Reservations

The introduction of the SmartRegister digital Titles system caused changes in the way that mineral reservations are dealt with on Titles and Plans. The following outlines the requirements for surveyors to depict any mineral reservations affecting land on deposited plans.

9.44.1 Reservations in Crown Grants

Mineral reservations contained in the original Crown Grants need not be depicted or recorded on Deposited Plans. A SmartRegister Title contains a prefatory statement that indicates that the land in the Title is ‘subject to the reservations, conditions and depth limits contained in the original grant’. 
9.44.2 Lands Affected by Section 15 of the *Public Works Act 1902*

Prior to 1953 section 15 of the *Public Works Act 1902* excluded from resumptions all minerals except those necessary for the construction, support and maintenance of public works. Where minerals had been alienated and the land resumed an undefined portion of the minerals remained unresumed, causing problems for the then Titles Office determining what had and what had not been resumed.

Crown Grants issued after the introduction of the *Land Act in 1898* had all minerals reserved to the Crown. The position was/is quite clear from that time. The earlier grants of land (including grants under the Deeds Office system) prior to 1898, where portion of the minerals were alienated remained a problem until in 1953 section 15 of the *Public Works Act 1902* was amended to retrospectively provide that all minerals were included in any resumptions. section 15 was repealed in 1997 and replaced by section 164 of the LAA.

Titles to land affected by this provision will show different endorsements depending on the circumstances involved. If the whole of the land is affected the endorsement may state; ‘save and except the rights to mines of coal or other minerals’, or ‘the right to mines of coal or other minerals being excluded from the said land’. If portion of the land in a Title is affected the endorsement will usually state; ‘the right to mines of coal or other minerals being excluded from portion of the said land’.

In the past, areas affected by section 15 of the *Public Works Act* were indicated on the ‘working copy’ Plans (i.e. mini Plans and duplicate diagrams). Landgate’s imaging system provides copies of the working Plans. These Plans are no longer produced by Landgate and it is now necessary to show the affected areas on Deposited Plans.

Working copy Plans indicate affected areas in one of two ways. The affected areas are hachured and the Plan annotated ‘Portion hachured subject to section 15 of the *Public Works Act 1902*’. In some cases the unaffected areas are hachured and the plan annotated ‘save and except the portion hachured subject to section 15 of the *Public Works Act 1902*’.

Some roads closed and amalgamated under the former *Road Districts Act 1919* were also subject to mineral reservations and are shown on ‘working copy’ Plans as affected by section 15 of the *Public Works Act 1902*.

Roads closed and amalgamated under the *Land Act 1933* or the LAA are not affected by the provisions of section 15 of the *Public Works Act 1902*.

Where land affected by section 15 of the *Public Works Act 1902* has been revested in the Crown the provision no longer applies to the land revested. Lots that are revested are identifiable on the existing ‘working copy’ Plans by a ‘Revested’ notation or a change in the parcel identifier (lot number) to a Crown allotment.

If all the land in a new Deposited Plan is affected by section 15 of the *Public Works Act 1902* there is no need to show on the Plan that the lots are subject to mineral reservations as this will be carried forward onto any new Titles created. Where a portion of the land in a new Deposited Plan is affected by the former section 15 of the *Public Works Act 1902* the Plan must show the subject portion and the Schedule of Interests and Notifications must indicate the new lots affected. See plan example 18.

In general, surveyors must bring forward onto new Deposited Plans the mineral reservations depicted on the ‘working copy’ Plans. Portions of land affected by section 15 of the *Public Works Act 1902* are usually not dimensioned on Titles or working Plans. Surveyors are only required to plot affected portions on new Plans by scaling distances from existing documents and using labels, line-work and where necessary hachuring to clearly show the relevant portions. There is no need to include the information in CSD files.
9.44.3 Mineral Reservations in Transfers

Crown Grants that were registered in the name of the Commonwealth of Australia did not contain any mineral reservations. Where the Commonwealth disposed of land, the transfer effecting the sale normally contained the same mineral reservations as contained in a normal Crown Grant. Following registration of the transfer, the Commonwealth would then transfer to the Crown in right of the State the reserved mineral rights.

By virtue of the Midland Railway Company Acquisition Act 1963 the Minister for Western Australian Government Railways acquired all the property of the Midland Railway Company. The mineral rights granted or alienated to the Midland Railway Company become the property of the Crown on production of a vesting application by the Minister to the Registrar of Titles. Titles are usually endorsed ‘except and reserving metals minerals gems and mineral oil specified in Transfer No’ or ‘save and except minerals vested in the Crown pursuant to the provisions of section 4(5) of the Government Railways Act 54 of 1965. A Title may or may not make reference to the relevant transfer document.

Where portion of the land in a new Deposited Plan is affected by a mineral reservation contained in a transfer, or vesting under section 4(5) of the Government Railways Act 54 of 1965, the portion so affected must be depicted on the Plan in a similar manner to that required for land affected by section 15 of the Public Works Act 1902.

Plan example 30 and plan example 8 indicate the requirements for bringing forward mineral reservations created in transfers on Deposited Plans.

9.45 Depth Limits

The introduction of SmartRegister caused some changes in the way surveyors deal with the existing depth limits on Titles.

9.45.1 Background

Prior to 1898 Crown Grants were issued without any limitation on depth. In 1898, as land in the goldfields was likely to be auriferous it was decided to only grant land surface rights in goldfield town lots to a depth of 20 feet.

The Government Gazette of 11/3/1899 amended this to 40 feet for land in Goldfield and Mineral Districts and 2000 feet elsewhere. This was further amended in the Government Gazette of 6/3/1906 to 40 feet for Goldfield and Mineral Districts and 200 feet elsewhere.

The Government Gazette of 6/3/1934 gave the Minister for Lands the discretion to set other depth limits if required. Mineral Districts were progressively amended until in 1981, it was determined that the whole State was covered by Mineral Districts. All Crown Grants since then have been limited to 12.19 metres (the metric conversion of 40 feet) unless the Minister determined otherwise. Issuing of Crown Grants ceased on March 30 1998.

An exception is the Central Business District where in 1988, it was considered appropriate to set the limit at 60.96 metres (200 feet). This was due to the greater depth required for high rise building foundations and the fact that the CBD was unlikely to be the subject of a Mineral District.

Depth limits were initially set out in the Crown Grants together with conditions and reservations at the time of transfer to the Freehold estate. Depth limits, conditions and reservations applied to the whole of the Crown allotment being dealt with. Subsequent replacement Titles, as a result of a new subdivision or ‘too full for further endorsement’ had the depth limits brought forward but not the conditions etc. A continuing reference to the original Crown Grant is required if a current searcher requires details of conditions etc.

With the introduction of the Land Administration Act 1997 on March 30 1998 Crown Grants are no longer issued. Conveyance from the Crown estate to the Freehold estate is by way of a conventional transfer with a Certificate of Title issuing. Current RDL policy is that Crown Land
being transferred to the Freehold estate will no longer be restricted in depth. Section 9 of the Mining Act 1978 reserves gold, silver and other precious metals to the Crown and section 9 of the Petroleum Act 1967 declared all ‘petroleum’ to be property of the Crown.

9.45.2 Current situation

Depth limits have not been imposed over all Freehold land. Where depth limits do apply a depth limit annotation with reference to the original parent Crown allotment must be shown on all subsequent Freehold Survey Plans.

A Crown survey depicting an original Crown allotment does not show, or have any reference to, depth limits as these were not created until the time of issue of the Crown Grant.

New Crown Land Titles do not contain any depth limits.

SmartRegister Titles will not make any direct reference to specific depth limits.

SmartPlan will not provide any information on depth limits. The CSD file lodged with a survey Plan does not include information on depth limits.

Surveyors need to add any depth limits of the subject land of a subdivision to the survey Plans. The depth limit is obtained from the Certificate of Title. A limited in depth ‘only’ notation is to be added where part of the subject land does not have a depth limit.

Difficulties may arise where part or all of the new survey emanates from a pre-LAA Crown survey on which details of any depth limits that exist are not annotated. In these circumstances the surveyor will need to undertake an historical search to determine the identity of the last manual Title, or search for the original Crown Grant and obtain a copy before he can comply with the above requirement.

It is current Landgate practice to include any unallocated Crown land being amalgamated into Freehold in the original Freehold depth limit.

9.46 Lot Numbers for Vesting Lots and Land Acquisitions

Until March 2004, where a plan involved land that was to vest in the Crown or where land was to dedicate as road following an acquisition under the Land Administration Act 1997, surveyors were requested to obtain a Crown allotment number for the relevant lots.

From March 2004 until June 2006, surveyors were asked to number such lots, as well as new Crown lots from a subdivision involving Crown land, using either the 300-399 or 3000-3099 number range; whichever was appropriate for the lot numbers on the plan. Those numbers were to indicate to Landgate staff the lots for which Crown Land Titles were expected to be created.

Neither of these requirements is now in place. Surveyors are free to use whichever lot numbers are appropriate for any particular plan, taking special care to avoid duplication of lot numbers. (See chapter 21.10.)

It has become clear that the notations on the plans and supporting documentation are sufficient for the correct registration actions to occur, and the use of such a range of lot numbers has the risk that some people will assign unintended intelligence to those lot numbers i.e. not all lot 300s are Crown land.

