



Principles of Re-establishment Guidance Note 3

Aspects of Re-establishment

Introduction

A cadastral re-establishment is the process of deduction from a field survey whereby part or all of an original survey is, as nearly as possible, within practical limits, re-established in relation to artificial features, such as survey pegs and other survey marks, fences, building corners which may be extant or may be traced through a chain of more recent surveys.

In the 1960s, prior to the introduction of the electro-optical distance meter (EDM), the Surveyor-General at the time wrote the following on re-establishment. Much of it still holds true today.

'The absence of permanent marks or monuments in a properly controlled survey structure (cadastre) demand that the surveyor not only possess skill in measurement, but an analytical mind, capable of building up from the physical features, a relationship between the old and the new – the wall that may be accepted, the fence that is unreliable – and so on.

It is only by careful comparison of the features disclosed by surveys over the years that reliable re-establishment may be effected beyond the bounds of conjecture, and with a reasonable guarantee that the adopted boundaries may be accepted, having regard to the practical differences of interpretation (this separates the surveyor from the survey technician).

Titles are only as good as the information from which they are derived.

A fallacious impression or belief has grown and is now generally held that the measurements on a certificate of title are absolutely accurate and the connection to the street corner equally so.

These measurements should be considered as being reasonably accurate, having regard to the normal practical differences in survey. The connection is primarily a means of location and cannot be accepted as giving precise fixation without further checks.

Complete accuracy cannot be guaranteed because of the many varying physical factors – heat wind, instruments, topography etc. This is fully realised in the issue of Crown Grants which definitely state that the measurements shown on the map in the margin are approximate, and in both the Property Law Act and Transfer of Land Act where provision is made for a limit of error and an apportionment of excess in Crown dimensions.

It must be borne in mind that there are in existence many thousands of titles based merely on 'paper subdivision', and no survey has ever been made either of the street alignment or the land itself. This is particularly so in cases where the land has been subdivided under the General Law and subsequently brought under the operation of the TLA without the support of a survey plan.

When re-establishing these titles, the Surveyor is obliged for his own protection to make an extensive survey of perhaps a whole section picking up all existing occupation in order that a comprehensive picture may be obtained that will ensure that the various registered proprietors are fully protected. It is in these cases that a careful analysis must be made of all fences and other boundaries in an endeavour to fix an alignment that will as nearly as possible conform to a pattern whereby the titles can be placed in their original relationship. In the absence of permanent marks or other authentic basic information, the conclusion cannot be given with complete certainty.'

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Categories of Re-establishment

In his 1998 paper delivered to the Association of Consulting Surveyors Victoria (ACSV) seminar on 'The Principles of Re-establishment of Title', Michael Ramsdale LS suggested that there were broadly three categories of re-establishment.

Category 1 – parcels created by Crown survey

The following principles as directed by the *Property Law Act 1958* apply with respect to re-establishing Crown boundaries:

- s.268 Crown pegs must be accepted as defining the boundaries, regardless of dimensions shown on the Crown Grant or subsequent folio
- s.269 The land contained within such boundaries represents the land alienated by the Crown
- s.270 Where Crown marks are missing within a Crown section then such marks will be replaced on the basis of proportioning excess measurement on an area basis. This generally does not apply to modern Crown surveys due to improved level of accuracy.
- s.271 Where a fence has been in existence for 15 years, and the fence is deemed to have replaced the original Crown marks and/or the owners have accepted the fence as being in co-incidence with the Crown boundary, then it may be accepted by the Registrar of Titles or the Surveyor-General as the Crown boundary.

Surveying students in tertiary institutions have had these four sections of the *Property Law Act 1958* drummed into them as being the golden rules for re-establishment of Crown boundaries.

Category 2 – parcels with no survey origin

Parcels with no survey origin are parcels for which no original survey was performed or recorded – some of which show bearings, others do not.

Parcels in this category are usually found in the inner areas of Melbourne and rural cities and typically have been excised from a larger title years ago by simple sketch with transfer.

These original titles may be derived from deed-based Old Law Applications or survey-based Old Law Applications or may themselves have been excised by transfer and sketch. The survey to re-establish the parcel will need to be of sufficient extent to establish practical or approved alignments of the streets concerned and determine the relationship of the parcel with the older title.

