1. LAND INFORMATION NEW ZEALAND : CONTACT DETAILS

Phone: **0800 ONLINE**
0800 665 463

Email: info@linz.govt.nz

National Office

Surveyor-General
Registrar-General of Lands
General Manager Operations

Lambton House
Level 11
160 Lambton Quay
Private Box 5501
Wellington
Fax: 04-472 2244

Auckland Processing Centre

North Auckland Land District

Oracle Tower
56 Wakefield Street
Private Bag 92016
Auckland
DX CP22017
Fax: 09-358 5072

Hamilton Processing Centre

South Auckland Land District
Taranaki Land District

Cnr Victoria & Rostrevor Streets
820 Victoria Street
Private Bag 3028
Hamilton
DX GX10069
Fax: 07-834 6788

Wellington Processing Centre

Wellington Land District
Gisborne Land District
Hawke's Bay Land District

Mayfair House
44-52 The Terrace
PO Box 5014
Wellington
DX SP 23512
Fax: 04-496 9420

Christchurch Processing Centre

Canterbury Land District
Nelson Land District
Marlborough Land District
Westland Land District

Torrens House
195 Hereford Street
Private Bag 4721
DX WP20033
Fax: 03-366 6422

Dunedin Processing Centre

Otago Land District
Southland Land District

John Wickliffe House
Princes Street
Private Bag 1929
Dunedin
DX YP80001
Fax: 03-477 3547

2. LINZ PROCESSES

CONTENTS

2. LINZ PROCESSES

2.1 Pre-Allocation Of Survey Numbers

Survey numbers can be pre-allocated if required. The pre-allocation system allows for:

- individual cadastral survey datasets (CSD's)
- a series of cadastral survey datasets

It is not to be used for the issue of wholesale blocks of numbers.

For more information and the request form, refer to the LINZ web site (http://www.linz.govt.nz) and navigate to Information for Surveyors. Under the title "What can I get from LINZ?" click on "Request pre-allocated plan numbers".

New Certificates of Title numbers can also be allocated at this time if requested.

2.2 Dataset Lodgement Notice

2.2.1 Completing The Abstract

An abstract is to be used by both Survey and Title customers.

The boxes required to be completed for plan lodgements are summarised as follows:

1. For CSD lodgement ;
    - Survey Firm, Surveyor and Surveyor's reference
    - Internal Uplifting Box Number (if you have one and are lodging the dataset in the same office)
    - Firm Code (these are available from your LINZ office)
    - Document lodgement firm if you know the name of the firm or person lodging the documents for deposit
2. Number of plan sheets and other items lodged as part of the CSD.
3. Survey No. Allocated (if the survey number has been pre-allocated).
4. Certificate of Title Reference
5. Type of Instrument (LT(DP), SO, ML)
6. Name of Parties/Client
7. Fees Required

Fee code boxes (printed red) can be completed if desired especially in regard to print and certification costs and deposit fees.

The fees will either be charged to your account or checked when monies are received. If incorrect, either a refund will be arranged or you may be requisitioned to pay further fees.

2.2.2 Concurrent Datasets

CSD's in a concurrent series (eg a staged subdivision) can be lodged together and LINZ will complete the preliminary lodgement details in **Land*online***. However, **Land*online*** cannot accept a CSD until the old or adopted marks or any underlying parcels it depends on are in an approved dataset. Therefore, each stage must proceed to approval before the next stage can be submitted into **Land*online*** for processing.

The surveyor should ensure that the survey reports clearly identify the correct sequence for processing the CSD's. It is also important to ensure that each CSD in this sequence only depends on data from earlier CSD's and not data from a CSD that will be processed later in the sequence.

2.2.3 Simultaneous Lodgement

The simultaneous lodgement process previously available, is not available under **Land*online***. However, it is still acceptable to lodge both CSD and dealings together. It should be noted that dealings to enable deposit cannot be lodged before the CSD is lodged, and cannot be fully processed until the CSD is approved.

2.3 Dataset Action Notification

2.3.1 Lodgement

A lodgement notice will be sent to the Surveyor

The receipt copy of the abstract will be sent separately to the Surveyor.

2.3.2 Approval

An approval notice will be sent to the Surveyor

2.3.3 Deposit

A deposit notice will be sent to the:

- Lodging Firm (if completed)
- Territorial Local Authority

2.4 Requisitions (Rule 47)

A CSD which is returned to the Surveyor on requisition should be dealt with promptly. If for any reason the CSD cannot be resubmitted within the 3 month period set by the Cadastral Survey (Fees) Regulations 2002), the Processing Centre Manager must be notified in writing, with the reasons for the delay so that an extension of time can be considered.

When a CSD is returned from requisition, the surveyor is to supply a marked up print of the plans (reduced if necessary) which identifies by annotation, all the changes made while the CSD is on requisition. The requisition must be signed and the plan copy certified that all the changes made have been identified.

Any flats, units, lots, parcels, easements, or covenants added or altered and which are not part of the requisition, will incur extra fees.

2.5 Custody of CSDs (Rule 48)

When a CSD is lodged, it is expected to be in order for approval. There is no provision for the Chief Executive or Approving Surveyor to withhold approval on notification by the surveyor. Datasets will only leave LINZ's office when on requisition or when they are withdrawn by the surveyor. In the latter case, if re-lodgement is required at a later date, a new CSD is required to be lodged. This will require a new survey number to be allocated (and consequently new parcel appellations) and new fees to be paid.

2.5.1 Approved CSDs

Upon approval by the Approving Surveyor, the original plans are retained in the Crown's custody and cannot be uplifted. However, the supporting paperwork (such as survey reports and traverse sheets) are returned to the surveyor in due course.

In the case where the approved dataset cannot deposit because of an omission, error, or inadequate detail, then the following points are to be noted:

- In the general case a new CSD will be required.
- Amendments to the CSD will only be carried out in very exceptional circumstances and only with the written approval of the Processing Centre Manager and the Senior Advisor to the Surveyor General.
- An approved CSD will not be released, under any circumstances, for amendment.

3. SURVEY PROCEDURES

CONTENTS

3. SURVEY PROCEDURES

3.1 Interests of the Crown (Rule 5)

The Cadastral Survey Act 2002 and Surveyor-General's Rules identify and protect the Crown and public interests in the definition of land and property rights through the licensing of surveyors for cadastral surveys, the setting and monitoring of survey standards and the provision of a survey framework and information system.

The Act also aims to provide a high level of confidence and security in the cadastral system. Therefore a surveyor, when undertaking a survey for a client, must respect the cadastral system, of which the current survey will form part. The survey will be used in the future by other surveyors and relied on by other land owners.

3.2 Good Survey Practice (Rule 9)

In carrying out a survey there are many decisions to be made about matters (methods, checks, operations, etc) that are not specified in the Surveyor-General's Rules for Cadastral Survey 2002/2.

The surveyor is expected to provide the evidence as to how the survey has been carried out, and the reasons why it was carried out this way. However, the judgement as to whether or not that constitutes good survey practice will always rest with other surveyors.

As a general guide the following points are considered indicative of good survey practice.

1. Use proven and calibrated equipment.

2. Analyse acceptable error limits for each component of the survey:

    - Knowing likely error sources and what checks to apply, and when to ensure accuracy standards have been achieved.

    - Ensuring that the survey resolves existing errors as far as practicable and does not introduce new ones.

3. Connect to exiting monuments and conform with defendable marking, measuring, recording and processing methods:

    - Using appropriate methodology, equipment and design to control accumulation of errors (e.g. "Whole to Part").

    - Having regard for future surveyors and landowners in the replacement and referencing of ground marks.

    - Presenting survey data in a consistent and unambiguous format.

4. Confirm the origin of the survey.

5. Work from the Whole to the Part.

6. Provide proof of survey by redundant (independent) method.

7. Deal with conflicts with existing records in an appropriate manner.

The guiding principle is careful and objective collection, assessment and recording of evidence gathered, and documentation of analysis and results.

(Adapted from a paper by Peter Byrne entitled *"New technologies, Ageless Principles"* presented to the 39th Australian Surveyors Congress, Launceston, November 1998.)

3.3 Distances

3.3.1 Cadastral Survey Dataset Distances

The distances shown in cadastral survey datasets are to be ellipsoidal distances (Rule 22). In a CSD, this distance (also known as the spheroidal distance) can be approximated by the horizontal distance at mean sea level. These distances therefore reflect the actual ground distance after any sea level correction has been applied, are not projection distances, and therefore do not include the projection scale factor correction used to derive coordinates. Conversely, where a calculated distance is derived from projection coordinates and included in a CSD, the projection scale factor must be applied to correct the projection distance to an ellipsoidal or sea level distance.

Scaled distances on a hardcopy plan should be depicted in a manner that reflects their accuracy (i.e. not more than one decimal place of a metre.)

3.3.2 Sea Level Correction

The formula for Sea Level correction is:

$$\textit{Sea level correction} = 15.69\ h\ D \times 10^{-8}$$

Where: h is the mean height in metres above sea level
D is the distance in metres

The correction is always negative when surveying above mean sea level.

3.4 Bearings

1. Bearings will be in terms of the Meridional Circuit projection associated with the bearing datum. Where practicable, the bearing datum will be the official datum (NZGD2000) and the projection will therefore be the appropriate Meridional Circuit 2000 Transverse Mercator projection (see Sections 3.5 and 3.7.2).

2. Bearings must be of sufficient accuracy to ensure that the relative positional requirements of Rule 26 are met.

3. Bearings may be rounded to reflect the capability of the instrument, the length of line measured, and the method of survey.

4. The requirements of Rule 26 often necessitate a greater precision for bearings of longer lines in order for the vector to be within the specified accuracy tolerances.

5. The application of any bearing correction applied to adopted work should take into account:

   - The observation and instrumental errors inherent in angular measurement and adjustment.

   - Computational differences that may not reflect the situation on the ground.

   - Application of an orientation or bearing correction only when justified (see section 3.4.1 below) and ignoring minor orientation differences where they are within normal error tolerances.

3.4.1 Bearing Adjustments to Adopted Work

1. Before adopting bearings from existing surveys, investigation is required to verify that these bearings are in terms of the bearing origin of the new survey. All comparisons made in establishing whether a bearing correction is required or not, must be described in the survey report and may be shown in a calculation sheet.

2. A constant adjustment to bearings should not be applied to adopted work unless there is adequate evidence that a constant difference exists in the prior survey. Proof of this will generally require either:

   - a direct comparison of initial or control bearings; or

   - re-observation of several traverse lines from the previous survey; or

   - a “ray trace” analysis of marks from the underlying survey/s.

3. Where comparisons with underlying work reveal variations depending on which lines or survey datasets are used for the comparison, an average value for the correction should be applied in that particular locality unless there is sufficient evidence to support the use of more than one value. See section 6.2.18 for the correct procedure where there is conclusive evidence that a single bearing correction is not appropriate for all adopted lines from a survey. An analysis of the origins of bearings of parent surveys should always be made.

4. Where a bearing correction has been applied to adopted work, a note similar to that following is to be added to the survey sheet

   *Bearings adopted from **DP 45678** have been adjusted by **03'00"** to be in terms of NZGD2000 **or** to be in terms of **DP 98765***

   If the value of the correction is adopted from a previous survey, the source and value of the adoption of the previously determined bearing correction should be shown. [Refer also section 6.2.18]

5. Consideration should be given to rounding the bearing corrections applied, taking into account the age and accuracy of the adopted survey, the accuracy to which the adopted lines were shown on the parent plan and the length of the adopted lines. Care should be taken in the rounding of corrected bearings, to ensure that it is completely clear as to what correction has been applied and why.

6. In general, NZGD49 bearings can be presumed (contrary evidence notwithstanding) to be not significantly different from NZGD2000 bearings. See section 3.7.2.1 for more details. Therefore, unless calculations indicate a significant bearing difference, it is acceptable to adopt NZGD49 bearings as if they were NZGD2000 bearings.

   Furthermore, because of this presumed equivalence, it is not mandatory to provide a panel note stating that a bearing correction of 0" has been applied to convert NZGD49 bearing to NZGD2000 bearings. However such a note may be of benefit to other surveyors in the future and is therefore desirable.

   If a bearing correction other than 0" is determined however, a panel note (in terms of section 6.2.18) will be required and the survey report will need to provide evidence of how the non-zero correction was determined.

7. If an underlying NZGD49 survey shows a bearing correction applied to older OCD bearings, this correction can be adopted as also representing the correction from OCD to NZGD2000 (provided no significant difference between NZGD49 and NZGD2000 has been detected), subject to the usual commonsense rules for adoption of this data. For example, on a large underlying OCD survey, a bearing correction determined for a small part of that survey might not be applicable to other parts of the survey hundreds of metres or even kilometres away. This should be proven in the usual manner

if outside the original area of proof. This proviso is also true for adoption of underlying bearing corrections on NZGD49 surveys.

Therefore, where it is reasonable to adopt an underlying bearing correction, the OCD – NZGD49 correction can be adopted as being the OCD – NZGD2000 correction. The usual panel note (in terms of section 6.2.18 of the Cadastral Survey Guidelines) will still be required reporting the source and value of the adoption of the previously determined bearing correction. However it will not be necessary to state or justify the acceptance of NZGD49 and NZGD2000 bearings as being not significantly different from each other.

3.5 Official Datum

This section describes the requirements, under Rule 24, for ensuring that a CSD is in terms of a recognised datum. The overall objectives of these requirements are as follows.

- A network of cadastral survey data in which the lengths of boundary and other observed lines is consistent, reliable and sufficiently accurate to meet the accuracy standards of Rule 26. This is ideally achieved by having well calibrated measuring equipment.

  Note: A geodetic datum contributes to this objective indirectly by providing opportunities for equipment to be calibrated or for errors to be detected. However, achievement of consistent scale is generally independent of the datum. Distances measured under one datum can be adopted for use in another datum without scale correction.

- A network of cadastral survey data in which the orientation of boundary and other observed lines is consistent, reliable and sufficiently accurate to meet the accuracy standards of Rule 26. This is ideally achieved by having the bearings of as many surveys as possible, in terms of a consistent and accurate geodetic datum.

  Note: To a lesser extent, it can also be achieved, where cadastral survey datasets are in terms of different datums, by having reliable information of the orientation differences between those datums. However this leads to ambiguity, opportunities for error, and significant additional verification work by the surveyor and LINZ.

- A network of cadastral survey data in which the positions of boundary and other survey marks are coordinated in terms of a consistent, reliable and sufficiently accurate geodetic datum. This is ideally achieved, firstly by achieving the above objective for consistent and accurate geodetic bearings, and secondly by having survey observations that, directly or indirectly, connect as many CSD's as possible to a geodetic control network.

  Note: The NZ cadastral system is based on the acceptance of the positions of monuments that are original and undisturbed (Russell v Mueller, 1905). Therefore the geodetic coordinates resulting from adjustment of an NZGD2000 survey cannot be used as sole evidence of boundary definition. However they can greatly assist with locating marks and confirmation of mark stability, boundary definition, and observation accuracy.

Resulting from the second and third points above, there are three main aspects to having a survey in terms of a geodetic datum:

1. **Bearings** - the origin of bearings is in terms of the datum.

2. **Connection** - the surveyor has provided observations that connect the survey to the geodetic datum.

3. **Coordinates** - the surveyor has generated coordinates on traverse sheets that are in terms of the geodetic datum.

Prior to **Land*online*** the main datum requirements were **Bearings** and **Coordinates** while the **Connection** was principally a means to achieve these ends. In **Land*online*** the final coordinates in the database are generated by LINZ in terms of the official datum (NZGD2000) following approval of the survey. While traverse sheets still serve a purpose for hardcopy CSD's, the main requirements for a CSD to be in terms of a datum are now **Connection** and **Bearings** to enable LINZ to generate survey accurate coordinates.

The requirements for a CSD to be in terms of a geodetic datum are outlined in detail in this section. The requirements for obtaining an origin (or origins) in terms of that datum (or datums) are outlined in more detail in section 3.7. The change in emphasis from **Coordination** by surveyors to **Connection**, has resulted in a changed emphasis for some requirements compared with traditional practice.

The most significant change applies to electronic surveys (eSurveys) where survey data is linked directly to the **Land*online*** database and traverse sheets are not required at all. However they are still required for hardcopy surveys where LINZ staff must link the survey to the **Land*online*** database on the basis of information provided by the surveyor in the CSD.

3.5.1 New Zealand Geodetic Datum 2000 & NZGD49

1. With the New Zealand Geodetic Datum 2000 (NZGD2000) control required for survey conversion now complete throughout New Zealand, NZGD2000 is the official datum for cadastral surveys in terms of Rule 24 of the Surveyor General's Rules for Cadastral Survey 2002/2. The requirement for bearings and coordinates to be expressed in terms of NZGD2000 for cadastral surveys where practicable, came into effect on 1 October 2002.

   Note: The first District to utilise NZGD2000 was Otago Land District where it became the official datum on 19 June 2000. This was followed by Southland (November 2000), Canterbury (December 2000), Nelson (April 2001), Westland (June 2001), Marlborough (June 2001) and Wellington (July 2001), Gisborne (September 2001), Hawkes Bay (October 2001), Taranaki (January 2002), South Auckland (November 2001), and Auckland (April 2002)

2. Geodetic Datum 1949 will continue to be an alternative official datum and should be used in preference to Old Cadastral datum (OCD) in places where NZGD2000 geodetic marks are not available. It is important to note that NZGD2000 bearings are very nearly the same as those in terms of Geodetic

Datum 1949 (NZGD49). For this reason, it is of significant benefit to use geodetic bearings (either NZGD49 or NZGD2000) even if geodetic coordinates are not available (see item 4 below).

3. All CSD's must show the datum that they are in terms of.

4. Wherever practicable surveys are to be in terms of the official geodetic datum (NZGD2000 or, if that is unavailable or impracticable, NZGD49). In the general case, Old Cadastral datum will only be acceptable if there is neither NZGD2000 geodetic marks nor NZGD49 marks within 1 km from the site, as the crow flies. The terms "wherever practicable" and "as the crow flies" will be interpreted in the following way:

   - If geodetic marks are more than 1 km away from the survey as the crow flies (not the distance by direct traverse) no specific dispensation from the Senior Advisor to the Surveyor-General will be required (refer to section 3.5.1.1.2 for more details). However in this case, the survey report should identify this as the reason for using Old Cadastral Datum.

   - if the geodetic marks are within 1 km, a dispensation can be sought on specific grounds of practicality. One of the practicality criteria can be the difficulty of establishing a direct traverse connection and that GPS is not readily available to the surveyor or is not appropriate for some reason (e.g. restrictions on sky visibility). Refer to section 3.5.1.1.8 for more details on dispensations. In this case, the CSD should include a copy of, or specific reference to, the letter providing dispensation.

5. Surveys carried out in terms of NZGD2000 or Geodetic Datum 1949 are to be coordinated in terms of the applicable Transverse Mercator projection. To generate coordinates, corrections are applied to make allowance for the curvature of the earth. Refer to section 3.5.1.3 for more details.

6. Generally, projection corrections to bearings are small and, unless observations are done to Geodetic Control standards, the corrections are not significant when compared to the tolerances specified in the Surveyor General's Rules. Projection corrections are not to be applied to measured distances in a CSD. These must be presented in the CSD as the distance measured (or for calculated distances – as it would be measured) and reduced to sea level. See section 3.3.1. **Land*online*** takes care of projection corrections when calculating coordinates after approval of the survey.

3.5.1.1 Requirements for CSD's to be in terms of NZGD2000

This section outlines a range of circumstances where surveys are required, or are not required, to be in terms of NZGD2000. However it is not possible to cover all the possible scenarios that apply to surveys. To attempt to do so would make this document unreasonably complex. Therefore unusual cases will be dealt with by the dispensation process whereby the surveyor can apply for a dispensation

from the requirements of Rule 24 from the Senior Advisor to the Surveyor-General (SASG). See section 3.5.1.1.8. See also section 3.7 for obtaining NZGD2000 origins.

3.5.1.1.1 Clarification and Definition of Terms

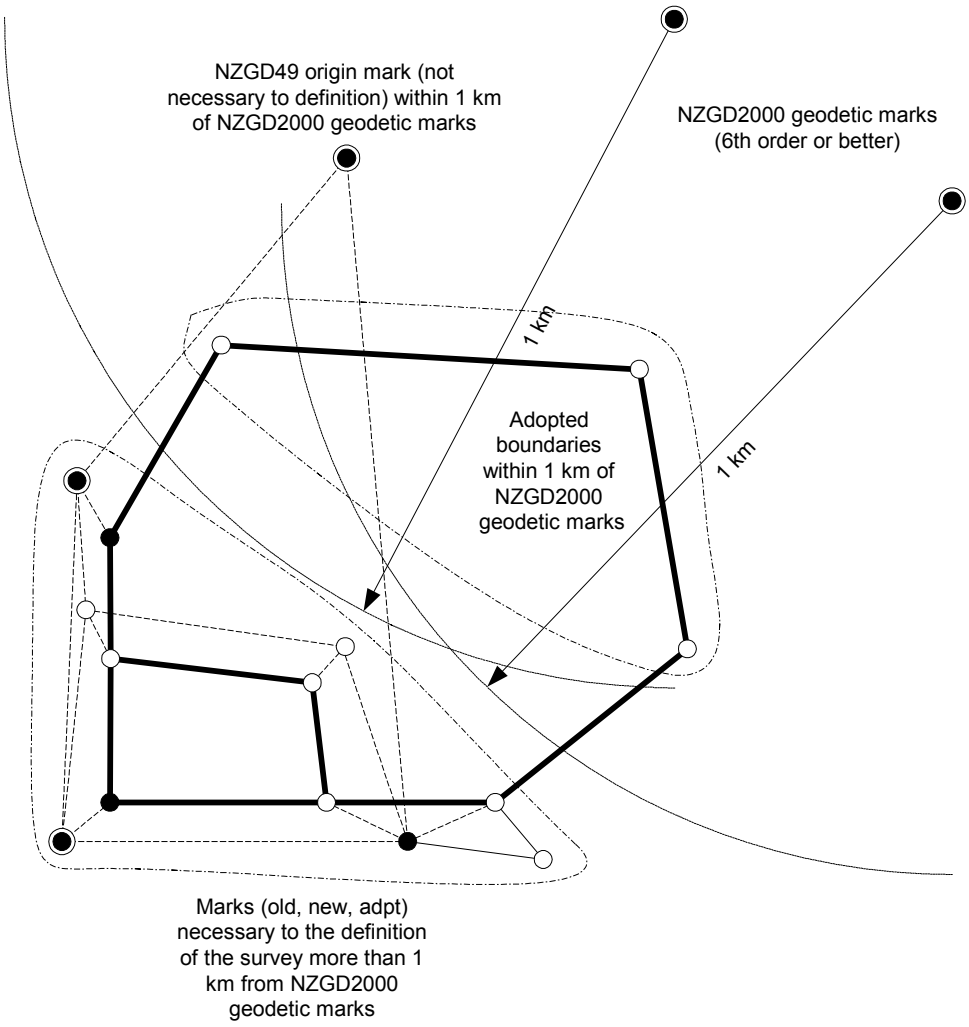
Term	Description
NZGD2000 geodetic control	A mark having NZGD2000 coordinates of 5th order or better is an NZGD2000 geodetic control mark. Such marks have 4 character geodetic codes as well as the mark name. However note there are marks with geodetic codes that are not NZGD2000 geodetic control marks. These may, instead, be NZGD49 geodetic trigs that have not been resurveyed into NZGD2000, or provisional control marks where the survey and adjustment work is not completed.
NZGD2000 geodetic marks	For the purposes of requiring CSD's to be in terms of NZGD2000, a mark having NZGD2000 coordinates of 6th order or better is an NZGD2000 geodetic mark. This includes NZGD2000 geodetic control (5th order or better – see above) as well as cadastral traverses coordinated in terms of NZGD2000 (6th order).
bearings in terms of NZGD2000	This means that the bearings of the CSD are: • stated on the CSD to be in terms of NZGD2000, and • consistent with NZGD2000 bearings within the limits of accuracy in Rule 26. This will generally mean that the origin of bearings was derived directly from NZGD2000 geodetic marks or from an underlying cadastral survey which, itself, has bearings in terms of NZGD2000. However there are circumstances where a CSD can be stated to have bearings in terms of NZGD2000[1], even though the origin of bearings is based on a NZGD49 survey. See section 3.7.2.1 for more details.
coordinates in terms of NZGD2000	This means that the origin of bearings is in terms of NZGD2000 and that the coordinates of the CSD are: • stated on the CSD to be in terms of NZGD2000[2], (i.e. a panel note stating "Geodetic Datum: NZGD2000" or) and • are consistent with NZGD2000 coordinates within the requirements in Rule 26 for accuracy between the origin and other marks. This will generally mean that the origin of coordinates is derived directly from NZGD2000 geodetic marks or from an underlying cadastral survey which is, itself, in terms of NZGD2000. Note that the coordinates cannot be in terms of NZGD2000 if the bearings are not explicitly NZGD2000.

[1] For a survey fully in terms of NZGD 2000, this will be identified by a panel note stating "Datum: NZGD 2000".
For a mixed datum survey (see 3.5.6) the panel note will need two statements – e.g.
"Bearing Datum: NZGD 2000"
"Coordinate Datum: NZGD49"

[2] This will be identified by a panel note stating "Datum: NZGD 2000". A mixed datum is not possible in this case as the bearings must also be NZGD 2000.

fully connected to NZGD2000	This means that the survey is connected by bearing and distance (shown on the face of the plan – not just in the traverse sheets) to at least two NZGD2000 geodetic marks (6th order or better). In some circumstances, it is sufficient for the connection to be through adopted bearings and distances. See section 3.7.3.1 for more details.
partially connected to NZGD2000	This means that the survey is connected by closed loop (shown on the face of the plan) to only one NZGD2000 geodetic marks (6th order or better). In some circumstances, it is sufficient for the loop closure to be through adopted bearings and distances. See section 3.7.3.1 for more details.
Within 1 km of NZGD2000	This means that one or more of the boundary marks, witness marks, or other marks necessary to the definition of the survey, lie within 1 km as the crow flies of an NZGD2000 geodetic mark (6th order or better). If the only marks on the survey that lie within 1 km of NZGD2000 geodetic marks are either: • distant marks observed only to provide or contribute to the origin – not for definition of the survey; or • boundary marks on a Class III or IV survey which are on an adopted section of boundary; then the CSD is not considered to lie within 1 km of NZGD2000 and the requirement of Rule 24 therefore does not apply. See Diagram 3.1.

Diagram 3.1 *Example of a survey that need not be connected to NZGD2000 geodetic marks even though parts of the survey are within 1 km of those geodetic marks*



3.5.1.1.2 Survey more than 1km from NZGD2000 Geodetic Marks

Where the survey is not within 1km as the crow flies of any NZGD2000 geodetic marks (see the definition in section 3.5.1.1.1 above) then it need not be connected to NZGD2000 geodetic marks, nor have bearings or coordinates in terms of NZGD2000.

In this case, no specific application for dispensation from the requirements of Rule 24 will need to be sought from the Senior Advisor to the Surveyor-General. However to facilitate validation and approval of the survey, it would be advisable to state in the survey report that this is the reason why the survey in not in terms of NZGD2000.

3.5.1.1.3 Surveys within 1km of only one NZGD2000 Geodetic Mark

Where the survey is less than 1km as the crow flies from **one and only one NZGD2000 geodetic mark** then it is required to be connected to that mark (partially connected to NZGD2000 – see definition in section 3.5.1.1.1), unless one of the following applies:

- the transitional provisions under section 3.5.1.1.5 or 3.5.1.1.6;
- the exemptions as outlined in 3.5.1.1.7;
- a dispensation as detailed in 3.5.1.1.8

In addition, if a geodetic origin of bearings is available (either NZGD2000 or, failing that, NZGD49) the survey will be expected to have both bearings and coordinates explicitly in terms of NZGD2000. Refer to section 3.7.3.1 and Diagram 3.2 in that section, for clarification of the origin requirements in such cases.

3.5.1.1.4 Surveys within 1km of two or more NZGD2000 Geodetic Marks

Where the survey is less than 1km as the crow flies from **two or more NZGD2000 geodetic marks** then the survey should be fully connected to NZGD2000 which means connected to at least two of those marks (see definition in section 3.5.1.1.1) and should have bearings and distances in terms of NZGD2000, unless one of the following applies:

- the transitional provisions under section 3.5.1.1.5 or 3.5.1.1.6;
- the exemptions as outlined in 3.5.1.1.7; or
- a dispensation as detailed in 3.5.1.1.8.

In some cases, the NZGD2000 origin of bearings may have been sourced from an observed line or lines with NZGD49 bearings. Refer to section 3.7.2.1.

> **Note:** Where a survey is required to be in terms of NZGD2000 through being within 1 km of existing NZGD2000 geodetic marks, and is connected to only one or two such marks, this does not over-ride the requirement in Rule 7 for an origin to consist of 3 existing survey marks. Three origin marks will still be required even if only one or two NZGD2000 geodetic marks are available. However, while it is desirable for all three origin marks to have NZGD2000 geodetic coordinates of 6th order or better – this is not mandatory and, in particular, the surveyor is not required to go beyond the 1 km limit to obtain three such marks. The three origin marks will be used to prove the reliability of the origin of bearings and this can occur even if they do not all have NZGD2000 geodetic coordinates. Refer also to section 3.7.4.1.

3.5.1.1.5 Transitional Provisions for Implementation of NZGD2000

The requirement for surveys to be in terms of NZGD2000 came into effect on 1 October 2002. Where the survey origin and traversing work was completed before 1 October 2002, the survey does not need to be in terms of NZGD2000. (In this case it may still need to be in terms of NZGD49 under long standing requirements. See section 3.5.1)

In this case, no specific application for dispensation from the requirements of Rule 24 will need to be sought from the Senior Advisor to the Surveyor-General.

However if an exemption from the requirements of Rule 24 is sought because the survey origin and traversing work was completed before 1 October 2002, this must be explicitly stated in the survey report.

3.5.1.1.6 Transitional Provisions Relating to New NZGD2000 control

Where the survey origin and traversing work was completed before new geodetic control was provided in **Land*online*** or before other traverse marks were upgraded to 6th order, the survey does not need to be in terms of NZGD2000 solely as a result of the newly upgraded marks. The requirements that do apply will be as if the newly upgraded geodetic marks were not there. In this case therefore, the survey may still need to be in terms of NZGD49 under long standing requirements. See section 3.5.1.

In this case, no specific application for dispensation from the requirements of Rule 24 will need to be sought from the Senior Advisor to the Surveyor-General.

However if an exemption from the requirements of Rule 24 is sought because the survey origin and traversing work was completed before these marks were provided or upgraded in **Land*online***, this must be explicitly stated in the survey report.

3.5.1.1.7 Exemptions for Specific Types of Surveys

The following types of survey are not required to be in terms of NZGD2000. For these surveys, an application for dispensation from Rule 24 is not required and no explicit comment will be required in the survey report as to why the survey is not in terms of NZGD2000.

Similarly, surveys of these types are not required to be in terms of NZGD49 in areas where NZGD49 is not readily available or not applicable for underlying survey data.

- SO record purposes surveys including all surveys lodged in the form of field notes;

- SO survey information surveys including offsetting, redefinition, traversing or control plans;

- Flat or unit plans where the underlying parcel is not defined on an NZGD2000 (or NZGD49) survey. These should be in terms of the same datum as the underlying parcel.

- Surveys defining secondary parcels such as easements, covenants, mining, lease, etc where the underlying primary parcels are not defined on NZGD2000 (or NZGD49) surveys. These should be in terms of the same datum as the underlying parcels.

- Compiled or computed CSD's where none of the underlying surveys, used as the basis for the new survey, is an NZGD2000 (or NZGD49) survey. These should be in terms of the best datum available for the survey data that is to be compiled.

- CT Diagram plans

3.5.1.1.8 Dispensations

In cases where the requirements of this guideline indicate that it will be necessary for a survey to be in terms of NZGD2000 under Rule 24, but the surveyor believes it to be unreasonable or impractical to enforce this requirement, then a dispensation can be sought from the Senior Advisor to the Surveyor-General.

This dispensation should be applied for in writing prior to lodgement – even in cases where the impracticality of connecting to NZGD2000 is considered, by the surveyor, to be obvious.

> **Note**: LINZ Operations staff processing surveys, including Approving Surveyors, have no explicit powers to grant dispensations from Rule 24 other than in accordance with the requirements clarified in this guideline).
>
> Note also that a copy of the letter from the SASG granting dispensation is to be lodged with the survey. (If, for some reason, it is not possible to provide a copy, specific reference to the letter must be provided to enable LINZ processing staff to find it within LINZ records.) This is because the SASG has no direct role in processing or approving the survey and if it is not included as a supporting document, LINZ Operations staff are likely to have no knowledge of it.

3.5.1.2 Frequently Asked Questions

The Frequently Asked Questions in earlier versions of the Guidelines have mostly been embedded in appropriate sections of the Guidelines. The Frequently Asked Questions can also be accessed from the LINZ website as follows:

Go to www.linz.govt.nz - click on Survey System, under What's Available click on NZGD2000 Frequently Asked Questions.

3.5.1.3 Generation of Survey Accurate Coordinates in Land*online*

NZGD2000 coordinates are generated by LINZ for all points in **Land*online*** using a least squares network adjustment. These will generally differ from the coordinates provided on the surveyor's traverse sheets. However the adjusted coordinates in **Land*online*** will only achieve survey accurate status (6^{th} order or better for traverses, 7^{th} order or better for boundaries) if the survey is fully connected to NZGD2000 (two or more marks of 6^{th} order NZGD2000 or better).

If the survey is only partially connected to NZGD2000 (one mark of 6^{th} order NZGD2000 or better), the coordinates generated in **Land*online*** will initially be 8^{th} order and will thus not achieve survey accurate status. This is because the origin of the network adjustment will not have been independently checked. However such coordinates, while not fully checked, will generally be fairly accurate and a benefit from the partial connection to NZGD2000 will have been achieved. Also, as more survey data accumulates in **Land*online*** over time, the point will be reached where several surveys with partial connections to NZGD2000 allow a new network adjustment of a whole area so as to generate survey accurate coordinates.

3.5.2 Projection Scale Co-efficient (Scale Factor) for Surveys in GD1949 or NZGD2000

1. Where ellipsoidal distances need to be converted to projection distances in order to calculate Meridional Circuit projection coordinates, the application of two scale factors is required. These scale factors are the central meridian scale factor and the projection scale factor. If projection distances are shown on the traverse sheets (in addition to sea level distances) they are to be clearly identified by being labelled as such. In all but two meridional circuits the scale factor of the central meridian is 1.000000 and can be ignored. For Mt. Eden circuit, the factor is 0.9999 (metric only) and for North Taieri it is 0.99996 (links and metres).

   Note: The same central meridian scale factors apply for NZGD49 Meridional Circuits and NZGD2000 Meridional Circuits although other aspects of the NZGD49 and NZGD2000 circuits differ. See point 2 below.

2. Generally these corrections are combined and included in computer programmes and surveyors will often therefore, not need to apply them manually.