Surveyors are to use only the Freehold lot types (polytypes) in CSD files for all lots on the Plan. The Crown polytypes (i.e. A, E, L, S and T) are not to be used. All other naming conventions in accordance with the CSD User Guide (see Appendix 5) are to be followed.
9.47 Depiction of Original Unsurveyed Boundaries

Where original boundaries, that were created by a ‘Sketch on Transfer’ or by description (e.g. Moieties), are depicted on Deposited Plans, surveyors should adopt the following practices (see plan examples 46 and 47):

- Where the plan shows distances that have been fixed by a transfer document, such distances are to be annotated as ‘orig’. In cases where these fixed distances are superseded by becoming part of new balance lot distances no ‘orig’ distance or angle annotation is necessary.
- Where the plan is ‘Compiled’ no ‘orig’ distance or angle annotation is necessary as all dimensions are original.
- Distances and angles for boundaries created by a transfer that are derived from survey or calculation are not to be annotated as ‘orig’ or ‘cal’.
- Unsurveyed boundaries are to be shown as full lines but labelled and the following notation included on the Plan
  “Unsurveyed Boundary A-B created in Transfer Document ……”
- Where a boundary that was created by a ‘Sketch on Transfer’ or by description is subsequently surveyed and marked it should be labelled and the following notation included on the Plan
  “Boundary A-B created in Transfer Document ……”
- In the past the transfer of portions of an original “survey” location was accepted without any further survey, usually by showing the new “calculated” boundaries in red ink on the original plan or diagram that was registered for the original “surveyed” location. New location numbers were then allocated to those “calculated” portions transferred.
  Any “unsurveyed” boundary created as above is to be shown as a full line and labelled A_B. Notation on the plan is to include reference to the original plan or diagram that created the “unsurveyed” boundary.
  If an “unsurveyed” boundary created as above is required to be surveyed, then surveyors are advised to first seek advice from the Survey Inspection Team at Landgate.
- The transfer document number to be recorded in the notation is the one that creates the boundary in the first instance. This document would indicate any fixed distances.
- These boundaries must be captured in CSD files in accordance with their survey status (i.e. whether they have been marked). Unsurveyed lines must be captured as ‘unsurveyed’ and surveyed/marked lines captured as ‘surveyed’ in the CSD file.

9.48 Curved Boundaries

It has long been Landgate’s policy not to accept new Plans with curved road alignments. This policy originated following complaints from utility agencies encountering problems installing services in their allocated corridors within road reserves where curves were involved.

Curved boundaries may be used elsewhere in a subdivision but they are not encouraged. There seems to be few practical reasons for them to be used. They are quite common in canal developments however where canal boundaries are usually related to the constructed walls bordering the canals.

Where it is necessary to survey two or more adjoining curves the plan must show the radius and arc of each curve together with the long chords as dotted construction lines. For clarity, bearings or mid-azimuths should be shown along each chord.
10. Plan Practices

Introduction

Chapter 10 details the range of requirements for Survey Plans.

Please refer to policy and procedure guide SPP-10 Plan Practices for:

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| 10.23 | Authority for Correction of Errors on Plans after Plan Approved  (see SPP-10 section 14) |

| 10.24 | Cancellations  (see SPP-10 section 15) |
11. Specific Plan Purposes

Introduction

Chapter 11 covers specific plan purposes and the appropriate methodology for their actioning.

11.1 Acquisition Plans

Where land is being acquired for public purposes by either taking or transfer and multiple ownership is involved the following practices are used. The plan is required to show:

- the land to be acquired together with any residue lots that may result from the acquisition (see chapter 9.22.1 ‘Multiple Lot Titles’ and chapter 9.22.3 ‘Roads and Road Widenings from Extensive Freehold Parcels’ for possible residue land solutions for exceptional situations);
- a notation that the land is ‘being acquired for a public purpose’ together with a description of that purpose; and
- a Former Tenure Table (see chapter 10.7) that sets out the conveyancing requirements to achieve the acquisition/s.

The taking of interests in land for road purposes under section 170 of the Land Administration Act 1997 would be the subject of an acquisition Plan.

Crown Land administered under the Land Administration Act 1997 may be shown with Freehold Land administered under the Transfer of Land Act 1893, however Freehold actions may be slowed down as a result of completing Crown actions. It is strongly recommended that actions affecting Crown and Freehold Land be separated onto different graphics.

Compulsory acquisition of a portion of land for a public work is exempt from the requirement of subdivisional approval by virtue of section 6 of the P & D Act. Accordingly W.A.P.C. approval is not required for acquisitions on behalf of a Local Authority. The Deposited Plan is to be endorsed “EXEMPT FROM W.A.P.C. APPROVAL UNDER SECTION 6 OF THE P & D ACT” in the Approved by W.A.P.C. box. Evidence is required from the acquiring authority stating that they are taking the subject land for a Public Work under Part 9 of the Land Administration Act (Evidence should be lodged along with the Deposited Plan).

Acquisitions on behalf of Main Roads W.A. will be forwarded to W.A.P.C. for their approval, on completion of examination action. Surveyors are to ensure that a note is placed in the Surveyors Report stating that this is a Main Roads W.A. job.

See plan example 11 for land being acquired for Road Widening and Dedication.

See plan example 5 for land being acquired for a Public Purpose.

A Plan may show a series of road widenings that are clearly labelled ‘ROAD WIDENING’ with the intention of the widenings being dedicated. This is done by transferring the land to the Crown to dedicate under section 168(5) of the P&D Act or alternatively by taking and dedication.

The Plan must also show:

- either a separate allotment number for each portion being acquired or a single allotment number for the whole of the land being acquired, and
- all balance lots with separate lot numbers.
All land in the plan that is being acquired must be dealt on at the same time. The titles for balance lots will issue automatically.

Chapter 13.11 covers the situation where the land to be acquired is from a strata scheme. See plan examples 5, 11, 85, 95, 102 for Freehold land Acquisitions (chapter 9.17). See plan examples 54, 70, 71, 100 and 104 for Crown Land Acquisitions as well as chapter 9.18.

11.2 Crown Land Amalgamations

Legislation governing the disposal of Crown Lands by amalgamation with adjoining Freehold Land resides under section 87 of the LAA.

Generally Crown Land for Amalgamation is to be allocated a lot number in order that a Crown Land Title (CLT) may be created prior to its amalgamation into a Certificate of Title (CT). Where closure and amalgamation of a private road or ROW (by acquisition), or a PAW or ROW that vested under section 152 of the Planning and Development Act is proposed, no CLT is created and no lot number is required.

Crown land to be amalgamated into a Crown Grant in Trust or any other Freehold land also requires its status to be that of a CLT and must be supported by a Statutory Declaration by the controlling authority and any other interest holders. (Refer chapter 20.3.)

If two or more parcels of Crown land are being included into the one Freehold Title, only one lot number is necessary.

To facilitate the registration process for a road closure there is a requirement to allocate a lot number to the portion of the Closed Road. This includes roads within a new subdivision and roads for immediate amalgamation. One PI is issued for the whole road closure if amalgamation to multiple lots is simultaneous. If amalgamation is not simultaneous separate lot numbers are allocated.

The key issue is that closures must be registered on a CLT. Additional to that, Crown Easements on Road Closures must be shown on a CLT. All dimensions, to enable the creation of the new CLT for the Crown land being amalgamated, must be shown (ie. no additional searching of Plans must be necessary).

Amalgamations of road closures or pedestrian accessways (PAWs) with adjoining Freehold land are to be shown on Freehold Deposited Plans. It is only necessary to show any residual road or PAW as a balance lot when the road or PAW is the subject of a Certificate of Title or Crown Land Title.

The Registrar or an Authorised Land Officer may authorise a plan prepared for the purposes of closing a portion of private road or right of way under section 52 of the Land Administration Act 1997, to not show a balance lot for the residue road or right of way. The areas of closed road or PAW are to be depicted in an inset on the Plan or on a separate sheet of the Plan.

Amalgamations of portions of ‘Unallocated Crown Land’ (UCL) with adjoining Freehold land are to be shown on Freehold Deposited Plans. Unless instructed otherwise by State Land Services, no balance lot of the residue UCL is to be shown on the Plan.

Amalgamations of portions of Crown reserves with adjoining Freehold land are also to be shown on Freehold Deposited Plans. The residue of the Crown reserve is to be shown as a balance lot, with a new lot number shown on the Plan. In most cases, the reserve would retain its number, but sometimes it is cancelled at dealing. As such, the reserve number is not to be shown on the balance lot to minimise future amendments. Alternatively the reserve may be subdivided initially on a Crown Plan with the portion to be amalgamated given a separate parcel identifier. The amalgamation is then carried out on a Freehold Plan.

Amalgamations of portions of Crown land with adjoining Crown leasehold land are to be shown on Crown Plans. Only the Freehold lots and any spatial interests (the ‘outcome’) are to be included in

Where an applicant requires the Crown land to be part of a new subdivisional development, Part 6 Division 2 of the Land Administration Act 1997 may be a more suitable option for the particular project. The development may be subjected to delays associated with actions on the Crown land, particularly if Native Title Rights need to be extinguished. Staged registration and/or approval actions may be necessary. The relevant Regional Manager at RDL should be consulted on the most appropriate procedures for each individual situation.

The current situation regarding Crown Land Amalgamations and the necessity to lodge at WAPC, are that any portion of PAW or ROW being closed and amalgamated that still has public access needs to be approved by WAPC. All other isolated portions of PAW/ROW or pieces of unallocated Crown lands are exempt and a note to this effect is placed on the Plan.

Table 11.1: Some of the different scenarios encountered when dealing with the amalgamation of Crown land.

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Heading on inset</th>
</tr>
</thead>
<tbody>
<tr>
<td>To include a portion of Unallocated Crown Land (UCL) into an adjoining lot where the UCL does not have a PI or LR</td>
<td>LOT 300 BEING CROWN LAND FOR AMALGAMATION FORMERLY UCL</td>
</tr>
<tr>
<td>To include UCL into adjoining lots. The UCL is on a Crown Diagram and there’s an LR.</td>
<td>LOTS 300 &amp; 301 BEING CROWN LAND FOR AMALGAMATION FORMERLY LOT 600 ON DP179850 LR 3113/511</td>
</tr>
<tr>
<td>To include a portion of Closed road. (The closed road was created on a Crown Plan.</td>
<td>LOT 300 BEING CROWN LAND FOR AMALGAMATION FORMERLY CLOSED ROAD ON DP216114</td>
</tr>
<tr>
<td>To close and include a portion of road into adjoining lots and at the same time creating a Sec 144 LAA easement within the inset.</td>
<td>LOTS 300 &amp; 301 (ROAD CLOSURES) BEING CROWN LAND FOR AMALGAMATION FORMERLY PART GILBATOR STREET ON P11542. Show the easement details on an Interests and Notifications table within the inset.</td>
</tr>
<tr>
<td><strong>Note:</strong> This easement subsists, being carried forward and shown 'above the line' in the Interests and Notifications table on the main graphics.</td>
<td></td>
</tr>
<tr>
<td>To close and include a portion of road into adjoining lots. In this case there is a PI for the road.</td>
<td>LOTS 300 &amp; 301 (ROAD CLOSURES) BEING CROWN LAND FOR AMALGAMATION FORMERLY PART GILBATOR STREET (LOT 123) ON P11542. LR 3113/666</td>
</tr>
<tr>
<td><strong>Note:</strong> A balance of the road lot is necessary on the main graphics.</td>
<td></td>
</tr>
</tbody>
</table>
Table 11.1: Some of the different scenarios encountered when dealing with the amalgamation of Crown land (cont.)