Occupation surrounding the parcel would need to be sympathetic to the re-established position and adjoining parcel dimensions satisfied before marking the site with confidence.

Category 3 – parcels created by survey (Freehold)

This category includes parcels created by:

- Plans of Subdivision
- Application Surveys
- Letter Plans
- Plans of Consolidation (based on survey).

Basic Field Practices

At the office

There are a number of components of a cadastral survey, before and after going into the field, which include:

- obtaining all relevant survey information – including current title and the survey from which your title derived
- assessment of previous surveys and how they relate to the survey of your parcel
- finding a sound cadastral datum
- examining the effect of adjoining surveys
- examining all options when undertaking a complex re-establishment – and recording each for future reference
- preparing a detailed and thorough survey report.

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Assuming you have obtained all relevant survey information, before leaving the office you should ensure you have done the following:

- effect title closure and investigate any flaws in title dimensions
- determine if any Crown boundaries are involved
- determine if there are inherent survey problems in the area, such as excess or shortage, angular distortions, surveys in disagreement, overlaps and gaps etc
- identify survey marks placed in previous surveys that should be located
- see if adoptions in previous surveys appear reasonable relative to occupation.

Arriving at the job

After arriving at the site and making the necessary introductions to your client – as well as satisfying your Occupational Health & Safety Act requirements – take the time to walk around the site to get a feel for the survey. The next step is to identify any issues that are likely to arise, including:

- inaccessibility along boundaries due to vegetation or structures on line
- party walls that may require location by indirect means
- pedestrians, school children or animals who may disrupt tripods
- parked vehicles or trucks on line.

While identifying the issues above, make time to consider and/or identify the following:

- old marks
- existing occupation that is shown on previous surveys
- occupation that should be picked up.

This is also a good time to:

- plan the traversing, including the Map Grid Australia connection (are permanent marks safe to occupy?)
- put in a few instrument points at appropriate locations
- determine how extensive your survey is likely to be, depending on the availability of old marks and occupation.

Take a moment to think

After taking the time to assess the site, have morning tea and discuss the job with your assistant. Taking some time to think will allow your ideas sink in and you'll be better placed to start the survey with a clear plan of attack.

Plan the survey

Whether or not you can finalise your adoptions and mark the boundaries at the time of your survey, it is advantageous to have some idea of how the survey is progressing without having to undertake complex computations. This can be achieved by doing the following:

- traversing parallel to adopted boundaries or lines of occupation – it gives an immediate indication of a possible adopted alignment and those points which are doubtful
- traversing as near as possible to the adopted boundary in rural surveys – this gives you a better chance to find remains of old fencing, old survey marks along the boundary (trenches and blazes), which makes pegging easier and less prone to error.

There are few surveying experiences that match the joy (and often relief) of finding the 80-year-old remains of an old peg and trench, an ancient reference tree or an old post hole. These discoveries provide the confidence that your re-establishment is sound and indisputable. Finding these marks, however, requires patience and diligence...as well as a sharp flat bladed spade and a range pole, both of which should accompany you on every rural survey.

Equipment

Modern equipment is no excuse for poor field procedures – notwithstanding that measuring methods have changed with the advent of electronic field books and Global Navigation Satellite Systems (GNSS).

Don't risk your career (or your investment property) by wholly relying on the data collected in a total station.

Irrespective of what the instrument maker or salesman may claim, assume that the equipment can fail and erroneous readings can be generated.

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It is therefore advisable to always:

- read multiple faces of angles
- measure traverse distances from each end
- take offsets from a known traverse line to check radiations
- check chain between points located from a single IP (e.g. building corners)
- close traversing – including the grid connection
- use two base stations and independently re-observe all measurements with different satellite geometry if using GNSS.

Grid Connection (MGA94)

You should be aware prior to survey if there is a requirement to connect to grid.

If the survey is to support a plan to be lodged with Land Victoria (subdivision, application, Crown Grant/Lease, Crown Reserve) then grid connection is required if:

- suitable MGA94 co-ordinated marks are within 500m of the survey or
- no more than three additional set-ups are required to connect to each mark.