   Note: The ellipsoid and other parameters associated with the NZGD2000 datum differs from those of the NZGD49 datum. Refer to the LINZ web site for a fact sheet providing details of NZGD2000 Meridional Circuit projections. This can be found at

   http://www.linz.govt.nz/rcs/linz/6075/nzgd2000_meridonialcirc.pdf

or accessed through the LINZ web site as follows:

- go to www.linz.govt.nz
- click on Survey System
- click on Survey Publications
- scroll down to Fact Sheets and Brochures – NZGD2000 Meridional Circuits

3. For surveys with an east west extent (including measured lines to control marks) of a kilometre or two, an average scale factor can be used for the whole survey. This factor is the product of the central meridian scale factor and the projection scale factor. For surveys with a larger east west extent, the factors should be calculated for each line, or the survey divided into zones of one to two kilometres easting range with a combined factor calculated for each zone. The projection correction can also be calculated with sufficient accuracy from the following formula (or by using software that fully applies the standard Transverse Mercator projection formula):

   Projection correction $= L\, e^2\, F$

   Where L is the horizontal distance in metres at sea level x 10^{-5}
   e is the distance in metres east or west of the circuit origin x 10-5
   F is a factor tabulated below. There are no significant differences in the values for F between NZGD49 and NZGD2000.

Latitude	F
34º	12.320
35º	12.317
36º	12.314
37º	12.311
38º	12.309
39º	12.306
40º	12.303
41º	12.300
42º	12.297
43º	12.294
44º	12.291
45º	12.288
46º	12.285
47º	12.283
48º	12.280

   The correction is always positive.

   After applying this correction the distance must then be multiplied by the central meridian scale factor.

4. Refer to articles on projection corrections published in the New Zealand Surveyor, August 1980 and the NZIS seminar notes on EDM 1981 and

Lands and Survey Manual of Instruction, Transverse Mercator Projection Corrections to Bearings and Lengths (October 1971) for further information. Refer also to the fact sheet identified in Point 2 above.

3.5.3 Converting from Geodetic Links Coordinates to Geodetic Metric Coordinates (GD1949)

When converting from Geodetic 1949 link coordinates to Geodetic 1949 metres coordinates, the coordinate value must have the scale factor of the central meridian applied and the false origin values added. For example:

Mt Eden 1 link = 0.201168 x 0.9999m.

because the central meridian scale factor changed from 1.000000 (Geodetic 1949 links) to 0.9999 (Geodetic 1949 metres) – see Section 3.5.2.

Hawkes Bay 1931 is a local datum established by geodetic triangulation after the 1931 earthquake. This triangulation, adjusted before the completion of the geodetic triangulation over the rest of NZ, was used until metrication in 1973. Transformation parameters listed in a "double entry" table are required to convert link coordinates to metric Geodetic 1949 coordinates.

For all other meridional circuits 1 link = 0.201168 x 1.0000m.

3.5.4 Old Cadastral Datum

Old Cadastral Datum systems regard each circuit as a plane and therefore earth curvature, scale and orientation projection corrections are not applied in generating coordinates.

3.5.5 Scale differences between NZGD49 and NZGD2000

The scale differences between NZGD49 and NZGD2000 are not significant for cadastral survey. The distances shown on cadastral surveys are nominally reduced to the datum ellipsoid and the different levels of the NZGD49 and NZGD2000 ellipsoids across New Zealand, in theory, imply differences for ellipsoidal distances of up to a few parts per million. In practice, this is insignificant for cadastral survey. It is also irrelevant in those cases where, in line with standard practice, the distances on new or older surveys have been reduced to sea level, rather than to the ellipsoid (see section 3.3.2).

Therefore, no general scale factor should be applied to distances on underlying survey datasets when adopting these for an NZGD2000 survey.

In special cases, where application of a scale factor to adopted distances is considered by the surveyor to be strongly supported by the evidence – based on comparison of several lines of different lengths, this will be considered to be evidence of a consistent scale error in the distances on the underlying survey

rather than a datum scale difference. In this case, if it is necessary to use distances from the underlying survey to provide definition or to prove marks, the resulting distances should be identified as calculated rather than adopted. This will need to be justified in the survey report. Calculation sheets may also be provided as supporting documents to justify the application of the scale factor. Note that the provisions of section 3.11.2 for recalculated boundaries may then apply. See also section 6.2.18.2.

3.5.6 Mixed Datum Surveys

In cases where it is not practicable to connect the survey to NZGD2000 geodetic marks, it is still very desirable for cadastral bearings to be in terms of a geodetic datum. In such cases, the use of a mixed datum is encouraged. For example: NZGD2000 bearings with NZGD49 or OCD coordinates; or NZGD49 bearings with OCD coordinates.

> **Note:** The bearing datum cannot be of a lower quality than the coordinate datum because the coordinates are generated from those bearings. Therefore, if the coordinate datum is NZGD2000, the bearing datum cannot be stated as being NZGD49 (even if it was derived from NZGD49 – see section 3.7.2.1). Nor can the bearing datum be OCD.
>
> Similarly if the coordinate datum is NZGD49, the bearing datum cannot be OCD.

For a mixed datum survey, the bearing and coordinate datums must be explicitly stated in the panel note, e.g.

> ”Bearing Datum: NZGD2000”
> ”Coordinate Datum: NZGD49”

3.5.7 General Coordinate Conversion

Several tools are provided for conversion of coordinates between coordinate systems and between NZGD49 and NZGD2000. These are:

- The NZGD2000 latitude and longitude coordinates of points in **Land*online*** can be converted to a range of coordinate systems using the transformation functionality.

- The coordinates of points in the web-based geodetic database (which are aligned with **Land*online*** coordinates) can be converted to a range of coordinate systems using the coordinate conversion tools in the web site. (Go to the web site at www.linz.govt.nz, click on “Survey System”, click on “Geodetic Information”, click on “Coordinate Conversion”.)

- Other metric or latitude/longitude coordinates (i.e. for points not in the geodetic database and not in **Land*online***) can be entered and converted to a

range of coordinate systems using the coordinate conversion tools identified in the above bullet point.

- Free software (CONCORD) for conversion of coordinates is available from the LINZ website. (Go to the web site at www.linz.govt.nz, click on "Survey System", click on "Geodetic Information", click on "Download Software".)

  Note: Conversions from NZGD49 to NZGD2000 (including conversions from the old NZGD49 Meridional Circuits to the new 2000 Meridional Circuits) or vice versa, are only accurate to a few decimetres. Coordinates converted between datums are likely to be somewhat out of terms with coordinates obtained by other means such as derived from traverse sheets, historical geodetic coordinates, GPS survey, etc.

3.6 Height Datum

Where a height datum is used for cadastral survey purposes the preferred hierarchy is:

- LINZ, DOSLI or Lands & Survey datum
- Territorial Local Authority datum
- Assumed datum relative to a permanent benchmark.

To fully specify this datum it should be shown on the plan as follows:-

Height Datum	:	Gisborne Provisional 1926
Datum origin	:	Mean sea level = 0.000
Origin mark	:	BM GC 6 No. 2 = 4.350
Source of data	:	Geodetic Database 24-3-1999

3.7 Origins

The introduction to section 3.5 outlines the objectives achieved by having:

- the **bearings** of a survey in terms of a geodetic datum;
- the survey **connected** by observations to a geodetic datum; and, to a lesser extent,
- **coordinates** generated by the surveyor in terms of a geodetic datum.

The first of these requires observation of at least 3 existing marks as specifically required by Rule 7 (refer to sections 3.7.2 and 3.7.4).

The second of these, for a proven full connection to a geodetic datum, requires bearing and distance observations to at least two geodetic marks (refer to section 3.5.1.1.1). However in some cases, these can be adopted marks (refer to section 3.7.3.2). These may or may not be the same as the three existing origin marks required to establish and prove an origin of bearings. The coordinates of these marks may even be in terms of a different datum from the origin of bearings (refer to section 3.5.6)

3.7.1 Sources of Origins

1. The preferred hierarchy in sourcing the origin of bearings and coordinates is:
    i. The official N.Z. Geodetic control network;
    ii. Approved cadastral surveys in terms of the official NZ Geodetic Datum 2000;
    iii. Approved surveys in terms of mixed datums which have NZGD2000 geodetic bearings and NZGD 49 or Old Cadastral coordinates;
    iv. Approved cadastral surveys in terms of NZGD49;
    v. Approved surveys in terms of mixed datums which have NZGD49 geodetic bearings and Old Cadastral coordinates;
    vi. Approved surveys in terms of Old Cadastral Datum
2. In terms of Rule 24, where practicable, the origin must be in terms of the official Geodetic Datum. If the bearing origin is based on Old Cadastral Datum or a mixed datum, the surveyor must provide an explanation in the survey report why this datum has been used.
3. Surveyors are no longer required to always use the latest available coordinates where National Survey Control System marks are used for an

origin of coordinates. New coordinates for marks in the survey in terms of NZGD2000 will be generated in **Land*online*** following approval of the survey as noted in section 3.5.1.3. The coordinates provided by the surveyor play only a transitional role during survey processing.

This also means that where the coordinates in **Land*online*** have changed (which happens from time to time) during the conduct of a survey, it is not necessary to re-generate traverse sheets that were based on earlier published coordinate values.

Note: If the origin of NZGD2000 bearings was derived by calculation from coordinates and the coordinates have subsequently changed, it will be important to confirm by recalculation that the calculated origin of bearings has not been materially affected. If the coordinate shifts are small and/or consistent, or where the origin marks are sufficiently well separated, the change in calculated bearings will often not be significant. However, note that this is one reason why the calculation of the origin of bearings from coordinates is not LINZ's preferred method of determining a NZGD2000 bearing origin.

4. Geodetic Database coordinates for Control Stations with a "d" suffix after the NZGD49 horizontal order, eg 4d, have been derived from a NZGD2000 network adjustment then transformed to NZGD1949 values.

   If the survey is connected to these points, the more accurate NZGD2000 coordinates (5th order or better) should be used, resulting in a survey that is in terms of NZGD2000. The NZGD49 4d coordinates themselves should therefore no longer be used.

3.7.1.1 Identifying NZGD2000 geodetic marks

In order to know when an NZGD2000 origin is required, it will be necessary for the surveyor to identify marks with NZGD2000 coordinates of 6th order or better in the vicinity (within 1 km) of the survey. NZGD2000 geodetic control (5th order or better) can be identified in the **Land*online*** Spatial View with the:

"**NZGD2000 Order 0-2**",
"**NZGD2000 Order 3**" and
"**NZGD2000 Order 4-5**"

mark layers turned on, or on the Geodetic Database on the LINZ web site.

Currently 6th order and 7th order marks are in a common layer

"**NZGD2000 Order 6-7**".

The 6th order points are distinguished by being non-boundary marks and by the mark symbol having a small "6" inside the triangle.

LINZ proposes, later in 2003, to re-organise the mark layers in **Land*online*** so that two layers will be used to cover geodetic control marks (5th order and better) and a third layer will show only 6th order marks. This will make it easier to identify

the NZGD2000 geodetic marks (6th order and better) that can be used for an origin.

3.7.1.2 Identifying Resurveyed NZGD2000 5th order marks

All marks of NZGD2000 4th order or better have been resurveyed in the last few years. A minority of NZGD2000 5th order marks have also been recently surveyed – usually by GPS.

However, the majority of 5th order marks were not resurveyed but instead were coordinated by readjustment of historical observations captured from survey datasets. It is possible with some of these marks, that the mark had already been destroyed or disturbed at the time that a new NZGD2000 coordinate was generated for it. It is therefore particularly necessary in utilising these marks, that mark reliability is proven.

At present, it is not immediately obvious which marks have been resurveyed but this can be deduced in **Land*online*** or from information on the LINZ web site. The 5th Order 2000 marks that have been coordinated by readjustment of historical observations have an Ellipsoidal Height of 0.000 or the height field is null on the 'View Mark/Node' form. This can be used to distinguish them from the recently GPS surveyed marks which have a non-zero ellipsoidal height.

Implementation of an enhancement to this information in **Land*online*** and the web-based geodetic database is underway. The intention is that in the 'Mark Physical State Information' panel of **Land*online's*** View Mark/Node form, the following changes will be made:

- Under 'Description' a note will be added to say that the mark has been coordinated from historic data.
- Under 'Condition' the note will change from Not Specified to Unknown.
- Under 'Date' the date shown will reflect the date of the original survey from which the observations were captured and not the date of readjustment (as now).

The last of these three bullet points is expected to prove the most useful in that it will enable surveyors to judge for themselves, how likely it is that the mark is still in place and undisturbed.

3.7.2 Origins of Bearings

1. For surveys carried out in NZGD2000:

    i. Bearings can be obtained from previous surveys in terms of NZGD2000.

ii. Bearings in terms of NZGD49 can be assumed to be not significantly different from bearings on NZGD2000 unless evidence to the contrary is found. (See Sec 3.7.2.1 for more details). These can therefore be used as NZGD2000 origins.

iii. Allowing for the provisos set out in the note in Sec 3.7.2.2, bearings can be calculated from **Land*online*** NZGD2000 geodetic mark coordinates.

2. For surveys carried out in NZGD49:

i. Bearings are obtained from previous survey datasets where the surveys are also in NZGD49.

Note: In this case, the bearings can be stated as being NZGD2000 unless there is evidence of a significant difference between NZGD49 and NZGD2000 – see section 3.7.2.1 for more details);

ii. Bearings can be calculated from NZGD49 coordinates, but consideration must be given to the provisos in Sec 3.7.2.2 to ensure all coordinates are in the same terms.

3. For surveys carried out in OCD, bearings are obtained from previous survey datasets.

3.7.2.1 Use of NZGD49 for NZGD2000 bearing origins

1. In general it is expected that NZGD49 bearings will be not significantly different from NZGD2000 bearings, within the limits of accuracy required by Rule 26. In most cases, these differences are of the order of a few seconds, which is insignificant for cadastral survey. However there are some cases where differences of the order of 30" have been reported. These could be due to:

- local variations in the orientation of NZGD49 surveys;
- errors or inadequacies in the NZGD2000 geodetic control; or
- movement of the NZGD2000 geodetic control marks between when they were originally surveyed and when they are re-occupied for the cadastral survey.

Note: Only a minority of the 5th Order 2000 control marks have been recently resurveyed. The majority of the NZGD2000 5th Order 2000 control marks were coordinated by readjustment of historical observations captured from survey datasets. It is therefore particularly necessary in utilising these marks, that mark reliability is proven.

2. Despite these exceptions, NZGD49 bearings are generally considered to be not significantly different from NZGD2000 bearings (other evidence notwithstanding). The surveyor should be aware of the possibility of discrepancy between NZGD2000 geodetic mark coordinates, NZGD2000 bearings and NZGD49 bearings. If there is some evidence of a significant discrepancy, this should be further investigated before NZGD49 bearings are adopted for an NZGD2000 survey. Otherwise, in the absence of any indication of a discrepancy the surveyor is entitled to adopt NZGD49 bearings as if they were NZGD2000 bearings.

3. This means that a survey based on an NZGD49 origin of bearings will usually be able to specify that the bearings of the new survey are in terms of NZGD2000.

   Where the NZGD2000 bearing are derived from the presumed consistency with NZGD49, the survey report should state:

   - that the origin of bearing for the NZGD2000 survey is based on an NZGD49 bearing origin; and

   - that there is no indication of significant discrepancy between NZGD49 and NZGD2000 bearings.

4. Under **Land*online***, the principal benefits of having surveys in terms of geodetic datum come from:

   - the accuracy and consistency of the bearings; and

   - having the surveys fully connected to NZGD2000 geodetic marks thus enabling survey accurate NZGD2000 coordinates to be generated in **Land*online***.

   Therefore, given the presumed equivalence of NZGD49 and NZGD2000 bearings in most cases (as noted above), if a survey explicitly has bearings and coordinates in terms of NZGD49, it may still be considered to meet the requirements for being in terms of NZGD2000 if the following 2 conditions apply:

   - The survey is fully connected to NZGD2000 geodetic marks in terms of the definition in section 3.5.1.1.1 above.

   - The bearings are in terms of NZGD49 and there is no apparent discrepancy between NZGD49 and NZGD2000 bearings.

     Note: In the above circumstances, the survey is considered to meet the requirements of Rule 24, despite being connected to NZGD2000 but being explicitly stated as being in terms of NZGD49.

In this case it would be preferable for the survey to be explicitly stated as being in terms of NZGD2000. This would require no additional fieldwork and little change to the survey except the panel details and generation of NZGD2000 traverse sheets. Therefore it is intended that this provision - allowing an NZGD49 survey that satisfies the above conditions to be considered compliant with Rule 24 - will be transitional for a period during which surveyors become familiar with the requirements for connecting to NZGD2000. It mainly covers the case where the surveyor has undertaken an NZGD49 survey and has not noticed that it easily could have been (and should have been) an NZGD2000 survey. It also covers the case where the plan and traverse sheets had already been prepared in terms of NZGD49 (e.g. if lodgement of the survey had been held up for some reason), the primary benefits of connection to NZGD2000 have been achieved, so it is not necessary to change the traverse sheets and plan datum note.

5. Many NZGD2000 control marks have been surveyed by GPS and therefore will often not be intervisible with each other. However the 5th order 2000 control marks are almost all existing cadastral marks so even if they are not intervisible with each other, they will usually each be intervisible with other cadastral marks in their localities. Therefore an inter-visible NZGD49 bearing origin will usually be available adjacent to NZGD2000 control marks even though it may not be to other NZGD2000 marks. Re-observation of such an NZGD49 line will enable it to be accepted as providing an NZGD2000 origin and this bearing origin will also be able to be tested for consistency with the orientation inherent in the NZGD2000 coordinates.

6. Where an NZGD49 origin of bearings has been accepted as being not significantly different from NZGD2000 and, together with a NZGD2000 coordinate origin, has been used to generate NZGD2000 coordinates, the bearing datum must be stated as being NZGD2000. Otherwise the datum of the bearings on the CSD will be incorrectly captured by LINZ staff.

   While the bearing datum can be of a higher quality than the coordinate datum (see section 3.5.6 on mixed datums) it would be nonsensical to state that the bearing datum was of a lower quality than the coordinate datum (because bearings are used to derive the coordinates).

3.7.2.2 Calculation of Origin of Bearings from Coordinates

While calculation of an origin of bearings by coordinates is not the preferred method (see section 3.7.2) in some cases, it will be the only viable method of obtaining geodetic bearings. For example, where a survey is connected to intervisible NZGD2000 geodetic marks but:

- there are no previous observations between these marks; and

- there are no other NZGD49 or NZGD2000 surveys in the vicinity that can be used to provide a geodetic origin of bearings on any other lines observed in the new survey,

then a calculated origin of bearings based on the NZGD2000 geodetic coordinates of the intervisible geodetic marks would be used.

Note: Adjusted coordinates are a summary of a best fit of a number of observations and may contain adjustments that affect observed bearing alignments. Note also that bearings calculated from coordinates of marks on a straight alignment may show significant differences between some short sections of the alignment and the whole line between terminals. Therefore, where coordinates are used to compute bearings between NZGD2000 control marks, these lines should be sufficiently long, and preferably between alignment terminals, to ensure that adjustment of the coordinates is not likely to significantly affect the bearings within cadastral limits.

Also note the requirement of Rule 8 Surveyor General's Rules for Cadastral Survey 2002/2 that *"The origin marks and traverse of a survey must be configured in such a way that the bearing and positional accuracy are maintained over the whole survey."*

3.7.3 Origins of Coordinates

1. For surveys that generate NZGD2000 coordinates:

   i. Origin coordinates should be obtained from **Land*online***, the Geodetic Database, or traverse sheets from other NZGD2000 surveys.

   ii. Coordinates with Orders 6 or better (in GD2000) are ideal for an origin of coordinates.

   iii. NZGD2000 coordinates worse than 6th Order are not suitable for an origin of coordinates on a survey that has traverse data.

   iv. NZGD2000 coordinates with Order 7i, 7ii or 7iii can be used for an origin of coordinates for a compiled or computed CSD where there are no traverse marks – only boundaries.

   - Order 7i is suitable as an origin of coordinates for all classes of boundaries.

   - Order 7ii is suitable as an origin of coordinates for Class II, III and IV boundaries .

   - Order 7iii is suitable as an origin of coordinates for Class III and IV boundaries.

Note: This does not mean that boundaries can be recalculated on the basis of such coordinates. It means that compiled or computed surveys where coordinates on traverse sheets have been generated in terms of such an origin, satisfy the requirements for having an NZGD2000 origin of coordinates.

v. If the survey is able to have bearings in terms of NZGD2000 but none of the above coordinates are available for an origin of coordinates, and the requirements for connecting to NZGD2000 do not apply, then it may be appropriate to have a mixed datum survey (NZGD2000 bearings and NZGD49 or OCD coordinates). See section 3.5.6.

2. For surveys that generate NZGD49 coordinates:

   i. Origin coordinates are obtained from old plans and traverse sheets.

      Note: Coordinates taken from the face of a plan lodged from July 1997 onwards should be verified against the relevant traverse sheet as they may not have been validated by LINZ.

   ii. Coordinates can also be obtained from the Geodetic Database.

   iii. Coordinates with Orders of 4 or better (in NZGD49) are suitable for an origin; Orders 5 and 6 are generally not suitable.

   iv. Some 4th order coordinates are not suitable as they may not be in terms of surrounding higher order control. For these marks there may be better coordinates from later cadastral surveys that are suitable for origin purposes.

3. For surveys in OCD, coordinates are obtained from old plans and traverse sheets.

3.7.3.1 Connection to NZGD2000 Coordinates by Survey

The connection to NZGD2000 geodetic marks will ideally be achieved by including these marks in a closed traverse. If there is only one NZGD2000 geodetic mark (see section 3.5.1.1.3) then it must be included in a closed traverse – either by measurement or adoption.

If there are two NZGD2000 marks which are inter-visible, then observing between them will be desirable to prove their reliability and confirm the NZGD2000 bearing origin. However this is not a mandatory requirement provided that the survey complies with good survey practice.

A full connection to NZGD2000 geodetic marks (at least two of 6^{th} order or better) requires both bearing and distance (refer to definitions in section 3.5.1.1.1) but the bearing can be a non-returned observation where the NZGD2000 origin of bearing has been obtained by other means – e.g:

- derived from a NZGD49 bearing as provided for in section 3.7.2.1; or

- derived from calculation using NZGD2000 geodetic coordinates as provided for in section 3.7.2.2.

In the case (see Diagram 3.2) where:

- there is only one NZGD2000 geodetic mark connected to the survey; and

- no other NZGD2000 geodetic marks are within 1 km, but

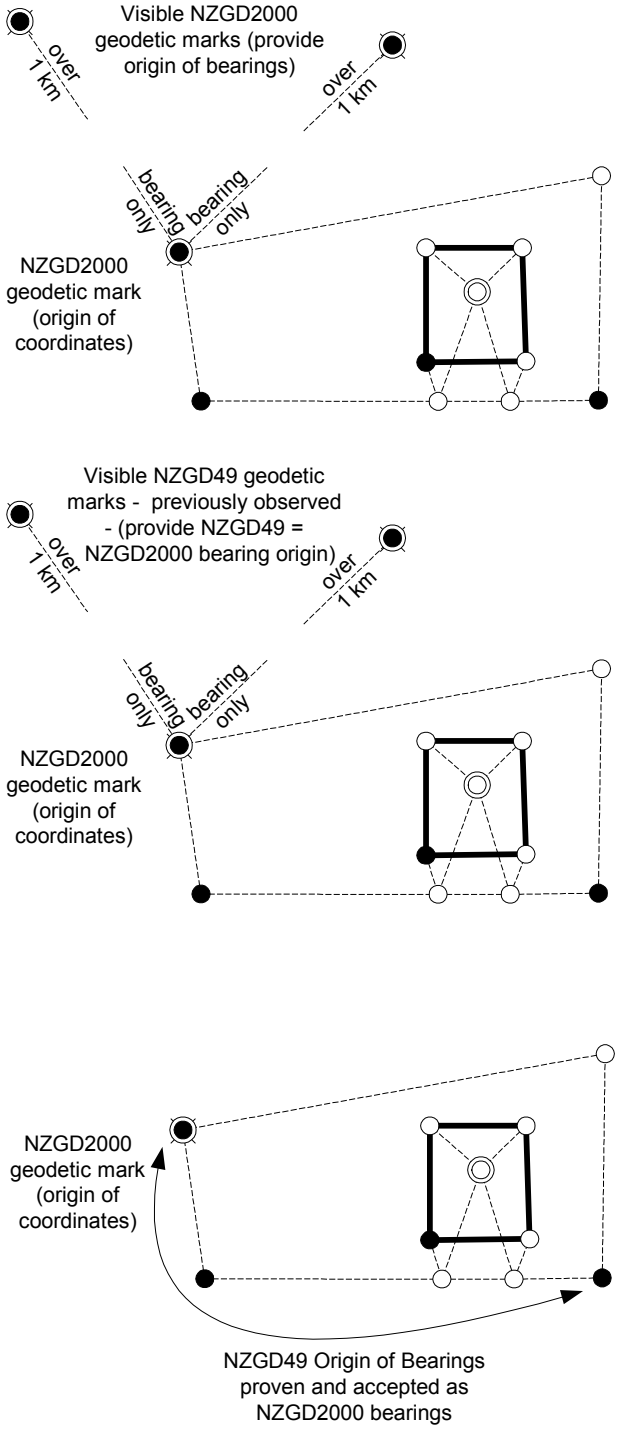
- other distant (more than 1 km) NZGD2000 control marks are visible from marks in the survey **OR** an NZGD49 bearing origin is available which can be assumed to be not significantly different from NZGD2000;

then the bearings and coordinates of the survey should be in terms of NZGD2000. Refer also to section 3.5.1.1.3. The NZGD2000 mark in the survey will be used as the origin of coordinates and observed lines (which can be one-way, bearing-only) to the distant control marks, or the bearing origin sourced from NZGD49, should be used to establish an NZGD2000 origin of bearings.

> **Note:** The case where the 3rd bullet point above does not apply (i.e. neither NZGD2000, nor NZGD49 bearing origins are available) is covered in section 3.7.3.3.

In this case, where the connections to the distant marks are not by bearing and distance, the survey does not satisfy the definition of being "fully connected to NZGD2000" in section 3.5.1.1.1. However a bearing and distance connection to the other marks, while it would have been helpful for upgrading the accuracy of the cadastral system, is not required due to the distance being over 1 km.

Diagram 3.2 *NZGD2000 survey origins where only one NZGD2000 geodetic mark is available within 1 km*



3.7.3.2 Connection to NZGD2000 Coordinates by Adoption

While it is ideal to incorporate two NZGD2000 geodetic marks into a survey by observing them or occupying them, there are acceptable alternatives. Connection by adoption is possible provided that the bearings of the adopted

lines are in terms of a geodetic datum – either NZGD49 or NZGD2000 and provided that they comply with the accuracy standards of Rule 26(2) for traverse lines.

However, there are some requirements to ensure that the adopted data can be proved to be consistent with both the new survey data and the coordinates of the NZGD2000 geodetic marks.

The requirements are illustrated in Diagram 3.3. The acceptable situations can be characterised by the following criteria.

- The requirement of Rule 7 for the survey to have at least 3 existing origin marks to obtain and confirm an origin of bearings still applies. The marks included by adoption (additional to the 3 existing origin marks) merely serve to allow a survey, which would otherwise only be in terms of NZGD49, to be in terms of and connected to NZGD2000 where required by Rule 24.

- If the connections to two or more NZGD2000 geodetic marks is via adopted lines (with both bearing and distance) then the connection must be configured in such a way that it is possible to trace a path through the traverse work – which includes at least one fully observed traverse line (i.e. with the bearing observed from both ends of the line) – between the adopted NZGD2000 geodetic marks.

- In the path referred to above between the adopted marks, those lines that are fully observed must be of sufficient length to allow a reliable confirmation that the observed bearings are consistent with the coordinates of the adopted geodetic marks.

- If the survey is only connected to one NZGD2000 geodetic mark (because no others are available) and the connection is via adopted lines (with both bearing and distance) then it must form a closed loop with the rest of the survey traverses. In this case, if the origin of bearings is NZGD49, it can be assumed to be in terms of NZGD2000 and should be stated as such, even though it will not be possible to confirm that the NZGD49 bearing origin is consistent with NZGD2000.

- The survey report must outline the checks applied to confirm the consistency of the observed bearings, adopted bearings, and the coordinates of the adopted geodetic marks.

Diagram 3.3 *Examples of Acceptable/Unacceptable connection to NZGD2000 geodetic marks by adoption*

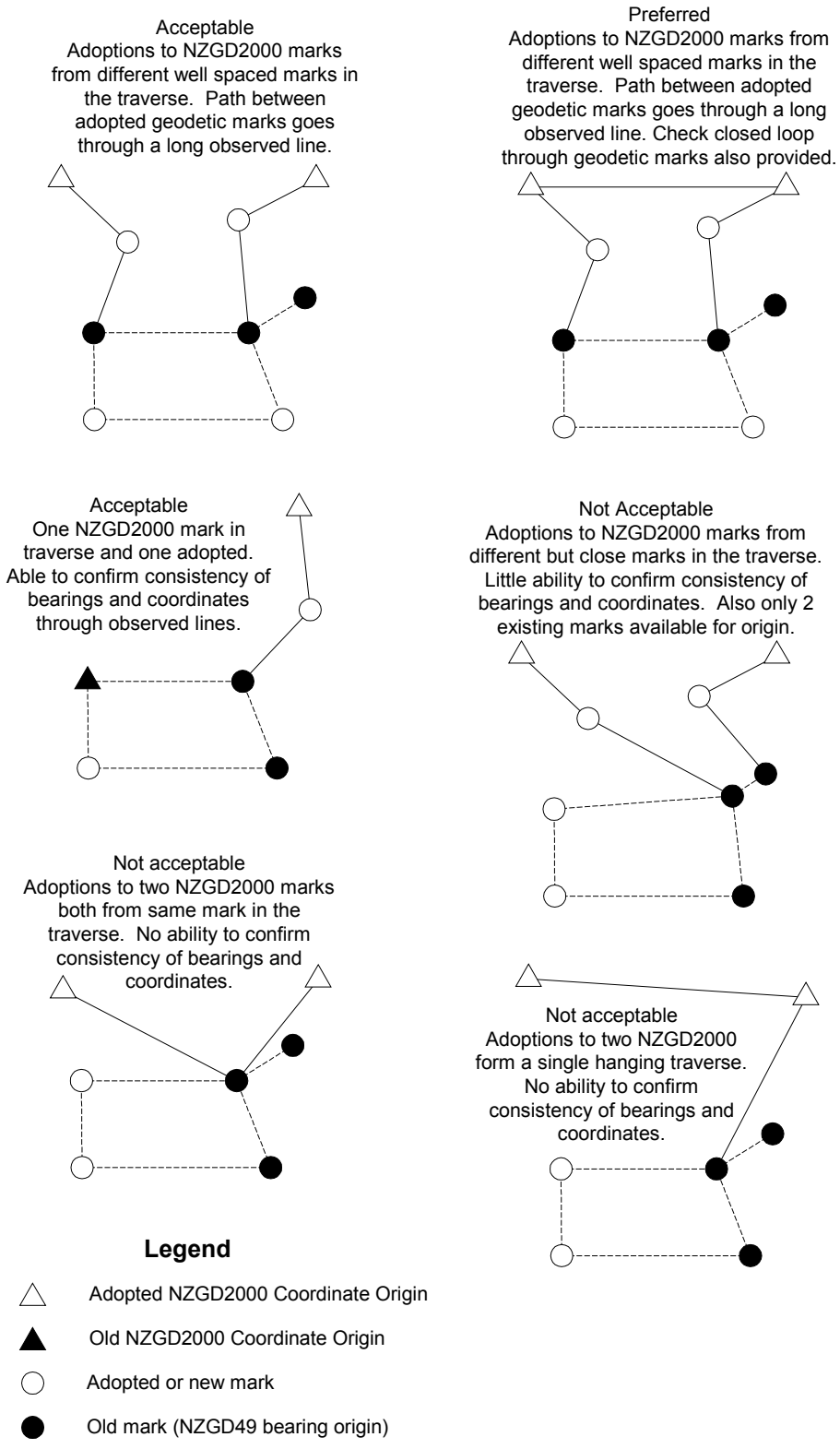
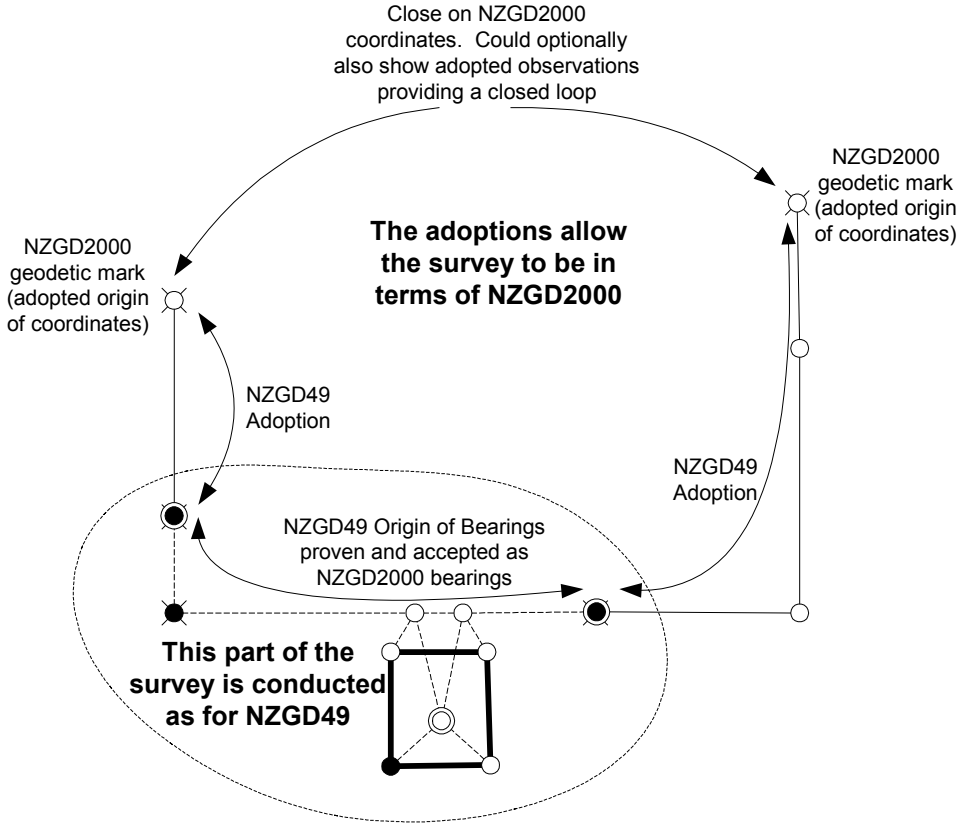
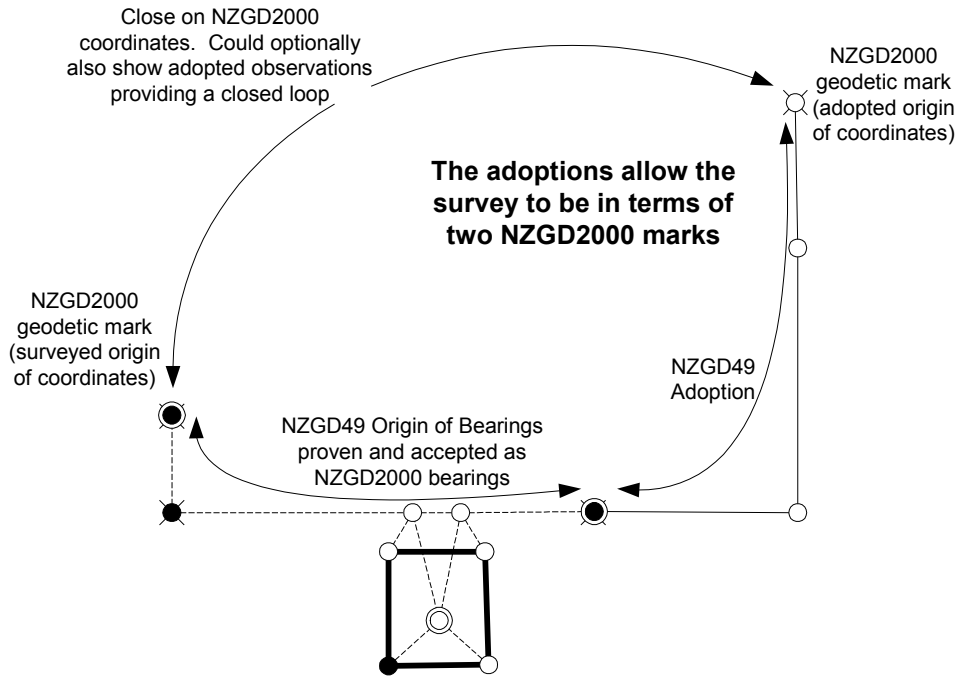


Diagram 3.4 Typical examples of connection by adoption to NZGD2000 geodetic marks





3.7.3.3 NZGD2000 Origins in areas of Old Cadastral Datum Surveys

The following situation may occur where NZGD2000 control has extended into areas previously only covered by Old Cadastral Datum surveys.