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Heading on inset</th>
</tr>
</thead>
<tbody>
<tr>
<td>To include a ‘vested’ ROW or PAW into adjoining lots.</td>
<td>LOTS 300 &amp; 301 (REVESTMENT)</td>
</tr>
<tr>
<td>(NOTE: the ROW/PAW is still in title and usually is the only thing remaining. The note: ‘vested portions alone remain’ is shown as an endorsement on the title)</td>
<td>BEING CROWN LAND FOR AMALGAMATION</td>
</tr>
<tr>
<td></td>
<td>FORMERLY ROW(vested) / PAW ON P10004</td>
</tr>
<tr>
<td></td>
<td>C/T 1234/567</td>
</tr>
<tr>
<td>To include a portion of land acquired under Sec 52 of the Land Administration Act to adjoining lots. (e.g. private road)</td>
<td>LOTS 300 &amp; 301 (ACQUISITION)</td>
</tr>
<tr>
<td></td>
<td>BEING CROWN LAND FOR AMALGAMATION</td>
</tr>
<tr>
<td></td>
<td>FORMERLY PRIVATE ROAD ON P17700</td>
</tr>
<tr>
<td></td>
<td>C/T 568/456</td>
</tr>
</tbody>
</table>

❖ Note:

If an easement under section 144 of the LAA needs to be created as part of the amalgamation, this needs to be shown in the inset depicting the amalgamated portion. It is then brought forward above the line in the Interests and Notification Table and shown on the main graphic.

11.3 Road and Road Widening Plans

Chapter 13 covers matters relating to roads in detail. Road Casement surveys are covered in Appendix 1.

The requirement under SmartRegister for balance lots to be shown on Plans means that most roads will now be created on Plans of subdivision even though the intention of the survey is to create the road or road widening. See plan example 56.

Where a road or road widening is being created within large tracts of Crown land it will still be possible to have the road or road widening as the sole subject of the Plan. See plan example 54. The CLT (if one exists) will be endorsed ‘land excludes road shown on plan ....’. section 27 of the Land Administration Act 1997 (LAA) empowers the Minister for Lands to authorise the subdivision of Crown land into lots and determine the width and direction of streets, roads and lanes within such lands. Where new roads are being created the Plan heading must include the words ‘AND ROAD(s)’. Road widenings being created are to be labelled ‘ROAD WIDENING’ to conform with Freehold practice. The roads automatically dedicate upon approval of Plan under section 28 of the LAA.

The taking of interests in land for road purposes under section 170 of the LAA would be the subject of an acquisition Plan. (See chapter 11.1.)

Land may be dedicated for road purposes under section 56 of the LAA. To dedicate sole subject roads under section 56, a lot number and CLT are required in order to register the dedication document. The heading of the Plan will be either ‘ROAD (LOT 249)’ or ‘ROAD WIDENING (LOT 249)’ and the graphic will be endorsed ‘MARTIN ROAD (LOT 249)’.

Private thoroughfares may be dedicated under either section 56 of the LAA or section 3.49 of the Local Government Act 1995.

Where a previously dedicated road is being defined by survey the Plan heading is to include ‘AND DEDICATED ROAD’.
11.4 Road Closure Plans

Roads are closed under section 58 of the *Land Administration Act 1997* (LAA). See plan example 55.

The closure or acquisition of private ROWs proceed under section 52 of the LAA (formerly section 297A of the *Local Government (Miscellaneous Provisions) Act 1960*).

11.5 Sole Subject Vesting Lot Plans

Parcels of land that vest in the Crown under section 152 P & D Act do so automatically upon dealing on the Plan. It is therefore necessary for at least one Freehold (non-vesting) lot as well as the vesting lot be the subject of the Plan to cause a dealing and trigger the vesting.

Where it becomes necessary for a section 152 P & D Act lot or lots to be the sole subject of a Plan the surveyor must seek authorisation from the Manager, Plan Registration.

11.6 Interest Plans

Chapter 14.21 covers 'Interest' plans in detail.

11.7 Statutory Plans

Statutory Plans are used to facilitate actions under various statutes in reference to particular areas of land. They do not effect tenure but impose conditions or lift constraints on the subject of the Plan.

The most common use of Statutory Plans is for ‘Notices of Intention to Take’. The other use is for administrative boundaries and these boundaries can be of a temporary nature exempting an area for 1 day from restrictions under law which would not allow the proposed activities to take place. Examples of a more permanent nature include definitions of Port Authority areas, custom areas, of road vehicle areas, shire and rating areas.

The Manager Boundary Definition, New Subdivisions should be contacted when preparing a Statutory Plan.

11.8 Christmas/Cocos (Keeling) Island Plans

In 1992, the then DOLA undertook the registration of survey Plans on Christmas and Cocos (Keeling) Islands and Landgate continues this responsibility.

All survey Plans held at that time by the Commonwealth government were passed to DOLA and registered. These Plans are in a markedly different format to survey Plans prepared under WA practices.

Subsequent survey Plans for Christmas and Cocos (Keeling) Islands followed conventional WA practices with particular attention given to:

- **AZIMUTH** - Bearings shown on the original (Commonwealth) Plans are Christmas/Cocos Island GRID bearings. New Deposited Plans do not require bearings to be shown.
- **PERMANENT SURVEY MARKS** - The practice of showing PSMs has been continued on subsequent Plans.

Excisions from mineral leases must be referred to the Commonwealth Department of Territories.

For planning and land management issues, contact the Pilbara Regional Manager or Team Leader, RDL. See plan example 60.
11.9 Pastoral Lease Boundary Amendment Plans

These Plans serve to define pastoral lease boundaries and fall into four categories:

- Partial survey definition of an existing boundary. This may result in the amendment of the area and boundary of the lease (a Crown Plan with a purpose of ‘Redefinition’ is to be lodged showing the full extent of the pastoral lease).
- Survey definition of a boundary to enable creation of a parcel for inclusion into a pastoral lease.
- Survey definition of a boundary to enable total subdivision of pastoral lease.
- Survey definition of boundary/s which create two (2) or more severances for cross transfer between pastoral leases. Balance lots would need to be shown.

Exemptions from showing balance lots or the full extent of the lease may be authorised by the Registrar or an Authorised Land Officer. Note that:

- Landgate needs to be consulted for unique abuttal and original boundary depiction requirements.
- Improvements such as fences, bores etc. are to be shown.
- In survey definitions that create two or more severances, the dimensions and areas of each severance are required.

11.10 Conversion Plans Prepared Outside Landgate

Conversion Plans prepared outside of Landgate must be drafted on a standard form, to the normal drafting standards outlined in this Manual and certified by a licensed surveyor. The surveyor's ‘compiled’ certificate would normally apply to such Plans where no new survey was undertaken. See plan example 45.

Where a conversion Plan is prepared for the purposes of eliminating a part lot land description the graphic area on the Plan is to be annotated as follows:

"This plan provides a graphic representation of existing lot/s and allocates whole lot/s and description for the conversion of paper Certificates of Title to a digital register."

Conversion Plans must include any interests and notifications of a spatial nature that are to be brought forward. It is not possible to create new interests on a conversion Plan.

CSD files are required for all conversion Plans prepared outside of Landgate.

Conversion Plans are cross-indexed with the normal ‘compiled’ annotation. Conversion Plans prepared by Landgate are cross-indexed onto the SIP View without any field book number or ‘compiled’ notation (ie. only the Deposited Plan number is shown).

The information and dimensions on conversion Plans prepared at Landgate is often sourced from existing paper Titles and registered TLA documents. The dimensions on conversion Plans prepared at Landgate may not depict the latest dimensions and should not be used on new survey documents unless verified by a Licensed Surveyor.

Conversion Plans prepared by private surveyors do not need to include a statement about reliability. The regulation 4 ‘Compiled’ certificate signed by a Licensed Surveyor eligible to lodge at Landgate is sufficient support for the dimensions on the Plan.
11.11 Plans of Roads for Registration of Interests

To allow the registration of easements, infrastructure corridors and other interests over roads a process has been introduced where Deposited Plans are lodged showing parcel identifiers (lot numbers) allocated to sections of existing road. These Plans also include any interests that are being brought forward (usually Crown easements) and any new interests being created using that Plan.

The extent of the road lot being created on such Plans will vary depending on the circumstances but in most cases a lot should extend for the length of a section of road and include any truncations at ‘T’ intersections.

These deposited plans are to be a ‘Crown’ type with a purpose of ‘Subdivision’ (this allows Titles to be created within SmartRegister). Balance lots are not required for any residue portions of road.

CSD files are required for these types of Deposited Plans.

See plan examples 62 and 93.

11.12 Deposited Plans for Infrastructure Projects Using Data from the Spatial Cadastral Database (SCDB)

The Principal Consultant (Plans and Surveys) should be contacted on +61 (0)8 9273 7170 if data extracts from Landgate’s SCDB are to be used to model infrastructure projects and produce Deposited Plans.

By giving sufficient lead time, the accuracy of the SCDB in the area of interest can be checked for suitability.

If extra cadastral connections have been undertaken by the surveyor, then these should be lodged as soon as possible so the new connections can be used to upgrade the area which is to be used for the project.
12. Three Dimensional Plans

Introduction

Chapter 12 presents information on the practices to be followed when preparing Three Dimensional Plans.