Refer to Reg.11(1)(a) Surveying Cadastral Surveys Regulations 2005 and Reg. 14(2) Survey Co-ordination Regulations 2004.

If grid connection is required and marks are available then make the grid connection first and undertake the survey on grid bearing datum. This is an individual preference and may not be applicable if recording electronically.

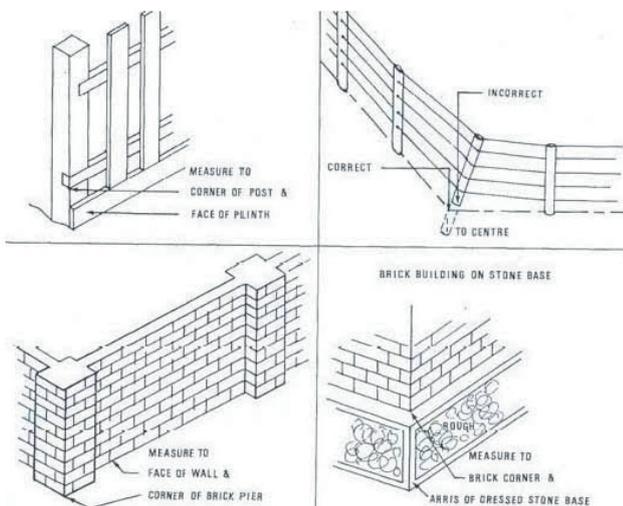
Manual recording of field information

Irrespective of whether an electronic recording system is used or not, it is essential that manual recording of field information is made on field cards or in a field book. Data collected in an electronic field recorder is usually restricted to field measurements (angles, distances and co-ordinates), point numbers, point codes and textual descriptions.

It is important that all occupation and significant features located in a cadastral survey be accurately drawn and described in the field book.

The following should also be considered:

- Be neat, clear and systematic. Use a sharp, soft pencil and a straight edge for line work. Space the work out so that it is easily read.
- Include in the field book (as well as field observations): an index, file/job reference, property details, field party members, commencing and completion dates, instruments used and serial numbers, page cross referencing (if multiple pages).
- Record all observations and independent check measurements – bearings, chainages, radiations, offsets, angles – and if recording electronically, show point numbers.
- Show road names and parcel identifiers. Where applicable these include lot and plan, Crown allotments, street numbers, property/building names.
- Take the time to draw occupation at a corner if it is complex. Include in detail and record exactly, without ambiguity, the points to which measurements are taken (see the following examples).



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- Include the type of fencing materials in fence descriptions; their condition and estimate of age, and relative height (high, low).
- Know the conventional symbols and line styles used for various types of occupation.
- Clearly record the type of material in corner posts – shape (section), size, age (which may differ from the age of the attached fence) and condition (especially if they're leaning).
- Take a digital camera to the field and take shots of fence corners, building corners, old posts, old survey marks, river banks and shorelines where they form a cadastral boundary. Photos can be referred to when you are computing adoptions and relevant photos can be included in your surveyor's report to provide an examiner (LR) with pictorial evidence of your re-establishment.
- Depict the relative relationships between traversing, radiations and occupation – although it may not be to scale, it is useful to. Too much distortion may be misleading when computing adoptions.
- North point on each page/sheet and bearing datum/orientation.

Monumentation

Marking of boundaries must be in accordance with the requirements of Regulation 9 Surveying (Cadastral Surveys) Regulations 2005.

Connection to permanent marks, primary cadastral marks and reference marks must be in accordance with the requirements of Regulation 11(3) Surveying (Cadastral Surveys) Regulations 2005.

Irrespective of the minimum requirements, always place lots of RMs and PCMs.

Clearly describe the type of mark placed, such as:

- galvanised iron pipe (0.02 diam)
- rod (0.015 diam)
- star picket 0.6m long
- alum rivet in concrete.

The priority for the placement of these should be their longevity, not whether they are in a location suitable for use as an instrument point. They are our 'little secrets' and the next surveyor needs to be able to find them – and the next surveyor may be you in 10 years time.

Conclusion – the cadastral surveyor's motto

Undertake every cadastral survey with the attitude that one day you may have to defend your adoptions in a court of law.