- There are NZGD2000 geodetic marks available within 1 km of the survey which are practicable to connect to – thus requiring the new survey to be in terms of NZGD2000 under Rule 24.

- There is only one NZGD2000 geodetic mark, or two or more such marks which are not intervisible (they may have been surveyed by GPS).

- All cadastral surveys adjacent to the new survey are in terms of Old Cadastral Datum so it is not practicable to obtain an NZGD49 or NZGD2000 origin of bearings and compare this (in the case where there are 2 NZGD2000 geodetic marks) with the orientation calculated from the NZGD2000 coordinates - as described in section 3.7.2.1, paragraph 4.

In this case, a bearing correction will need to be calculated for the OCD bearings. However, this is hampered by the lack of an intervisible NZGD2000 origin of bearings.

If there are three or more NZGD2000 marks which are well distributed in relation to the survey, a bearing correction between OCD and NZGD2000 can be determined by comparison of the missing line between the origin marks derived from OCD traverses and the bearings calculated from NZGD2000 coordinates. This is the ray trace method. The availability of at least three NZGD2000 geodetic marks allows the consistency of this bearing correction to be checked.

If it is only practicable to connect to two NZGD2000 geodetic marks, the use of GPS may be necessary for an independent confirmation of the orientation of the origin marks and the NZGD2000 orientation of observed OCD lines. If this is also not practicable, or if there is only one NZGD2000 geodetic mark, and the bearing correction between NZGD2000 and OCD is not capable of independent confirmation, a dispensation may be sought from the Senior Advisor to the Surveyor-General to lodge the survey with bearings and coordinates in terms of Old Cadastral Datum. Refer to section 3.5.1.1.8 on dispensations.

Even where only one or two NZGD2000 marks are surveyed, three existing origin marks will still be required to prove the reliability of the origin of bearings in terms of Rule 7 as outlined in section 3.7.4.1 below.

See also section 3.7.3.1 and Diagram 3.2 which cover the case where an origin of coordinates can be obtained from one NZGD2000 geodetic mark and an NZGD2000 origin of bearings is able to be obtained by bearing-only observation to distant NZGD2000 geodetic marks, or from an NZGD49 origin of bearings.

3.7.4 Adequacy of Origin and Configuration

3.7.4.1 Layout of Origin

1. Rules 7 & 8 require an origin to consist of at least 3 existing marks in such a configuration as to adequately to prove mark reliability and to ensure orientation and scale is maintained over the whole of a survey. These requirements are not specific about how an origin is obtained (i.e. it does not specify two marks tested against a third) but is specific about the significance of an adequate origin. The requirement for at least 3 existing marks specifically relates to obtaining, and proving, the origin of bearings.

2. It is expected that the traditional origin of two previously observed marks tested against a third, will be continued to be used in normal circumstances for the origin of bearings and often (but not necessarily), one or more of these marks will also provide the origin of coordinates.

3. An origin of bearings may consist of direct observations to other marks that have not previously been directly observed between. Where this is the case then it is essential that the marks are in terms – i.e. that they can be reliably connected by survey observations from previous surveys which are in terms of the same datum.

4. Irrespective of origin type, the following should be noted:

   - A non returned ray from a prior survey cannot be used in isolation as an origin of bearings although it may be used if independently confirmed.

   - Terminal marks should be used where possible.

5. When a traverse does not close back on itself, a closing bearing must be observed to at least two (with the preference being three) reliable old marks that are in terms of the initial origin marks.

6. If a connection to datum 2000 marks is adopted, a closed circuit is desirable to confirm that any error in the adoption of the geodetic coordinates will be detected. However, it is not mandatory.

7. The observation of three old marks along one previously observed line may not guarantee the reliability of the orientation. An endeavour should be made to verify by connection to other old marks in the same terms.

3.7.4.2 Resections

1. Strict specifications cannot be set for resections. Therefore each resection will be assessed individually, taking into account both the accuracy of observations and the geometry of the control used. However, generally a resection requires observation to at least four geodetic control stations that are favourably distributed about the horizon.

2. A minimum of two complete sets of observations must be made and field data must be lodged showing these observations.

3. Resection calculations can be lodged as part of the CSD, showing the corrections applied to the observed directions to determine the final directions. These corrections are the best measure of the quality of the resection. The final bearings and calculated distances to the trigs are to be shown in the traverse sheets.

3.7.4.3 Reporting

1. The survey report must include the following details:

   - The origin marks used.

   - How the reliability of the origin of bearings has been established. In the simplest case this may be by stating that the origin marks were observed in terms of an underlying survey dataset. Where the origin marks have not been observed before, the relationship between the marks will need some proof. This may be, for example, a comparison between the calculated and the observed values.

3.7.5 Non-Returned Observations

1. Consideration should be given to observe to Trig Stations from traverse stations at regular intervals whenever possible. Where the survey has connection to geodetic control marks, this will allow the orientation to be checked by calculation.

2. The line is to be shown with calculated and observed values (or "calc=obs"). Refer to Section 6: Origin Marks

3. Refer to Section 3.7.3.1: regarding the use of non-returned rays for an origin.

3.8 Field Data

Field data includes all records of field measurements and all other data gathered in the field.

This data is:

- particularly important with surveys of limited titles and rural surveys when the amount of field information to be recorded may be difficult to show on the survey sheet.

- to be available if requested by LINZ for validation or audit pursuant to Rule 43.

3.9 Adoptions

The following points are to be noted:

- All adopted traverses must be from the most recently approved CSD unless strong evidence is presented that the most recently approved CSD is in error.

- All adopted boundaries must be from the most recent survey dataset that correctly defines or orientates the boundary.

- Adoptions are, in most cases, to be via traverse with boundary dimensions used only as a last resort because of the possibility of errors in calculations.

- Closure corrections applied to adopted work are to be shown in the traverse sheet.

- Where boundary positions are established by adoption, the adopted work used is to be shown on the survey sheet to clearly illustrate the method used. In complex cases, this may require a separate diagram showing the adopted lines. Note in such cases, that bearings and distances can also be tabulated on the survey sheet if it is impractical to show them on the diagram.

- The source dataset for all adopted traverses and boundaries is to be clearly shown on the plan face. Note that in special cases, bearings and distances can be specified as each being adopted from different surveys. For example where the most recent survey shows a geodetic bearing but no distance and an earlier survey has a measured distance. Adopted survey marks should be annotated, e.g. XI Adpt DP 102231. The dataset reference, included in the mark name, should be that of the dataset that first placed that mark, or the dataset showing that a mark has been renewed.

3.10 Accuracy Tolerances

3.10.1 Provisions in the SG's Rules

3.10.1.1 Rule 3B

The rules are not method specific, but rule 3B (formerly Section 58, Survey Act 1986) requires surveyors to conduct surveys with such equipment and by such methods as will attain the prescribed standards of accuracy. The surveyor shall apply such checks and tests as may be necessary to obtain those standards (and to demonstrate that the standards have been achieved). Rule 3B also requires the surveyor to supply to LINZ with all relevant information obtained by him/her in relation to the survey.

3.10.1.2 Rule 26

This rule prescribes standard accuracies of vectors between the ground marks placed or unmarked boundary positions. These vectors need not be previously measured lines but can be calculated vectors between any two marks on the survey.

Although separate accuracy standards are given for Class I, II and III surveys, they all have the same standard for the relationship between witness, traverse and origin marks relative to other witness, traverse or origin marks.

Tolerances between origin and boundary marks, witness and boundary marks or boundary and boundary marks vary with the class of survey and recognise the expected significance of small boundary marking errors to landowners and the different types of ground marks likely to be involved. That is, a peg being used on a Class I or II survey or a post being used on a Class III survey to mark a boundary.

> **Note:** Rule 16 allows for more than one class to be used on a survey. This means that accuracy tolerances between boundary marks across the survey may vary according to their respective classes but accuracy tolerances for traverse or control marks will stay the same. If adjoining boundary marks are of two different classes, the tolerance applicable between them will be that of the lower (i.e. less accurate) class.

The purpose of applying these accuracy standards is to:

- ensure that the actual shape and size of the parcel on the ground is the same as that represented by the survey documentation
- control the accuracy with which the position of parcel boundaries are fixed relative to each other, witness marks and to the survey origin

- facilitate the efficient recovery and reinstatement of reference marks and boundary positions.

In the case of Unit and Cross Lease datasets, the accuracy of the fix of the physical object that serves as the boundary is determined by the need for accurate plotting relative to the parcel boundary and to other internal areas, e.g. covenants, accessory units, etc.

3.10.1.3 Rule 42 (2)(j)

This rule requires a surveyor to report on the details of methods used to ensure compliance of the survey with prescribed standards of accuracy. This is particularly important where an area of weakness in the layout of the survey network raises doubts about whether the accuracy standards have been achieved (see example in Diagram 3.9). In such cases, the survey report must identify special checks or precautions taken to achieve the standards and prove that they have been achieved.

It is also worth noting that **Land*online*** will test the accuracy of survey traverses using a least squares adjustment. It is possible for the surveyor's checks to give somewhat different results to the **Land*online*** test – particularly if the surveyor's checks are based on extra information not used in **Land*online***. For example, the **Land*online*** test might indicate that achievement of the accuracy standards is doubtful but the surveyor may have applied different but valid tests – possibly using additional check observations – which demonstrate that the standards are likely to have been achieved. Where the surveyor's accuracy testing is well reported, such anomalies can be quickly and easily resolved during validation – avoiding the need for a requisition under Rule 42(2)(j) to clarify how the survey was checked.

Possible ways of testing the accuracy of a survey are shown in the examples in sections 3.10.2 and 3.10.3. In providing these examples it must be emphasised that they are ONLY examples as there are other ways of achieving these objectives.

> **Note:** The fundamental requirement is that the surveyor provides a description of the method used to confirm compliance with the accuracy standards. It is not essential for this description to include mathematical details of the checks. Calculation sheets therefore do not have to be provided in the CSD. However it may be useful to include calculation sheets – particularly if referring to them makes it easier in the survey report to describe the tests applied.

3.10.1.4 Survey Accuracy Validation in Land*online*

For the survey data entered into **Land*online*** by LINZ staff, an automatic validation by least squares takes place to test compliance with Rules 26 and 28. This reduces the former dependence of LINZ validation on the tests carried out

by the surveyor and on documentation of the checks in calculation sheets. However, the **Land*online*** tests are not complete and have the following limitations:

- Traverses and primary boundary dimensions are captured and automatically validated but under current policy, the dimensions of easements or other non-primary parcels are not captured and thus not numerically checked.

- The **Land*online*** validation is affected by (and therefore also effectively tests) the correctness of capture of observations and dimensions from the CSD by LINZ staff. In the event of anomalies reported by the **Land*online*** tests, a comparison with the surveyor's reported checks (particularly traverse sheets) helps identify whether the problem lies with the data in the CSD or the capture of that data.

- One of the **Land*online*** automated tests identifies areas of potential weakness in the captured survey data. A negative test report may not indicate actual survey errors but does identify areas where particular care should have been taken to ensure compliance with the accuracy standards. The surveyor should also have identified such areas and described special precautions and checks undertaken so that LINZ validation and approval staff can have confidence in the data presented in the CSD.

- **Land*online*** only allows the capture of one bearing and distance per line per survey (multiple observations are allowed from different surveys). The surveyor may have additional information (e.g. a check distance along a calculated boundary, double ties to survey marks, observations from prior surveys of the same lines, etc) which allow additional checks and greater confidence in the results than is indicated by the **Land*online*** checks.

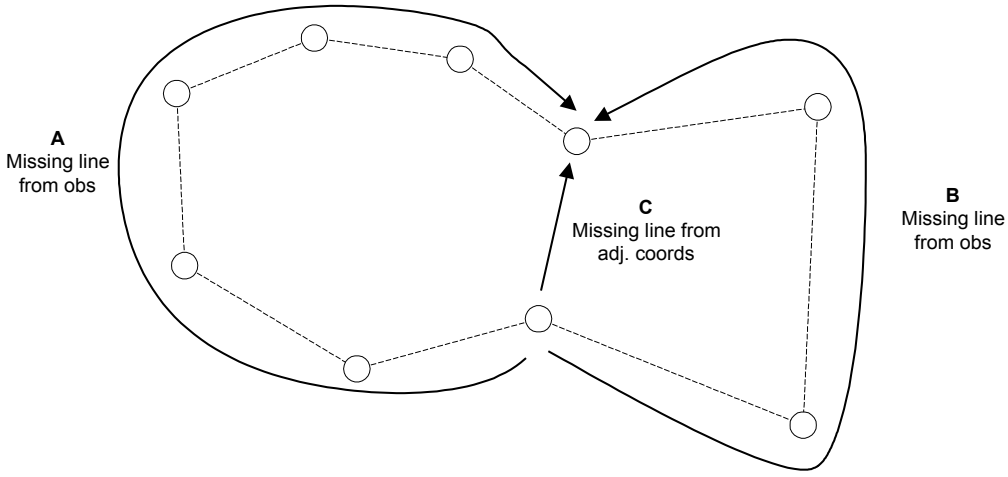
Therefore there is still a requirement for the surveyor to test the accuracy of their data and to describe the tests undertaken.

> **Note:** The surveyor is responsible for the correctness of the survey, even after approval, and errors may be found through audit or in a future survey. Therefore the surveyor needs to take particular care with those parts of the survey that are not fully tested by **Land*online***.

3.10.2 Testing Traverse Accuracy

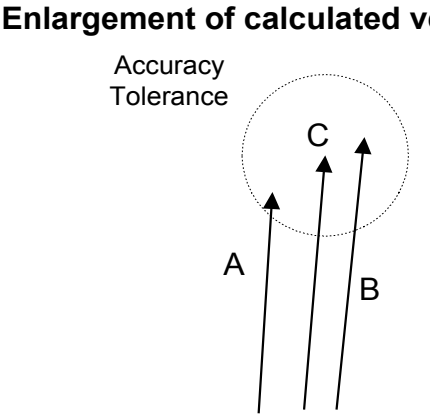
The following is a hypothetical traverse to illustrate some alternative methods of testing accuracy.

Diagram 3.5 *Example traverse loop with a narrow waist*



The best point to test a traverse for accuracy is the shortest dimension across the middle of a loop. This is where the tolerance is most rigorous and where the effect of a small error greatest. In the diagram below, the difference between A and C, or B and C, should be within the tolerance for the vector C. The enlargement in Diagram 3.6 shows the vector difference between A and C being slightly larger than the difference between B and C because more of the misclose will have been distributed in the longer traverse used to calculate A.

Diagram 3.6 *Enlargement of calculated vectors*



However, note that calculation comparisons cannot provide complete confidence that the accuracy requirements have been achieved. A very good test is an independent field check of measurements.

Five possible methods of testing accuracy are outlined below in relation to this example. The easiest method to apply will often be the traverse misclose method described in section 3.10.2.5. However, methods of demonstrating accuracy

other than these 5 may also be appropriate and these examples are not to be taken, as the only ways of demonstrating compliance with accuracy standards.

3.10.2.1 Field Measurement

3.10.2.1.1 Test method

Additional field measurements across traverse loops, particularly across the shortest dimension, provide a good method of testing traverse accuracy. However, rather than treating such measurements as being solely for checking purposes and not showing them on the plan, it may be better to include such measurements as bearings and/or distances shown on the plan so that they can contribute to the strength of what becomes a better (in the sense of being more-self-checking) dataset. In the example traverse shown in Diagram 3.5 above, an actual observation (bearing and/or distance) across the line C would turn a single weak traverse loop into two well-shaped traverse loops.

Similarly, taking measurements between boundary marks provides a good method of testing boundary ties. However, if the check measurement is along a boundary line (rather than across a parcel), then for the data captured into **Land*online***, it will not be possible to capture both a calculated and a measured dimension for the same line. Therefore, in this specific case, it must be clear on the plan which of the dimensions is intended to be the authoritative boundary dimension and which is just a check measurement. This is best achieved by having any check dimensions provided on field notes, traverse sheets, or calculations sheets rather than on the face of the plan.

The difference between a measured vector and the vector calculated from adjusted coordinates should not exceed the Rule 26 tolerance for the length, type and Class of vector. If it does, this may indicate, either an error to be resolved, or that the test measurement is, in fact, a necessary part of the survey dataset in which case the layout of the survey changes and different tests for the resulting work will be required.

By measuring between boundary marks that were placed from different traverse marks where those marks are either side of the narrowest part of the traverse loop, both the traverse and hanging boundary mark ties are tested in one operation (see option 3 below). However, for this test to demonstrate full compliance, the tolerance must not exceed the tighter standard that applies between traverse marks.

In the example traverse shown above in Diagram 3.5, if the line C has been directly measured, the surveyor has a choice of the following methods of demonstrating accuracy:

1. Complete a traverse adjustment of the large loop and then show the misclose between the measured line C and the adjusted coordinates. If this misclose is less than the tolerance for a line of this length, the accuracy of both the

large loop and the additional measurement has been demonstrated. This is similar to method 3.10.2.3 below.

2. Complete the traverse adjustments of the two loops created by addition of the check line. The accuracy of these loops can then be demonstrated using one of the methods listed below, e.g. 3.10.2.5.

3. Directly measure the boundary dimension between a peg placed from the traverse mark at the northern end of vector C, to a peg placed from the traverse mark at the southern end of vector C

3.10.2.1.2 Documentation

A suggested method of documenting the checks is tabulation, which could include:

i. Check vectors measured.

ii. The same vectors by calculation.

iii. The difference between these vectors.

iv. The tolerance under rule 26 for these vectors.

v. Whether each test is within rule limits.

For example: -

Line	Measured Vector	Calc Vector	Calc. Method	Vector Difference	Reg 26(2) tolerance	Comply
ITII – ITXX	12º 12’ 10” 123.46	12º 12’ 24” 123.475	Init. Adj. Coords	0.015	0.032	Yes
OITVIII – OIT XIX DP1623	48º 48’ 20” 518.11	48º 47’ 57” 518.036	“	0.094	0.072	No*
IS3 – OISIII	333º 33’ 30” 84.99	333º 33’ 02” 84.971	Final adj. Coords.	0.022	0.028	Yes

*Date of survey of DP 1623 is 1926. Tolerance allowed for this vector under Survey Regulations 1925 is 0.148. Vector complies with Rule. 26(3).

Note in this example, that there are circumstances where it is acceptable for a test to fail rule 26(2) if Rule 26(3) or another dispensation (e.g. Class IV) applies.

3.10.2.2 Missing Line Difference (Traverse vs Traverse)

This method analyses the difference between two independent vector calculations based on observations from the survey dataset. In the above

example in Diagram 3.5, this is the vector difference (ie misclose) between lines A and B which are derived from different sets of observations. The surveyor could determine, for example:

i. the shortest distance across the middle of the traverse loop

ii. the tolerance under rule 26 for this distance

iii. what the misclose between calculated vectors A and B is and that this value is no more than **twice*** the tolerance.

> **Note:** A strict statistical calculation would indicate the use of a factor of about 1.4 rather than 2. However, it is possible for a misclose to just comply with the accuracy requirements where the difference between vectors A and B is twice the tolerance that applies to vector C (ie, equal to the diameter of the tolerance circle – see Diagram 3.6). This difference cannot be more than the diameter of the tolerance circle around C and still comply.

3.10.2.3 Missing Line Difference (Traverse vs Coordinates)

A vector calculated from adjusted coordinates may be compared with a vector calculated from observations in the dataset. In the above example, this is the misclose between lines A and C (or B and C) - Diagram 3.5 and Diagram 3.6. The vectors A or B are calculated from part of the traverse. The vector calculated from adjusted coordinates is considered to be the best estimate of the "true" vector C. The surveyor could determine for example:

i. The shortest distance across the middle of the traverse loop

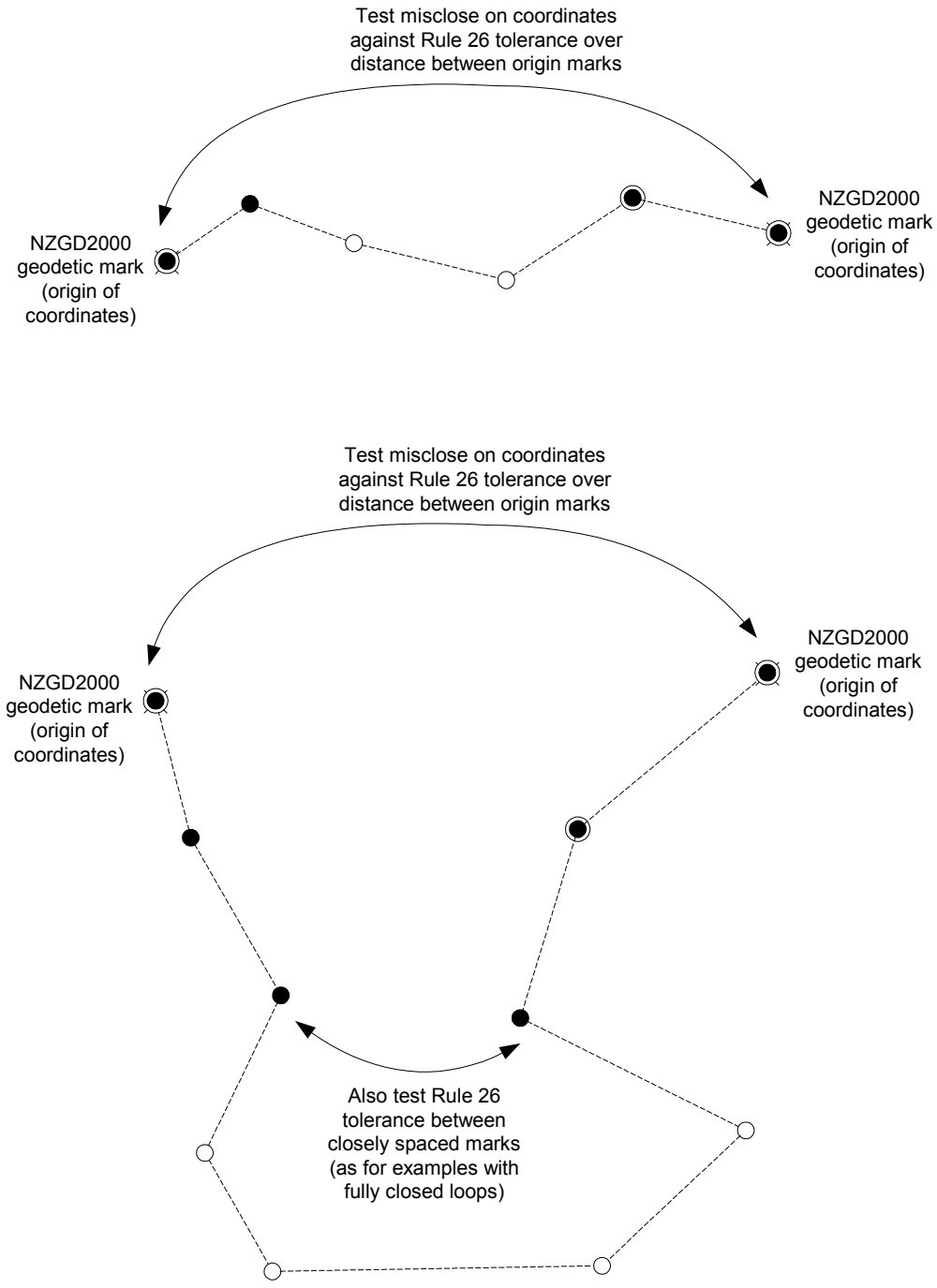
ii. the tolerance under rule 26 for this distance

iii. what the misclose between calculated vectors A and C (or B and C) is and that this value is no more than the tolerance for the vector C.

> **Note:** In this case, it is not appropriate to use twice the tolerance because adjusted values are used in the comparison.

For non-loop traverses that start at one point and finish on another, the vector calculated between the start and finish coordinates may be compared with the vector calculated from the unadjusted traverse. The difference should not exceed the tolerance allowed for a vector of this length. The start and finish point coordinates must have first been proved to be correctly in terms of each other. Traverses of this type may also require testing across their shortest distance if the traverse is shaped more like a horseshoe rather than being generally all in the same direction. See Diagram 3.7

Diagram 3.7 Example traverse between control marks



3.10.2.4 Relative Accuracy from Least Squares

This is how **Land*online*** determines the accuracy of a survey. Two types of test can be applied.

1. A comparison of residuals against the requirements of Rules 26 and 28 to ensure that none of the residuals (or observation corrections) exceed the

limits for observations of that type, Class and length. This tests the correctness of the actual observations (in essence – the misclose).

Most least squares adjustment programs will report on all observation residuals and usually have statistical tests to identify likely gross errors. Some least squares programs can also be set up to test residuals against specified accuracy criteria. The SNAP program, available free from the LINZ website, is one example.

2. An estimate of the relative accuracy between all points on the survey - whether observed or not – against the requirements of Rule 26. This is not a test of the correctness of the actual observations. It is a test that the network of observations has sufficient geometric strength and redundancy to ensure that reasonably accurate observations will achieve the accuracy standards (including the network being sufficient to ensure than any error would be likely to be detected in the first test above).

   This test can be based on the inverse normal matrix which contains information on the relative accuracy between all adjusted marks. Some least squares adjustment programs will show relative accuracy error ellipses. The test criteria is that the semi-major axis of the 2.5 standard deviation error ellipse should be less than or equal to the tolerance in Rule 26.

3.10.2.5 Traverse Misclose

3.10.2.5.1 Method

If the traverse appears on the traverse sheet as a complete loop, then the misclose of this loop will be **exactly** equal to the calculated difference between lines A and B in example 3.10.2.2 above – see Diagram 3.5 and Diagram 3.6. The actual misclose in a loop should be no greater than twice the tolerance on the shortest distance across the middle of the traverse loop (for the same reason as in section 3.10.2.2).

Therefore, if this misclose is to be used as evidence of compliance with Rule 26, the surveyor could determine, for example:

i. The shortest distance across the middle of the traverse loop;

ii. the tolerance under Rule 26 for this distance;

iii. what the total traverse loop misclose as shown on the traverse sheet is; and

iv. that this value is no more than twice the tolerance.

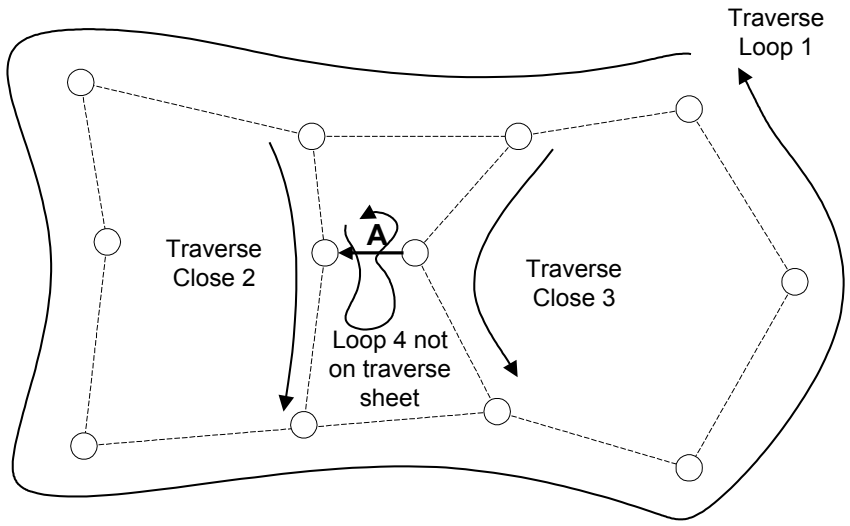
It should be noted that where traverse misclose is being used to demonstrate accuracy, the representative fraction (RF) for the loop misclose is a poor

measure of compliance with Rule 26. It is the total misclose that must be considered.

3.10.2.5.2 Comment on Traverse Misclose Method

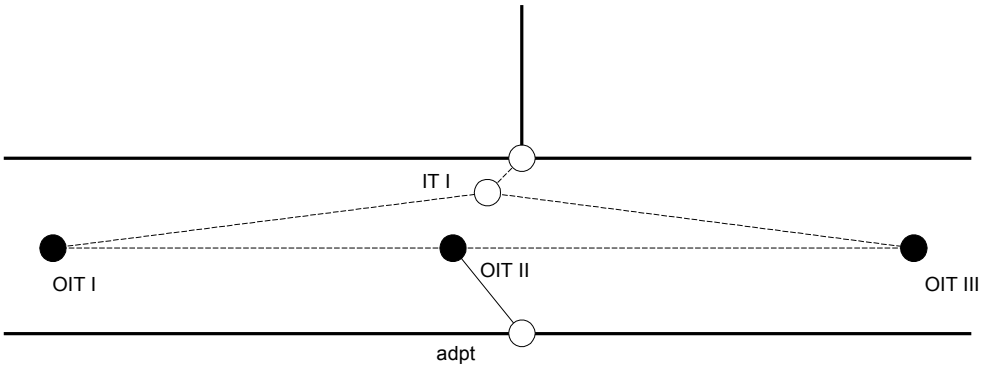
Except where surveyors are using least squares to adjust their traverses, they will often already have generated traverse misclose data and the traverse misclose method may be the most convenient method of demonstrating the accuracy of their survey data. However it should be noted that the layout of some traverses may not result in all the required information being present. In this case, additional traverse loop miscloses may have to be calculated. See the example in the diagram below.

Diagram 3.8 *Example where the traverse sheet does not have all the required information for accuracy testing*



In this case, the central loop has the tightest tolerance across vector A but the loop misclose does not appear in the traverse sheet. The surveyor may have to calculate an additional loop 4 and report on the comparison of this misclose against twice the tolerance for the vector A. Alternatively, additional calculated comparisons will be required to prove the accuracy compliance of vector A.

Diagram 3.9 *Example where additional proof may be required*



OIT I – OIT II – OIT III define the road alignment

- Main traverse lines about 200m each – 800m total traverse.
- OIT II is in a cutting and not visible from IT I (10m away).
- IT I is used to place and witness a roadside peg. Its relationship to the adjacent road centreline mark, OIT II, is important.
- Tolerance on the 10 metre line OIT II – IT I is 0.021m.
- Traverse close allowance is twice 0.021 = 0.042m in 800m (1:19,000).

In this example, the tolerance is so small relative to the length of the traverse, that the Approving Surveyor is entitled to expect a description of additional checks and precautions undertaken to demonstrate that the accuracy was achievable and that a good misclose was not just fortuitous. For example, the surveyor may need to note in the survey report, information such as: the type of instrument used; special observation precautions (forced centring, multiple sets); the bearing misclose; etc.

3.10.3 Boundary Accuracy Testing.

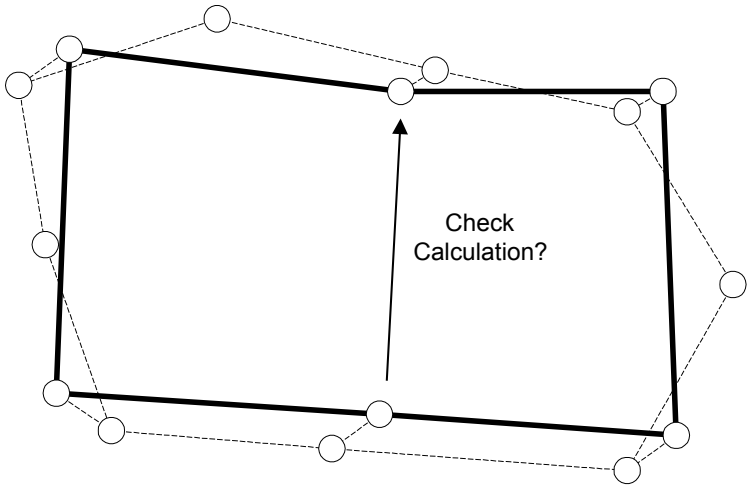
The use of modern high accuracy survey equipment together with proper field procedures will almost always achieve the specified survey tolerances provided the survey is based on a well-conditioned layout. However traverse to boundary (or other hanging line) mark connections may, in some circumstances, be close to or outside allowable tolerances, despite the tolerances being greater than under previous regulations. Because of this, and the greater possibility of undetected gross errors in hanging lines, surveyors need to carefully check boundary mark accuracy. Field audit will examine these aspects of the survey, as no amount of calculation is absolute proof of compliance.

The proof of correctness of hanging lines as required by Rule 14(2) may provide data that can be used to test the accuracy of (hanging) boundary marks. Note that correctness (no gross error) and accuracy are two different requirements.

In many circumstances, check vectors between boundary pegs will not be necessary because accuracy compliance can be readily deduced from a combination of:

- the traverse accuracy which has tighter tolerances than for boundaries;
- strong and reasonably close connections between the traverse and boundaries; and
- check measurements on pegging ties.

Diagram 3.10 *Example of boundary checks for accuracy*



For example:

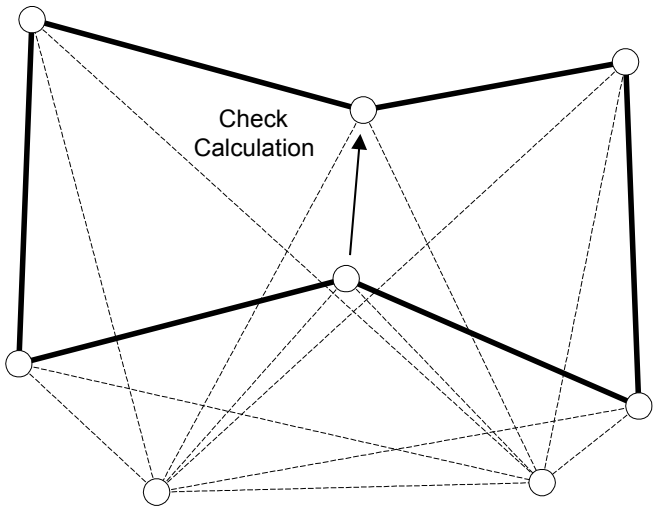
- **If** the traverse complies with accuracy standards;
- **If** the layout is traditional with traverse marks close to the boundary (for example, within the 50/100 m limits of the 1972 Survey Regulations for hanging lines); and
- If the lot shape is well conditioned (not narrow waisted);

Then proof of accuracy of the parcel boundaries can be considered tested.

However, there are some surveys where the boundary marks are not close to traverse marks and the shape of the traverse or lots is irregular or narrow-waisted. In these cases accuracy tests should be carried out where the figure is weak, ie, where any small measurement errors may accumulate such that the allowable tolerance is exceeded. This will occur where boundary marks are close to each other but are fixed from traverse marks some distance away. A worst case is where long ties from two different traverse marks fix two pegs, and the traverse between the traverse marks is very long (see Diagram 3.11 below).