12.1 The Cubic Parcel

The guidelines in this chapter are for the survey and drafting of Plans that include three dimensional lots (i.e., lots limited in height or limited in depth other than by the traditional Crown Grant depth limit). These Guidelines do not apply to plans under the Strata Titles Act.

Except when structures define the intended boundary surfaces vertical planes should be used in the definition of the 3D lot as much as possible. In the absence of other restrictions, definition of the lot parcel by horizontal and vertical plane (not curved) surfaces is preferred for simplicity of description. The inclusion of curved edges or surfaces is discouraged but if these are necessary, single or compound circular curves may be used. Spiral or other transition curves are unacceptable.

When defining upper or lower boundary surfaces by means of reduced levels (and unless following a constructed surface) the boundary surfaces must be a series of plane surfaces. Twisted planes are not acceptable because they are not unique. An infinite number of different twisted planes can all pass through the same four non-planar points.

When a boundary plane is defined by four or more points (the usual situation), those points must be calculated to be planar. If this is not the case the boundary surface must be broken into two or more planes, by recording changes of grade or by introducing break-lines on the Plan. Plan example 38 shows several such break-lines.

12.2 Survey

If the corners are not closely marked in three dimensions, then in the case of urban areas (and especially inner urban and city areas where complex three dimensional surveys are becoming frequent) the survey method and the accuracy of the survey should be at least equivalent to those specified for Special Survey Areas under General Regulation 26A, with nearby connections to the geodetic network in three dimensions.

It is recognised that the development methods and the boundary relationship to physical structures will vary greatly between different developments. But the density of marks and of connections to physical structures must correlate with the critical nature of the boundaries and correlate with the high value of the land. It is not acceptable to simply reduce the marking because it is physically impossible to mark most of the corners. Alternatives must be used (possibly unique to each case).

The sources of the AHD datum for the survey should be recorded in the field book.

12.3 Marking

Three dimensional boundary corners should be marked directly if practicable. Otherwise a mark should be placed on a vertical edge of the parcel (or its production), on a horizontal or sloping edge or least satisfactorily as an offset mark related three dimensionally to the corner of the lot. In the case of indirect marking it may be preferable to only record the mark in the field book (i.e., as an RM).
It is accepted that it will not be possible to mark or reference those three dimensional corners of the lot which are either high in air space or deep within construction material or earth. In those cases an alternative should be found, for example connections to the structure.

12.4 Location of Structure

A connection to a wall shown on a plan makes that wall a monument and monuments have precedence over measurements. Thus the recording of the position of the structure in relation to the boundary is a prudent practice for the surveyor to establish the intention, apart from the benefit to future surveyors in facilitating re-establishment.

Showing connections to horizontal surfaces of the structure could be particularly relevant in the re-establishment of a horizontal boundary surface defined via a long levelling traverse.

In the case of ‘below ground’ structures it is recommended that sufficient connections be made to the structure and recorded in the field book, to allow the relationship of the boundaries to the structure to be proven, to reduce the risk of mistakes and to provide an examination trail.

12.5 What Must Be Shown on the Plan

The Plan must show all of the dimensions of each of the lots and other land tenure (roads etc.) and of the surround of the Plan. These dimensions include the definition of heights in the case of three-dimensional parcels.

The Plan must show abuttals (tenure and plan numbers) in all three dimensions (ie including tenure above and below the lot, and above and below the new Plan). The horizontal abuttals should show all of the abutting tenure at different heights where applicable. A Plan view and at least one other view or alternative means should be used to clearly define each three dimensional lot.

12.6 Flexibility

These guidelines are not intended to restrict or standardise. They are designed to help surveyors and to reduce delays in processing. The first priority is to make the survey Plan clear and complete – by whatever means you can devise. It is expected that three-dimensional Plans will be used for increasingly more complex lots (and easements) in the future.

12.7 The Plan View

The Plan must include a Plan view as the primary view. It is recommended that you show on the primary Plan everything that can be shown on that view without getting too cluttered. This includes all horizontal angles and distances that are at the surface of the ground and lot numbers and abuttals. This may require one or more enlargements – still in Plan view, and may need a second sheet.

It is very desirable that the primary Plan view also record (probably without dimensions, and just in outline) the position of below ground and ‘at height above ground’ parcel boundaries. It is suggested that these outlines use a new line symbol (0.35mm dots spaced at 3mm, used also for Mines boundaries) to differentiate from easement boundaries, road secants, break lines etc.)

It is recommended that each below ground and ‘at height above ground’ lot be recorded on a separate Plan view which shows its Plan dimensions. The height dimensions may be recorded on this view in simple cases. It can be impossible to find the space to show on the crowded main Plan the various lot numbers at different heights.

In such a case it is recommended that the main Plan shows only the numbers or names of those parcels which are unlimited in height. Then a separate enlargement can be drawn for lots which are limited in height or depth, showing on the enlargement a key for each polygon, linked to an adjacent schedule recording the key adjacent to a listing of the tenure at different heights.
In simpler, less crowded situations the statements could be put directly on the main Plan view.

12.8 Options for Defining Vertical Limits

Following are several suggested options for defining the upper and lower limits of three-dimensional lots:


Table 12.1: Definition of vertical limits of the various tenures in the Murray Street Mall

<table>
<thead>
<tr>
<th>Polygon Key Shown on Plan.</th>
<th>Tenure</th>
<th>Upper and Lower Limit of the Tenure</th>
</tr>
</thead>
<tbody>
<tr>
<td>57</td>
<td>Murray Street</td>
<td>Above RL 31</td>
</tr>
<tr>
<td>Lot 1152</td>
<td></td>
<td>Between RL 31 and RL 22.5</td>
</tr>
<tr>
<td>Lot 1026</td>
<td></td>
<td>Between RL 22.5 and RL 17</td>
</tr>
<tr>
<td>Lot 1152</td>
<td></td>
<td>Between RL 17 and RL 7</td>
</tr>
<tr>
<td>Murray Street</td>
<td></td>
<td>Below RL 7</td>
</tr>
<tr>
<td>52, 55</td>
<td>Murray Street</td>
<td>Above RL 31</td>
</tr>
<tr>
<td>and Lot 1152</td>
<td></td>
<td>Between RL 31 and RL 7</td>
</tr>
<tr>
<td>58</td>
<td>Murray Street</td>
<td>Below RL 7</td>
</tr>
<tr>
<td>54</td>
<td>Murray Street</td>
<td>Above RL 31</td>
</tr>
<tr>
<td>and Lot 978</td>
<td></td>
<td>Between RL 31 and RL 15</td>
</tr>
<tr>
<td>56</td>
<td>Lot 1152</td>
<td>Between RL 16 and RL 7</td>
</tr>
<tr>
<td>Murray Street</td>
<td></td>
<td>Below RL 7</td>
</tr>
</tbody>
</table>

2. A statement using point numbers on the Plan linked to a schedule showing the point numbers and the associated reduced level for each. This can be used for sloping planes but needs extra clarification when any point number has two or more upper limits (or two or more lower limits) associated with it, usually a step in the surface. See plan example 35 and plan example 39.

3. A vertical elevation or a vertical section can be used to illustrate steps clearly. See plan example 38.

4. An isometric projection to scale can illustrate more complex shapes. It is generally best to only show one lot per isometric projection. See examples on plan example 38. If, because of the viewing angle points or lines on different surfaces coincide on the view, causing confusion, it is acceptable to show the projection as ‘not to scale’ and then stretch the graphic so as to separate the co-incident points or lines. Usually this is only practical near the edges of the view.

5. Where several three dimensional parcels abut or interlock it is acceptable to use a vertically exploded isometric projection. This will separate the parcels to allow each to be shown clearly, but also defines how they all fit together. See plan example 38.

Whether separate enlargements or elevations are used for each parcel or whether they are combined to save space is a decision for the surveyor. Both are acceptable, provided clarity is achieved.
12.9 Defining Upper and Lower Limits of 3D Lots

Always use reduced levels above Australian Height Datum to define the upper and lower limits of three-dimensional lots. AHD heights should be recorded on the Plan to the nearest 0.01 metre. In a vertical elevation or isometric view the practice of showing a reduced level along a horizontal line is favoured.

The traditional format of showing depth limits on Plans (e.g. ‘limited in depth to 12.19 metres’ - carried forward from the Crown Grant) is misleading on three-dimensional Plans, all of which carry a reference to AHD. It is recommended that on three-dimensional plans, the full wording of the depth limit from the Title is used (ie ‘……….12.19 metres below the natural surface of the ground’).

Because extensive ground disturbance may be a part of the development relating to a three dimensional Plan, it is recommended that if the natural surface or remnants of it, are visible at the time of survey that its height be measured and recorded in the field book for future reference. In complex cases it is very useful to show an approximate height of the ground or paving at selected places on vertical elevations or isometric views – to clarify the situation to the viewer (as on plan example 38, 39, 68, 95 and 105.) Some structures may approach or reach the depth limit, in which case the surveyor may elect to convert the depth limit to AHD reduced levels and to record that lower surface as part of the graphic. This is acceptable but because of the risk that there was cut or fill many years ago, it would be prudent to qualify those RLs – for example ‘nominal depth limit is 2.70 metres above AHD, for information purposes only’.

12.10 Isometric Projections

Distances along sloping edges shown on elevations and isometric views should be slope distances and should be annotated ‘slope’.

Any angle shown on an isometric view will be understood to be the angle between the respective vertical planes, not the angle between any sloping edges. If this is not the intention the angle should be appropriately annotated.

Similarly circular curved surfaces will be presumed to be cylindrical with a vertical axis.

If it assists clarity it is acceptable to remove the front face of an isometric projection so as to view the internal and far surfaces pictorially.

Try not to construct an isometric view looking from the top of the Plan sheet. An isometric can only be comprehended properly when viewed from the direction it was drafted – and the viewer is usually trying to relate the isometric to an adjacent Plan view.

12.11 Areas of Three Dimensional Lots

An area should be shown for each lot. In the case of three-dimensional lots the shapes of lots can vary greatly, so a range of methods may be necessary. These may include:

- As first priority it is recommended that the area recorded be the area at ground level.
- If the above is misleading, the area of the bulk of the lot could be recorded.
- If the lot is wholly or predominantly below ground level:
  - the area at below ground level should be shown, or
  - in some cases where there are gross differences in area at different heights it will be useful to record more than one area for a lot, calculated at representative heights and recorded as such.
- The height at which the area of each three dimensional lot is calculated should be shown (unless it is obvious)
In the past some lots which were closed in height and depth have been annotated with a cubic volume instead of an area. It is now thought that this is an added complication with little benefit so it is recommended that only areas be shown in future, not volumes.

12.12 Total Area of Plan

It is not necessary to show the total area of the subject land on the Plan except for Crown surveys. Refer chapter 10.15.

12.13 Easements Limited Vertically

For easements (typically under section 136C of the Transfer of Land Act) limited vertically, similar methods should be used as are used for descriptions of parcel boundaries, with the notable difference that no marks are necessary for easement boundaries. See plan examples 35 and 36. In the case of multiple three dimensional easements within a building (easements for a variety of purposes) the situation can be complex and it is then recommended that each easement be drawn on its own enlargement, usually a Plan view with the third dimension defined by reduced levels. See plan examples 35 and 36. In some cases a vertical elevation or isometric projection may be needed as well.

In some situations of overlapping or abutting easements, it will be advisable to draft a vertical elevation or vertical section depicting the relationships among the various easements (for example in the case of access and service easements passing through a dividing wall or party wall). See plan example 36.

12.14 Digital (CSD) Files

Vertical information is not required in the Cadastral Survey Data (CSD) file for three dimensional lots. The horizontal extent of each three-dimensional lot and easement must be recorded in the CSD file (and also that of the Plan surround). On some Plans this can result in two, three or several lots populating the same SCDB space (but at different heights). This is acceptable and will be clarified by the viewer referring to the Deposited Plan.

All that is required for the CSD entry for each three dimensional lot is a horizontal outline or ‘footprint’, not all of the intricacies of the lot boundary at different heights. It is suggested that the most informative footprint is the total extent of that lot but it is recognised that this may not always be practical and that an alternative such as the lot extent at ground level may sometimes be better. There is no firm rule – the purpose is to illustrate and to guide the viewer to the Deposited Plan for the rigorous solution. Two dimensional easements are recorded in CSD files. Three dimensional easements should also be recorded in CSD files but only in Plan view. The 3D button within the lot identification should be activated.
13. Roads

Introduction

Chapter 13 presents information on Roads, their status, actions and processes for registration.

13.1 Road Names

See chapter 9.24.

13.2 Parcel Identifiers

Roads and road widenings that dedicate automatically on approval of a Plan of subdivision do not require parcel identifiers except where the former tenure is Crown land and staged approval is necessary (e.g. if Native Title rights exist).

Under the Land Administration Act 1997 (LAA) all actions relating to Crown land must be registered to be effectual (section 19). The registration process under the Transfer of Land Act 1893 (TLA) is specific: i.e. ‘original instrument to be entered in the Register on the certificate and the original sealed’.

Except for those roads that are created on a Crown Plan of subdivision under section 27 of the LAA (see plan example 53), all Crown Plans of survey or sketch Plans that are prepared for road purposes (both creation and closure) will require the allocation of a parcel identifier and CLT number. This is to enable the registration of Dedication/Closure Orders or any further actions against the road (e.g. leasing etc.) See chapter 11.11 for plans of roads for registration of easement crossings.

To allow the registration of easements and infrastructure corridors over roads a process has been introduced where Deposited Plans are lodged showing parcel identifiers (lot numbers) allocated to sections of existing road. These Plans also include any interests that are being brought forward (usually Crown easements) and any new interests being created using that Plan. Refer chapter 11.11.

13.3 Connections Across Roads

See chapter 9.25.

13.4 Road Widenings

Road widenings that involve Freehold Land must be done on a Plan with a purpose ‘subdivision’, where the balance lot must be shown. See plan examples 3, 4, 13, 15, and 56.

A road or road widening may be the sole subject of a Plan if a large tract of Crown land is involved as the residue. (See chapter 11.3.) Refer to chapter 11.3 under ‘Roads and Road Widenings from Extensive Freehold Parcels’ for possible residue land solutions for exceptional situations involving Freehold land.

On even truncations the angles to the truncation line may be omitted if the intersection angle and set-back distances are shown. New truncations created must show details of the original alignments.
13.5 Closed Roads

To facilitate the registration of a road closure and any subsequent actions, a parcel identifier will need to be allocated. All actions relating to Crown land must be registered to be effectual under the *Land Administration Act 1997* (LAA).

Instructions will be issued with the survey/drafting contract indicating the requirements with regard to closure. See plan examples 55 and 101.

If the sole subject of the plan is to cause the road closure then the purpose of the plan will need to be:

‘ROAD CLOSURE’.

Where the closed road is being amalgamated into adjoining land the Plan purpose will be ‘Crown Land Amalgamation’ (except where the closure is being incorporated into a subdivision – in which case the Plan purpose will be ‘Subdivision’) and the graphic area is to include an inset showing the closed road. The Plan heading is to state the outcome – the new lot/s being created. Separate parcel identifiers and areas are to be shown if disposal is to more than one land parcel. Refer chapter 11.2. Where, as the result of a road closure the width of the remaining road casement has been altered the opposite side of the road covering the extent of the closure must be shown.

Connections across the road must be shown clearly identifying the residual road width (this may require calculation utilising original data). This is required in order to ensure the graphic depiction of all road widths and to avoid the searching of field notes.

Easements may be shown over closed roads for immediate alienation.

13.6 Road Casement Surveys by Limited Marking

Refer Appendix 1.

13.7 Dedication of Bridges as Public Roads

Under Executive Minute 1/97 (see Appendix 2) bridges and the associated support structures and land on which the structures rest are depicted for dedication as public roads on three dimensional Plans in alternative ways:

- Description on the Plan, of the bridge surface, supporting structure, and underlying land, defined by Reduced Levels (RLs) referenced to the Australian Height Datum (AHD). The extent of the underlying land dedicated may vary from case to case. In some instances it may be appropriate to dedicate the entire strip, while in other cases, the bridge footings only may be dedicated (so as to minimise interference with another agency’s management of the underlying land).

- Description on the Plan of a three-dimensional airspace, vertical elevations defined by RLs and related to the RL of the underlying land, referenced to the AHD. Horizontal extremities of the airspace parcel will normally show connections to adjacent land parcels.

The first alternative is the preferred course. The second alternative is available where it better meets particular circumstances (e.g. the bridge structure rests on the perimeters of a channel with no intermediate support structures).

Having regard for management issues in relation to the bridge, road surface and underlying land, the decision in relation to the choice between the alternatives outlined above will be reached in consultation with the relevant management bodies and instructions as to the preferred alternative issued with the survey/drafting contract.
13.8 Mall Reserves

Section 59 of the *Land Administration Act 1997* (LAA) provides for the creation by Ministerial Order, of a reservation under section 41 for the purpose of ‘Mall Reserve’. The Order will close any existing underlying road and together with any unallocated Crown land within the Mall Reserve boundaries create the reservation.

The Plan prepared for the parcel identifying the reservation must have a parcel identifier. Any underlying road is automatically closed by registration of the Order that creates the reservation.

Upon cancellation of the reservation the parcel identifier allocated to the reservation area will cancel and the road that existed prior to the reservation becomes dedicated as if the reservation had never existed.

Where Mall Reserves are to be created over an existing dedicated road a compiled Crown Plan may need to be drawn (e.g. where more than one Plan creates that road). Each particular case is to be treated on its merits.

13.9 Public Access Routes

Section 64 of the *Land Administration Act 1997* (LAA) allows for the Minister to provide the public with access through Crown land to an area of recreational or tourist interest.

For all intentional purposes a Public Access Route (PAR) is to be treated as an easement granted by the Minister under section 144 of the LAA in favour of members of the public generally.

These ‘interests’ over land are usually for access for tourist sites and will be treated as de facto easements. They will be depicted on a Crown Plan with a purpose of ‘Easement’.

13.10 Protected Roads

Protected Roads which were created under the *Road Districts Act* prior to 1960, and shown on any Landgate plan, are deemed to be Public.

For research purposes the likely date of creation of pre-1960 protected roads may be ascertained from the superseded/cancelled Public Plans held in secondary storage by Landgate.

Protected Roads created since 1960 are shown through reserves and UCL only as an indication there is a constructed road in that approximate position. Its purpose is to assist future subdivision over the area and to indicate the presence of a road in the event of an enquiry over the land. The road is not deemed to be Public unless dedicated or surveyed on a certified/approved Landgate Plan.

Protected Roads through State Forest are not recognised. A road through State Forest is either a part of the State Forest under the control of the Department of Environment and Conservation or a dedicated public road excluded from the State Forest.

13.11 Partial Taking in Strata Scheme

The survey of a ‘taking’, for road purposes, action involving a Strata Scheme requires the lodgement of a new Strata Plan defining the balance land in addition to the Deposited Plan depicting the taking. This lodgement is on behalf of the relevant authority as set out under section 29B of the *Strata Titles Act 1985* (STA).

The new Plan sheets are to include a floor plan and a location plan to reflect the parcel and lot boundaries after taking. A variation to a Survey-Strata Scheme caused by a taking order requires an order by the District Court – see section 29 of the STA.
13.12 Road Dedication Stamps on Deposited Plans

As from April 2002 the practice of stamping road dedications on Freehold Deposited Plans was discontinued. This resulted in standard practices for both Freehold and Crown Deposited Plans.

As roads, road extensions and road widenings dedicate on the date that a Plan is approved it was believed unnecessary for the Plans to be stamped. The status of a Plan dictates the status of any roads depicted within the subject of the Plan. The date of approval of a Plan usually coincides with the date of any dealing on the Plan.

In most cases it is safe to assume that any roads depicted on approved Deposited Plans have been dedicated. This may not be the case with multi-parcel resumption/taking/acquisition Plans approved under the former regulation 44 of the Licensed Surveyors (Transfer of Land Act 1893) Regulations 1961. Care should also be taken with Freehold Plans approved prior to 1960 as depicted roads may not have been dedicated. In these cases it is necessary to refer to the dedication stamps placed on the Plans.