It should be noted that where boundary dimensions have been derived from adjusted coordinates, any lot closures or calculation checks based on these dimensions do not prove accuracy because an almost perfect close would be expected regardless of the accuracy of the survey. If calculation checks are required, they will need to be based on calculations using independent traverse lines and independent pegging ties. This may be the case where boundaries have been tied from distant marks.

Diagram 3.11 *Example where additional boundary accuracy checks may be required*



3.11 Adjustment Of Survey Data

3.11.1 Adjustment

1. Rule 28 requires that the method of adjustment is to be acceptable to the Surveyor-General. For the purposes of this regulation, examples of current accepted methods are:

   - Least Squares
   - Bowditch
   - Any other method approved by the Senior Advisor to the Surveyor-General that provides a systematic adjustment, is readily understood and easily applied (examples are currently within customised survey computer packages).

2. Tabulation of coordinates of all marks is less critical since rollout of **Land*online*** but is still required for hardcopy surveys to assist with capture of those surveys by LINZ staff and also the validation. Note that under Rule 28, the adjustment correction applied to observations must not exceed the limits stated in Rule 26. Note also that the traverse sheets can provide a useful source of information in testing compliance with accuracy standards – see section 3.10.2.5.

3. It is not essential for coordinate values used for the origin of coordinates in traverse sheets to be identical to the latest coordinates from **Land*online*** or the Geodetic Database. However it should be noted that use of coordinates which are not in terms with each other, may result in incorrect calculation of boundaries or adjustment of traverses.

4. Where there are extensive corrections distributed throughout adopted work, these are to be shown on the traverse sheet. It is preferable that the unadjusted work (e.g pegging ties, ties to old marks, etc) is also shown on these sheets as well to indicate the quality of the underlying work.

5. A schedule referencing prior survey regulation accuracy requirements is included in section 3.14

6. In cases where large misclosures are insoluble, surveyors may write to the Processing Centre Manager (attention Help Desk) in the relevant Processing Centre (ideally at an early stage) requesting assistance. If a Class IV survey is proposed as a solution to this problem, the surveyor should write to the Senior Advisor to the Surveyor-General, in the relevant Processing Centre. Refer to Chapter 1 for Processing Centre contact details.

3.11.2 Recalculation of Boundaries

1. Boundaries may be recalculated where the original boundary can be proved to have been incorrectly calculated on the underlying survey dataset, or where modern fixes of reliable old marks indicate that the original calculation is outside the current limits of error.

    - It is not permissible to recalculate any particular boundary to obtain a closure unless that boundary can be proved to have been incorrectly calculated on the original dataset.

    - The position of old occupation may reveal a defect in the old survey and thus isolate the misclose.

    - A check with old traverse sheets and field notes may reveal a booking, reduction or calculation error.

    - When closures are outside the accuracy tolerances in force at the time of the original survey (subject to computations, field books etc. being checked) boundaries should be recalculated and pegged. Alternatively the surveyor can present a case to the Senior Advisor to the Surveyor-General to accept a lesser standard of accuracy in accordance with the process to be followed to comply with Rule 18.

    - Existing boundaries may only be recalculated without pegging if it can be proved that they have been wrongly calculated on a prior survey, or the recalculation is within the allowable tolerance of the regulation or rule in force at the date of survey.

    - If the surveyor believes that evidence from recent surveys (such as resurvey of witness marks and recent ties to the boundary) allows reliable adoption of the terminals of a boundary which needs to be recalculated, they may apply (before lodgement) to the Senior Advisor to the Surveyor-General for a dispensation under Rule 44 from the requirement to re-peg the boundary under Rule 31.

    - Where a general bearing correction has been applied to adopted boundary bearings (refer to 3.4.1 and 6.2.18) this does not constitute a recalculation requiring repegging. Similarly, if the surveyor has determined that different areas of an underlying survey have differential bearing corrections, and has justified the use of differential bearing correction as described in section 6.2.18.1, that also will not necessitate repegging of all adopted boundaries affected by application of the differential correction.

    - In some cases, a boundary alignment that extends beyond the land under survey (e.g. a road frontage) will be found to have an excess or shortage, outside survey limits, which needs to be distributed amongst one or more abutting parcel boundaries as well the land under survey.

In this case the affected recalculated boundaries of the parcel under survey will need to be repegged. However the recalculated boundaries of the abutting parcels do not need to be repegged.

Note: In this case, that the evidence supporting the recalculation will require particularly comprehensive reporting (in terms of Rule 42(2)(c) and 42(2)(d)) of boundary marks along the alignment that were searched for and found or not found. Similarly, any witness or traverse marks that were connected to the boundary alignment through underlying surveys will need to be reported in the same manner.

3.12 Computation of Areas

Areas are to be shown in hectares and up to four decimals places of a hectare, or where the area is less than 1 hectare, it shall be expressed in whole square metres.

E.g. 123.4500 ha

782 m^2

The accuracy tolerance for areas is 1 part in 1000 or 1 m^2 – whichever is the greater.

3.13 Protection of Survey Marks

3.13.1 Statutory Protection

1. Statutory protection is provided for:

   - All survey marks by Section 55 Cadastral Survey Act 2002
   - Trig Stations by Section 36 Land Act 1948
   - Marks for public works by Section 112 Public Works Act 1981.

2. The Cadastral Survey Act 2002 places responsibility for the cost of reinstatement of survey marks disturbed/ destroyed on the person who disturbed / destroyed them.

3. LINZ policy recognises that:

   - compliance with Section 55 is better dealt with through consultation rather than compulsion and
   - protection of survey marks which is initiated prior to works is more efficient and effective than reinstatement after disturbance.

3.13.2 Protection of Control Marks

1. Control marks are:

   - NZGD2000 control marks (5^{th} order or better – see also section 3.5.1.1.1)
   - NZGD49 control marks
   - Trigonometric stations
   - Bench marks
   - Survey control station or network station
   - Urban and Rural control marks

2. Where it is apparent that control marks are likely to be disturbed, the following points are to be noted:

   - The disturbance is to be reported to LINZ (Section 55 Cadastral Survey Act 2002).

- LINZ will identify how critical the mark is to the National Control System and inform the agency carrying out the works whether the mark has to be protected or not and of the statutory obligation regarding survey mark protection. If LINZ determine that the mark may be destroyed, the approval of LINZ under Section 55(5) will be given.

  Note: LINZ's work to identify the importance of the marks does not include any field inspection of marks or fieldwork for protection or reinstatement. The works agency will need to employ a surveyor to carry out the required survey work.

- If the control mark position is to be retained then any offsetting or reinstatement must be carried out by (or under the control of) a licensed cadastral surveyor, who takes the responsibility of guaranteeing the required standards.

- Any replacement mark is to be constructed to a prescribed standard (*Technical Instruction Urban and Rural Control Surveys 1981* and *OSG2 Geodetic Network Design Standards).* These documents are held by the Surveyor General.

- The survey fix of any replacement mark is to be carried out to the following accuracies:

  Horizontal: The difference between the true vector between the old mark and the new mark and the vector as measured or calculated shall not exceed ± 0.005m. The exception to this tolerance are bench marks fixed to cadastral standards. In these circumstances, cadastral standards are adequate.

  Vertical: The height difference between the existing mark, the new mark and the offset marks must be surveyed at least twice to the standard shown in the table below. The difference between the back and fore measurements is to be not greater than $\pm A\sqrt{D \div 1000}$ metres, where A is from the table below and where D is the distance between the marks in metres.

	Order of levelling	**A**	**Survey Instrument**
Bench Marks	1	0.0020 m	Precise Level
Urban Standards	2	0.0070 m	Level
Rural Standards and Trigs	4	0.0300 m	Level or 1" theodolite (Vertical Angles)

- Any work carried out is to be reported to LINZ (including all normal detail, offset marks and fixes, diagrams of each new control mark, nearby topographic detail, adopted positions of destroyed marks and the calculated tie from each new mark to the mark it replaces, summary

sheets of the levelling showing the origin, height differences and calculations).

- If new marks have been proved by the survey work to be in the same horizontal position as the mark they replace, no SO plan need be drawn, but the new height (if any) will need to be recorded in LINZ databases.

- If any new mark is in a position not previously marked, and was used during offsetting operations, then a field note must be lodged for record purposes. If the survey data is lodged for approval then a Survey Information plan (with traverse sheets, survey report, etc) will be required .

- Any field note so lodged that has additional marks shown on it will not enable these to be added to the **Land*online*** database because the data on the field notes is not approved as to survey. Therefore the placement of a new mark which ties to or reinstates a geodetic control mark requires a plan to be lodged for approval. Subsequently the data will be entered into the database. (For more information refer to OSG Specifications for Reinstating or Replacing Geodetic Control Marks Version 1.1 May 2001)

3.13.3 Protection of Cadastral Marks

1. Cadastral marks considered necessary for protection include:

   - permanent reference or witness marks which are critical for cadastral survey definition in the locality.

   - marks that "anchor" old surveys - **these may be pegs.**

   - marks that define intersections or major angles or alignments.

2. Where it is apparent marks are likely to be disturbed, the following points are to be noted:

   - The disturbance should be reported to LINZ. LINZ will identify how critical the mark is to the cadastre and inform the works agency of their obligations regarding survey mark protection. As noted above, this service does not include any field inspection of marks - nor does it include any field work for protection or reinstatement.

   - Alternatively, the licensed cadastral surveyor, in lieu of reporting to LINZ, may carry out on behalf of the works agency, the identification of the ground mark and either its protection, reinstatement or offsetting.

   - Any work carried out is to be reported to LINZ so that the survey record can be updated. This is to be in the form of a Survey Dataset for

approval as to survey or a copy of the field note for approval for record purposes only.

3.13.4 Supply of Permanent Marks

Bronze plaques, standard marks and covers, and related materials are available from supply firms.

Contact the Office of the Surveyor-General or the Senior Advisor to the Surveyor-General in the relevant Processing Centre for details.

3.14 Summary of Survey Regulation Requirements (prior to Survey Regulations 1998)

Date	Traverse Closure				Bearings		Distance accuracy for 1.6km	
	Rural		Town		Rural	Town	Rural	Town
					Closure	Closure		
1879,1886	1:1000	1:1000	1:2000	1:2000	3’	3’	1:2000	1:2000
1897	1:2000	1:2000	1:4000	1:4000	3’	3’	1:4000	1:4000
1907	1:2000	1:2000	1:4000	1:4000	2’	2’	1:8000	1:8000
+								
	Rough	**Easy**	**Rough**	**Easy**				
1923	1:2000	1:4000	1:4000	1:8000	3'	1'30"		
1925	1:1600	1:2700	1.2700	1:4000				
	(**in 1.2km)**	**(in 1.2km)**	**(0.5km)**	**(1.2km)**	**Accuracy (>0.2km)**	**Accuracy (>0.2km)**		
1940	1:3500	1:6000	1:5000	1:8000	1'30"-3'	1'	1:9000	1:18000
1947	1:4500	1:5700	1:7100	1:8600	2'	1'	1:9000	1:18000
1959	1:2500	1:3100	1:4200	1:4600	2'	1'	1:5000	1:10000
1972	1:2500	1:3500	1:5000	1:5000	2'	1'	1:5000	1:10000

Notes:
1. “Gunters” link chain was replaced by one chain steel tape in 1870’s. Long steel wire was in use from mid 1880’s but replaced by long steel band by early 1890’s.
2. For the 1940 to 1972 regulations, the requirements varied according to the length of the traverse.

4. SURVEY TECHNOLOGY

CONTENTS

4. SURVEY TECHNOLOGY

4.1 Calibration of Equipment

- Instruments must be calibrated regularly and Baselines are available throughout the country for comparisons of measurement.
- Instruments should be calibrated immediately after repairs to that instrument.
- Calibration will be required at more frequent intervals for instruments over 10 years old to check on scale error due to aging frequency mechanisms.
- Calibration certificates can be requested by the Approving Surveyor for the survey validation process and by the Senior Advisor to the Surveyor-General for the auditing processes.
- See 4.2.2 for calibration of GPS equipment

4.1.1 Location of Baselines

North Auckland Land District:

Kupe St. Orakei (SO 47889)

Kokopu Rd. Ruatangata (SO 55175)

South Auckland Land District:

Rotorua Airport (SO 49259)

Dey St. (SO 53628)

Tauranga (SO 56277)

To use the Dey St. Base additional pillar fittings are required. These can be obtained from the Principal Surveyor, Opus International Consultants Ltd.

Taranaki Land District

Airport Drive, Bell Block (SO14852)

Gisborne Land District:

College Rd., Waerengaahika (SO 6681)

Otara Rd. Opotiki (SO 7817)

Cyclic Error Test Base & chain test base, Nga Wai E Rua Building, Lowe St. Gisborne

Hawkes Bay Land District:

Western side of HB Airport (SO 7312)

Wellington Land District:

Cobham Drive, Wellington (SO35832)

Roberts Line, Palmerston North (SO32273)

SO 35832 has been amended following the destruction of Pillar A.

SO 32273 has an amendment to the height of RM VIII.

Nelson Land District:

Nelson Airport (SO15529)

Contact the Control Tower (03-547 9799) immediately before entering and after vacating the airport grounds.

Marlborough Land District:

Fairhall Diversion (SO 5466)

Westland Land District:

Park St. Hokitika (SO12432 and SO 12597)

Canterbury Land District

Linwood Avenue, Christchurch (SO 13058)

Richard Pearse Airport, Timaru (SO16252)

Otago Land District

Dukes road, Mosgiel (SO 19413) Tripods required

Northern Motorway, Waitati (SO20547) Forced centering. Adaptors required.

Luggate-Cromwell Road, SH6 (SO19213) Tripods required.

Southland Land District;

Moulson St./ Scott St./ SH 92 (SO 10415)

4.1.2 Chain Testing

Most of the former chain test bays have been dismantled. Calibration can be arranged through the Surveyor-General by writing to:

Surveyor-General,
Land Information New Zealand
Private Box 5501
Wellington

The Surveyor-General will provide advice of contractor(s) that undertake this service. The surveyor will be invoiced directly by the contractor who carries out the test.

4.2 GPS Surveys

4.2.1 Introduction

Global Positioning Systems are now used extensively by the surveying profession. Traditionally GPS has been used for high precision geodetic survey but increasingly it is being used by the private survey practitioner for cadastral surveys.

These guidelines outline recommended procedures for compliance with the Surveyor General's Rules for Cadastral Survey 2002/2

4.2.2 Calibration of Equipment

GPS equipment, software and procedures should be tested before general usage. This can be achieved by making measurements and processing data over known baselines or a network of points.

Unlike EDM equipment, GPS receivers cannot be calibrated for scale because the definition of scale is inherent in the satellites and orbit data. However, antennas and tribrachs can be calibrated for centering errors.

Antenna centering errors are generally not significant when geodetic quality equipment (e.g. with microstrip antennae) is used for cadastral surveys. However, the Approving Surveyor or the Senior Advisor to the Surveyor-General is entitled to request a calibration test if there is reason to doubt the GPS results - particularly those on short lines. Note however, such doubts are more likely to be the result of errors in a tribrach or antenna pole bubble.

Calibration may be desirable where different types of antenna are used on opposite ends of short lines (under 100 metres) or where antennas designed principally for navigation are being used for cadastral surveys other than Class IV.

Note: Centring errors can be tested by setting up 2 receivers within a few metres of each other and periodically rotating one of the antennas by 90°. The observing time for each position should be longer than the usual field observation time so as to minimise the impact of multipath errors which otherwise may lead to an apparent centring error where none exists. A baseline should be calculated for each position. If the baselines vary by only a few millimetres then the centring error may be ignored for cadastral survey. Variations greater than 5 mm will require further investigation, particularly if the pattern of results matches the rotation of the antenna. Antenna offsets may also be present when mixing different antenna types, this may be tested by measuring a line of a few metres with GPS and comparing the results with a direct EDM or taped measurement of the line between the antennae.

4.2.3 Origins

In line with the Surveyor General's Rules for Cadastral Survey 2002/2, a survey must be connected to at least 3 existing approved (and proven) survey marks adequate to prove its reliability, orientation, and scale.

GPS observations can be made directly between three or more appropriate existing survey marks to prove the reliability of the origin in the conventional manner, e.g. by comparing bearing and distances between origin marks.

Alternatively, where a base station is used outside the area of the survey, 3 or more appropriate existing survey marks in the area of the survey need to be tied to.

Where the survey consists of a mixture of GPS and conventional observations, the connections between the separately observed networks must be such that Rule 8 is satisfied – ie that "bearing and positional accuracy are maintained over the whole survey." This should be apparent from observations shown on the face of the plan.

4.2.4 Good Survey Practice

GPS provides the ability to operate over greater distances than with conventional equipment. Often base stations outside of the area of the survey can be employed. All GPS surveys must be undertaken in accordance with accepted good survey practice as follows.

1. As a general rule GPS marks should be intervisible, particularly boundary and witness marks, to aid future surveys where conventional techniques may be used.

2. GPS observation procedures should be designed to detect and eliminate:

    - ambiguity initialisation errors;
    - the effects of multipath;
    - interference from electrical sources such as substations, microwave or other spurious radio signals;
    - poor satellite geometry due to satellite configuration and/or sky coverage obstructions.

3. All marks should be annotated with a unique identifier. This is particularly important where data is tabulated on the plan or traverse sheets. Note that Schedule 2 Clause 7(e) of the SG Rules requires all new marks (witness, traverse or boundary) to have a unique identifier.

4. With the possible exception of Class IV surveys (see below), all GPS observations are to be checked by independent observations from another (independent) base station.

5. For Class IV surveys, the Senior Advisor to the Surveyor-General, as a condition of the Class IV dispensation, may allow re-measurement of the same vector to constitute an acceptable check. Where re-measurement of the same vector is carried out observations are to be made at a different time (at least 30 minutes after the first observation) to enable satellite geometry to change and thus ensure that any multipath errors will be detected. Also in this case, a detailed description of the checks undertaken to ensure that no transcription errors have occurred on the plan must be provided in the survey report.

Note: Satellite geometry replicates itself approximately every 23 hour 56 minutes. This can result in a re-measurement being affected by the same error as the original measurement. Therefore multiples of 23 hours 56 minutes between re-measurements should be avoided.

4.2.5 Connection to Witness Marks

GPS observations from an independent base station can be used to connect survey or boundary marks to witness marks. The boundary - witness mark connection can be calculated from the independent GPS observations in such cases and, as indirectly derived dimensions, will be shown as "calc". Such observations must be independently checked to ensure compliance with Rules 3B(1)(a), 14(2) and 42(2)(j).

If there is no direct connection between a boundary mark and a witness or traverse mark that lies within the distance tolerance of Rule 13, then the calculated connection between the boundary and its witness mark must be shown on the plan and annotated with "calc". (This can be in a tabulated form on the face of the plan. Refer to 4.2.13)

4.2.6 Information must be enough to fix Boundaries and Marks

Sufficient GPS observations shall be shown on the survey plan, and annotated "GPS", to indicate the general method of survey.

To avoid cluttering plans with extensive linework, particularly where double ties have been used, tabulation of the data is recommended. This tabulated data showing observed bearings and distances must be shown on the survey plan with the exceptions that observations made solely to provide a check, may be tabulated (showing bearings and distances) on a separate traverse sheet and ties to natural boundaries may be shown only on a traverse sheet referenced on the plan.

Where a line is calculated between two GPS points (i.e. where the GPS readings at each end were not simultaneous) it shall be annotated "calc".

Note: All GPS data, except check observations and ties to natural boundaries must be shown either as GPS observed lines or in tabular form on the survey plan. Depending on the length of GPS vectors, bearings may need to be shown to the nearest second or even tenth of a second in order to comply with the accuracy requirements between adjacent marks that have not been directly connected by observation (e.g. if adjacent marks have been independently surveyed from points many kilometres away).

4.2.7 Distances and Bearings

In line with the Surveyor General's Rules 2002/2 for Class I, II, and III surveys, GPS vectors are to be supplied as meridional circuit projection bearings and distances reduced to the ellipsoid of the survey datum, - from the base station to points in the survey. For practical purposes this is the same as reduction of distances to sea level.

For Class IV surveys, the derivation of vectors of boundary dimensions and between origin marks from GPS coordinates are permissible with the agreement (as part of the Class IV dispensation) of the Senior Advisor to the Surveyor General. A supporting calculation sheet showing how these were derived may be required by the Senior Advisor.

Where a new line is measured by GPS it must be annotated "GPS" *[SG Rules, Schedule 2, Clause 9(d)]*. If all observations are made using GPS, a note in the side panel indicating that all observations are GPS can be used in place of annotating each line.

Note: The GPS vector (bearing and distance) between two points calculated from a single GPS baseline which has been derived from simultaneous GPS observations at those points is regarded as the measured dimension. Other cases, where the bearing and distance are derived from an adjustment of multiple baselines, result in bearings and distances that are considered to be calculated rather than measured.

Where bearings and distances are calculated between points in the survey (i.e. where they are not derived from a single unadjusted GPS baseline), they must be annotated as "calc" *[SG Rules, Schedule 2, Clause 9(f)]*.

4.2.8 Heights

Where heights are to be shown on the plan, GPS spheroidal heights must be transformed to an orthometric height datum acceptable to the Senior Advisor to the Surveyor General – e.g. when heights are required for strata titles. This will require the application of a spheroid-to-geoid correction – i.e. the geoid height.

4.2.9 Prescribed standard of accuracy for vectors

The standards of accuracy for GPS data must comply with the Surveyor-General's Rules for Cadastral Survey 2002/2. Sufficient measurements shall be made to prove that the accuracy standards have been met.

4.2.10 Misclosures

Any misclosures shall be computed by a standard method such as 'Bowditch' or, more commonly, by 'Least Squares'.

4.2.11 Format and Content of Plans and Traverse Sheets

1. GPS observations on the plan or traverse sheet shall be shown as the two dimensional polar (horizontal) vector between survey marks, e.g. as a meridional circuit projection bearing and reduced spheroidal distance.

2. Where coordinates derived from GPS observations are being shown, they shall be provided as local circuit grid coordinates (eg, N, E), and NOT as geocentric Cartesian coordinates (eg, X, Y, Z) or geographic coordinates (eg, ϕ, λ, h).

4.2.12 Survey Report

It is the surveyor's responsibility to provide a detailed description of checks made, quality of results, and proof of compliance with the Surveyor General's Rules for Cadastral Survey.

The remainder of this section describes specific information related to GPS data that should be provided in the survey report.

4.2.12.1 Description of the Survey

A description of the survey is to include where applicable:

- a brief statement as to the purpose of the survey to enable the type of survey carried out to be assessed in the context of the GPS methodology used;

- what observations were made [e.g. how were ties made to permanent reference marks, witness marks and boundary marks. Were they direct GPS vector measurements or were they indirectly calculated from GPS observations];

- how check observations were made [e.g. were they repeat observations of the same line or were observations from a different base station used to provide a fully independent measurement];

- a description of precautions taken to identify and minimise the effects of multipath and of gross errors.

4.2.12.2 List of Equipment used

A list of the type and model of equipment used. This should also include information on any base station service that has been used.

4.2.12.3 Description of the GPS methods employed

A description of the methods used shall include as applicable:

- the method of survey used e.g. static, rapid static, stop and go, kinematic, or real time kinematic (RTK);

- the expected precision from the method of survey used. This may be provided by manufacturers, software providers, other survey literature or the surveyor's experience;

- description of any specific parameters programmed into the receiver or used in processing that would be likely to affect the result of the survey, e.g. use of tropospheric models;

- for static observations, a general indication of observation and session times;

- the mode of operation e.g. single or dual frequency observations, carrier phase, differential pseudorange, or carrier phase smooth DGPS;

- description of the GPS reduction techniques used including the software used.

4.2.12.4 Assessment of GPS data quality

This shall be provided so that the appropriateness of the methodology used for the survey can be assessed. This may be provided by:

- the repeatability of observations e.g. the maximum difference or standard deviation of repeated observations on each line;

- a comparison of GPS observations with underlying work;

- description of independent checks applied to verify quality assessment e.g. loop closures or network analysis.

4.2.12.5 Proof of Origin

Proof that an origin of the survey has been established in compliance with the Surveyor General's Rules (e.g. observation of three old marks).

4.2.13 Presentation of Tabulated data

Example of the presentation of tabulated GPS data on the face of a survey plan.

From (Base station)	To	Bearing	Reduced Spheroidal Distance (metres)
OIT VII (DP 2354)	IT II (DP 2354)	11° 29' 30"	153.98
	OIT IV (DP 2354)	23° 41' 30"	23.48
	Peg A (DP 4541)	54° 57' 20"	56.89
	ITVI (DP 2354)	164° 52' 40"	12.42
	OIT VI (DP 2354)	275° 31' 40"	128.87
	OIT V (DP 4541)	289° 31' 40"	77.34
Trig 17734	IT II (DP 2354)	23° 45' 26"	5623.43
	OIT IV (DP 2354)	23° 48' 20"	5632.14
	Peg A (DP 4541)	24° 21' 43"	5734.46
	Peg B (DP 4541)	26° 40' 31"	5689.73
	Peg C (DP 4541)	31° 13' 18"	5543.54
	OIT V (DP 4541)	31° 14' 16"	5552.73

Note: The check observations from Trig 17734 could alternatively be shown on a separate traverse sheet.

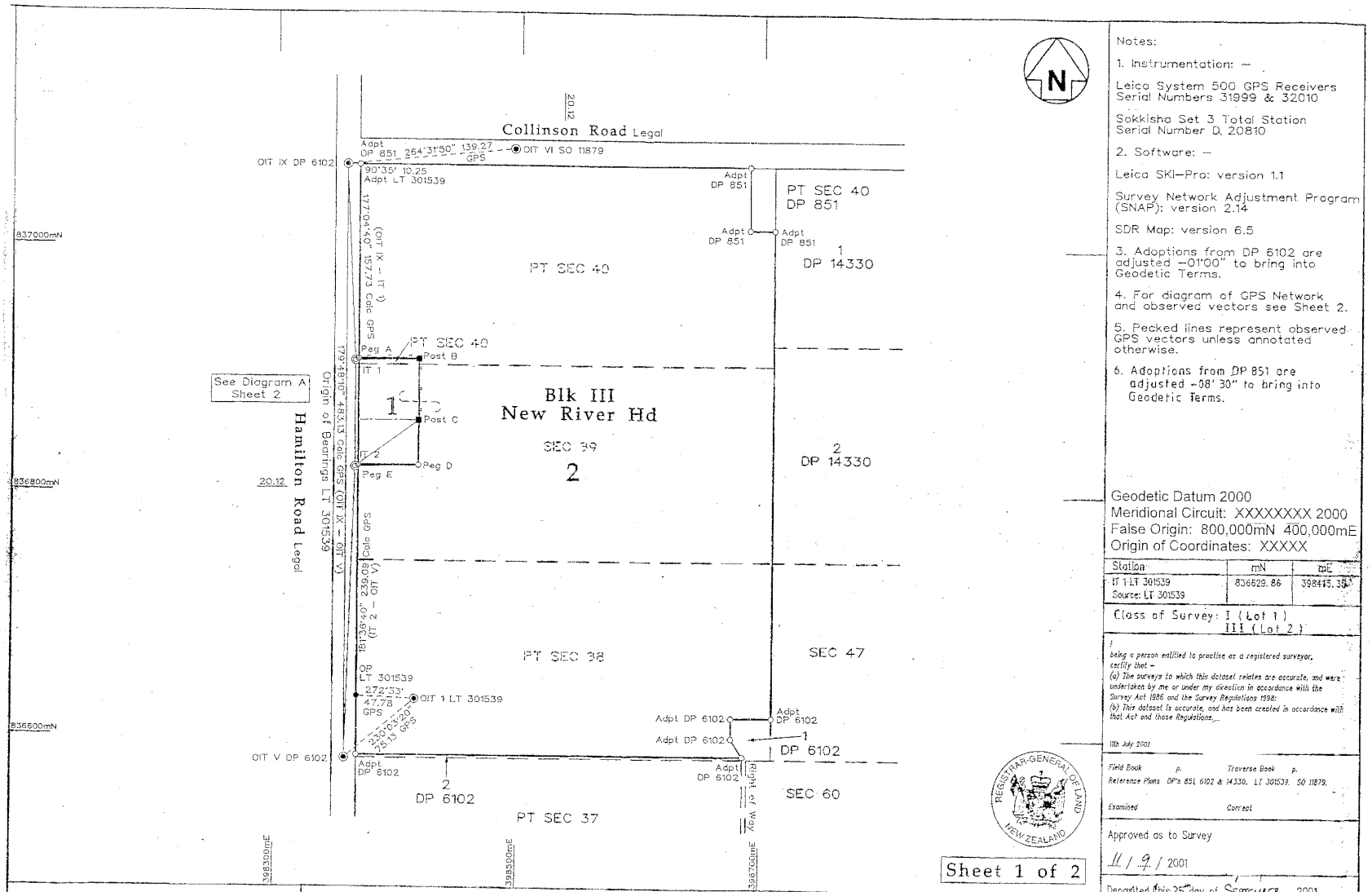
4.2.14 Reference Material

This section is based on OSG Technical Report 11 "GPS Guidelines for Cadastral Surveys". Annex A "GPS - The Technology and the Terms" based on a report prepared by Paul Denys and Mark Smith of the School of Surveying, Otago University, provides further reading on the technical aspects of the Global Positioning System and measurement.

Copies of Technical Report 11 are available on the LINZ Internet site – Survey System Publications page or from the Office of the Surveyor-General.

4.2.15 Sample Plan

A copy of a sample plan is available.


Collinson Road Legal
20.12
Adpt DP 851 264°31'50" 139.27 GPS
OIT VI SO 11879
OIT IX DP 6102
90°35' 10.25
Adpt LT 301539
Adpt DP 851
PT SEC 40
DP 851
PT SEC 40
1
DP 14330
837000mN
177°04'40" 137.73 Calc GPS (OIT IX – LT 9)
PT SEC 40
Peg A
Post B
See Diagram A Sheet 2
Blk III
New River Hd
SEC 39
2
Post C
Peg D
Peg E
2
DP 14330
836800mN
20.12
Hamilton Road Legal
Origin of Bearings LT 301539
179°18'10" 482.13 Calc GPS (OIT IX – OIT V)
181°36'40" 239.08 Calc GPS (LT 2 – OIT V)
PT SEC 38
SEC 47
OP LT 301539
272°33' 47.78 GPS
OIT 1 LT 301539
836600mN
Adpt DP 6102
Adpt DP 6102
1
DP 6102
OIT V DP 6102
Adpt DP 6102
Adpt DP 6102
Right of Way
2
DP 6102
SEC 60
PT SEC 37
398300mE
398500mE
398700mE
N
Notes:
1. Instrumentation: –
Leica System 500 GPS Receivers Serial Numbers 31999 & 32010
Sokkisha Set 3 Total Station Serial Number D. 20810
2. Software: –
Leica SKI–Pro: version 1.1
Survey Network Adjustment Program (SNAP): version 2.14
SDR Map: version 6.5
3. Adoptions from DP 6102 are adjusted –01'00" to bring into Geodetic Terms.
4. For diagram of GPS Network and observed vectors see Sheet 2.
5. Pecked lines represent observed GPS vectors unless annotated otherwise.
6. Adoptions from DP 851 are adjusted –08' 30" to bring into Geodetic Terms.
Geodetic Datum 2000
Meridional Circuit: XXXXXXXX 2000
False Origin: 800,000mN 400,000mE
Origin of Coordinates: XXXXX
Station | mN | mE
LT 1 LT 301539 Source: LT 301539 | 836629.86 | 398415.35
Class of Survey: I (Lot 1) III (Lot 2)
I being a person entitled to practise as a registered surveyor, certify that –
(a) The surveys to which this dataset relates are accurate, and were undertaken by me or under my direction in accordance with the Survey Act 1986 and the Survey Regulations 1998;
(b) This dataset is accurate, and has been created in accordance with that Act and those Regulations.
11th July 2001
Field Book p. Traverse Book p.
Reference Plans DP's 851, 6102 & 14330, LT 301539, SO 11879.
Examined Correct
Approved as to Survey
11 / 9 / 2001
Deposited this 25th day of SEPTEMBER 2001
for Registrar General of Land
File
Received Instructions 20-7-01 1275
4.2.20 S1
G.P.S.
"Approved LM 94/14"
REGISTRAR-GENERAL OF LAND NEW ZEALAND
Sheet 1 of 2
LAND DISTRICT SOUTHLAND
Lots 1 and 2 being subdivision of Pt Secs 38 & 40, & Sec 39 Blk III New River Hd
TERRITORIAL AUTHORITY SOUTHLAND DISTRICT
Surveyed by TrueSouth Survey Services Limited
Scale 1 : 2000 Date June 2001
A.J. BEVIN, SURVEYOR GENERAL, LAND INFORMATION NEW ZEALAND