13.13 Road Widths (see chapter 9.23 also)

With the repeal the automatic dedication provisions of section 295 of the Local Government (Miscellaneous Provisions) Act 1960 and the introduction of section 168 of the Planning and Development Act 2005 the requirement for newly created Roads to be greater than 6 Metres wide has now been removed. Now the W.A.P.C. is responsible for approval of all roads widths.

13.14 Crown Grant Roads

It was once the practice when alienating large blocks to reserve as roads any lines of communication which might be required in the future. These roads were not surveyed, but were shown on and excluded from the area in the Crown Grant. They are known as Crown Grant roads and are actually public roads although their position (being unsurveyed) is doubtful.

In some cases, especially in areas to the north and east of Midland, Crown Grant roads have been described on old Plans as ‘Government Road’ to distinguish them from unsurveyed private roads.

Refer plan example 30 where an original Crown Grant road is depicted.
Easements, Covenants, Notifications and Other Interests

Please refer to policy and procedure guide SPP-14 Easements, Covenants, Notifications and other Interests for

14.1 Schedule of Interests and Notifications
14.2 Terminology for Amending Easements
14.3 Content and Structure of the Interests and Notifications Schedule
   14.3.1 Existing Interests Being Brought Forward– shown above ‘the line’.
   14.3.2 New Interests and Notifications being depicted- shown below ‘the line’
14.4 Un-dimensioned Memorials and Notifications
14.5 Multiple Section 167 Easements
14.6 Private Rights of Way and Implied Rights
14.7 Bringing Forward Unregistered Easements
14.8 Transmission Line Easements
14.9 General
14.10 Interests Brought Forward on Plans
14.11 Bringing Forward Anomalous Interests on Plans
   14.11.1 Surveyor’s process
   14.11.2 Guideline 1: Used for Type A anomalies
   14.11.3 Guideline 2: Used for Type A anomalies
   14.11.4 Guideline 3: Used for Type E & F anomalies
   14.11.5 Guideline 4: Used for Type E & F anomalies
   14.11.6 Landgate processes
   14.11.7 Notation/s
   14.11.8 Field Records
   14.11.9 Contacts
14.12 Bringing Forward Section 27A of the TP & D Act Easements and Section 12A of the TP & D Act Notifications
Please refer to policy and procedure guide SPP-14 Easements, Covenants, Notifications and other Interests for

14.13 Bringing Forward Encumbrances- Interests (Burdens & Benefits)- on Crown Land Amalgamation Plans
14.14 Easements and Covenants Created on Plans
14.15 Easements in Gross
14.16 Easements in Favour of the Public (see SPP-14 section 16)
14.17 Crown Easements
14.18 Implied Easements
14.19 Graphical Presentation of Easements
14.20 Labelling of Interests
14.21 Interest Only Plans
   14.21.1 Requirements for Deposited Plans
   14.21.2 Requirements for CSD files
   14.21.3 General Matters Concerning Interest Only Plans
14.22 Lodgement of Instruments
14.23 Easements and Notifications Over Vesting Land
14.24 Subsisting Crown Easements
   14.25.1 Taxes and Charges (Land Subdivision) Legislation Amendment Act 1996 (Deferral of Charges and Headworks Contributions)
   14.25.2 Memorials
14.26 Notifications of Factors Affecting Use and Enjoyment of Land
   14.26.1 Planning and Development Act 2005
   14.26.2 Transfer of Land Act 1893
14.27 The Use of Restrictive Covenants/ Covenants to Control Access to Roads
14.28 Carbon Rights, Carbon Covenants and Tree Plantations
   14.28.1 Carbon Rights Act 2003
   14.28.2 Tree Plantation Agreements Act 2003
Please refer to policy and procedure guide SPP-14 Easements, Covenants, Notifications and other Interests for
15. Possessory Applications and Bringing Land under the TLA

Introduction

Chapter 15 covers the Survey and Plan requirements for Adverse Possession Claims for bringing land under that Transfer of Land Act (1893).

15.1 Adverse Possession

15.1.1 General Requirements

An application for a Title based on adverse possession must be supported by a survey carried out by a licensed surveyor to clearly establish the relative positions of improvements and the boundaries of the land claimed. A sketch drawn by a person who is not a licensed surveyor will not be accepted.

Where the application is for a whole parcel of land or the remaining balance of the land in a Certificate of Title, a re-establishment survey of the boundaries must be effected, field notes lodged and a sketch of the survey presented with the application.

The sketch to be presented with the application for whole or part parcels must show the true legal land description of the land claimed, the boundary dimensions, area, and positions of improvements and fencing (including an estimation of their age and comment about their condition). In the case of boundaries there should be a clear statement as to whether there is or is not a fence on that boundary. It is preferable that the sketch be on A4 size paper. See plan example 40.

The sketch must also show the Certificate of Title number for each of the parcels of land abutting the land the subject of the application. If the abutting land is land registered under the Strata Titles Act, only the Strata Plan number needs to be shown on the sketch.

If abutting land is land registered under the Registration of Deeds Act 1856, Surveyors should indicate on the sketch the latest memorial relating to the current proprietor.

Where the subject land is bounded by a road or reserve a reference to the road or reserve needs to be shown on the sketch.

The surveyor is to sign a certification on the sketch certifying that all the information contained in the sketch is accurate.

When doing a feature survey for development purposes, if there is any indication that encroachments exist (or that the land occupied may differ from the true boundaries), it is important that any encroaching improvements be tied to some permanent marks. It is quite likely that those improvements will have been destroyed by the time a survey is carried out for an adverse possession claim.

If the claim is proven, a Deposited Plan of redefinition survey will need to be lodged amalgamating the claimed portion with the adjoining land of the applicant, together with any resultant balance lots and interests in accordance with the requirements described in chapter 14.1. See plan example 41. If a Survey Strata is affected then a new sheet 1 is required showing the diminished Strata Lots and the new parent parcel as the ‘Plan of’ heading. A new Form 3 and Valuers Certificate may also be required in some cases.
15.1.2 Possessory Applications Claiming Part of a Multiple Lot Title

Where a possessory application is lodged claiming part of the land contained in a multiple lot Title, the resultant Deposited Plan must show the residue of any affected lots as new lots. Lots not affected by the claim should not be depicted on the Deposited Plan.

The former tenure table on the Deposited Plan must clearly show that only a ‘part’ of the multi-lot Title is included in the Plan. Landgate will register a sundry document following registration of the possessory application to include the unaffected lots and the new balance lots from the old multi-lot Title in a new multi-lot Title.

In some situations Landgate may maintain (i.e. partially cancel) the paper Title and the relevant graphic.

15.2 TLA Applications

Where an application is made to bring part of a lot under the provision of the TLA, a survey carried out by an eligible licensed surveyor to clearly establish the relative positions of improvements and the boundaries of the land claimed is required. A sketch drawn by a person who is not an eligible licensed surveyor will not be accepted.

Where the application is for the whole of a lot already found on a survey, a new survey will only be required at the request of the Commissioner of Titles.

The sketch to be presented with the application for part of a lot must show the true legal land description, the boundary dimensions and positions of improvements and fencing (including an estimation of their age and comment about their condition). In the case of boundaries there should be a clear statement as to whether there is or is not a fence on that boundary. It is preferable that the sketch be on A4 size paper.

The sketch must also show the Certificate of Title number for each of the parcels of land abutting the land the subject of the application. If the abutting land is land registered under the Strata Titles Act 1985 (STA), only the Strata Plan number needs to be shown on the sketch.

If abutting land is land registered under the Registration of Deeds Act 1856, Surveyors should indicate on the sketch the latest memorial relating to the current proprietor.

Where the land, the subject of the application is bounded by a road or reserve a reference to the road or reserve needs to be shown on the sketch.

The surveyor is to sign a certification on the sketch certifying that all the information contained in the sketch is accurate.

If the application is successful and a survey was necessary then a deposited plan will need to be lodged by the surveyor.
# 16. Digital Data Requirements

Please refer to policy and procedure guide [SPP-16 Digital Data Requirements](#) for:

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## 17. Lodgement Procedures

Please refer to policy and procedure guide [SPP-17 Lodgement Procedures](#) for:

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18. Expediting Plans and Documents

Introduction

Chapter 18 presents information on the new policy “Requests to Expedite the Processing of Plans and Documents”.

18.1 Request to Expedite the Processing of Plans and Documents

Landgate has had a longstanding policy where customers or their representatives could request that a plan and/or document (outside of Landgate’s existing Fast Track process) be expedited provided the request was supported by evidence of:

- a pending settlement (e.g.: a signed offer and acceptance); or
- a written submission clearly identifying the circumstances for the request (e.g.: financial hardship).

A review of the existing policy was undertaken to clarify the circumstances in which consideration will be given to the expedition of the processing of documents and plans as well as the supporting evidence required. The outcome of this review is the “Requests to Expedite the Processing of Plans and Documents Policy”.

This new policy replaces all existing policies and is designed to provide fairness and equity to all parties while enabling decisions relating to the expedition of plans and documents to be made in an accountable and transparent manner. It is also important that all associated decisions are properly documented and regularly examined.

‘Requests to expedite’ must be sent to Landgate by email to planreg@landgate.wa.gov.au and must be accompanied with the relevant evidence for requests to be considered and approved.

18.2 What the new policy specifies

The new Request to Expedite the Processing of Plans and Documents Policy specifies the following:

1. All requests for priority must be made in writing (including fax and email) addressed to the Registrar of Titles.

2. Priority for the processing of documents or plans may be approved by the Registrar or a delegated officer of the Registrar in circumstances where:
   (i) the written consent of all parties that have a direct interest in the dealing is obtained, and
   (ii) it is demonstrated that:
      (a) a party to the dealing will experience financial hardship if the documents or plans are dealt with in Landgate’s standard turnaround times; or
3. The evidence provided for expediting a plan will also be sufficient evidence to give priority to the issue of new titles.

4. For all requests to expedite documents or plans the following evidence requirements apply:

(i) a detailed written explanation as to the circumstances of the matter; and
(ii) a signed letter of consent from each party that has a direct interest in the dealing.

The following additional evidence is also required dependent upon the basis for the request:

(i) Financial Hardship:
- any evidence that may substantiate a claim of financial hardship including such items as
- copies of correspondence from financial institutions (which may take the form of an original, photo or faxed copy of a letter on the financial institutions letter head); and / or
- an original statutory declaration from the person making the request (a photo or faxed copy of a statutory declaration will be accepted with the request to expedite the processing of plans and documents but the original signed declaration must be forwarded to Landgate within 2 working days). Any statutory declaration made must clearly set out the reasons for and the details of the financial hardship.

(ii) Definitive Settlement Date:
A certified copy of the “offer and acceptance” clearly showing the definitive settlement date, this can include a copy of the signed application for the issue of new titles in relation to a plan (the offer and acceptance can be certified by a person eligible to witness a statutory declaration in Western Australia).

18.3 Standard Examination Procedure for Plans

Following plan lodgement, Deposited Plans and Strata/Survey - Strata Plans are examined in the following order:

1. Where Department of Planning requires, the certified correct plan will be forwarded to the WAPC prior to the expiry date of the preliminary planning approval.

2. Plans lodged with release letters (including Lot Sync process – see Notice to Surveyors T2/2010), dealt with in lodgement date order.

3. “Lot Sync process” plans with lodged applications for new titles, dealt with in plan lodgement date order.

4. All other plans dealt with in lodgement date order.

The “Requests to Expedite the Processing of Plans and Documents Policy” will be applied for any request to expedite the examining of Deposited Plans and Strata/Survey-Strata Plans.

All queries in relation to the new “Requests To Expedite the Processing of Plans And Documents Policy” should be directed to Landgate’s Advice Line on +61 (0)8 9273 7044.

18.4 WAPC Expiry

Surveyors are reminded that the Department of Planning, Lands and Heritage requires the examined plan be forwarded to WAPC prior to the expiry date of the preliminary planning approval. Surveyors can inform Landgate by email planreg@landgate.wa.gov.au of the imminent expiry date of the WAPC approval by sending a detailed letter of explanation as to the circumstances together with a copy of the preliminary planning approval.
showing the date of expiry. Landgate will consider the explanation, and may assist so the plan is examined within the required timeframe. Currently, release consents for all plans submitted via NLR are given by ticking the release consent box, either at lodgement or subsequently by using the NLR ‘Additionals’ function. Surveyors should understand ticking that box means that they have already lodged the clearances with WAPC.
19. Validation and Examination Practices

Introduction

Chapter 19 presents validation and examination practices and includes checklists for the submission of Survey Plans

19.1 Requisitions

The requisition procedure is used in cases of unacceptable mistakes and omissions concerning survey Plans and surveys.

Plans are stopped when significant survey problems occur or when surveys fail to comply with regulations or when Plan amendments are required. A requisition is raised informing the surveyor of the problems, the options for resolution and the associated fee. No further action on the Plan will be taken until the problems are resolved and the fee paid.

Surveyors are to arrange with the requisition examiner the most appropriate methods for effecting amendments to the plan.

Since September 1995 all requisitions have been graded as to severity and are recorded (indexed by surveyor) in a requisition database. While level 1 and 2 requisitions (i.e. those without a fee) pose negligible threat to a surveyor’s ‘Eligibility to Lodge’ status, a number of level 3 requisitions (with a fee charged) in a short period could accumulate to threaten that status. Two level 4 requisitions would be an immediate threat.

A history of continual level 3 requisitions will be taken into consideration in deciding the form of more severe disciplinary action in the event of a later severe breach by a surveyor.

The Land Surveyors’ Licensing Board website contains detailed information on breaches and their related severity. The information can be found at http://www.lslb.wa.gov.au/for-licensed-surveyors/requisition-severity-levels. The tabs along the bottom of the excel spreadsheet allow access to the various worksheets in the file.

Plan examination is to proceed in accordance with Landgate’s standard checklist.

Breaches will accumulate as assessed from Standardised requisition criteria at http://www.lslb.wa.gov.au/for-licensed-surveyors/requisition-severity-levels. Accumulation to level 3 severity or above will incur a requisition fee. Accumulation to level 2 severity or below will not incur a requisition fee.

All required amendments to the plan due to breaches are to be carried out by the surveyor and the amended plan (with a version increment) to be submitted via NLR using the “Amend plan” function.

The statement “Plan examination requirements” is to be inserted into the amendments table.

Amended plans do not incur a fee.

The processing of survey sheets by the Spatial Data team is considered a plan examination task, and the requisition procedures stated above apply.

The following procedure applies upon the request from a surveyor to replace a CAD Plan (PDF) that was lodged that day or the previous day:
Plan PDF not signed – if this is the only thing missing from the plan, the surveyor can re-submit the plan as an Amended plan (with a version increment). This does not incur a replacement plan fee. Please contact Landgate at planreg@landgate.wa.gov.au before submitting the amended plan.

Material changes to the subject of the plan (e.g. changes to dimensions) - must be lodged as a Replacement plan (with a version increment), using the “Replace plan” function in NLR. A replacement plan fee applies.

For any other surveyor-initiated changes to the plan which could be argued as not being material, the surveyor has a choice: (a) Treat as a Replacement plan and incur a replacement plan fee, or (b) Wait for manual examination of the plan; in which case the standard examination procedure will apply.

Note that the above procedure only applies when a surveyor requests to amend or replace a plan before it reaches a plan examiner. Standard examination procedures, fees and charges are to apply after the examination process has started.

19.2 Drafting Checklist

Title Block

- Plan Type shown
- Plan Purpose shown
- Heading
- SSA Y/N
- Land District shown
- Townsite shown (where applicable)
- File Number # (where applicable)
- Local Government shown
- Locality shown
- Former tenure/ CT correct
- Former Tenure Table required (and correct)
- Survey Index Plan correct
- FB number correct
- Scale/scale bar
- Surveyor’s Certificate correct and signed/countersigned
- Survey Firm detail shown
- WAPC Number shown
Drafting Area

- Orientation shown
- Compiled from notation
- Plan notations (e.g. Reg 26A surveys)
- Lot numbers shown
- No Duplication of lot numbers
- Roads require lot numbers
- Vinculums joining like tenures required
- Abutting Reserve Numbers Shown
- Vesting order correct
- Depth Limit
- Original Crown allotment boundaries shown (where applicable)
- Crown allotment numbers shown (where applicable)
- Lot areas shown and correct
- Abuttals correct and up to date
- Administrative boundaries
- Road names approved and show extent of roads
- Road secants shown
- Area Road ex UCL
- Old marks labelled
- New marks identified
- Non Standard Marking Identified
- Line styles
- Amendments schedule included
Dimensions

- Plan measurements same as FB measurements
- Surround Dimensions and Areas checked
- Lot total distances
- Subject land total distances
- Bearings and source shown where necessary
- Latest original values used
- Double check dimensions on enlargements
- CSD files agree with plan dimensions and area
- Closes are within the limits

Interests Shown on Plan

- Schedule of Interests & Notifications shown and correct
- Existing Interests shown and can be defined from Plan
- New Interests shown and can be defined from Plan
- Existing Covenants can be defined from Plan
- New Covenants can be defined from Plan
- Mineral Reservations shown
- Notifications shown
- New Easements and Covenants consistent with documents
- Noted on ‘Surveyors Report’ interests not brought forward
Survey Sheets for Special Survey Areas

(See plan examples 26, 27 & 50)

- Deposited Plan number
- Sheet numbers shown
- All PSM and PCM numbered correctly (using FB or eFB numbers)
- Connections to cadastral alignments shown for each PSM and PCM
- Sheet headings shown
- Dimensions complete and correct
- Non-standard marks shown
- WAPC Approval box struck-out
- All sheets signed by surveyor
- Digital data for final control network – email

Other Matters

- Green borders consistent with each other (Plan series issue)
- Abuttals match approval sequence (Plan series issue)
- Road access match approval sequence (Plan series issue)
- ‘Surveyors Report’ to amendments to Strata/Survey-Strata Scheme
19.3 Inspections

The survey examination function of the Inspecting Surveyors includes:

- checking the field records lodged by surveyors.
- examining the definition and marking of the boundaries on a sample of surveys.
- assisting surveyors to maintain and improve the standard of cadastral surveys.

19.3.1 Office Inspections

Most field books lodged at Landgate are visually inspected as to the following items:

Surveyor’s Certificate

Check that it is signed and dated, that any deletions are correct and the date of survey, in case a 2 year certificate is required.

Index page

Check that adequate information is provided (especially for SSA subdivisions) and that there is only one index page which includes all the surveys in the book.

Legibility

Check that all information is legible and suitable for reproduction.

Re-establishment

Check that sufficient marks have been found and that the correct method has been used (sparse pickup and/or poor method are common triggers for field inspection).

Presentation

Check the recording of measurements, reductions to true line, comparisons with original, descriptions of marks found and other general matters. Check SSA requirements including connections from control to new boundaries. Check method and presentation of surveys by GPS. Doubts caused by omissions or anomalies will usually trigger a field inspection.

Referencing

Check that quantity and type is in accordance with the regulations and guidelines. Check that the pickup is adequately protected.

Geodetics Connections

Check that connections have been carried out in accordance with the guidelines under General Regulation 22A or guidelines for Special Survey Areas.
19.3.2 Field Inspections

Field inspections enable the field record to be compared with the actual field environment.

Inspection of the marking determines:

1. Whether the regulations and guidelines have been adhered to;
2. Whether all exceptions to the regulations have been recorded in the field notes, and
3. The overall standard of the marking for the public including clarity of lot numbering on pegs/posts and witnessing of the marks.

Field measurements enable two standards of accuracy to be determined:

1. Accuracy of re-establishment, or how well the survey fits in to the existing cadastre, and
2. Plan accuracy, or how well the marks fit with the dimensions on the Plan of survey.