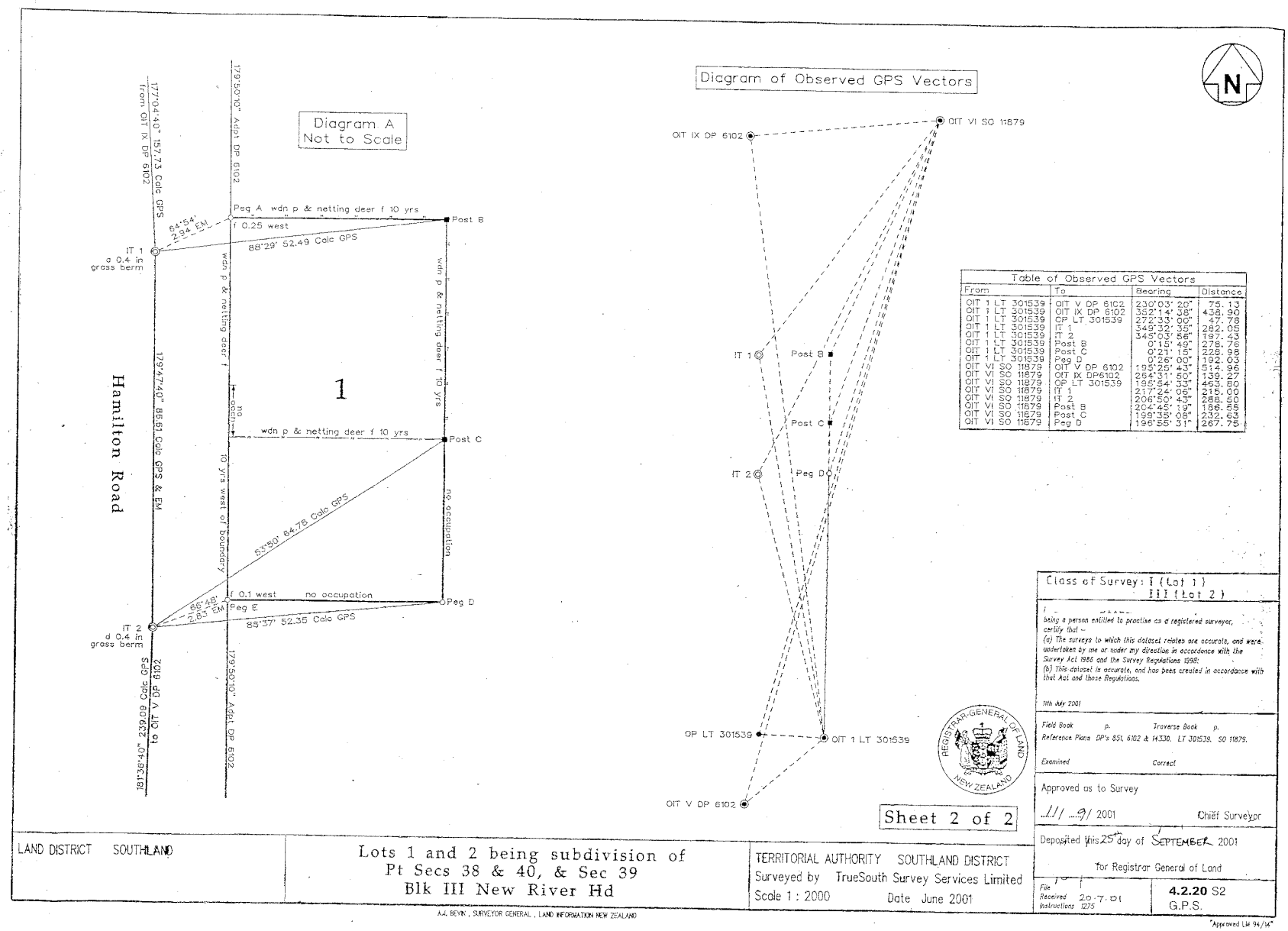
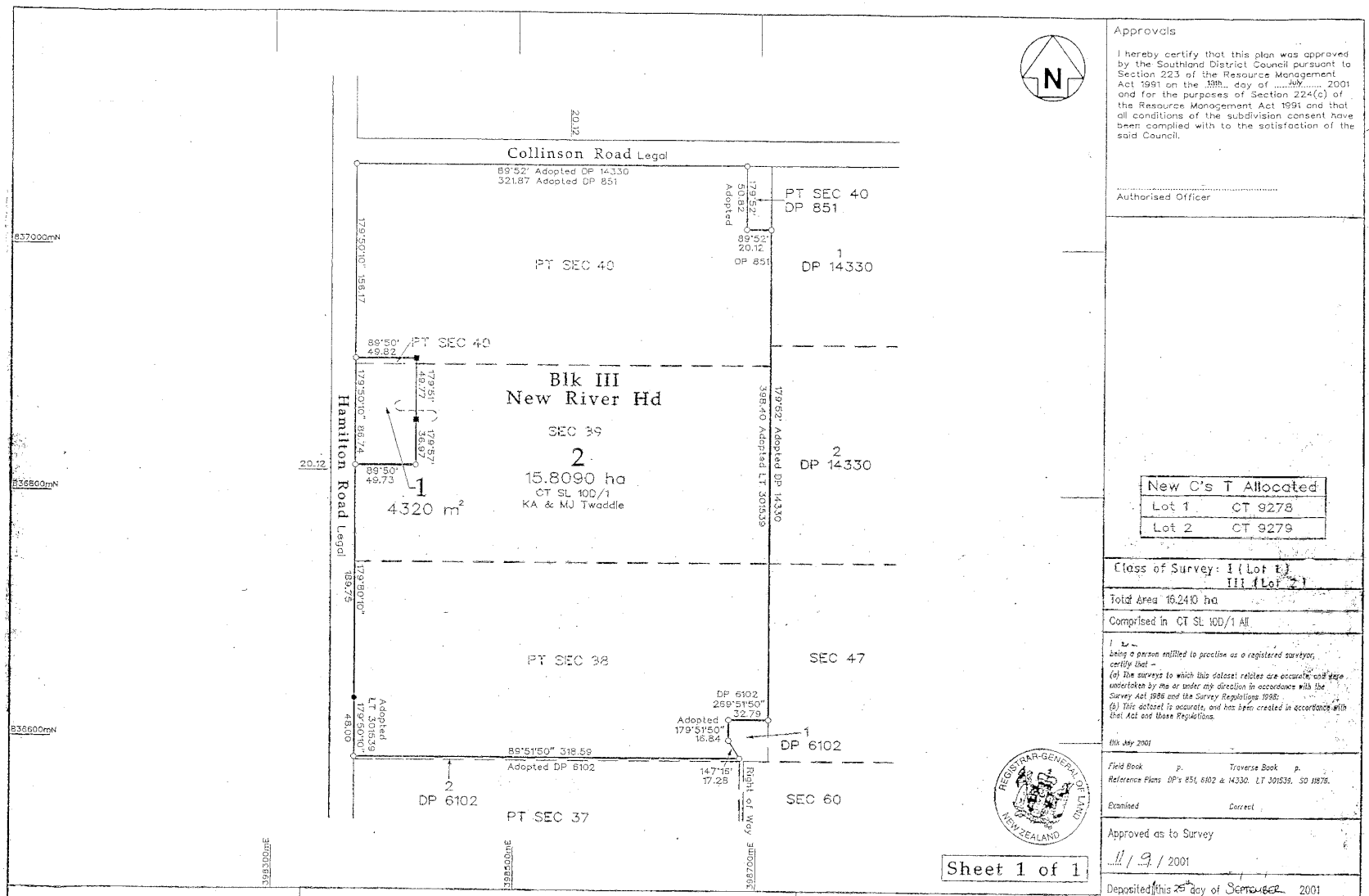


Diagram A
Not to Scale
Hamilton Road
1
Peg A wdn p & netting deer f 10 yrs
Post B
f 0.25 west
88°29' 52.49 Calc GPS
64°54' 2.94 EM
IT 1
d 0.4 in grass berm
wdn p & netting deer f 10 yrs
wdn p & netting deer f 10 yrs
no occupation
Post C
10 yrs west of boundary
no occupation
53°50' 64.76 Calc GPS
f 0.1 west
no occupation
Peg D
66°48' 2.83 EM
Peg E
IT 2
d 0.4 in grass berm
88°37' 52.35 Calc GPS
179°50'10" Adpt DP 6102
177°04'40" 157.73 Calc GPS from OIT IX DP 6102
179°47'40" 85.61 Calc GPS & EM
181°36'40" 239.69 Calc GPS to OIT V DP 6102
179°50'10" Adpt DP 6102
Diagram of Observed GPS Vectors
OIT IX DP 6102
OIT VI SO 11879
IT 1
Post B
Post C
IT 2
Peg D
OP LT 301539
OIT 1 LT 301539
OIT V DP 6102
N
Table of Observed GPS Vectors
From | To | Bearing | Distance
OIT 1 LT 301539 | OIT V DP 6102 | 230°03' 20" | 75.13
OIT 1 LT 301539 | OIT IX DP 6102 | 332°14' 38" | 438.90
OIT 1 LT 301539 | OP LT 301539 | 272°33' 00" | 47.78
OIT 1 LT 301539 | IT 1 | 349°32' 35" | 282.05
OIT 1 LT 301539 | IT 2 | 345°03' 56" | 197.43
OIT 1 LT 301539 | Post B | 0°15' 49" | 278.76
OIT 1 LT 301539 | Post C | 0°21' 15" | 228.98
OIT 1 LT 301539 | Peg D | 0°26' 00" | 192.03
OIT VI SO 11879 | OIT V DP 6102 | 195°25' 43" | 514.96
OIT VI SO 11879 | OIT IX DP6102 | 264°31' 50" | 139.27
OIT VI SO 11879 | OP LT 301539 | 196°54' 33" | 463.80
OIT VI SO 11879 | IT 1 | 217°24' 06" | 215.00
OIT VI SO 11879 | IT 2 | 206°50' 43" | 288.50
OIT VI SO 11879 | Post B | 204°45' 19" | 186.55
OIT VI SO 11879 | Post C | 199°35' 08" | 232.63
OIT VI SO 11879 | Peg D | 196°55' 31" | 267.75
REGISTRAR-GENERAL OF LAND NEW ZEALAND
Sheet 2 of 2
Class of Survey: I (Lot 1)
III (Lot 2)
I ... being a person entitled to practise as a registered surveyor, certify that –
(a) The surveys to which this dataset relates are accurate, and were undertaken by me or under my direction in accordance with the Survey Act 1986 and the Survey Regulations 1998.
(b) This dataset is accurate, and has been created in accordance with that Act and those Regulations.
11th July 2001
Field Book p. Traverse Book p.
Reference Plans DP's 851, 6102 & 14330, LT 301539, SO 11879.
Examined Correct
Approved as to Survey
.../.../ 2001 Chief Surveyor
Deposited this 25th day of SEPTEMBER 2001
for Registrar General of Land
File
Received 20.7.01
Instructions 1275
4.2.20 S2
G.P.S.
LAND DISTRICT SOUTHLAND
Lots 1 and 2 being subdivision of
Pt Secs 38 & 40, & Sec 39
Blk III New River Hd
TERRITORIAL AUTHORITY SOUTHLAND DISTRICT
Surveyed by TrueSouth Survey Services Limited
Scale 1 : 2000 Date June 2001
A.J. BEVIN, SURVEYOR GENERAL, LAND INFORMATION NEW ZEALAND
"Approved LM 94/14"



Approvals

I hereby certify that this plan was approved by the Southland District Council pursuant to Section 223 of the Resource Management Act 1991 on the 19th day of July 2001 and for the purposes of Section 224(c) of the Resource Management Act 1991 and that all conditions of the subdivision consent have been complied with to the satisfaction of the said Council.

.....
Authorised Officer

New C's T Allocated	
Lot 1	CT 9278
Lot 2	CT 9279

Class of Survey: I (Lot 1)
III (Lot 2)

Total Area 16.2410 ha

Comprised in CT SL 10D/1 All

I [illegible]
being a person entitled to practise as a registered surveyor, certify that –
(a) The surveys to which this dataset relates are accurate, and were undertaken by me or under my direction in accordance with the Survey Act 1986 and the Survey Regulations 1998;
(b) This dataset is accurate, and has been created in accordance with that Act and those Regulations.

11th July 2001

Field Book p. Traverse Book p.
Reference Plans DP's 851, 6102 & 14330. LT 301539. SO 11878.

Examined Correct

Approved as to Survey
11 / 9 / 2001

Deposited this 25th day of SEPTEMBER 2001
for Registrar General of Land

File
Received 20-7-01
Instructions 1275

4.2.20 T
G.P.S.

LAND DISTRICT SOUTHLAND

Lots 1 and 2 being subdivision of
Pt Secs 38 & 40, & Sec 39
Blk III New River Hd

TERRITORIAL AUTHORITY SOUTHLAND DISTRICT
Surveyed by TrueSouth Survey Services Limited
Scale 1 : 2000 Date June 2001

A.J. BEVIN, SURVEYOR GENERAL, LAND INFORMATION NEW ZEALAND

"Approved LM 94/14"

5. DISPENSATIONS

CONTENTS

5. DISPENSATIONS

5.1 Class IV Surveys

It is expected that Surveyors will have followed the decision making process in Section 11.1 (Parcels) in the first instance.

Surveyors seeking dispensations from any of the Rules specified in Rule 44 are expected to present a written proposal to the Senior Advisor to the Surveyor-General, prior to lodgement of the survey, detailing the circumstances of the survey and the justifications of the exemptions sought, before the CSD is submitted.

Generally this will involve a consideration of the following factors:

- the potential value of the land subsequent to the subdivision versus the cost of full survey
- the purpose of the survey and the proposed land use.
- that the tenure does not warrant the same expectation of accuracy
- the adequacy of existing survey data
- misclosures outside the limits of error under the accuracy standards (as specified in former regulations) applicable at the time the underlying survey was completed
- that parcel boundaries are comprised of a significant amount of natural boundary and it is unreasonable in the circumstances to require refixing
- physical difficulties relating to the land being subdivided

When applying for a dispensation the supply of a photograph may be useful in clarifying the circumstances and assisting the Senior Advisor to the Surveyor General to reach a decision.

The Senior Advisor will notify the Surveyor of the decision in writing.

The Senior Advisor's decision is to be referenced in the survey report when the data is lodged (the request number shown as a reference on the reply).

Note: LINZ Operations staff processing surveys, including Approving Surveyors, have no explicit powers to grant dispensations under Rule 44 other than in accordance with the requirements clarified in this guideline).

Therefore a copy of the letter from the SASG granting dispensation should be lodged with the survey. (If, for some reason, it is not possible to provide

a copy, specific reference to the letter must be provided to enable LINZ processing staff to find it within LINZ records.) This is because the SASG has no direct role in processing or approving the survey and if it is not included as a supporting document, LINZ Operations staff are likely to have no knowledge of it.

5.2 Pegging Dispensation

Dispensation (pursuant to Rule 44) from the requirements of Rule 31 is potentially available for any survey, however the following are the most common circumstances where established practices exist.

5.2.1 Existing Irregular Boundaries

Generally these are irregular boundaries parallel to a water boundary and do not move with any movement of the water boundary (except for marginal strips and esplanade strips created since 1990 and 1991 respectively – refer to Section 11.5.11).

In accordance with SG Rule 10(b) the following criteria will be applied by the Senior Advisor to the Surveyor General with respect to existing irregular boundaries:

- where any new allotment is less than 4ha and abutting an esplanade reserve, marginal strip or legal road, then the irregular boundaries shall be replaced with boundaries that are right-lined and pegged (unless dispensation from monumentation is granted).

- where any new allotment is 4ha and over, abutting an esplanade reserve, marginal strip or legal road the boundary may be adopted as an irregular line.

In the latter circumstance, it is not necessary to formally apply for a dispensation from the Senior Advisor. However the survey report should identify that the boundaries were not pegged under the provisions of this section of the Cadastral Survey Guidelines.

5.2.2 Definite Features

Monumentation of primary parcel boundaries may be identified by a Definite Feature. This must be a reasonably permanent physical feature that is:

- clearly defined in itself

- easily identified

- easily defined (in the case of Class I surveys, definition must be precise).

Pursuant to Rule 31(3) approval (prior to lodgement) of the Senior Advisor to the Surveyor General is required.

Examples of "Definite Features" may include:

- Buildings
- Walls and fences
- Well defined vehicle tracks (not for Class I surveys)

but do not include natural boundaries such as rivers, streams or shorelines.

When applying for a dispensation the supply of a photograph of the feature will be useful in clarifying the circumstances and for assisting the Senior Advisor to reach a decision.

5.2.3 Extraneous Marks on CSD's

Occasionally extraneous marks are shown on CSD's, usually with the intention of enabling a further subdivision or other action to be carried out by a or compiled plan which relies on the data shown on the initial plan.

This practice is generally not satisfactory as it results in marks in the ground that look like boundary pegs but in fact are not, and may possibly mislead the public or the land owners.

For instance, if for any reason the subsequent transaction does not proceed, then the marks should be removed because ;

a. they effectively contravene Section 56 Cadastral Survey Act 2002 (even though there is no intention to deceive, nevertheless, it is likely to deceive);

b. they may have carved numbers which will be incorrect (contravenes Rule 35 (2)); and

c. unless placed as line pegs, the marks will have the appearance of boundary marks but do not lie on boundaries, and therefore will be classified as traverse marks in **Land*online*** and will generally not be compliant with Rule 38.

Also these marks are not subject to the usual validation checks applied to genuine boundary marks. An exception to this is where the extraneous marks are placed on existing or new boundary lines, and therefore can be recorded as line boundary marks.

Where such existing marks are used to define a primary parcel on a subsequent CSD, it will be necessary to show on that CSD, all the survey information recording and substantiating their placement as primary parcel boundary marks,

including witness marks, traverse ties, calculated lines, adoptions, origins etc. This will therefore generally require the provision of a survey sheet, traverse sheets, in addition to a boundary report documenting the method of definition.

Extraneous Marks on a survey will only be accepted if written approval is granted by the Senior Advisor to the Surveyor-General prior to lodgement. Possible conditions of the Senior Advisor for acceptance of extraneous marks on a survey are:

a. Requiring any pegs to be driven flush in the ground.

b. Requiring calculated survey dimension between the marks that can be used to validate the marks.

5.3 Computed Plans

A computed plan is defined under Surveyor General's Rule 2 as a plan prepared pursuant to a dispensation granted by the Registrar-General under Section 167(1) of the Land Transfer Act 1952 (when the subject land is to be depicted on a Land Transfer plan) or under any similar dispensation granted by the Surveyor-General. In practice it is most often one where new boundary angles are established without survey, in positions which have never been defined by survey. Refer also to section 6.6.

The Registrar-General has given an automatic dispensation in terms of Sec. 167(1) of the Land Transfer Act 1952 with respect to service easements (water, electricity etc.) or land covenant rights (height, open space etc.). In this case, it is not necessary to apply for a dispensation. Neither will it be necessary for the CSD to include a consent for a computed plan.

> **Note**: This blanket dispensation does not apply to right of way areas which will need to be monumented in accordance with Rule 32 unless a dispensation has been granted by the Senior Advisor to the Surveyor-General, prior to lodgement, under Rule 44.

Please refer also to Computed Plans in Section 6 with respect to land that:

- has poor survey definition or
- is limited as to parcels

and the need for a survey in these instances.

5.4 Segregation strips

Where a segregation strip is being created and the parcel width is 0.20m or less (minimum 0.05m) then the common boundary with the road need not be monumented. In this case, it is not necessary to formally apply for a dispensation from the Senior Advisor. However the survey report should identify that the common boundary with the road was not monumented under the provisions of this section of the Cadastral Survey Guidelines.

6. DATA LODGEMENT FORMAT

CONTENTS

6. DATA LODGEMENT FORMAT

6.1 What the surveyor will lodge

1. The surveyor is required to lodge a complete Cadastral Survey Dataset ("**CSD**" - a plan and all related documents and sources of documents where applicable) (refer to Rule 4); and

2. A hardcopy **CSD** is to be entirely in hardcopy format. A combination of hardcopy and digital data is not acceptable unless specifically approved by the Senior Advisor to the Surveyor-General ("SASG").

6.1.1 Rationale

A CSD is necessary to:

- enable validation to be carried out in an efficient manner (i.e. a standard process including some automated validation);
- enable any pre or post approval audit to be carried out on any selected dataset in an efficient manner;
- ensure that the survey process is recorded and able to be understood at any time in the future should it need to be re-evaluated;
- ensure that it can be readily interpreted by future surveyors utilising the survey; and
- ensure that the survey can be integrated into the database to facilitate future surveys.

6.1.2 Data to Include

All surveyors will lodge a standard set of data which, in the case of a hard-copy CSD, must in all cases, include:

- certified survey plan; and
- a signed survey report.

Where survey definition of parcels is involved (refer to sections below for specific types of surveys), the CSD may require:

- traverse sheets/coordinate schedules and

- any consents or dispensations given (or a reference to the LINZ request number).

The surveyor may (optionally) also supply supporting documents to facilitate processing of the survey such as:

- calculation sheets;
- field notes; and
- other documents (e.g. correspondence).

In supplying this data, the Surveyor must:

- explain elements of the survey to following surveyors.
- provide detail which assists future surveyors in their surveys (origins, validation of marks, methodology etc).
- provide necessary information to LINZ to enable the functions of survey validation, approval and, where applicable, future legal action such as issue of title, to be performed.
- ensure the integrity of the record and allow the integration of the survey into the cadastral network.

  Note: For hardcopy plans, the plan sheets are generally taken to be the authoritative source of survey data. All mark details, bearings and distances, etc, necessary to the purpose of the survey and the definition of any parcels must appear on the face of one of the plan sheets. Information which only appears on traverse or calculations sheets will generally not be captured into **Land*online*.** There is also a risk that important information that appears only on traverse sheets, might not be found by other surveyors searching the survey in the future. The title sheet of the plan is also used for title diagrams. It is therefore particularly important that the information on the hardcopy plan is correct.

6.1.3 Surveyors Certification

Schedule 1 Surveyor-General's Rules for Cadastral Survey 2002/2

1. All plans, the survey report and field notes (that are lodged) are to be signed by a surveyor who has a cadastral survey licence at the time of signing.

See Schedule 1 Surveyor General's Rules 2002/2 for text of certification for hardcopy plans. If the pre-printed certification as shown below is used, the specific year and version of the Surveyor-General's Rules for Cadastral Survey should be specified by writing it in the space provided.

I _____
being a person entitled to practise as a licensed cadastral surveyor, certify that -

a) The surveys to which this dataset relates are accurate, and were undertaken by me or under my direction in accordance with the Cadastral Survey Act 2002 and the Surveyor-General's Rules for Cadastral Survey_____:

b) This dataset is accurate, and has been created in accordance with that Act and those Rules.

Signed Date / /

_____ _____

2. Where a CSD is resubmitted after being requisitioned, any changes made to the CSD must be certified by a surveyor (generally on the requisition form) who has a cadastral survey licence at the time of signing.

   A certification is to be shown on:

- every plan sheet
- field notes (every page to be signed) where they are lodged for approval for Record Purposes Only.

The certification wording encompasses such issues as:

- the accuracy of the survey,
- the survey being in accordance with the Cadastral Survey Act 2002,
- the survey being in accordance with the Surveyor-General's Rules for Cadastral Survey 2002/2,
- accuracy of the dataset.

As a transitional arrangement, for pre-printed forms with the surveyor's declaration referring to Registered Surveyor, Survey Act 1986 and Survey Regulations 1998 can be used if the survey was commenced before 1 June 2002, when the Cadastral Survey Act 2002 came into force. This is allowed under Section 68(4)(a) of the Cadastral Survey Act.

6.1.4 Survey Report

Rule 42 Surveyor-General's Rules for Cadastral Survey 2002/2

A survey report is required for all lodged CSD's (not only those that have placed new marks). However for Record Purposes surveys (e.g. field notes) a covering

letter can substitute for the survey report providing it identifies the survey as being for record purposes and the purpose of the survey.

The survey report is based on a standard format and is comprehensively detailed in Rule 42. To enable approval by the Approving Officer and deposit on behalf of the Registrar-General of Land the report should also include:

- The purpose for which the survey is conducted as well as the legal process to achieve the survey's intent where the survey's purpose is not clear and unambiguous to those who may encounter the survey during searching.

- In outlining definition methodology, detail on:

    - derivation of the origin of bearings

    - method used to determine and apply any corrections to adopted work and carry out survey calculations

    - evidence gathered and method used to determine original boundaries,

    - any other factors influencing the determination of boundaries, particularly in the case of limited titles and where occupation differs from redefined boundaries (refer also to section on *Limited Titles*).

    - method used to fix natural boundaries.

- an explanation of the checks applied to validate accuracy.

- detail of conflict with the cadastral record including:

    - reasons for applying, or not applying, a bearing correction to existing work.

    - miscloses or adjustments applied to observations which are outside the tolerances of Rule 28.

    - marks found to be unreliable or disturbed.

    - any survey or title dimension which differs from the underlying record.

    - claim by occupation.

    - limited titles.

    - natural boundaries where they differ from the underlying (including erosion, accretion, avulsion, reclamation, better survey fix).

- inconsistencies or omissions in cadastral record.

- conflict with the legal record.

  Note: It is important for future users of the CSD (surveyors and LINZ staff), that any conflicts have been recognised by the surveyor and addressed. The survey report plays a key function in their assessment. Whilst the reason for a conflict (e.g. Limited Title) and the method of its resolution may seem obvious to the surveyor, it is nevertheless important that the survey report explicitly identify all conflicts and how they were resolved. Failure to do so may be considered a significant failure to comply with Rule 42.

The report should be presented on A4 size paper. It can also be printed on the back of a traverse sheet.

6.1.5 Traverse Sheets/Coordinate Schedules

Rule 41 Surveyor-General's Rules for Cadastral Survey 2002/2

1. This data is to show:

   - a listing of all marks and angles which are new to the cadastre or which are to be re-coordinated in terms of the survey origin (i.e. all traverses including adoptions used to prove definition, all new boundary marks and positions, and all recalculated positions – sections of unchanged adopted boundary do not need to be re-coordinated.)

   - a schedule which provides detail in support of the survey (the mathematics of the survey / definition) including :

     1. coordinates generated by a systematic adjustment of observation;

     2. coordinates of adoptions produced during the determination of the position of an existing boundary (to be presented in all circumstances regardless of whether an adjustment has been applied or not).

   - the method of adjustment of the coordinates.

   - all closed traverses with the total misclose and the RF

2. The traverse sheet is to be in a format that ensures legibility of data after scanning.

6.1.6 Calculation Sheets

The lodgement of calculation sheets is optional but they may provide a valuable supplement to the survey report. Where supplied with the survey, they are a

summary of the mathematical analysis used and may be in the same form as traverse sheets. Their purpose can be to demonstrate how the surveyor:

- verified any bearing correction (example would be by display of comparative missing lines on a calculation sheet).

- proved the reliability/unreliability of old marks (example would be by coordinating between marks on a traverse sheet or by display of comparative missing lines on a calculation sheet).

- proved that new marks are correctly placed on existing boundaries (example would be by comparative missing lines of boundary dimensions derived from boundary mark ties compared with actual boundary dimensions).

- calculated parcel areas.

- proved closure of easement parcels against primary parcel boundaries.

  Note: Where the calculation sheets are in the form of traverse sheets any coordinates included, are not considered to be authoritative, and are only useful to the extent that they help explain the calculations.

6.1.7 Field Notes

Original field notes (or copies) may be lodged as part of the CSD. In terms of Rule 43 (Field Information), it is strongly advisable for the Surveyor to hold all field notes in case the Approving Officer or Surveyor-General requests the data at a later date for approval or post approval audit.

6.2 General Dataset Presentation for Hardcopy Plan Format

The following general details should be read in conjunction with Schedule 2 of the Surveyor-General's Rules for Cadastral Survey 2002/2 applying to hard-copy plans and specific plan types further on in this chapter.

6.2.1 Standard of Plans

1. Plan presentation must be such as to ensure:

   - draughting work, layout and scale provides for clear and unambiguous interpretation of data.
   - it is suitable for scanning into **Land*online***.
   - the title plan is acceptable for unambiguous interpretation of parcel shapes, lot numbers and areas when reduced to A4 size on title diagrams.

2. The plan is to be presented on the standard approved form and drawn with accepted drawing materials (refer Rule 40).

6.2.2 Line Work

1. Line Weights are specified in Schedule 2(8) and (19) to (21). Whilst these requirements are specific, limited variation from the specified weights is permitted in the interests of :

   - density and clarity of linework and characters.
   - legibility.
   - quality of reproduction.

   However, to ensure unambiguous user interpretation, any change in line weights must:

   - maintain the relativity of line weights from lightest to heaviest across all line styles; and
   - be applied consistently over all sheets of the whole plan.

2. Line work symbology is to be strictly adhered to.

6.2.3 Survey: Origin Marks

1. The plan is to show:

- an annotation "Origin" against either the origin marks or the origin lines.

- along an origin line where the line has previously been observed, a source plan reference, i.e. "*Source DP 4525*".

- along an origin line (or check bearing) where the line has not been previously observed, the annotation "*Obs = Calc*" where appropriate. The observed value is to be annotated "*Obs*" and the calculated value annotated "*Calc*" where these differ.

- Check bearings to control points which have not been returned shall be annotated *"not returned"*.

- a datum note in the approvals panel.

Note that where control marks are taken from the Geodetic Database, it is helpful for future users if the Geodetic Code is also shown .

2. The coordinates of the origin point are to be shown in the approvals panel.

Note:

- the quoted source will normally be the latest information although an earlier source may used where the report shows this to be more appropriate.

- Refer also to sections 3.5 and 3.7.

6.2.4 Survey: Height Origin

For strata definitions including height restriction, ensure the plan shows:

- a height datum – see 3.6 for format.

- origin of heights with its reduced level.

- a heighted mark on or near the site (which acts as a bench mark) and its reduced level.

6.2.5 All Parcels on One Sheet

6.2.5.1 Title Sheet

All new parcels (and any rights) are to be shown in their entirety on the main title sheet of the plan. Parts of a parcel cannot be shown on separate sheets unless they are diagram sheets.

Note: If the survey is so extensive that individual parcels are unable to be clearly shown on the main title sheet, then it will also be necessary to ensure that each parcel is shown in its entirety on at least one of the title diagram sheets.

6.2.5.2 Survey Sheet

Where multiple sheets are used and it is not clear how the survey detail relates, it may be necessary to prepare an overall survey sheet.

All of the new survey work and adoptions necessary to define new boundaries and connect to origin marks (i.e. NZGD2000 marks) must be shown on the survey sheets. However it is not essential that the main survey sheet be drawn at the same scale as the main title sheet.

It is also permitted, in the case of extensive adopted boundaries, for the survey sheet to not show the entirety of the new parcels. This will particularly be the case for a large parcel which is effectively a "balance" parcel. In this case:

- the main title sheet will show all parcels as noted above and therefore may be at a small scale;
- the survey work to be shown on the plan may be less extensive than the parcels and can therefore be shown on the main survey sheet at a larger scale;
- any boundary adoptions for the "balance parcel" which cannot be shown on the larger scale survey sheet, may be shown instead on the title sheet.

6.2.6 Areas

Each primary parcel is to have an area shown.

6.2.7 Annotations

Schedule 2 Surveyor-General's Rules for Cadastral Survey 2002/2

6.2.7.1 Lot Boundaries

1. The title sheet is to show the dimensions of every parcel boundary (other than a natural boundary).
2. With the exception of flat and unit plans (which must always reflect the original source survey), ensure that the peripheral boundaries (unless recalculated) have been annotated with the appropriate survey reference(s) noting that:
    - this will normally be from the original source survey(s) or

- where a bearing correction has been applied by an underlying survey then the adoption of the bearing is from that survey; but

- where a boundary has been redefined by a more recent abutting survey, the adoption will be from that survey;

  Note: This may be indicated by a general note in the approvals panel.

3. Recalculated boundaries are to be shown with the new dimension and annotated as "*Recalc"*. This is to be shown on the survey sheet where applicable.

6.2.7.2 Traverse Lines

Traverse lines are to be annotated *GPS, obs only* and *calc* as applicable.

6.2.7.3 Adopted Lines

Adopted lines are to be annotated with either *adopt* or *adpt* and with reference to the source survey. The source surveys of all adoptions should be included in the list of referenced surveys. Note that a general note in the approvals panel for the source of adoptions may be appropriate.

While adoptions are generally shown on the survey sheet or sheets, refer to section 6.2.5.2 for the case where the survey sheet may be at too large a scale to show all parcels and thus all adopted boundaries, in which case they may be shown on the title sheet.

6.2.7.4 Connection to Witness Marks

In the interpretation of Rule 12(2), where the connection between the witness mark and the boundary monument has not been directly measured and the boundary mark has been placed from a survey mark more than 500m away then a calculated tie (which should ideally be intervisible) shall be shown between the witness mark and boundary mark.

6.2.7.5 Boundary Angles

1. Ensure that all boundary angles, corners and intersections:

   - have been marked with a suitable boundary symbol displayed or

   - if not marked because the position is obstructed, the type and age of the obstruction has been shown with details of the dimensions (relationship) between the boundary point and the obstacle.

2. Where it is impractical to place a boundary mark on the boundary angle, a line mark may be placed on a new boundary line so that the direction of that line is clear. As a boundary line mark, the dimension to the boundary angle

will need to be shown on the title sheets. However note; from a land owner's perspective, that line marks may cause confusion as to the true position of the boundary angle. The decision as to whether to place a line peg and where to place it should account for this risk of confusion. .

6.2.7.6 Curved Boundaries

Ensure that the title sheet shows:

- an arc distance for every arc boundary or part of an arc boundary (e.g. where intermediate boundary marks have been placed including parcel and easement intersections).

- a total arc distance where intermediate boundary marks have been placed.

- a chord bearing for every arc boundary or part of an arc boundary (including parcel and easement intersections). The line of the chord is not to be shown although the bearing may be annotated "Ch".

- a radius.

- tangent points and common tangent points annotated *TP* or *CTP* respectively.

  Note: for adopted arc boundaries from surveys where the chord bearing has not been shown, it will have to be calculated and shown.

6.2.7.7 Survey Marks

The following definitions apply to this section,

Term	Description
Renewed	This term is used where the old mark has been found in its original position and replaced with a new mark in exactly the same position (generally where the old mark was in poor condition).
Reinstated	This term is used where the old mark has not been found and a new mark has been placed with confidence (based on the best available evidence) in the position of the old mark.
In Position	This is taken to mean the same as "Reinstated"
Replaced (as a **Land*online*** term)	This is a term used during capture of a survey to indicate that there is a new mark in what is believed to be the same position as an original mark. It is a generic term covering both "renewed" and "reinstated". Because of ambiguity in the use of this term, the more specific terms "renewed" or "reinstated" should be used by surveyors when lodging a CSD.

Disturbed	This means an old mark which has been found with physical evidence of disturbance. Mathematical evidence alone, that a mark is not "in position" is not sufficient for it to be called disturbed. Note in particular, that boundary marks which are undisturbed but which do not fit the mathematical evidence may, in fact, define the correct boundary position.
Unreliable	This means a mark which does not have firm evidence of disturbance but which does not fit the mathematical or other evidence (eg occupation) and which the surveyor believes cannot be relied on. Surveyors should be very cautious about using this term for boundary marks which appear to be firm and undisturbed and which have been relied on in the past for defining boundaries.
Out of Position	This means the same as "Unreliable".
Disturbed (as a **Land*online*** term)	This is a term used during capture of a survey to indicate that an old mark no longer occupies its original position. It is a generic term covering both "disturbed" and "unreliable".

6.2.7.7.1 New Boundary Marks

Ensure new marks are annotated with the following information:

- A unique identifier as required by SG Rules, Sch 2(7)(e). This may be a number, letter or a combination of numbers and letters. Note that Arabic numerals (0-9) are preferred to Roman numerals.

- mark type (using a standard abbreviation) if not a peg or post and where applicable, the information about the base structure in which the mark is situated (e.g. in post, in conc). However where a boundary mark has been affixed to a fence post, the mark symbol should be as for a post with (optionally) an annotated description identifying the specific survey mark attached to the post.

- distance from boundary occupation.

  Note: The Survey Regulations 1998 and SG Rules 2002/1 did not require unique identifiers for boundary marks. However unique identifies are now required for all new marks under the Surveyor-General's Rules for Cadastral Survey 2002/2.

6.2.7.7.2 Old Boundary Marks

Schedule 2(7) Surveyor-General's Rules for Cadastral Survey 2002/2

6.2.7.7.2.1 Reliable Old Boundary Marks

Ensure old marks are annotated with reference to name, usually in the form: mark type abbreviation; number; and survey reference, or "No Record" where appropriate. It is optional to identify the mark type of "PEG" for boundary marks. Where a boundary mark does not have the mark type identified on a black and white plan, it can be assumed to be a peg.

Note: The source surveys for all marks should also be included in the list of reference surveys.

The annotation "*Not Verified*" should be used if not part of definition and if the survey is not proving the mark's reliability.

Note: When capturing the survey into **Land*online***, a boundary mark that is annotated "Not Verified" and the observations to that mark, will nevertheless be linked to the appropriate boundary position in **Land*online***. This is because a boundary mark with no clear sign of having been disturbed should be assumed to represent the boundary position until such time as it is proved otherwise.

Where an old boundary mark was not uniquely referenced on the underlying survey (before the requirement to do so was imposed by the SG Rules for Cadastral Survey 2002/2, Sch 2(7)(e)) the surveyor may wish to create a unique reference for the mark to assist reporting, LINZ processing, etc. In this case, the recommended procedure is to show the new unique number/reference in brackets to indicate that this reference is not found on the original survey. For example, if DP 45678 finds an un-numbered old peg from SO 12345, it can be assigned a number such as "2a" and shown as:

OP (2a) SO 12345

Note: Note that before allocating a number, it is important to ensure (through searching) that a different number has not already been allocated to this mark by a different survey. Also, for the number allocated to be unique, it is preferable to ensure that this number has not already been allocated by another plan to a different mark from the same old survey.