Both of these measures include a component of comparison between the measuring devices of the surveyor and of the inspector. Subdivisions within Special Survey Areas are a special case where the accuracy of the survey is compared with the accuracy specifications in the guidelines by means of a coordinate check.

Standards of quality are expressed as:

- HIGH (or ACCURATE)
- REASONABLE
- SATISFACTORY
- ACCEPTABLE
- UNACCEPTABLE (or POOR)
19.3.3 Survey Examinations

Inspecting Surveyors are frequently required to carry out an office examination (either full or partial) of a survey. This involves determining whether the surveyor has achieved a correct definition of the boundaries of the land the subject of the plan of survey.

Field book Checklist

- Sign and date Surveyor's Certificate
- Subdivision or survey heading
- Parent Plan
- Subject Plan
- Index Plan
- Certificate of Title
- WAPC reference number
- Other field books for Plan
- Field books used
- Special conditions/guidelines
- Measuring equipment and calibration
- Condition of old marks
- Depths of reference marks
- Trenches
- Topographic notes
- Pages with field notes initialled and dated (date of survey)
- Sufficient proof of old alignments
- Old surveys renovated
- Additional reference marks where necessary
- Geodetic connections shown. If no, reason for no connection provided
- Offsets/traverses reduced to true lines
- Comparisons with original distances
- Comparisons with original angles
Misclosures
- Areas
- Lot numbers
- Non-standard corner marks described
- Alternative reference marks described
- Intermediates put in where necessary
- Alternative intermediates described
- Boundaries cleared or exceptions noted
- Improvements/encroachments

**Special Survey Areas – Initial Control Field books**
- WAPC reference number
- Re-establishment survey including adopted surround
- Geodetic connections shown
- Graphic summary of control network, including observations and adjusted/adopted values
- Connections between control network and re-establishment survey (adopted positions)
- Digital data for control network – CD-ROM or email

**Special Survey Areas – Final Control eField book (eFB)**
- Field book number pre-allocated by Landgate
- PSMs and PCMs on Survey Sheets numbered using eFB number
- eFB (CSD) file created and correctly named
- eFB file attached to email and sent to Landgate
20. Plan Approval Requirements

Introduction

Chapter 20 covers Plan approval requirements and samples of correspondence in the process.

20.1 Special Survey Areas (see also chapter 20.2)

Section 20(2) of the Town Planning and Development Act 1928 was amended in 1986 to allow Plans to be lodged with Landgate prior to receiving final Western Australian Planning Commission (WAPC) approval. This allowed the introduction of the ‘Early Issue of Titles’ land development process. This process is now encompassed within the processes developed for Special Survey Areas (guidelines for Special Survey Area subdivisions are available from the Land Surveyors Licensing Board website http://www.lslb.wa.gov.au).

Subdivisions within Special Survey Areas are verified both mathematically and legally whilst the developers organise construction, services, final marking of lots and collection of clearances.

Once the subdivision is cleared by the relevant authorities, the clearances are lodged with WAPC and a request made to Landgate to release the Plans to WAPC.

Landgate will forward Plans to WAPC on receipt of a release letter from the surveyor.

Providing all clearances are held by WAPC on receipt of the Plans from Landgate, WAPC will check the conditions of subdivision have been met then stamp and sign the original as ‘Approved by WAPC’. This procedure currently takes three to five days.

On return to Landgate the Survey Sheets will be added to the Plan (except where the ‘Deferred Final Marking’ option is used – see below) and if the FSC and eFB have been received the Plan will be placed ‘In Order for Dealings’ and computer records updated within 24 hours.

The FSC, eFB and survey sheets are required before the Plans can be made in order for dealings, unless the subdivision has been fully marked before the plan is lodged, and for which a survey sheet or, in the case of a Survey Strata, a final control field book has been lodged.

The guidelines for Special Survey Areas provide for a Deferred Final Marking option, subject to the approval of the Inspector of Plans and Surveys and compliance with any conditions specified in that approval. This option is normally only available where the servicing of a development is fully bonded or where other exceptional circumstances exist.

Refer to the SSA Guidelines published by LSLB.

20.2 Normal Process

The Normal process requires surveys to be fully marked at time of lodgement of Plans at Landgate however final Western Australian Planning Commission (WAPC) approval is not given until after Landgate has completed quality assurance processing and legal validation of the plan.

During validation the Plan clearances can be organised from the relevant authorities and subsequently lodged at WAPC.

A release letter (see chapter 20.3 below) must be lodged with Landgate before the Plan will be released to WAPC. Landgate will deliver the Plan to WAPC on behalf of the surveyor.
Surveyors are requested not to forward Release Letters to Landgate until the Deposited Plan has been lodged at the “planreg” email address.

Surveys that have no conditions imposed upon them can be lodged with a release letter attached stating that no clearances are required and on completion of the examination the Plan is to be sent to WAPC.

20.3 Example of the Release Letter

Inspector of Plans and Surveys
Landgate
PO Box 2222
MIDLAND WA 6936

Dear Sir

RE:
Deposited Plans: 19099, 19100, 19101, 19102 & 19103
WAPC REFERENCE: 87381

Please arrange to have the above plans delivered to WAPC for final endorsement.
The clearance documents have now been lodged with WAPC.

Yours faithfully,

________________________________
LICENSED SURVEYOR
20.4 Example of the Final Survey Certificate (FSC)

Inspector of Plans and Surveys
Landgate
PO Box 2222
MIDLAND WA 6936

FINAL SURVEY CERTIFICATE

I ________________________________ of__________________________________________

hereby certify that:
• the survey shown on *Deposited / *Survey Strata Plan _______________ has been
  surveyed *by me personally / *under my own personal supervision, inspection and field
  check,
• the *Deposited / * Survey Strata Plan is an accurate representation of the results,
  observations, measurements, calculations and adopted values which have been validated
  and found to be accurate and in strict accordance with the Licensed Surveyors (Guidance of
  Surveyors) Regulations 1961,
• the *Deposited / * Survey Strata Plan conforms with the relevant law in relation to which it is
  lodged,
• the marks shown on the *Deposited / *Survey Strata Plan were in place on
  ____________________.
• Ø *the marks in the final control field book _______________.were in place
  on________________, and
• the survey has been carried out in accordance with the Guidelines for Special Survey Areas
  under regulation 26A (5) of the Licensed Surveyors (Guidance of Surveyors) Regulations
  1961.

______________________________          __________________
LICENSSED SURVEYOR                DATE

* delete or strike out if inapplicable
Ø * is normally only applicable to Survey Strata plans.
20.5 Plan Status

20.5.1 Certified Correct

A plan is ‘CERTIFIED CORRECT’ when a legal or full examination is complete and the Plan is legally and mathematically correct. At this stage the Plan is ready to be sent (if necessary) to Western Australian Planning Commission (WAPC).

20.5.2 In Order for Dealings

Most Plans are endorsed ‘In Order for Dealings’ subject to particular legal constraints. In effect the notation indicates what restrictions apply to dealings on the subject land (e.g. pends approval of another document, ownership in multiple owners, etc.).

It is essential for surveyors to check for legal constraints that are likely to affect a Plan as there may be circumstances (e.g. road closures and inclusions) which may prevent the registration of dealings. Substantial delays can be avoided if early attention of these constraints is undertaken.

Section 146 of the Planning and Development Act 2005 places time limits on the Registrar of Titles for the Issue of new certificates of title, following approval of a Deposited Plan by the Western Australian Planning Commission (WAPC). (Refer Notice to Surveyors T2 on 2008)

Owners of land the subject of plans that were endorsed with the approval of WAPC before the commencement day (9 April 2006) will have 5 years after that day in which to lodge an application for new titles. Owners of land the subject of plans that are endorsed with the approval of WAPC on or after 9 April 2006 will have 2 years from the endorsed date in which to lodge an application for new titles.

Landgate’s SmartPlan System Status Change

For deposited plans that have been endorsed by the WAPC (i.e. status of WAPC Approved) that have not been dealt on within the required time frames as stated above, SmartPlan will automatically update their status to “EXPIRED”.

Status of Expired Deposited Plan (DP)

If a plan has the “expired” status and the registered proprietor still wishes to proceed with the subdivision, then the owner will seek a new subdivisional approval from WAPC.

For Surveys Endorsed Before 9 April 2008

The owner has until 8 April 2011 to apply for new titles. After that date the survey’s status will be “expired” and if the owner wishes to proceed with the subdivision, a new application approval must be sought from WAPC. The normal subdivisional process will apply and the previously approved survey will be Cancelled.

Enquires

Contact Landgate’s Survey and Plan Consultant on +61 (0)8 9273 7317, or 1300 556 224 for regional Australia.

20.5.3 Approvals

The Transfer of Land (Surveys) Regulations 1995 require all necessary instruments, applications or dealings transferring or disposing of the land to be lodged for registration before a Plan can be ‘Approved’. Approval of Plans occurs on registration of the first dealing and that dealing must clear any constraints for titles to issue.
At the moment of registration of new certificates of title for land the subject of a subdivisional Plan, all automatic easements under section 167 of the *Planning and Development Act 2005* (P & D Act) come into existence and nominated lots (including PAW's and ROW's) vest under section 152 of the P & D Act.

Roads dedicate either on Plan approval, under section 168 of the P & D Act or section 28 of the LAA.

Section 146 of the P & D Act states that:

No Certificate of Title under the *Transfer of Land Act 1893* will be issued for the land the subject of a subdivision unless a diagram or plan of survey of the subdivision of that land has been endorsed with the approval of the Western Australian Planning Commission (W.A.P.C.) and:

- in the case of a diagram or plan of survey endorsed with the approval of the W.A.P.C. prior to the operation of the P & D Act, the application for Titles was before or is lodged within 5 years of the coming into operation of the P & D Act.

- in the case of a diagram or plan of survey endorsed with the approval of the W.A.P.C. on or after the coming into operation of the P & D Act, application for Title must be made within 2 years of the approval of the W.A.P.C.
21. Subdivision and Project Management Issues

Introduction

Chapter 21 considers subdivision and project management issues in land development and areas with special conditions.
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