Note also that subsequent surveys finding a mark renamed in this manner (or adopting it) should continue to include the same unique reference and continue showing it in brackets. On these subsequent surveys, it is not necessary to refer to the survey that renamed it (DP 45678) so it will continue to be named as above or, if adopted, as:

(2a) adpt SO 12345

6.2.7.7.2.2 Old Boundary Marks Disturbed or Out Of Position

Where there is physical evidence that a boundary mark is disturbed, then it should be clearly identified as disturbed. This will allow it to be recorded as being in a new position and no longer on the boundary. The old mark reference should be annotated with "(disturbed)" added to the end of the name after the survey reference.

e.g. OP IIa SO 12345 (disturbed)

Similarly, where the surveyor has mathematical evidence, combined with other evidence, that the mark is unreliable (out of its original position), this should be noted.

e.g. OP IIa SO 12345 (unreliable)

All adoptions and observations used to prove that the mark is out of position should be included in the survey dataset. If this mark is part of the boundary of the land under survey, or is material to the survey definition, provide a calculated tie from the original position to the present position. The original mark position should be given its original name and survey reference and shown as adopted.

The practice of 'adjusting' old pegs to meet calculated positions destroys original evidence and is not acceptable.

6.2.7.7.2.3 Old Boundary Marks Renewed

Under the Surveyor-General's Rules for Cadastral Survey 2002/2 Sch2 Cl.7(a), an old mark symbol is to be shown. The new mark is indicated by notation.

e.g. OP IIa SO 12345 ren Peg 4

Reference to the renewing mark on subsequent hardcopy survey plans will be to OP 4 <survey number>.

6.2.7.7.2.4 Boundary Marks Reinstated

Where a boundary mark has not been found (or found disturbed) and the boundary position has been reinstated by a new mark in the original position as determined from survey evidence, there will have been (at least) two marks in the same position. However, in this case, the original mark is no longer in that position. A new mark symbol and a unique identifier for the new mark is shown.

The same requirements apply to an unmarked boundary position that is being pegged for the first time (ie, the position is being reinstated, not an old mark).

6.2.7.7.3 New Traverse and Witness Marks

Ensure the following information about new marks is provided:

- The mark type. For most mark types, standard mark type abbreviations (e.g. IT) can be used.

- A unique number/identifier. This may be a number, letter or a combination of numbers and letters. Note that Arabic numerals (0-9) are preferred to roman numerals.

- Where appropriate, information about the base structure in which the mark is situated may be shown (e.g. "in seal"; "in conc").

- It is also desirable (but not mandatory) to indicate the depth of the mark (or height if it is proud of the ground) and ties to occupation to assist other surveyors to find the mark.

6.2.7.7.4 Old Traverse and Witness Marks

6.2.7.7.4.1 Reliable Old Traverse and Witness Marks

Ensure old marks are named, usually in the form "O" to indicate that it is old, mark type abbreviation, number and survey reference or "No Record" where appropriate.

e.g. OIT 3 SO 12345

Note:

- The source survey for all marks should also be included in the list of reference surveys.

- The "O" indicating an old mark is not included in mark names in **Land*online***. This is because **Land*online*** records the usage of marks in many surveys. Within several surveys, the same mark could have been new, old or adopted but **Land*online*** uses the same name (always including the source plan reference) for the mark.

6.2.7.7.4.2 Reliable Old Witness Marks

A mark can only be identified as a witness mark if:

- It has been found and tied to (adopted marks cannot serve as witness marks); and

- It meets the requirements of Rule 36 for size, stability and expected permanence.

If it does not satisfy both of these requirements, then it should be identified as a traverse mark – notwithstanding the fact that it may have been identified as a witness mark on an earlier survey.

Note: The requirement that an adopted mark cannot serve the purpose of a witness mark is specified in Rule 36(4) Surveyor-General's Rules for Cadastral Survey 2002/2.

6.2.7.7.4.3 Disturbed Old Traverse and Witness Marks (Still Useable)

Where a traverse or witness mark has been disturbed but continues to meet the requirements of Rules 36 or 38 and is incorporated in a new traverse, it should be identified as disturbed but should otherwise be treated as if it were a new mark.

A new identifier for the mark (mark type, mark number/name) should be provided to indicate that its current (disturbed) position is applicable to the new survey. The original mark name should be annotated in brackets).

e.g. IT 4 (OIT III SO 12345 disturbed)

If such a mark is found (or adopted) in its new position by a future survey, it will be given its reference from the more recent survey, eg as OIT 4 <survey number>.

If its original position is material to survey definition, show a calculated tie from the original position to the present position. The original position should be given its original name and survey reference and shown as adopted.

e.g. IT III adopt SO 12345

6.2.7.7.4.4 Disturbed Old Traverse Marks (Un-useable)

Where a traverse or witness mark has been found physically disturbed and is no longer useable in terms of Rules 36 or 38, it should be identified as a disturbed old mark.

The old mark reference should be provided with "(disturbed)" added to the end of the name after the survey reference.

e.g. OIT III SO 12345 (disturbed)

It is not expected that future surveys will use the mark in its disturbed position.

Note: The disturbed mark will appear in the **Land*online*** spatial view in its disturbed position (as well as the adopted position). Surveyors should be careful when referencing this mark in the future.

If its original position is material to survey definition, show a calculated tie from the original position to the disturbed position. The original position where shown should be given its original name and survey reference. It should be identified as adopted.

e.g. IT III adopt SO 12345

6.2.7.7.4.5 Traverse or Witness Marks Renewed

Under the Surveyor-General's Rules for Cadastral Survey 2002/2 Sch2 Cl.7(a), an old mark symbol is to be shown. The new mark is indicated by notation.

e.g. OIS IV SO 12345 ren IT 5

Reference to the renewing mark on subsequent hardcopy surveys will be to OIT 5 <survey number>.

6.2.7.7.4.6 Traverse or Witness Marks Reinstated

Where a traverse or witness mark has not been found and has been reinstated by a new mark in the original position as determined from survey evidence, there will have been (at least) two marks in the same position.

A new mark symbol and a unique identifier for the new mark is shown. The reinstatement should be indicated by annotation.

e.g. IT 5 in posn IS IV SO 12345

6.2.7.8 Clarity of Lines

Bearings and distances may be shown with the annotation "*CB"* for covenant boundary lines or "*EB"* for easement boundary lines where detail needs clarifying.

6.2.8 Accounting for the Whole Parcel

6.2.8.1 Surveys completed pursuant to the Survey Regulations 1972

Surveys can no longer be carried out in terms of the Survey Regulations 1972. Where the surveyor has an unexpired resource consent obtained prior to 1 May 1999 when the Survey Regulations 1972 were repealed, they may apply to the Senior Advisor to the Surveyor-General for a dispensation (under Rule 44) from the requirements of Rule 19.

The Senior Advisor will consider this application on its merits including balancing the impact on the survey system of not accounting for the whole parcel, against any particular hardship that may result from the resource consent process. As with any dispensation, conditions may be applied.

6.2.8.2 Surveys completed pursuant to the Survey Regulations 1998 or SG Rules 2002/1

Under Section 68(4) of the Cadastral Survey Act 2002, surveys may be completed under the Survey Regulations 1998 if they were started under those regulations and were still pending or in progress on 1 June 2002 when the Act came into force. Rule 49 allows the completion of surveys commenced under the SGR2002/1. The survey report must verify the start date of the survey project.

6.2.8.2.1 Parcel Diagram

A parcel diagram is to show:

- a label "*Parcel Diagram"*.
- the lot/section with a unique appellation.
- the lot/section in its entirety on the main title sheet (a diagram sheet may be used only to clarify detail).
- the parcel at a scale that clearly delineates its extent.
- any boundary distances that have resulted from the separation of other parcels as the result of the survey (i.e. the balance distances).

- any existing subject easements and covenants (to be retained).
- an area (which must be derived by deduction).
- area to be annotated on the title sheet *"Area not determined by survey"*.
- abuttals.
- if applicable *"Limited as to parcels"* is to be clearly annotated in bold type in the panel
- annotated as to an adoption with reference to the source of data
- show dimensions (where they currently exist in survey or title records).

  Note: Prior approval is required before a parcel diagram can be used. In cases where it would be unduly onerous to show all dimensions on a parcel diagram, the conditions imposed by the SASG in granting a Class IV dispensation may allow a note indicating the source of dimensions.

6.2.9 Balance or Severance Distances

Ensure balance or severance distances are shown where:

- new boundaries intersect with existing boundaries of an otherwise un-dimensioned balance parcel (if survey is done under Rule 19(2) or as a Class IV dispensation for a Parcel Diagram).
- an easement intersects with a parcel boundary.
- a covenant intersects with a parcel boundary.
- an exclusive use covenant intersects with a parcel boundary (flats plan).

Where a boundary has been recalculated, any balance distance is to be the balance title distance. For information purposes only, the balance calculated distance may be shown on the survey sheet.

6.2.10 Occupation

Schedule 2(12) Surveyor-General's Rules for Cadastral Survey 2002/2

The plan is to show:

- The relationship of boundary occupation to any new boundary mark placed.

- The nature, description and age of the occupation and its relationship to all boundaries.

- Any building or structure within 1m of any newly defined boundaries (including flats or units within 1m of primary parcel boundaries).

- Where there is a party wall, the plan is to also show the width of the wall, any change in width and its position relative to the boundary.

- Buildings encroaching over title boundaries are to be accurately fixed and their position clearly shown in relation to the boundary. Measurements are to be shown along the boundaries to the building, and the encroachment should be fully dimensioned using either measurements or calculated offsets.

- Location ties to traverse marks/witness marks or other descriptive information are not a requirement of the Surveyor-General's Rules for Cadastral Survey 2002/2. However they may be shown, as they are useful for location of marks for future surveys

6.2.11 Natural Boundaries

6.2.11.1 Boundary Annotation

Ensure that the plan shows the following detail:

1. The extent and nature of the natural boundary.

2. On the title sheet:

   - "*Boundary is to MHWS/MHWM" or*

   - "*Boundary is true left or (true right) bank of river/stream" or*

   - "*Boundary is to margin of lake"*

3. Where avulsion has occurred and water no longer demarcates an adopted natural boundary (see 11.5.4) show a note equivalent to the following in the panel.

   "Boundary is the true right bank of the river adopted from DP ……(date e.g. 1883.) Due to avulsion the water edge no longer demarcates this boundary"

4. For rivers and streams:

   - the average width

   - direction of flow and

- tidal influence limit

6.2.11.2 Fixing by Survey

1. Ensure the survey plan shows the fix of any new natural boundary. This can be done by either:

   - showing the ties on the main plan or diagram sheet;

   - tabulating the ties on the plan with appropriate referencing between the plot of the boundary on the main plan or diagram sheet, and the tabulated values; or

   - lodging field notes of the survey and cross referencing on the plan *"for fix of stream see field book"*

2. Where aerial photographs are used, the photo reference is shown along the boundary. Details on photo rectification and control are to be recorded in the survey report.

3. Where avulsion has taken place or the boundary has been moved by human interference, and the natural boundary is adopted, show the present position of the water edge.

6.2.11.3 Adoption

(Refer Section 11.5.3)

Where a natural boundary is being adopted:

- the survey reference of the adopted survey is to be shown.

- a statement to the effect that a natural boundary has not appreciatively changed is required as part of the survey report or on the plan.

- If an exemption is given by the Senior Advisor to the Surveyor-General to allow adoption of a natural boundary that may have changed (refer to section 11.1), a panel note is to be shown as follows:

  "The natural boundary adopted from DP….. may not be the same position as the present stream/river bank."

  Note: The traverse from which the original fix was made need not be shown.

6.2.11.4 Accretion and Erosion

Ensure the annotation of accretion and erosion is:

- depicted on the title sheets through showing the title boundary in relation to the new parcel boundaries;

- labelled as applicable to each portion on the title sheets; and

- the metric area for each portion is shown (title sheet only) (both 2.5mm high).

Where accretion is being claimed on a river, the title boundary of the opposite bank must also be shown on the title sheet.

Note: It may be desirable to also show the underlying parcel/title boundary and to label accretion and erosion as applicable on the survey sheets to provide context for other survey data.

6.2.11.4.1 Accretion Not Claimed

(Refer Section 11.5.2)

In the case that:

- parts of the boundary are affected by what is believed to be accretion which is not intended to be claimed (which means that boundary in those sections will not lie on the current position of the water edge); but

- other sections are subject to erosion (which must be accounted for, so water will demarcate these sections of the natural boundary);

then the plan must clearly indicate which sections of the boundary are demarcated by the current position of the natural water feature and which are based on adoption of an earlier definition. For example; on the title sheets, the sections where water demarcates the boundary should have an annotation equivalent to the following:

"Boundary is true left (or true right) bank of river/stream"

The survey sheet is to show the physical nature of the feature fixed, such as top of 1m bank, etc. The areas where an old boundary has been adopted and the defined boundary does not coincide with the current water edge should have an annotation on the both the survey and title sheets equivalent to the following:

"Boundary adopted from DP ……"

The current position of the water feature must also be shown on both the survey and title sheets of the plan - annotated to indicate that it is the position at the date of survey – e.g.:

"True left (true right) bank of river/stream at date of survey"

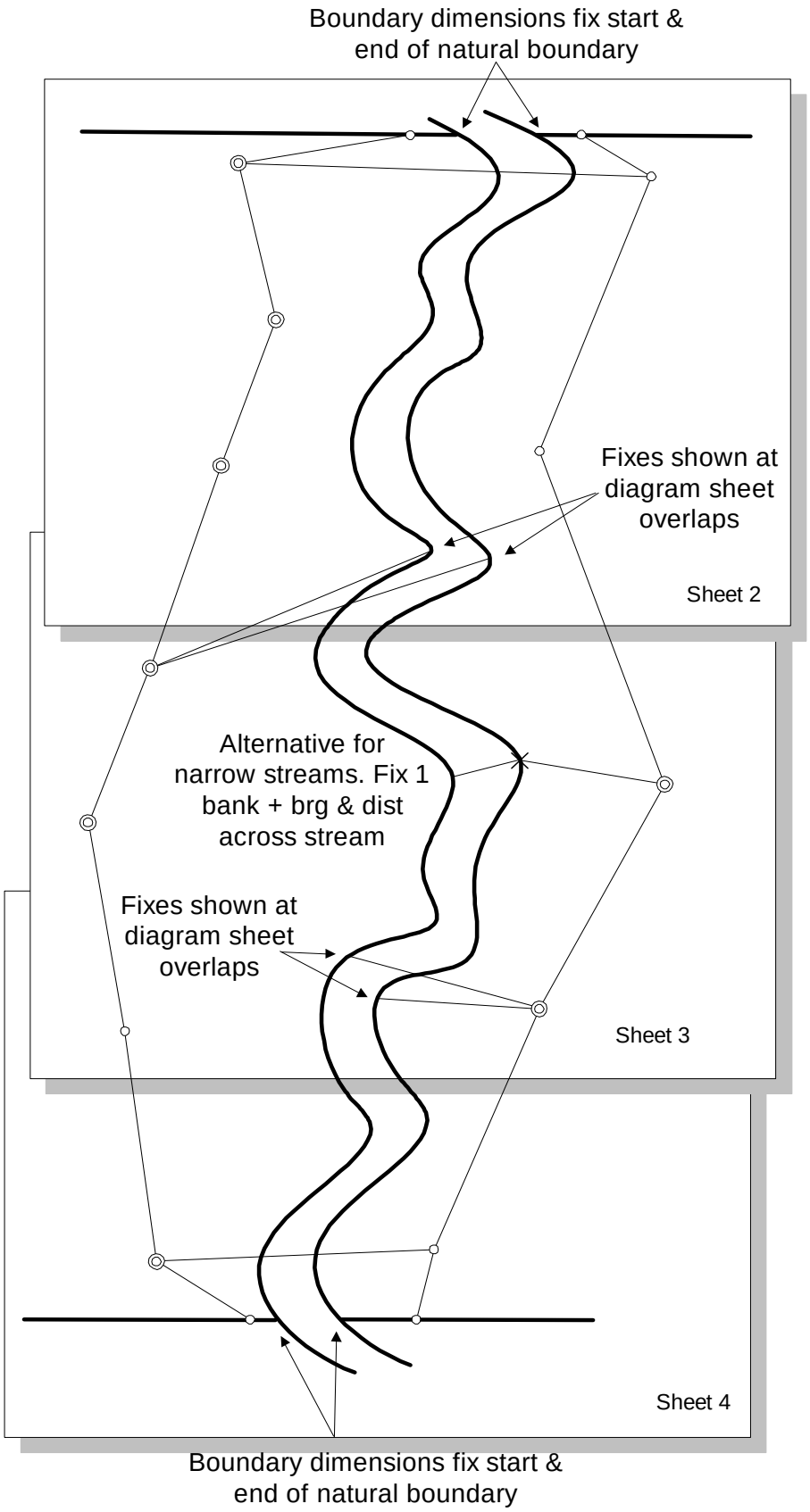
6.2.11.5 Diagrams to adequately show both sides of a stream.

The plan must show each parcel in its entirety. In many cases this will result in the use of additional diagrams to provide clarity.

In the case where a stream is a boundary between parcels shown on the plan, it is often difficult to illustrate and distinguish between both sides of the stream if the scale of the diagram is such that the width of the line exceeds the width of the stream.

In this situation it is required that diagrams be produced at a scale that will adequately show both sides of the stream so that the shape of the stream parcel is properly depicted.

Where two or more diagrams are required, common start and finish points, using survey fixes common to adjoining diagrams, are required to ensure continuity of capture for the total length of the stream.



Refer to diagram below.

6.2.12 Covenants

6.2.12.1 Survey Definition

1. A Covenant parcel (area subject to a covenant) must be able to be redefined by survey. They may be defined by marked or computed right line boundaries. The responsibility of the definition rests solely with the surveyor and this must be considered when assessing the need for marking.

2. A Height Restriction must be able to be re-established without ambiguity at any future date. If the height restriction is defined by an inclined plane, the angle and direction of maximum inclination in relation to a suitable fixed point must be shown. Reduced levels and heights are to be in terms of a recognised datum. A benchmark is to be established on or near the site to assist future reinstatement, where the height origin is distant.

3. A survey sheet is only necessary where boundary monuments have been placed (or old boundary monuments tied to) to demarcate the extent of a covenant.

6.2.12.2 New Covenants

Ensure that each covenant parcel:

- is provided with a letter as a unique identifier

- is included in a note in the approval panel and that the note reads:

Areas marked A B C to be subject to Land Covenants

6.2.12.3 Existing Covenants

In the case of land being subdivided, ensure that existing covenants that are to be retained are shown on the plan and their purpose and document reference shown in a schedule.

Where newly created primary parcels intersect a spatially defined existing covenant, each covenant parcel so divided should be separately and uniquely identified and intersection distances shown.

6.2.13 Class of Survey

Both the survey and title sheet are to show the class of survey. Where the whole survey is of one class, a note in the panel will suffice. Where the survey is made up of different classes, the plans are to clearly indicate which parts relate to which class of survey.

6.2.14 Grid Cuts

Clause 5(4) of Schedule 2 of the Survey-General's Rules for Cadastral Survey 2002/2.

6.2.15 Underlying Registration Boundaries

Ensure that the underlying registration boundaries (i.e. C T, gazette notice, etc) annotated with references, are shown on the title sheets when there is more than one such reference.

6.2.16 Legal Road

Schedule 2(13) Surveyor-General's Rules for Cadastral Survey 2002/2.

Ensure that the following have been shown:

- the adjoining road on title sheets.
- Road legality indicated on the title sheet of the plan (ie "Legal Road", "Not Legal", "Limited Access Road"). It is particularly important that a road which is not legal is annotated as such.
- name of road on the title sheet and the survey sheet as shown in **Land*online***.
- nominal width of parallel sided roads by annotation on the survey sheets of the plan.

  Note: a check of whether the road that is to be used for access is legal road or not can be made by searching prior surveys for initial legality notation. In general, a road can be taken to be legal unless specifically stated as not legal.

6.2.17 Adjoining References

1. Ensure that the description for all adjoining land has been shown on the title sheets and are correct in terms of Landonline. The descriptions for adjoining land may also be shown on the survey sheets where they improve clarity. However, it is not mandatory to show them on the survey sheets.
2. Ensure that the current title reference for adjoining land has been shown on the title sheet in the following cases:
   - where land is being brought under the Land Transfer Act (applications)
   - where accretion is being claimed
   - where the land is "Limited as to Parcels"

- where there is an application for title based on possession

- where the land is to be amalgamated pursuant to the Resource Management Act 1991 or section 42 of the Public Works Act 1981

- where stopped road or severance is to be vested in the adjoining title under section 117 or 119 of the Public Works Act 1981

- where an easement or covenant is being created over the land

6.2.18 Bearing and Scale Correction

Where a bearing correction has been applied, ensure an appropriate note is shown in the approvals panel. This note is to reference:

- all the plans to which the correction has been applied and

- if the bearing correction has been adopted from a prior, survey, then this survey is also to be referenced.

  e.g. "A bearing correction of -00^{0} 02$^{'}$ has been applied to DP156 to bring it in terms of this survey (refer DP80256)"

6.2.18.1 Differential Bearing Correction

If the surveyor has determined that bearings from a particular underlying survey are out of terms with each other and cannot be adopted with the same bearing correction, then different bearing corrections for different parts of this underlying survey may be necessary. However each bearing correction will need to be fully proven. Also, a bearing can only be called "adopted" if it is

- accepted without change, or

- accepted subject to a single bearing correction applied consistently to bearings from that survey.

Therefore some (if not all) of the bearings generated by differential bearing corrections cannot be called adopted (even though the distances may be adopted).

Where

- most of the bearings adopted from a particular survey have one bearing correction (which has been recorded in the panel); but

- for a minority of observations, a different bearing correction is proven and appropriate because of variations in bearings on the underlying survey;

then the former majority of lines may be identified as adopted but the latter lines that do not accord with the overall bearing correction should be recorded as calculated rather than adopted.

In more complex cases, all bearings that have been adjusted should be identified as calculated.

Wherever differential bearing corrections have been applied, the survey report will need to thoroughly document this situation and a panel note on the survey sheet will be required stating:

"See survey report for adjustment to bearings from DP xxxxxx"

Note: The fact that differential bearing corrections have had to be applied and the bearings have consequently been identified as calculated, will not mean that the provisions of section 3.11.2 (Recalculation of Boundaries) necessitates repegging of the boundary where it would otherwise not have been required.

6.2.18.2 Scale Corrections

Where the surveyor believes that all distances on an underlying survey have a scale error and wishes to adopt distances from that survey, the procedure is to:

- show the distances as calculated – not adopted
- provide information to fully justify the application of a scale correction; and
- document the application of this scale correction in the survey report.

Note: Firm evidence based on re-measurement of several lines will be required before a scale correction to distances is accepted.

6.2.18A Part IV Conservation Act 1987

If a certificate of title shows a memorial noting that the land is subject to Part IVA, then show in the panel the notation: *"Subject to Part IV A Conservation Act 1987"*.

6.2.19 Total Area Panel

Ensure that the total area is the sum of all the primary parcels shown on the plan.

Note: Where the survey takes into account all of the title and the total area varies from the title area in excess of Rule 29 tolerances, the reasons must be detailed in the survey report.

6.2.20 Comprised in Panel

1. Ensure that the comprised in panel includes:

   - reference to all the current Land Transfer registration for all the land in the plan (preferably including the applicable land registry prefixes);

   - the reference for any separate mines and minerals title

   or where the land has no LT title:

   - "No LT Registration" .

   - Part Old River / Stream / Sea Bed

   - with Crown Land and Land of the Crown with no LT title, show in order of preference;

     - Gazette Notice (or NZ Gazette reference if not registered)

     - Act by which it is deemed to be Crown Land

     - the annotation "*No Registration*"

2. Ensure that the correct annotation has been used for each reference:

   - (Pt) or (Bal):

     Check the title to ascertain whether all, part or balance of the title is affected.

     - any memorials transferring, vesting or proclaiming land out of the title will imply a balance notation.

     - the omission of an annotation implies all of the title. This needs to be confirmed but there is no need to add "All".

   - Ltd:

     Identify it as Limited if the title is noted as "Limited as to Parcels".

   - Int:

     If the title is noted " Interim as to Description and Delineation". (Hawkes Bay Land District).

   - Easement Only (EO) or Covenant Only (CO):

If there is an easement or covenant to be created over "other" land. The notation "Pt" or "Bal" is not required in this case.

- Excepting Mines and/or Minerals:

  Mines and/or minerals can be excluded from a title either by reservation on transfer or the mines and minerals estate can be transferred, each case resulting in a separate title for the mines and minerals. An annotation to this effect is shown on the title sheets of the plan for the surface land.

3. Where a lot has vested in a local authority as a reserve in a past subdivision pursuant to Section 239 of the Resource Management Act, or equivalent provision of a prior act, and a title has not issued and the reserve is now being subdivided on a new survey for deposit then the original head title reference is shown in the "Comprised in" panel.

6.2.21 Surveyor to Certify Data

Refer to section 6.1.3.

6.2.22 Plan References Panel

Ensure that all plans used to carry out the survey are referenced in the panel of the survey plan or the title sheet if the plan has no survey sheet – e.g. if it is compiled or computed.

6.2.23 Plan Approval and Deposit Panels

The authoritative recording of approval and deposit of surveys occurs in **Land*online***. On the face of survey plans, the status of "Approved" or "Deposited" will be indicated by LINZ staff writing in the date that the survey was approved or deposited and re-imaging the plan. The plan will generally not be signed on approval or deposit.

For existing plan forms which include "Approving Officer" and "Registrar General of Land" in these panels or older plan forms with "Chief Surveyor" and "District Land Registrar", this text is therefore redundant. The Plan Approval panel should be modified as follows:

Approved as to Survey by Land Information NZ on _____ / / _____

For LT plans, the Plan Deposit panel should be modified as follows:

Deposited by Land Information NZ on _____/_____/_____

6.3 CSD's (Surveys) not to proceed

1. Where a dataset of survey has been lodged (Rule 4) and the client subsequently decides not to proceed through to the completion of the issues depicted on the title sheets, there is no provision in the Surveyor-General's Rules for Cadastral Survey 2002/2 to notify the Approving Officer that approval is to be withheld until further notice, as in former Regulation 35 Survey Regulations 1972.

2. Where the CSD has not been approved by the Approving Officer, the CSD may upon request be withdrawn and resubmitted in a different form.

   Note: A withdrawn survey cannot be subsequently re-submitted under the same survey number. A new survey with a new survey number will be required. New fees will also be applicable if the survey is resubmitted to complete the original or similar action. However if it is resubmitted as a Survey Information or Record Purposes Only plan (see section 6.4), no fees apply.

The surveyor may either:

- remove all the ground marking associated with the survey and withdraw the CSD or

- identify the survey on lodgement as an SO plan of type "Survey Information" (if it is to be approved as to survey) or otherwise, "Record Purposes". Section 6.4 will apply.

  If the survey is lodged for "Record Purposes", all boundary marks (other than those on existing boundaries) should be removed or driven below ground by the surveyor. Where the risk of confusion or ambiguity from these internal boundary marks is low, the Senior Advisor to the Surveyor-General may agree to these internal boundary marks not being removed.

3. Where it is approved, a CSD must be retained in the Crown's custody (Rule 48). If the client decides not to complete the issues depicted on the title sheet of an LT survey, the surveyor is to advise LINZ that the CSD will not deposit. It will remain as an LT survey.

6.4 CSD of Survey Data only

6.4.1 Forms of Approval

6.4.1A Traverse Data

Where a surveyor wishes to lodge survey data to record survey work which has not lead to the definition of new rights, parcels or boundary marks, the dataset is to be lodged either as "Survey Information" (for Approval as to Survey) or "Record Purposes" (for it to be Approved For Record Purposes Only).

The form of approval required (which is at the discretion of the surveyor) must be made clear to the lodgement staff at LINZ. Failure to do this may result in the survey having to be withdrawn and resubmitted.

6.4.1B Boundary Definition

In the case of Redefinition Surveys other data requirements are covered in section 6.22

6.4.1.1 Approval as to Survey

Marks and observations from an approved plan will be captured into **Land*online*** and coordinates will be generated. The usual validation process will be applied including the origin, the internal consistency and accuracy of the observations, and the sufficiency of the information provided to support any marks placed on boundaries.

A full survey report and traverse sheets are required.

Responsibility for the correctness of the data rests with the lodging surveyor. However, these marks and observations can be used in future surveys. While adoptions in other surveys should be subject to the usual prudent checks applied to underlying survey data, they can generally be relied on unless shown to be unreliable.

6.4.1.2 Record Purposes Only

Marks and observations from a Record Purposes Only CSD will **not** be captured into **Land*online***. No checks will be made of the internal consistency (correctness or accuracy) of the observations. Nor does acceptance by LINZ provide any indication of the sufficiency of the dataset to support marks placed on boundaries.

The survey report may be a covering letter indicating that the CSD is lodged for Record Purposes Only and a brief statement as to the purpose of the survey. Traverse sheets are not required.

Marks and observations from Record Purposes Only CSD's are not available for use in compiled plans. The data can only be adopted after independent

verification (this usually will involve field work). In general this information should be considered potentially unreliable until proven reliable. Marks from Record Purposes Only CSD's that are shown to be on boundaries can only be accepted as indicating the boundary if there is shown to be no conflict with other more reliable information.

6.4.2 CSD Formats

A Survey data CSD may be lodged in the form of a survey plan compliant with Schedule 2 of the Surveyor-General's Rules, or in a field note format.

Where the dataset is lodged in the form of survey plans, the surveyor must indicate the form of approval intended by means of a note above the plan description panel on each survey sheet (and each title sheet where these are required for new dimensions on existing primary boundaries), specifying either "Survey Information" or "Record Purposes Only".

6.4.2.1 Survey Information Survey Plans

"Survey Information" is used for approval of marks placed on existing boundaries (redefinition surveys), or to provide other approved recording of marks placed, including geodetic control marks, offsetting, etc; and cadastral survey observations made.

The surveyor should choose that a CSD is to be Approved as to Survey where the marks and observations are likely to serve a purpose in future surveys (beyond a simple record of mark placement).

6.4.2.2 Record Purposes Only Survey Plans

For Record Purposes Only survey plans, the surveyor should strike out the text in the approval panel "Approved as to Survey by LINZ" – eg ~~Approved as to Survey by LINZ~~.

Record Purposes Only is used principally to provide a record of marks placed and the observations involved in their placement. Like Survey Information, this may be used for marks placed on existing boundaries (redefinition surveys). However, in this case, no check is made of the consistency of the data, or of its sufficiency to define the boundary position.

The surveyor can specify that a CSD is to be Record Purposes Only where they believe that the marks and observations are not likely to serve a purpose in future surveys and that the additional work required to provide a dataset for Approval as to Survey is not warranted.

6.4.2.3 Unit Plan Survey Sheets

It has been an historical practice in the North Auckland Land District to provide field data fixing units on a survey sheet accompanying the unit plan title sheet.

Prior to **Land*online***, in some cases, the title sheet was approved as to survey and the survey sheet was approved for record purposes only.

Land*online* requires a single national process. Approval of a CSD confers the same status on all parts of the dataset (this being a necessary part of digital CSD's where the concept of survey sheet data and title sheet data is less relevant).

Therefore the only options are for the Unit Plan survey sheets to be sufficient for approval as to survey, or for them to be accepted as effectively a field note lodged as a supporting document for the unit plan.

6.4.2.3.1 Unit Plan Survey Sheet for Approval

Where the dataset contains sufficient data on the survey sheet for it to be approved as to survey, then the CSD can be lodged as a Unit plan with survey sheet and the whole CSD can be approved as to survey. The survey marks and observations between them will be captured into **Land*online*** and validated. Observations to fix buildings and other features will not be captured or validated.

This option is to be used if the surveyor has placed new boundary marks or as an option where the survey has other new marks and observations which are likely to be useful for future cadastral surveys.

Traverse sheets are required. A survey report is required covering aspects of the unit title survey as well as the survey origin, marks, verification of survey accuracy, etc.

6.4.2.3.2 Unit Plan Survey Sheet as Field Note

If the data on the survey sheet is not sufficient for it to be approved as to survey, the survey sheet can be accepted as an A2 field note supporting document and imaged as such. The marks and observations will not be captured into **Land*online***. They cannot be used in future compiled surveys. Neither can they be adopted without independent field verification.

This option can be used if the surveyor has not placed any new boundary marks.

Traverse sheets are not required. A survey report is required covering aspects of the unit title survey only.

6.4.3 Record Purposes Only Field Notes

Where the dataset is in the form of field notes, it will only be accepted for Record Purposes Only.

The survey report may be a covering letter indicating that the CSD is lodged for Record Purposes Only and a brief statement as to the purpose of the survey. Traverse sheets are not required.

6.5 Compiled Datasets

6.5.1 Application

A compiled dataset is one prepared from data currently held within the approved cadastral record, using direct adoption and/or calculation between existing positions. It also includes the calculation of new parcel boundaries from existing marked parcel boundary positions. Data from a Diagram on Transfer or a Record Purposes Only plan cannot be used for compilation.

6.5.2 Prior Approval

Prior approval of the Senior Advisor to the Surveyor-General for a compiled plan is only required where:

- the accuracy of the adoptions do not meet the requirements of the Surveyor-General's Rules for Cadastral Survey 2002/2, Rule 26 and/or.

- the proposed parcel contains unmarked boundary angles. (Where an existing unmarked position is involved the Surveyor will need the approval of the Senior Advisor to the Surveyor-General to ensure that the original grounds for dispensation from ground marking are still valid) and/or.

- the information to be adopted is shown on a Deeds Plan or held in a limited as to parcels title.

6.5.3 Plan Detail

The Plan is to Show:

- Compiled Plan' at bottom centre of form, above plan description, in letters not less than 7mm high.

- all boundary bearings and distances with appropriate survey references identified.

- new computed boundaries as 'Calc.' between existing marked boundary positions.

- a datum note (note that a coordinate schedule in the plan panel is not required).

6.5.4 Survey Report

The Survey Report is to include:

- an explanation of the method of calculating boundaries.

- for natural boundaries, confirmation that the adopted alignment which forms part of the new parcels, does not differ materially from the current field position.

6.5.5 Traverse and Calculation Sheets

Where adopted work has been used to calculate new boundaries, traverse sheets are to be submitted.

6.6 Computed Datasets

6.6.1 Application

1. A computed dataset is one prepared pursuant to a dispensation granted by the Registrar-General (or delegated person) under Section 167 Land Transfer Act 1952. Dispensations relating to surveys subject to the Land Transfer Act 1952 should be directed to the LINZ Help Desk. Staff assessing the application will seek comment on survey matters relating to the request, from the Senior Advisor to the Surveyor-General.

2. In general practice a computed dataset is used where new easement angles are created without survey, (i.e. new angles not marked such as in easements or covenants) or a boundary is created between a surveyed point and a point defined by dimension only.

   Note: For all other surveys (including primary parcel boundaries) where the surveyor believes that pegging is not warranted, it would be preferable for a dispensation request to be made in terms of Rule 44 and sent directly to the Senior Advisor to the Surveyor-General. If the dispensation is granted, this will ensure that the survey complies with the Rules.

3. Where the land to be subject to an easement -

   - has poor survey definition or
   - is limited as to parcels and
   - is held in a number of separate titles,

   then a computed dataset may be inappropriate and survey observations may be required, fixing the infrastructure as well as connection to the cadastre. An example of this is petrochemical pipeline easements.

   Notes: (1) For service easements, the RGL has provided a general dispensation under section 167 of the Land Transfer Act. Specific approval for a computed plan is not required in these cases. Refer to section 5.3.

   (2) In the circumstance where new parcels are being created from adopted data but the plan also includes a computed easement, the plan is to be considered a Compiled Plan, not a Computed Plan.

6.6.2 Plan Detail

The Plan is to Show:

- 'Computed Plan' at bottom centre of form, above the survey description panel, in letters not less than 7mm high.

- all adopted boundary bearings and distances annotated with appropriate survey references.

- new computed boundaries as 'Calc.

- a datum note.

6.6.3 Survey Report

The Survey Report is to Include:

- an explanation of method of calculating boundaries;

- for natural boundaries, confirmation that the adopted alignment shown on the plan does not differ from the present field position where a primary parcel is being created;

- the LINZ reference number relating to, or a copy of the letter consenting to use of a Computed dataset (except in the case of computed service easements – see section 5.3)

6.6.4 Traverse and Calculation Sheets

1. Calculation sheets are not mandatory but, where provided, may assist future users and also will facilitate explanation, in the survey report, of the measures taken to ensure accuracy of the survey.

2. Where adopted work has been used to establish positions for calculation, traverse sheets are to be submitted.

6.7 LT Datasets

Schedule 2(17) Surveyor-General's Rules for Cadastral Survey 2002/2

6.7.1 Application

Where land is being defined or is being subdivided by survey, and the land is currently held pursuant to the Land Transfer Act 1952 or is to be brought under the Land Transfer Act 1952 by an action related to the dataset.

6.7.2 Plan Detail

6.7.2.1 Lots

Ensure that each Lot:

- is numbered with a unique identifier (Lot number).
- shows a metric area.
- is shown in its entirety on at least one of the title sheets

6.7.2.2 Vestings

Lots can only vest where there is an appropriate consent pursuant to Sec.223 Resource Management Act 1991.

Where there is an exemption from a Sec.223 consent such lots are dealt with by dedication, constitution, proclamation or transfer. Refer to Section 6.7.2.2.6 for detail.

The wording outlined in the following subsections should be used:

6.7.2.2.1 Reserves, Reserves Act 1977

From 1 April 1978 all land vesting as a reserve (subject to the Reserves Act 1977) is to be in accordance with one of the following classifications:

Primary Classification	Reserves Act 1977
Recreation Reserve	Section 17
Historic Reserve	Section 18
Scenic Reserve	Section 19

Nature Reserve	Section 20
Scientific Reserve	Section 21
Government Purpose Reserve (state use)	Section 22
Local Purpose Reserve (state use i.e Drainage, Esplanade, Road, Accessway, Utility etc)	Section 23

The Government and Local Purpose Reserve types must not conflict with any of the primary classifications e.g. Local Purpose Reserve Recreation is not acceptable.

The legal entity in which the land is to vest, must be named on the plan face ie

Scenic Reserve to vest in _____City/District Council/Her Majesty the Queen

Local Purpose Reserve (Esplanade) to vest in _____City/District Council/Her Majesty the Queen

Government Purpose Reserve (Esplanade) to vest in Her Majesty the Queen

6.7.2.2.2 Land To Vest In Lieu Of A Reserve

Land can be vested in lieu of a reserve. Note however that no purpose is assigned to the reserve, ie:

In Lieu of a Reserve to vest in _____City/District Council/Her Majesty the Queen

6.7.2.2.3 Road, Section 315 Local Government Act 1974, Section 2(1) Resource Management Act 1991

Road also includes **Accessway** and **Service Lane**. However an accessway can only vest if it joins two public places and a service lane can only vest if it connects to a public road. Where these requirements are not met the lots must be identified as a Local Purpose Reserve (Accessway or Service Lane). The wording on the plan will appear as:

Accessway/Service Lane/Road to vest in _____City/District Council/Her Majesty the Queen

or

Local Purpose Reserve (Accessway or Service Lane) to vest in _____ City/District Council/

6.7.2.2.4 Beds Of Rivers Or Lakes, Section 237A Resource Management Act 1991

If a bed of a river or lake is to be excluded from a parcel and:

1. is not to vest in the Council, it is labelled on the plan as River/Stream bed with its area shown

2. is to vest in the Council, it is labelled on the plan as follows:

Lot 1 to be vested in the _____City/District Council pursuant to Section 237A(1)(a) Resource Management Act 1991

6.7.2.2.5 Coastal Marine Areas

In most circumstances, title will remain to MHWM however where land in a title is to be MHWS then the land between MHWM and MHWS is to vest in the Crown. This is identified on the plan as follows:

Lot 1 to be vested in Her Majesty the Queen pursuant to Section 237A(1)(b) Resource Management Act 1991

6.7.2.2.6 Dedications, Constitutions, Proclamations and Transfers

Dedications, constitutions, proclamations and transfers are preferably not shown on the plan face. However, the intended action may be shown in the approvals column on the title sheet. If any of these actions are intended, the status will be effected by registration of the appropriate transfer, gazette etc.

6.7.2.2.7 Interests that do not extinguish

(Refer Section 239(2) RMA 1991)

The territorial local authority will certify on the plan, the interests to which the land will remain subject.

- The position and dimensions of the interest are to be shown on the plan in the same way as existing easements.

- A schedule of the interests is to be shown.

6.7.2.3 Segregation Strips

1. Segregation strips are shown as separate lots and adjoin local authority roads and state highways.

2. Where ownership is to transfer to either the local authority or the Crown, the lot is shown on the title sheet of the plan, preferably without additional annotation i.e. the annotation "*Local Purpose Reserve (Segregation) to Transfer*" would not be shown.

3. Where the lot is to vest then the lot is annotated as:

Lot X to Vest in _____ City/District Council as Local Purpose Reserve (Segregation)

or

Lot X to Vest in Her Majesty the Queen as Government Purpose Reserve (Segregation)

Note: The minimum width of these parcels is 0.05m

6.7.2.4 Existing Legal Access Lots

1. Where any title includes a legal access lot that is held in shares with adjoining land, the share interests should not be expressed on the plan.

2. The legal access lot is to be shown in its entirety and with its existing appellation on a title sheet of the plan. It forms part of the plan for the purposes of the comprised in panel but is excluded from the total area and survey description.

3. The access lot is to be delineated by a 0.5 solid line. It is preferred that peg symbols, bearings and distances not be shown to avoid creating the erroneous impression that the existing legal access lot is subject to the survey. .

4. Any subdivision of land adjoining a legal access lot will require the share of the legal access lot to be allocated in terms of the lots on the plan. A new application under Section 220(3) Resource Management Act 1991 is to be approved by the Registrar General of Land before the dataset is submitted.

6.7.2.5 Existing Subject Easements

Refer also to Section 11.4

All existing subject easements that are to be retained on the new titles that will issue as a result of any survey, are to be shown spatially on the title sheet of the CSD. It is not necessary to show them on the survey sheet.

Each separate parcel must be uniquely identified by a letter (or letters). These should generally be fully dimensioned. Where there are a large number of dimensions that diminish the clarity of the CSD then a note to state *"for dimensions see DP 12345 for dimensions"* can be shown instead.

A schedule of Existing Easements to be retained must be shown in the approvals panel.

Where existing easements are to be surrendered, this should be clearly explained in the Survey Report. This is to ensure that the necessary actions are not overlooked within LINZ.

6.7.3 Panel Detail

6.7.3.1 Survey Description

Ensure that the survey description includes:

- reference to all of the new Lots included in the survey.
- the description, as shown on the underlying titles, of all the land affected by the survey.
- the description of any other land (not being in the title being subdivided) over which easements or covenants are to be created.

For example:

a. Where the dataset is solely of easements refer to Section 6.8 "LT Easement Datasets".

b. Where the easement is over land not being part of the subdivision the survey description is to read:

Lot … being a subdivision of Lot … DP …… and Easements over Lot … DP ……

Note: Where a single existing parcel is being defined and the boundaries differ from the original definition (outside the accuracy limits of the Surveyor-Generals' Rules for Cadastral Survey 2002/2) this is not to be described as a Re-definition survey and the survey description is not to make reference to the word "*Redefinition*". The survey description would be " *Lot 1 being definition of (Lot 2)*..... (Refer also to section 6.22.3.1). The land is defined as a new parcel on an LT subdivision plan (not withstanding that there is only one parcel) and, on deposit, will be issued a new title.

6.7.3.2 Council Consent

1. Where a subdivision consent is not necessary, the exemption (stating the relevant section on the act) is to be noted in the survey report.

   Note: Irrespective of 1 above, a dataset will be processed to approval without a consent, even if one is required for deposit of the survey.

2. Where the subdivisional consent is for a lease plan (and regardless of the term of the lease, a lease plan is required in accordance with section 6.13 – not an LT subdivision plan.

6.7.3.3 New Title References Panel

Show a new allocated title references panel. Where pre-allocated titles have been issued, the panel is to be completed with their references.

6.7.4 Survey Report

Refer to Rule 42

6.8 LT Easement Datasets

(Refer Section 11.4)

6.8.1 Application

Land transfer datasets prepared to enable new easements to be registered pursuant to the Land Transfer Act 1952.

6.8.2 Plan Detail

6.8.2.1 Easement Detail

Information provided is to be in terms of:

- other guideline sections on *Easement*s (Sec 11.4) and *General Dataset Presentation*. (Sec 6.2), and
- detail below.

6.8.2.2 Easement Schedule

An easement schedule is to be shown in the format shown in Section 11 under the heading *New Easement Schedule* .

6.8.2.3 Existing Easements

Existing easements (and their intersections with the new easement) do not have to be shown..

6.8.2.4 Covenants

Covenants may be created on easement plans. Ensure:

- the survey description reflects this action, and
- compliance with the detail under *Covenants (Sec 6.2.12)*

6.8.3 Panel Detail

6.8.3.1 Survey Description

Ensure that the survey description includes:

- reference to survey type, eg:

  Easements over Lot ..... DP ..

- the description, as shown on the underlying title, of all the land affected by the survey.

6.8.3.2 Council Consent

For R'sOW, a Section 348 Local Government Act 1974 approval may be shown on the plan.

6.8.3.3 Comprised in Panel

The references in comprised in panel need not include annotation as to *Pt, Bal or EO* etc.

6.8.4 Survey Report

Refer to Rule 42

6.9 LT Covenant Datasets

6.9.1 Application

Land transfer datasets prepared to enable land covenants to be registered pursuant to the Land Transfer Act 1952. Points to note are:

- Covenants over land are generally restrictive in nature and can be created for a host of purposes.
- Covenants can be created voluntarily (e.g. height restrictions placed at time of development), compulsorily (at time of subdivision) or are created under their own statutory provisions (e.g. Reserves Act 1977).
- Covenants may be shown in conjunction with plans of subdivision.
- Height restrictions can be shown in conjunction with other types of plan.

6.9.2 Plan Detail

6.9.2.1 Covenant Detail

Detail is to be in terms of:

- other guideline sections on *General Dataset Presentation (Sec 6.2)* and
- detail below.

6.9.2.2 Covenants Description

Ensure that each covenant parcel is given a unique letter identifier (note where the whole parcel is subject, the appellation will suffice).

6.9.2.3 Heritage, Open Space and Conservation Covenants and Protected Private Land Agreements/Gazettes

In the case of:

- Heritage covenants (Sec. 6 Historic Places Act 1993)
- Open Space covenants (Sec. 22 The Queen Elizabeth the Second National Trust Act 1977)
- Protective covenants (Sec. 18 Crown Forest Assets Act 1989)

- Conservation covenants (Sec. 77 Reserves Act 1977 / Sec. 27 Conservation Act 1987)

- Protected Private Land Agreements/Gazettes (Sec.76 Reserves Act 1977)

- Nga Whenua Rahui Kawenata (Sec. 77A Reserves Act 1977 / Sec 27A Conservation Act 1987)

an area schedule in the approvals panel as follows:

PROPOSED HERITAGE COVENANT SCHEDULE or

PROPOSED PROTECTIVE COVENANT SCHEDULE or

PROPOSED CONSERVATION COVENANT SCHEDULE or

PROPOSED OPEN SPACE COVENANT SCHEDULE or

PROPOSED PROTECTED PRIVATE LAND SCHEDULE or

PROPOSED NGA WHENUA RAHUI KAWENATA SCHEDULE

Shown	Description	Area
A	Pt Lot 1 DP 46947	12.1469ha
B	Pt Allot NW 61 Parish Of Orua	2.1875ha

6.9.3 Panel Detail

6.9.3.1 Survey Description

Ensure that the survey description includes:

- reference to survey type

- the description, as shown on the underlying title, of all the land affected by the covenant.

Examples are:

- Where the dataset is solely of covenants, it is to read:

  "Covenants over Lot 1 DP 7456"

- Where the covenant is over an adjoining title , the survey description is to read:

"Lot 1 being a subdivision of Lot 2 DP 23454 and Covenants over Lot 1 DP 7456"

6.9.3.2 Comprised in Panel

The references in the comprised in panel need not include annotation as to *Pt*, *Bal* etc.

6.9.3.3 Line Weights

The line weight for covenant boundaries can be 0.35mm.

6.9.4 Survey Report

Refer to Rule 42

6.10 LT Flat Datasets

Schedule 2(19) & (20) Surveyor-General's Rules for Cadastral Survey 2002/2

6.10.1 Application

1. Such datasets are prepared to satisfy the requirements of Section 121D Land Transfer Act 1952. They are also subject to the subdivision requirements of the Resource Management Act 1991.

2. A flat dataset can not be approved in the following circumstances and a separate survey dataset to Surveyor-General's Rules for Cadastral Survey 2002/2 standards is required to be submitted.

   - Where the title is "Limited as to Parcels", or

   - Where the title is based on a Diagram on Transfer (except where all boundaries have been marked by datasets approved as to survey which agree with the dimensions of the head title), or

   - Where the land is held in more than one title. (However if the titles are capable of being amalgamated a separate survey dataset will not be required.) or

   - Where the land being dealt with is less than all the land in the title. (However if a separate title for any part could be issued in accordance with Section 226(1) Resource Management Act 1991 a separate survey dataset may not be required - confirm with the LINZ Help Desk), or

   - Where an esplanade reserve or an esplanade strip is required. (Note that the Territorial Authority is to consult with the LINZ Help Desk for requirements.), or

   - Where the land being dealt with has a substantial misclose, or there is insufficient data, or poor survey definition and a lease parcel is close to, on, or encroaches over the boundary.

   - Where the underlying survey is very old and there has not been a modern survey to verify the accuracy of the underlying survey or the relationship of occupation to the underlying survey.

3. When an existing cross-lease has been created on a lot created by a Diagram on Transfer and the lease is being amended (i.e. extension to flat or garage) then a full Land Transfer survey is not required. If the addition is within 1m of the boundary then the surveyor must be able to show that it is clear of the boundary. This may be by field notes or a survey sheet. In such

circumstances, the order in which the parcel in question was transferred from the parent title may become relevant.

6.10.2 Definition of Lease Area Parcels

1. There is no legal standing for the lease area parcels to be defined by anything other than a building (refer to – Rules 2, 27 & 33 and Schedule 2(19) &(20)). This is interpreted to mean the footprint of the building on the ground and may include the building and any attachment thereto (i.e. deck or conservatory). If the lease area parcel is not defined by the exterior face walls or by the median of the interior walls of the structure, the plan shall clearly show what feature defines the extent of the lease (ie "boundary is at end of eaves or barge-board).

2. the location of the lease area parcels shall be established from field measurements and accurately plotted on the plan. The accuracy of the fix of the building that serves as the boundary is determined by the need for accurate plotting in terms of the parcel boundary.

6.10.3 Plan Detail

Plan detail is to be in terms of:

- other guideline sections on *General Dataset Presentation (Sec 6.2*) and
- detail below.

6.10.3.1 Line Weights

As a guide, lines on Flats Plans can be shown as follows:

allotment boundaries	-	solid 0.7mm line
lease area parcels	-	solid 0.7mm line (1.0mm may be used for clarity)
other internal detail (buildings etc. that are not lease area parcels)	-	solid 0.25mm line
exclusive use covenant area parcels	-	solid 0.25mm line
parts of buildings to be excluded from leases (encroachments)	-	pecked 0.25mm line

6.10.3.2 Boundaries (Lease area parcels)

1. In a multi-level building where one flat sits upon another:-

- floor diagrams with the same orientation as the plan shall be drawn showing accurately the extent and shape of each flat.

- Identical floors may be shown as one diagram entitled "Identical floor plan, floors_____ to _____.

- cross-sections are to show all floors, basements, and roofs.

- steps which form part of a flat or are attached to a flat on an upper level and which give access to ground level, should be shown only on the floor plan of the upper level and not the site plan unless the lower flat boundaries extend below the underside of the steps to ground level.

6.10.3.3 Boundaries (Exclusive use covenant area parcels)

The following requirements also relate to amending flats plans where boundaries were not previously described or dimensioned.

6.10.3.3.1 Feature is Boundary

Where a finite physical feature (structure) forms the boundary:

- the boundaries shall be plotted in their true position relative to the parcel boundaries

- the boundary feature shall be described

- the accuracy of the fix of the physical object that serves as the boundary is determined by the need for accurate plotting in terms of the parcel boundary

6.10.3.3.2 Boundary by Dimension

Where a physical feature does not form the boundary:

- the horizontal dimensions of the space shall be illustrated by bearing and distance relative to the parcel boundaries or

- by offset from a building or (physical feature).

- the boundaries at ground level do not need to be monumented.

6.10.3.4 Parcel Description

Ensure that all area parcels on the land (including any lease area parcels, exclusive use covenant area parcels, common area parcels and easements) have been identified.

- a lease area parcel has a number
- an exclusive use covenant area parcel has a letter
- the common area parcel is annotated *"common area"*

6.10.3.5 Overhanging portions of Lease area parcels

Where a portion of the lease area parcel overhangs the building footprint, a cross-section showing the extent of the overhang is to be shown on the plan. On the site plan the ground footprint is shown in heavy line weight with the extent of the overhang in a pecked lighter line weight. An annotation may be necessary to clarify the diagram.

6.10.3.6 Encroachment

Where a building extends beyond the parcel boundary (i.e. encroachment of the exterior wall into an adjoining title) then this portion of the building is to be excluded from the lease. The plan is to show the encroachment:

- with a 0.25 pecked line
- dimensions and position relative to boundary
- annotated as *"Area excluded from lease"*

  Note: The flat boundary would follow the building to the lot boundary and thence along the lot boundary and the building again.

6.10.3.7 Buildings within 1m of the boundary

1. Ensure that calculated offsets have been shown on the title sheet where any part of a building lies within one metre of the title boundary.

6.10.3.8 Staged Lease Developments

Progressive creation of cross lease subdivision of an allotment can be achieved by showing on the plan:

- in the first stage, the lease and exclusive use covenant area parcels relating to the flat or flats being created in normal line weight and the balance of the allotment assigned a letter if it is necessary for the development to proceed otherwise the balance can be left blank
- in successive stages (on a new plan), the new flat/s and exclusive use covenant area parcels in normal line weight and either show the existing flats and exclusive use covenant area parcels with their identifiers and title

reference in 0.25 solid line weight or just show the existing flats in pecked 0.25 line with their survey number and title reference (here the exclusive use covenant area parcels are not shown).

6.10.3.9 Easements

6.10.3.9.1 New Easements

New easements (including R'sOW) may be depicted on a flats plan.

6.10.3.9.2 Existing Easements

Existing easements (including subject and appurtenant easements and restrictions) should not be shown.

6.10.3.10 Covenants

6.10.3.10.1 New Covenants

New covenants may be depicted on a flats plan.

6.10.3.10.2 Existing Covenants

Existing covenants should not be shown.

6.10.3.11 Boundary Notation

Ensure compliance with *General Dataset Presentation Annotations (Sec 6.2.7),* excepting that peripheral boundaries are to be adopted from the survey from which the head title issued.

6.10.3.12 Natural Boundaries

Ensure compliance with *General Dataset Presentation Natural Boundaries (Sec 6.2.11)* noting that the natural boundary is to be adopted.

6.10.4 Plan Detail

6.10.4.1 Survey Description

Ensure that the survey description includes:

- reference to plan type (eg flats)

- the description, as shown on the underlying title, of all the land affected by the survey (must also include the description of any "other" land over which easements or covenants are to be created).

6.10.4.2 Subdivision Consents

Flats plans (or copies thereof) require the following approvals:-

- subdivision approval (Section 223 Resource Management Act 1991)

- certification in terms of Section 224(c) Resource Management Act 1991 (if applicable)

- building certificate in terms of Section 224(f) Resource Management Act 1991

  Note: Irrespective of the above, a dataset will be processed to approval without a consent, even if one is required for deposit of the survey.

6.10.4.3 New Title References allocated

Complete a panel of new allocated title references on the plan if references have been preallocated.

6.10.4.4 Comprised in Panel

Ensure compliance with *General Dataset Presentation: Comprised In Panel* (section 6.2.20) noting that the shares are not shown.

6.10.5 Survey Report

Refer to Rule 42

6.11 LT Covenant Datasets (Relating to amending Exclusive Use Areas on Existing Flats Datasets only)

6.11.1 Plan Detail

Plan detail is to be in terms of:

- other guideline sections on *General Dataset Presentation* (section 6.2) and
- detail below.

6.11.1.1 Covenant Description

Ensure that each new covenant area parcel is shown with a unique identifier (letter)

6.11.1.2 Existing Lease Area Parcels

Where these abut the new covenant, their appellation (i.e. Flat 1, DP 25642) and relevant title reference are shown in 0.25 line weight.

6.11.2 Panel Detail

6.11.2.1 Survey Description

Ensure that the survey description includes:

- reference to plan type (e.g. covenant)
- the description, as shown on the underlying title, of all the land affected by the survey.

6.11.2.2 Panel Note

Ensure that a note in the approval panel reads:

Areas marked A B C to be subject to Land Covenants

6.11.3 Survey Report

Refer to Rule 42

6.12 LT Unit Datasets

Schedule 2(19) & (21) Surveyor-General's Rules for Cadastral Survey 2002/2

6.12.1 Application

These plans are prepared for the purposes of section 4 of the Unit Titles Act 1972, and pursuant to the Resource Management Act 1991. They enable a certificate of title issued under the Land Transfer Act (whether leasehold or an estate in fee simple) to be subdivided into:-

- two or more principal units
- any number of accessory units which are attached to the principal units
- common property

6.12.1.1 Land Transfer Plan Required

A unit plan can not be approved in the following circumstances and a separate survey plan to normal Land Transfer standards is required to be lodged (the definition must be adequate for the issue of a new title upon cancellation of the unit development:

- where the title is "Limited as to Parcels" or
- where the title is based on a Diagram on Transfer except where all boundaries have been monumented by plans approved as to survey in agreement with the head title, or
- where the land is held in more than one title. However if the titles are capable of being amalgamated, a separate survey plan will not be required (refer Senior Advisor Regulatory - Titles – formerly the DLR) or
- where the land being dealt with is less than all the land in the title. However if a separate title for any part could be issued in accordance with Section 226(1) Resource Management Act 1991 a separate survey plan will not be required (refer Senior Advisor Regulatory - Titles) or
- where an esplanade reserve or an esplanade strip is required. Note that the Territorial Authority is to consult with the Senior Advisor Regulatory - Titles for requirements or
- where the land being dealt with has a substantial misclose, or surrounding surveys have shown the dimensions to be unreliable and units or auxiliary units are on, near or encroach over the boundary.

- Where the underlying survey is very old and there has not been a modern survey to verify the accuracy of the underlying survey or the relationship of occupation to the underlying survey.

6.12.2 Plan Detail

Plan detail is to be in terms of:

- other guideline sections on *General Dataset Presentation (section 6.2)* and
- detail below.

6.12.2.1 Line Weights

As a guide, lines on unit plans can be shown as follows:

site boundaries	-	0.7mm solid line
unit boundaries	-	0.7mm solid line (1.0mm may be used for clarity)
accessory units	-	0.7mm solid line (0.5mm may be used for clarity)
other internal detail	-	0.25mm solid line
land covenant area parcels	-	0.25mm solid line
easement boundaries		0.35mm solid line
building within the unit boundary		0.25mm solid lines
unit boundaries on proposed Unit Development (PUD) plans		0.7mm (or 1.0mm for clarity) pecked
accessory units on proposed Unit Development (PUD) plans		0.7mm (or 0.5mm for clarity) pecked

6.12.2.2 Parcel

1. The plan is to depict main and ancillary buildings (principal and accessory units) and common property (if applicable).
2. <u>All</u> parcels on the land (including any existing easements) are to be labelled as one of the following:
    - principal unit uniquely identified (e.g. PU1, Unit 2A)

- accessory unit uniquely identified (e.g. AU1)
- future development unit uniquely identified (e.g. FDU3)
- common property

3. Existing legal access lots on the underlying title must be labeled as 'Common Property" to allow the Supplementary Record Sheet to be correctly annotated.

6.12.2.3 Boundaries

Refer to Rules 2, 27 & 33 and Schedule 2(19) & (21)

6.12.2.3.1 Height Limits

All Units must have defined height limits (upper and lower) normally shown as part of the unit entitlement schedule and on the plan view.

6.12.2.3.2 Building is Boundary

Where a building forms the boundary of the unit:

- in a multi-level development, floor diagrams with the same orientation as the plan shall be drawn showing accurately the extent and shape of each principal and accessory unit. Identical floors may be shown as one diagram entitled "Identical floor plan, floors_____ to _____.
- cross-sections of all multi-storey units together with their levels. These cross sections are to show the extent of floors, basements, and roof areas.
- steps which form part of a unit or are attached to a unit on an upper level and which give access to ground level, should be shown only on the floor plan of the upper level and not the site plan unless the lower unit boundaries extend below the underside of the steps to ground level.
- reduced levels defining the upper and lower limits of the units shall be shown in the schedule.
- external perimeter walls only shall be shown (internal walls, furniture, fittings etc. are not required).
- units that are two storeys or more are to be labelled as Pt on each level, cross section/floor plan

- unless otherwise stated on the plan, where a wall, ceiling, fence or floor forms a common boundary between units, accessory units, or common property, the boundary shall be the median of the feature.

6.12.2.3.3 Feature is Boundary

Where a finite physical feature (structure) forms the unit boundary:

- the unit boundaries shall be plotted in their true position relative to the parcel boundaries (the accuracy of the fix of the physical object that serves as the boundary is determined by the need for accurate plotting in terms of the parcel boundary).

- the boundary feature shall be described

- reduced levels defining upper and lower limits shall be shown in the schedule.

6.12.2.3.4 Boundary by Dimension

Where a physical feature does not form the boundary:

- the horizontal dimensions of the space shall be illustrated by bearing and distance relative to the parcel boundaries or

- by offset from a building or (physical feature).

- reduced levels defining the upper and lower levels shall be shown in the schedule.

- the boundaries at ground level may be monumented

- where the external walls of an existing building do not correspond to the boundaries of the unit, the external walls should be delineated within the unit boundaries.

6.12.2.3.5 Encroachment

Where a building extends beyond the parcel boundary (i.e. encroachment of the exterior wall into an adjoining title) then this portion of the building is to be excluded from the unit. The plan is to show the encroachment:

- with a 0.25 pecked line

- dimensions and position relative to boundary

- annotated as "**Area excluded from unit**"

Note: The unit boundary would follow the building to the lot boundary and thence along the lot boundary and the building again.

6.12.2.3.6 Buildings within 1m of the boundary

1. If a building is within a metre of the parcel boundary, its relationship to the boundary shall be shown on the plan by offsets derived from field measurements. Note the gap between the building and the parcel boundary must be addressed either by extending the unit to the parcel boundary or labelling it as either an 'AU' or common property.

6.12.2.4 Easements

6.12.2.4.1 New Easements shown on the Unit Plan

All new easements (subject and appurtenant) are to be depicted spatially and identified with encircled letters. A schedule is required and is to be shown in the approvals panel.

Note: Where there are easements and labelled diagrams on the title sheet, it may be desirable (to avoid ambiguity) to ensure that the easement letters and diagram letters are not the same – e.g. not an Easement labelled A as well as a Diagram A on the title sheet.

6.12.2.4.2 New Easements subsequent to the Unit Development

Any easements intended to be created after the deposit of a unit plan are to be defined in terms of the existing units or common property and not the underlying estate.

Easements may be created:

- over the common property appurtenant to land outside the unit plan.
- over a unit in favour of land outside the survey.
- over land outside the survey appurtenant to a unit.
- between units (principal and accessory) shown on the same plan, provided that the servient and dominant units are held in separate ownership.

Note: Easements in gross may not be created in favour of the Body Corporate.

6.12.2.4.3 Existing Subject Easements:

All existing subject easements are to be shown on the title sheet unless they are no longer required in which case the client's intention should be confirmed in writing.

Existing subject easements can be shown in one of the following ways:

Note: Bearings and distances are not required.

1. It is preferred that the easements are shown on the plan in the normal manner:

   - The easements are to be shown on the site plan with an identifying encircled letter.

   - An easement schedule is also to be shown in the approvals panel:

EXISTING EASEMENTS		
Purpose	**Shown**	**Created By**
Water Supply	A B C D	Transfer C777037.1

2. If the easement affects a building, or in cases where the easement is complex and there are difficulties in showing it on the site plan,, a note in the approvals panel will suffice as follows:

   - When the easement is defined on a Deposited Plan:

     Subject to a *Water Supply* **easement as shown on** *DP 62143* **and created by** *Transfer 217423*

   - When the easement is defined by a diagram in a document:

     Subject to a *Right of Way* **as shown in and created by** *Transfer 423221*

- When the easement is previously undefined:

  Subject to a Mining easement **created by** Conveyance 21742 (DI 21A.53)

6.12.2.4.4 Existing Covenants, Restrictions and Appurtenant Easements.

All existing appurtenant easements are to be shown unless they are no longer required, in which case the client's intentions must be expressed in the report.

Existing appurtenant easements, covenants and restrictions are to be shown in a schedule in the approvals panel of the title sheet as follows:

EXISTING APPURTENANT EASEMENT	
Purpose	**Created By**
Right of Way	Transfer B158352.1

EXISTING COVENANTS	
Purpose	**Created By**
Land Covenant	Transfer B205864.1

Note:

- Where an easement is to be created in favour of (appurtenant to) a title underlying a Unit development, the easement should be created prior to the approval of the Unit plan.

- Unless intended to be negated, easements specified in an easement certificate entered on the head title must be created prior to the deposit of a unit plan and therefore be shown on the unit plan as existing easements.

- All other existing land covenants and restrictions to be shown.

6.12.2.5 Boundary Notation

Ensure compliance with *General Dataset Presentation: Annotations* (section 6.2.7), excepting that peripheral boundaries are to be adopted from the survey from which the head title issued.

6.12.2.6 Bench Marks

Ensure compliance with *General Dataset Presentation: Survey: Heights* (section.6.2.4)

6.12.2.7 Unit Development

A unit development may be undertaken as a stand alone unit plan (standard Plan) or in 2 or more stages.

6.12.2.7.1 Standard Unit Development.

Where the development is completed in one step, it is shown on one plan. There is no Proposed Unit Development plan. Refer to the schedule in Sec 6.12.3.4 below for the type of consents necessary.

6.12.2.7.2 Staged Development

Where the land is to be developed in stages, the intended scheme is first set out on a Proposed Unit Development ("PUD") Plan. That Plan must show all of the units as they are intended to look when the development is completed.

The PUD Plan is lodged with a First Stage Plan and these are followed by one or more Stage Plans.

Each stage plan is to show:

- the newly completed units and common property
- all the units and common property which have been developed on prior (deposited) stage plans.
- the undeveloped land as Future Development Units (FDUs).

FDUs do not need to be fully defined (that is, their extent may be depicted by graphical lines) and their boundaries may:

- coincide with the proposed unit and common property boundary outlines shown on the PUD plan or
- be an amalgam of proposed units and proposed common property where boundaries do not necessarily follow unit or common property boundaries.

In both cases the whole of the balance of the unit development is to be addressed by one or more FDUs. This allows the whole of the underlying fee simple title to be cancelled.

The schedule requirements for FDUs differ only in that unit entitlements are not assigned.

The final stage is to show all of the units and common property on a Complete Unit Plan.

6.12.2.8 Substituted PUD

Once a PUD has been deposited, the development cannot be altered in any way unless a substituted PUD is prepared.

Whilst the substituted PUD is usually used to alter future development units and common property, in January 2000 the Register General of Lands ruled that a substituted PUD may be deposited to enable changes to be made to both existing units and future development units. In all cases consult with the **S**enior **A**dviser **R**egulatory - **T**itles (formerly known as DLR)

Note:

- The entitlements of both existing and the undeveloped units may be reassessed.
- The depiction of developed Units and AUs must remain the same.
- The total entitlements cannot change.
- The survey description is to read:

Substituted Proposed Unit development on Lot x DP….

6.12.2.9 Redevelopments

"Redevelopment" is defined in Section 2 of the Act as the subdivision or enlargement of an existing unit or units or the erection of one or more units on the common property.

Note:

- Where a Unit Redevelopment dataset under Section 44 involves the common property, the entitlements of all the units shown on the plan are reassessed (although not necessarily changed).
- Where common property is not included in the redevelopment only the entitlements of units being redeveloped may be reapportioned. Units unaffected by the redevelopment cannot have their entitlements altered (see Section 44(1)(d)).
- AU's can be redeveloped as they are held in a title with a Principal Unit.
- Existing Unit Entitlements could vary where common property is affected. The original total entitlement must remain unaltered.
- The plan is to show Redeveloped Units with new, not previously used, appellations (unaffected Units retain the same appellation).

- Titles issued for any unaffected Principal Units are shown in the schedule (not in the Comprised In panel). Ensure that the original Supplementary Record Sheet reference is also retained.

- Survey description is to read as shown in the following example:

  Redevelopment of Units on Lot 1 DP 152689

6.12.2.10 Existing Unit Developments Affected by Subdivision or Proclamation

Where an existing unit development is subdivided or affected by a proclamation action and:

- a unit is affected, the unit development is to be cancelled.

- common property is affected, a new unit plan is required in substitution (Section 18 Unit Titles Act 1972) and must be lodged with the Land Transfer Plan or legalisation plan. The new unit plan retains the same number as the old unit plan, only the lot boundary is to change.

  Note:

  - The survey description is to include:

    'Unit Plan in Substitution under Sec 18 Unit Titles Act 1972"

6.12.2.10.1 Adding of Land into Existing Unit Developments

Section 19(1) allows for the adding of other land to common property. Section 19(2) allows for including all of a unit in common property.

Notes:

- A new Unit Plan is required in substitution (Section 19 Unit Titles Act 1972).

- The new Unit plan retains the same number as the old unit plan, only the lot boundary may change.

- The survey description is to include:

  "Unit Plan in Substitution under Sec19 (x) Unit Titles Act 1972"

6.12.3 Panel Detail

6.12.3.1 Survey Description

Ensure that the survey description includes:

- reference to survey type (eg unit)
- the description, as shown on the underlying title, of all the land affected by the dataset
- also include the description of any "other" land over which easements or covenants are to be created.

The standard survey description should read:

"Units on Lot 1 DP……"

The PUD survey description should read

"Proposed Unit Development on ……..……..."

Stage Unit survey description should read

"First (Second etc.) Stage Unit Plan on ……..…"

6.12.3.2 Unit Schedule

This is to be in the following format:

Title	*Appellation*	*Unit Entitlements*	*Height Limits Upper Lower*
Total unit Entitlement		*xxxxxx*	
Supplementary Record Sheet:			
Address of Body Corporate			

The "Title" column shows the title references allocated to any new Unit Titles to issue and/or of any existing Unit Titles which will be unaffected by the deposit of the survey.

6.12.3.3 Building Name

The building name is shown if applicable.

6.12.3.4 Consent Schedule

The table below details instances in which various approvals/certificates are required. They need not always appear on the plan face, as they are required for deposit rather than approval.

	Unit Plan	**Pro-posed Unit Plan**	**First and Sub-sequent Stage Unit Plan**	**Com-plete Unit Plan**	**Sub-stituted Pro-posed Unit Plan**	**Re-develop-ment Unit Plan**	**Con-version under Part IV**	**Sec 18 &19 Unit Titles Act '72**
Section 223 Subdi-visional Approval	✓	✓	✗	✗	✓	✓	✗	✗
Section 224(c) Consent Certificate	✓	✓	✗	✗	✓	✓	✗	✗
Section 224(f) Building Certificate	✓	✓	✗	✗	✓	✓	✗	✗
5(1)g Certificate	✓	✗	✓	✓	✗	✓	✓	✓
Additional wording - 6(1) Unit Titles Amendment Act 1979	✗	✗	✓	✓	✗	✗	✗	✗
Valuers Certification	✓	✓	✗	✗	✓	✓	✓	✓

Note: A Section 224(c) Resource Management Act 1991 certificate will not be required in instances where conditions have not been imposed; the 223 approval should reflect this.

6.12.3.5 Comprised In Panel

Comprised in data is to be provided as follows:

1. Standard Unit Plan

   Title reference for head title

2. <u>PUD & 1st Stage</u>

   Title reference for head title

3. <u>2nd plus Stages & Complete Plan & Substituted PUD</u>

- If no titles for FDU's have issued then balance of head title.

- If titles for FDU's have issued then quote the title reference for the appropriate FDU

4. Redevelopments Sec 44

   Titles for affected Units (and Supplementary Record Sheet when common property is affected).

5. Substitution (Sec 18)

   No title reference to be shown

6. Substitution (Sec 19(1))

   Supplementary Record Sheet reference of existing unit development and title reference of parcel being added.

7. Substitution Sec 19(2)

   title reference for affected Unit and Supplementary Record Sheet reference.

6.12.3.6 Total Area Panel

The total area panel need not be filled in.

6.12.4 Survey Report

Refer to Rule 42

The report must outline the survey purpose and specific details on units being developed etc. as necessary.

6.13 LT Lease Datasets

6.13.1 Application

In all cases where a lease is to be registered against land held pursuant to the Land Transfer Act 1952 (regardless of the term of the lease or whether subdivisional consent is required under the Resource Management Act).

6.13.1.1 Survey Definition

1. Lease parcels are exclusive use parcels and, in terms of the SG Rules, must be fully defined and monumented by survey unless a dispensation is granted (see 2 below). They fall within the definition in the SG Rules of "Primary Parcels". Specifically, this means that Rule 31 (Monumentation of Primary Parcel Boundaries) applies.

   Note: Where a lease boundary crosses an underlying parcel boundary, Rule 31 (except where dispensation is explicitly provided) requires monumentation of the intersection point. If dispensation is provided, the intersection point will still need to be dimensioned.

2. Where it is considered that the boundary should not need to be marked then dispensation should be sought under Rule 44 (SG's Rules) from the Senior Advisor to the Surveyor-General. The factors taken into account will be as for any such application for dispensation. Standards for leases are not affected by the term of the lease.

   Note: Where the surveyor believes that pegging is not warranted, it would be preferable for dispensation requests to be made in terms of Rule 44 as noted above and sent directly to the Senior Advisor to the Surveyor-General rather than an application for a computed plan under Sec 167(1) of the Land Transfer Act 1952. If the Rule 44 dispensation is granted, this will ensure that the survey complies with the Rules. Under the Surveyor-General's Rules for Cadastral Survey 2002/2, dispensation from the requirements of Rule 31 (Monumentation of Primary Parcel Boundaries) is now possible.

3. Prior to 1 August 2003, under the Resource Management Act 1991 (RMA), leases of 20 years or more required resource consent whereas leases under 20 years did not. An amendment to the RMA came into force on 1 August 2003 changing the applicable term to more than 35 years. (Refer to section 6.13.3.3 below.

   However the term of the lease only affects the requirements for resource consent, deposit of the survey plan and issue of title. As noted above, it does not affect the requirements for survey definition, nor the manner in which the survey data is recorded in **Land*online***.

4. Most parcels defined as "Primary" in the SG's Rules are also given a primary topology status in **Land*online*** (Lots, Sections, roads, rivers, lakes,

etc). Although lease parcels are primary parcels within the definition of the SG Rules, they are located in the tertiary topology layer in **Land*online***. They cannot have primary topology because they overlap the underlying fee-simple (primary) parcel which is not extinguished.

Tertiary topology parcels are permitted to lie over the top of one or more primary topology parcels. This distinguishes them from secondary topology parcels such as easements which are permitted to lie over the top of one and only one primary topology parcel.

The tertiary layer can be made visible in the **Land*online*** spatial window.

5. Rule 19 of the SG's Rules for Cadastral Survey 2002/2 applies to CSD's that subdivide (in the survey sense) one or more parcels in the primary topology layer resulting in that or those parcel(s) being extinguished, existing title being cancelled and replaced by one or more new parcels in the primary topology layer with new fee simple titles being issued on deposit.

   An LT lease dataset does not result in a primary topology parcel being extinguished. Neither is the title for that underlying parcel cancelled. The new parcels should not be in the primary topology layer and the new titles are not fee simple titles. Therefore with the underlying parcel being unaffected by the survey, Rule 19 does not apply to LT Lease datasets. This is true regardless of the term of the lease, regardless of the application of the Resource Management Act and regardless of any dispensation from monumentation of the lease parcels. The new lease parcels may cover all of the area of the underlying parcels but are not required by the SG's Rules to do so.

6. Where a lease parcel is defined on an LT Lease dataset marked "For Lease Purposes Only" (or some equivalent note), and it is subsequently proposed to convert the leasehold interest to freehold, a new LT Subdivision CSD will be required. In many cases, a Compiled dataset will suffice – for example where the data adopted also complies with the current SG Rules applicable to an LT Subdivision (monumentation, balance parcel, parcel closures, etc). This applies irrespective of whether or not the existing lease was for a term of 35 years or more, and irrespective of whether or not subdivision consent for the leases was previously granted and certified by the local authority.

   Note: If the existing lease parcels were created on an LT Subdivision dataset (a former practice which has been discontinued) and/or a dataset which does not have a note indicating any limitation on the use of the plan for issue of title, then a new survey dataset may not be required for issue of freehold title. The LINZ Help Desk should be consulted for advice in specific cases.

6.13.2 Plan Detail

Plan detail is to be in terms of:

- other guideline sections on *General Dataset Presentation (Sec 6.2)* and
- detail below.

6.13.2.1 Lots

Ensure that each Lot:

- is numbered with a unique identifier (number – not a letter).
- shows a metric area.

6.13.2.2 Balance Distances

Ensure balance distances are shown where the lease parcels do not cover all of the underlying parcel(s) and where a lease intersects with a parcel boundary.

6.13.2.3 Lease Purposes Only

The plan is to show "For Lease Purposes Only" at the bottom centre of the plan form, above the survey description panel, in letters not less than 7mm high.

6.13.3 Panel Detail

6.13.3.1 Survey Description

Ensure that the survey description includes:

- reference to all of the lots shown on the plan.
- reference to the new parcels being created for lease purposes.
- the description, as shown on the underlying titles, of all the land affected by the survey.

Eg:

"Lot 1 being a lease over Lot 1 DP……"

6.13.3.2 Panel Notes

For clarity, the following note is desirable in the panel:

"Not for issue of Freehold Title"

6.13.3.3 Council Consent

Resource consent is necessary where the lease is for more than 35 years.

Section 17 (P) (2) Conservation Act 1987 exempts all leases of the Conservation estate from Resource Management Act subdivisional consent. An exemption is shown in the survey report or in the plan panel:

> "Exempt subdivision consent pursuant to Section 17 (P) (2) Conversation Act 1987."

Similarly, section 6(8) of the Airport Authorities Act 1966 exempts leases of land vested in an airport authority from subdivisional consent requirements under the Resource Management Act. An exemption is shown in the survey report or in the plan panel:

> "Exempt subdivision consent pursuant to Section 6(8) Airport Authorities Act 1966."

6.13.3.4 New Allocated Title References Panel

Where new leasehold titles are required, or where title references have been pre-allocated, a panel showing new allocated title references is to be completed accordingly.

6.13.4 Survey Report

Refer to Rule 42

6.14 LT Reclamation Datasets

Only actions relating to the reclamation are to be shown in these datasets.

6.14.1 Application

6.14.1.1 Legislation

There are two acts relating to reclamations; the Resource Management Act 1991 and the Foreshore and Seabed Endowment Revesting Act 1991.

6.14.1.2 Underlying Land

Reclamation can be of:

- seabed
- foreshore
- stream/ riverbed
- lakebed

6.14.1.3 Legal Process

The process confirming consent of reclamation and issue of title is dependent upon:

- the status of the waterbed
- how that status was arrived at
- ownership of the waterbed
- who has management of the waterbed

6.14.1.4 Advice to Surveyor

It is strongly recommended that before the reclamation process is started, that there is an understanding of the complete process and it is recommended that information on land status and the legislative process could be obtained from relevant experts outside LINZ (refer to the Regulatory Chiefs Land Status Investigation Guidelines at:

http://www.linz.govt.nz/staticpages/crown_property_stds/investigation_guidelines.pdf)

6.14.2 Plan Detail

Detail is to be in terms of:

- other guideline sections on *General Dataset Presentation (Sec6.2)* and
- detail below.

6.14.2.1 Lots

Ensure that each Lot:

- is numbered with a unique identifier (number).
- shows a metric area.

6.14.2.2 Balance Distances

Ensure balance distances are shown where relevant.

6.14.2.3 Underlying Parcel Annotations

The subject land is to be annotated with:

- Appellation, and
- status (e.g. LT registration etc., - refer 6.2.20 under "Comprised In Panel"), and
- legislation under which it is held.

6.14.3 Panel Detail

6.14.3.1 Survey Description

Ensure that the survey description includes reference to:

- all of the lots shown on the plan.
- the underlying land, e.g.

  "Lot 1 being Pt Bed ....."

6.14.3.2 Consent

6.14.3.2.1 Restricted Coastal Activity

If the reclamation is a restricted coastal activity the consent authority is the Minister of Conservation and the following approval is required:

Approved pursuant to Section 245 Resource Management Act 1991 on the _____ day of _____ 20_____.

_____

Minister of Conservation

6.14.3.2.2 Unrestricted Coastal Activity

If the reclamation is not a restricted coastal activity the consent authority is the Regional Council and the following approval is required:

Approved pursuant to Section 245 Resource Management Act 1991 on the _____ day of _____ 20_____.

Note: Both approvals may be on a copy of the plan.

6.14.3.3 New Allocated Title References Panel

Provide a panel showing new allocated title references. Where preallocated titles have been issued, the panel is to be completed with their references.

6.14.4 Survey Report

Refer to Rule 42. In addition to the standard reporting issues, reclamation surveys are to be supported by:

- detail outlining the legal process to be used and
- conclusive evidence of the status of the land.

6.15 SO Crown Land Datasets

6.15.1 Application

1. These surveys define Crown Land held under the Land Act 1948 or the Conservation Act 1987 in the following circumstances:

   - Freeholding of Crown Land under Section 116 Land Act 1948
   - Transfer of Crown or former State Forest Land to a State-Owned Enterprise under the State-Owned Enterprises Act 1986.
   - Accounting for the balance of a parcel when part of the parcel has been severed or removed by some other action.

   Note: This section does not include datasets prepared to define land for Treaty settlement purposes. This type of survey is covered in section 6.26.

2. In the Division of Crown Land

   - the subdivision may be subject to Part 10 Resource Management Act 1991.
   - if a subdivision is exempt from Part 10, the authority for an exemption must be shown in the survey report.
   - the provisions of Section 228 Resource Management Act 1991 apply to subdivisions by the Crown (of land not subject to the Land Transfer Act 1952) and the approval of the Surveyor General (delegated to Approving Officers) has effect as if it were the deposit of a survey dataset in accordance with Section 224.

3. If land is intended for disposal, Part IVA of the Conservation Act 1987 (Marginal Strips) applies. Refer Chapter 11.

6.15.2 Plan Detail

Plan detail is to be in terms of:

- other guideline sections on *General Dataset Presentation* (section 6.2) and
- detail below.

6.15.2.1 Parcel Annotation

Ensure each parcel shows:

- a section number
- a metric area.

6.15.3 Panel Detail

6.15.3.1 Survey Description

Ensure that the survey description includes reference to all of the sections shown on the plan.

6.15.3.2 Schedule

A schedule of areas is to be shown in the following form:

New Description	Former Description	Status
Section 1	Pt Allotment 26 Parish of Wairewa	Crown Land GN C 422134.2
Section 2	Pt Allotment 25 Parish of Wairewa	Crown Land Gaz 1942 p213

6.15.4 Survey Report

Refer to Rule 42

In addition to standard reporting issues, Crown Land plans are to be supported by conclusive evidence of the status of the land. Refer to the Regulatory Chiefs Land Status Investigation Guidelines at:

http://www.linz.govt.nz/staticpages/crown_property_stds/investigation_guidelines.pdf

6.16 SO Graphic Description Datasets

6.16.1 Application

Datasets for gazettal purposes only are referred to as "Graphic Description Plans". These can be prepared where the extent of the area and purpose do not warrant a full survey. They are prepared for a specific gazettal action only. Titles cannot issue from these surveys. For more information, refer to SG Policy 2000/2 "Use of Graphic Description Plans", which can be accessed from the Internet at http://www.linz.govt.nz/rcs/linz/pub/web/root/core/SurveySystem/surveypublications/index.jsp.

6.16.2 Survey Type

Graphic Description surveys are diagrammatic (prepared from aerial photos, topographical plots etc.), or compiled or computed from official survey records; or a combination of both. They are approved for record purposes only.

Specific requirements should be discussed with the LINZ Help Desk prior to the lodgement of the dataset.

6.16.3 Plan Detail

Plan detail is to be in terms of:

- *General Dataset Presentation* (section 6.2) and
- detail below.

6.16.3.1 Parcel Annotation

Each area being dealt with is to be identified with a letter.

6.16.3.2 Boundary Notation

Ensure the dataset clearly shows/identifies the extent of the land affected. This may be achieved by:

- preparation in terms of *General Dataset Presentation - Lot Boundaries* (section 6.2.7.1) or
- specific requirements as agreed with the Senior Adviser to the Surveyor General prior to submitting the survey.

6.16.3.3 Natural Boundaries

A natural boundary can be adopted without the certification as to its physical position.

6.16.4 Panel Detail

6.16.4.1 Survey Description

Ensure that the survey description includes an action e.g.

Land to be set apart

6.16.4.2 Schedule

Where the plan is of land to be set apart for some purpose, a schedule is to shown in the following form:

LAND TO BE SET APART FOR *(WILDLIFE REFUGE)*			
Shown	**Description**	**Title Reference**	**Area**
A	Pt Lot 3 DP 112546(NA)	NA84C/623	3.2100 ha

Note:

- the description refers to part of the underlying appellation (land taken affects only part of the land).

- the title reference is to the whole of the title (land taken affects all of the title) and refers to the current instrument of title (which may be a registered gazette notice).

6.16.4.3 Panel Note

A note in the approvals panel is to read “Definition not adequate for issue of Title”

6.16.4.4 Comprised in Panel

This panel is not to be completed.

6.16.5 Survey Report

Refer to Rule 42

6.17 SO Legalisation Datasets

Schedule 2(16) Surveyor-General's Rules for Cadastral Survey 2002/2

6.17.1 Application

1. Legalisation surveys are prepared on behalf of Government Departments, Territorial Authorities, Ad Hoc Authorities or any person authorised by Statute to deal with, or dispose, of land. It is the purpose of the survey and the statute under which it will be actioned that determines the dataset requirements.

2. Pursuant to Rule 19(2)(b), where land is being taken or acquired under the Public Works Act 1981, the rest of the parcel does not have to be accounted for.

6.17.1.1 Advice To Surveyor

It is strongly recommended that before a legalisation dataset is prepared, that there is an understanding of the complete process. To determine the status of the land refer to the Regulatory Chiefs Land Status Investigation Guidelines at:

http://www.linz.govt.nz/staticpages/crown_property_stds/investigation_guidelines.pdf

6.17.1.2 Respecting Title

1. On legalisation surveys the title from which the land is taken or acquired must be left in no worse position after the proclamation action than it was before.

2. The right to obtain a title to the balance land remaining must not be prejudiced.

3. If a legalisation survey reveals differences which would prevent title being properly issued for the balance land, the surveyor should consult the Senior Advisor to the Surveyor-General or submit a definition survey under the Land Transfer Act so that title for the balance area may be properly issued

6.17.1.3 Road Stopping

1. Road may be stopped pursuant to Section 116 Public Works Act 1981 or by Territorial Authorities pursuant to Section 342 Local Government Act 1974.

2. The procedures for stopping road pursuant to Section 342 Local Government Act 1974 are set out in the Tenth Schedule to that Act.

3. Where a road to be stopped pursuant to Section 342 Local Government Act 1974 is situated in a District Council and adjoins land zoned rural in the

District Plan the consent of the Minister of Lands must be obtained to the proposed stopping.

4. When preparing road-stopping datasets, surveyors should consider the effect of Section 345(3) Local Government Act 1974 and Section 118 of the Public Works Act 1981. Separate parcels will be required to define areas of stopped road that have become esplanade reserve pursuant to the provisions of the Local Government and Public Works Acts.

6.17.2 Plan Detail

Plan detail is to be in terms of:

- other guideline sections on *General Dataset Presentation* (section 6.2) and
- detail below.

6.17.2.1 Parcel Annotation

In the case of land to be taken or acquired and road stopping, each parcel is shown with:

- a section number.
- a metric area.

6.17.2.2 Balance or Severance Distances

Ensure balance or severance distances are shown where the whole of a parcel/ title is not being addressed as part of the survey. This includes balance distances of road sides in the case of road stopping. Also if the balance calculated distance differs (in excess of survey accuracy limits) from the balance title distance, this should be indicated on the survey sheet.

Note Rule 31(1)(c) requires all intersections with parcel boundaries to be marked. In cases where there is provision for an intersection to not be marked (Rules 31(2), 31(3), 34 or dispensation under Rule 44) the intersection must still be fully dimensioned – regardless of whether the parcels either side of the intersected boundary are held in the same title.

6.17.2.3 Balance Land

1. Where a balance parcel is left, ensure that it is to be left no worse off for definition, areas, or marking.
2. Parcels of *Land to be taken/acquired* are joined to the balance of the land by a vinculum.

6.17.2.4 Ownership References on Plan

Land To Be Taken / Acquired	Road Stopping
Ensure that the balance of the land under survey shows the: - description of the land (confirm in **Land*online***) - title reference on the title sheet (confirm with title). - ownership and status of every parcel not registered under the LT Act 1952 (the words "Maori Land" is sufficient where applicable) Ensure that the land adjoining the land under survey shows the: - title reference on the title sheet (confirm with title) if the land that is to be taken/acquired is also to be amalgamated with the adjoining land as part of the legalisation action (eg severance) **Note:** Whether the land is "taken" or "acquired" depends on the specific action under the PW Act (compulsory or by agreement).	Ensure that the land adjoining the land under survey shows the: - description of the land (confirm in **Land*online***) - title reference on the title sheet (confirm with title) if the road to be stopped is to be amalgamated with the adjoining land as part of the legalisation action. - ownership and status of every parcel not registered under the LT Act 1952 (the words "Maori land" is sufficient where applicable)

Note: Show in order of preference;

- Land Transfer Act 1952 reference
- Gazette Notice or Gazette reference if not registered
- In the case of Crown Land, the act by which it is deemed to be Crown Land
- the annotation *No Registration*
- Part old River/Stream/Seabed.

6.17.2.5 Easements

6.17.2.5.1 New Easements

1. Where easements are being acquired a schedule in the following format is shown:

EASEMENT TO BE ACQUIRED			
Shown	**Description**	**Title Reference**	**Area**
A	Part Lot 1 DP 6843(WN)	WN4B/140	571m^2

6.17.2.5.2 Existing Subject Easements that are to be Retained

1. Land for Road

   - Any existing easements that exist in their entirety over land for road will be extinguished upon gazettal as road and are not shown.

   - Where existing easements to be retained extend partly over the land to be taken/acquired for road, a new balance easement parcel will be created in **Land*online*** and the balance dimensions of the intersected boundaries of the existing easement are to be provided on the plan.

2. New Parcels other than Land for Road

   Ensure that all existing subject easements, which are to be retained, are shown on the title sheet and itemised in a schedule (refer Chapter 11: Easements).

3. In the case where land is subject to an existing easement that has been monumented and a parcel is being excised from that land, then any intersection of an existing easement and any new boundary is to be monumented.

   Where the survey is accounting for all of the parcel, the whole of the easement is shown (excepting that portion over land for road).

   In the case where an easement has previously been monumented and the survey is not accounting for all of the parcel (i.e. acquisition under the Public Works Act 1981), then the balance dimensions of the intersected boundaries of the existing easement are to be shown.

4. Note that gazettal of a parcel will relinquish any existing easement not specified in the gazette.

6.17.2.6 Legalisation Plan

The plan is to show *"Legalisation Plan"* at the bottom centre of the form, above the survey description panel, in letters not less than 7mm high.

6.17.3 Panel Detail

6.17.3.1 Survey Description

Ensure that the survey description includes reference to all of the sections shown on the plan.

6.17.3.2 Schedule

A schedule of areas indicating the purpose or first intended action for all areas is to shown in the following form:

LAND TO BE ACQUIRED FOR ROAD			
Shown	**Description**	**Title Reference**	**Area**
Section 1	Part Lot 1 DP 6843(WN)	WN4B/140	3571 m²

Notes:

- The description refers to part of the underlying appellation (land taken or acquired affects only part of the land).
- The title reference is to the whole of the title (land taken affects all of the title) and refers to the current instrument of title (which may be a registered gazette notice).
- The detail is to grouped in terms of the action to be taken.

ROAD TO BE STOPPED			
Shown	**Adjoining**	**Title Reference**	**Area**
Section 1	Lot 2 DP 7546(WN)	WN6B/138	4798 m²

Note: The description and Title reference refers to the abutting land.

6.17.3.3 Road Legality Note

Where road is to be stopped, a note stating how the road became legal. is required in the approvals panel.

6.17.3.4 Comprised in Panel

This panel is not to be completed.

6.17.4 Survey Report

Refer to Rule 42

In addition to the standard report, detail is required on the survey purpose and in the case where land is being acquired for road, the statutory authority under which the action will be carried out.

6.18 ML Maori Land Datasets

Schedule 2(18) Surveyor-General's Rules for Cadastral Survey 2002/2

6.18.1 Application

All land subject to the Te Ture Whenua Maori Act 1993, which includes Maori Land Amalgamation, Consolidation, Partition, Revesting and Roadway.

6.18.1.1 Maori Land Courts

There are seven Maori Land Courts:

- Waikato Maniapoto (Hamilton)
- Waiariki (Rotorua)
- Takitimu (Hastings)
- Tairawhiti (Gisborne)
- Taitokerau (Whangarei)
- Aotea (Wanganui)
- Te Waipounamu (Christchurch)

6.18.1.2 Depiction of Land

The requirements for depiction of land under survey can differ according to the particular Land Court:

6.18.1.2.1 Taitokerau, Waiariki, and Takitimu Court

The plan is to show the title position of the land under survey as at the date of the Maori Land Court order. Subsequent actions such as land taken for public purposes by proclamation are to be indicated on the face of the plan by pecked outline (0.5mm line weight) and suitably labelled (and referenced) and are tabulated in the approvals panel by means of a schedule of areas commencing with the total area as at the date of the order and showing deductions of the areas taken to result in the area currently remaining in each block.

6.18.1.2.2 Waikato Maniapoto, Tairawhiti, Aotea and Te Waipounamu Courts

1. The plan is to show the title position of the land under survey as at the date of the survey. For the Tairawhiti Court, where this differs from the position

at the date the order was made, an "as constituted" scale diagram is to be shown on the plan. This diagram should show the boundaries and area as at the date of the order.

2. The block name is **not** shown as "Part" even though some land may have been acquired for public purposes or revested in the title subsequent to the order.

6.18.1.3 Survey Matters

6.18.1.3.1 Requisition For Survey

Prior to starting the survey, the surveyor may need to obtain from the Court a "*Requisition for Survey*" or alternatively deal directly with the land owners if the Court allows. If a requisition is obtained, the Court will in turn ask the Surveyor-General (delegated to LINZ Operations) to issue a Survey Authority for the survey. Refer to Section 332 Te Ture Whenua Maori Act 1993.

6.18.1.3.2 Status of Land

Status - Maori land including Maori freehold land held in a title under the provisions of the Land Transfer Act is subject to the Te Ture Whenua Maori Act 1993 under the jurisdiction of the Maori Land Court. On the registration of a 'status order' against the Maori freehold title, the status may be altered to be General Land, and no longer be subject to the Te Ture Whenua Maori Act 1993. The reverse also applies.

6.18.1.3.3 Conflict between LT and Court Records

A search for LT registration of the Block must include parent and grandparent blocks including pre-consolidation appellations as the LT registration may not be in terms of the latest partition. A search of the Maori Land Court records is also necessary to identify surveyed (or unsurveyed) partitions not registered under the Land Transfer Act.

Note: Occasionally the same land may be held in several titles.

6.18.1.3.4 In terms of Court Minutes

1. All surveys are to be made in accordance with the Court Minutes. Any variation requires Maori Land Court sanction. Note that:

   - new partitions of Maori Land are intended to give practical boundaries to the areas specified in the Court Order. Where substantial fences and other permanent occupation is located near the required boundary, marking usually respects that occupation. Where there are considerable differences in area or layout surveyors are to consult with the Maori Land Court as it is possible that the orders may be amended to agree with the occupation.

- In the early days an owner's area entitlement upon partition was normally directly proportional to his/her proportion of the total shares in the block e.g. if an owner had 10% of the shares in a block the partition order was made for 10% of the total area. More recently, the Court has deemed that entitlement should be in proportion to the value of the land, not in proportion to the area and not "prime sites to the first in". This is fairly important where the valuation per hectare of land varies considerably for different parts of the block, where lands have been affected by proclamation, erosion or accretion, or particularly where there are prime sites or houses. Consultation with the Court on such matters is important (see 6.18.1.3.6 below and references to erosion of Maori Land in Chap. 11.

2. A plan will not be approved where differences between the court minutes and the dataset do not have the sanction of the Court.

6.18.1.3.5 Survey of Balance Parcels

The Court may require the survey plan to show only those Blocks that are being completed by survey. Any balance parcel should be shown with its current appellation (although reference to the unsurveyed partition may be made in brackets). In some circumstances it may be advantageous to add the remaining unsurveyed partition to the plan, but this would have to have the sanction of the Maori Land Court.

The surveyor must ensure that the balance is in terms of the Maori Land Court minutes. (Note comment in 6.18.1.3.4 above).

6.18.1.3.6 Accretion and Erosion

Accretion and Erosion - Where there is an issue of boundary adjustment, e.g. accretion or erosion, Rule 64 of the Maori Land Court Rules 1994 is appropriate. This is a variation to boundaries and will require Court sanction.

6.18.1.3.7 Roadways

1. All forms of access laid out by the Maori Land Court prior to 1 April 1954 shall be called "*Roadway*" or "*Restricted Roadway*" on the plan irrespective of their description in the Court Minutes. Refer Section 414 Maori Affairs Act 1953.

2. Ensure the plan is clear as to whether a roadway is <u>either</u> an encumbrance over land (like an easement) or whether it is to be a separate parcel.

3. Roadways that are separate parcels are to be fully marked.

4. Easement type roadways are to be marked as required for R'sOW

6.18.1.4 Resolution of Issues

The approval of Maori Land plans by the Maori Land Court and the Approving Officer is dependent upon the surveyor addressing the issues associated with:

- varying requirements of the Maori Land Courts,
- the complexities of the Court minutes,
- the issues of survey.

It is essential that all issues are resolved prior to submitting the dataset.

6.18.2 Plan Detail

Plan detail is to be in terms of:

- other guideline sections on *General Dataset Presentation* (section 6.2) and
- detail below.

6.18.2.1 Plan Types

1. Surveys to support Court orders are depicted on ML plans.
2. The survey and dataset must also be sufficient to support registration under the Land Transfer Act.

6.18.2.1.1 Parcel Description

6.18.2.1.1.1 Parcel Identifier

1. Ensure that each parcel is uniquely identified in accordance with the Court Order

6.18.2.1.1.2 Roadways & Restricted Roadways

1. Each Roadway (whether it be a separate parcel or easement type roadway) is identified as "*Roadway*" or "*Restricted Roadway*".
2. An easement type roadway is also shown with an identifier (letter) and boundaries should be drawn with 0.35mm line weight.

6.18.2.1.1.3 Abutting Unsurveyed partitions

Show the present surveyed appellation as in **Land*online***, together with the appellation for the unsurveyed partition annotated *"not surveyed"*.

6.18.2.1.1.4 Maori Reserves

These are created under Section 338 Te Ture Whenua Maori Act 1993 and are for Urupa (Cemetery), Marae, Esplanade Strip/Reserve (sometimes in lieu of RM Act 1991 Reserve) and many other purposes. These are not made by a Court order, but are gazetted by Te Puni Kokiri on a recommendation by the Court.

Reserves are sometimes created without surveyor's or LINZ knowledge, sometimes with non survey definitions which cause difficulties with the cadastre.

6.18.2.2 Natural Boundaries

The survey should approach natural boundaries and former natural boundaries now dry land in the normal manner. However the Court may be reluctant to accept erosion without prior notification and discussion.

6.18.2.3 Easements

Ensure all easements (includes some Roadways) are shown in the standard manner. Where the Maori Land Court requires, any easement schedule (existing or new easements), is to have an additional column showing easement area.

6.18.2.4 Areas

1. Areas are to be shown for all:

   - parcels
   - roadways (where the Maori Land Court requires)
   - easements (where the Maori Land Court requires)

2. The total area panel does not include roadways (unless they are a whole parcel) or easements.

   Note: The surveyor should confirm these Court requirements with the Approving Officer prior to Plan Lodgement.

6.18.3 Panel Detail

6.18.3.1 Survey Description

1. Ensure that the survey description includes reference to all of the blocks shown.

2. Where the description of the land under survey does not logically follow on from the last surveyed description then reference is to be made to the former or underlying appellation

Ngatarawa 4 formerly Ngatarawa 2

Ngatarawa 5 formerly Ngatarawa 3D

3. Where a roadway is a separate parcel

   Ngatarawa 4 Roadway formerly Ngatarawa 2.

4. Where a roadway is an easement type

   Roadway over Ngatarawa 2.

5. In the Gisborne Land District only (simplified appellation).

If the order was made on or after 1st June 1987, a preallocated plan number should be obtained allowing the ML plan number to be shown after the block name and partition number, e.g.

Ruaohinetu 25 ML 312001

For an existing partition that already has a simplified appellation the ML number is to be included in the survey description.

Rua O Hinetu 24 and 25 ML 312001 formerly Rua O Hinetu 23 ML 8646

Te Kopani 35 ML 312002 formerly Parts Te Kopani 9 and 4

6.18.3.1.1 Schedule

Where this survey includes an easement type Roadway or Restricted Roadway, a schedule is to shown with:

- its identifier
- servient tenement
- dominant tenement (where the Court requires)
- its metric area (where the Court requires)

Note: the surveyor should confirm these Court requirements with the Approving Officer prior to survey lodgement.

6.18.3.2 Local Government Act 1974 and Resource Management Act 1991

1. Hapu partitions are exempt from the RM Act 1991 and a note is to be shown in the survey report.

   Partitions in this dataset are subject to Section 304 Te Ture Whenua Maori Act 1993

2. Non-hapu partitions, which have been created in terms of the LG Act 1974 or the RM Act 1991, must have the appropriate local authority consent in the panel or incorporated in a document.

6.18.3.3 Maori Land Court Referencing

The surveyor should check what Maori Land Court approval format is applicable for the particular court. Two general formats are:

1. in the approval panel

   - MLC District (prominent lettering)

     Approved

     .....

     Judge

     Dated .....

     Parent Survey.....

     Minute Book Reference.....

     Date of Orders.....

   or

2. the deposit panel modified to read:

   - "*Approved*" instead of "*Deposited*"; and

   - "*Judge Tairawhiti (or other) Maori Land Court*" instead of "*by Land Information NZ*"

     Note: The Surveyor should check which format is applicable for the particular Court.

6.18.4 Survey Report

Refer to Rule 42

In addition to the standard reporting requirements, the following are required:

- Copies of the Court Orders or Interim Orders, diagrams associated with the survey instructions and information on further discussion including correspondence with the Court.

- Any differences in layout, dimensions, and area, with the Court minutes and diagram and how discrepancies have been resolved.

- Any additional communication with the Court that has an impact on the survey layout.

6.18.5 Reference Material

Additional Information is available in:

- Surveyor and the Law (NZIS Publication 1981)

- Te Ture Whenua Maori Act 1993

- Maori Land Court Rules 1994

- Resource Management Act 1991 (S11)

- Law For Surveyors #12 (NZIS Publication 1997)

6.19 SO Marine Farming Datasets

6.19.1 Application

The right to farm fish, aquatic life or seaweed is granted by Marine Farming Permit pursuant to the Fisheries Act 1983 (as inserted by the Fisheries Amendment Act 1993).

Section 67 sets out the requirements associated with permits including the supporting detail required by the Ministry of Fisheries:

- Section 67J(2) states that a permit shall only be issued-

a. to a person who holds a coastal permit for the area applied for; or

b. to a person who holds a certificate of compliance in respect of the area applied for.

This prerequisite involves the Resource Management Act 1991.

- Section 67J(9)(a) requires that a marine farming permit shall "specify the area in which the permit may be exercised".

6.19.2 Plan Detail

Plan detail is to be in terms of:

- other guideline sections on *General Plan Presentation* (section 6.2) and

- detail below.

6.19.2.1 Plan Type

A title sheet only is required. A survey sheet may be also lodged.

6.19.2.2 Parcel Annotation

Each parcel is annotated with an encircled letter.

6.19.2.3 Existing Permits

Ensure that any existing leases, licences or Coastal Permits within a close proximity have been shown.

6.19.2.4 Survey Definition

The position of the permit must be shown by a calculated connection to the land based cadastre or by observed connection to geodetic or cadastral survey marks in **Land*online***.

6.19.2.5 Underlying Parcel Annotation

This need not be shown.

6.19.3 Panel Detail

6.19.3.1 Survey Description

Ensure that the survey description includes:

- reference to survey type (eg Marine Farming)
- reference to the coastal permit number.

6.19.3.2 Schedule

A schedule is shown in the following form:

New Description	Coastal Permit Number	Area
A	2245	4798 m²

6.19.3.3 Datum Note

A datum note is to be shown.

6.19.4 Survey Report

Refer to Rule 42

6.20 SO Mining Datasets

Schedule 2(22) Surveyor-General's Rules for Cadastral Survey 2002/2

6.20.1 Application

Mining datasets are prepared to support a Mining Permit application pursuant to Section 29 Crown Minerals Act 1991.

6.20.1.1 Advice to Surveyor

It is strongly recommended that before a mining dataset is prepared, there is an understanding of the complete process. To determine the status of the land refer to the Regulatory Chiefs Land Status Investigation Guidelines at:

http://www.linz.govt.nz/staticpages/crown_property_stds/investigation_guidelines.pdf

6.20.2 Plan Detail

Plan detail is to be in terms of:

- other guideline sections on *General Plan Presentation* (section 6.2) and
- detail below.

6.20.2.1 Boundaries of Permit

1. Survey definition of a mining privilege should not include any area outside the original application.
2. Boundaries offset from the centre or bank of a river are to be reduced to right lines and appropriately monumented where specified by LINZ.
3. Mean High Water Mark for cadastral purposes is a moveable boundary. This is not acceptable for mining privileges, the boundary being "fixed" as at the date of issue of the permit. MHWM boundaries are to be reduced to right lines and marked or fixed by offset where specified by LINZ.

6.20.2.2 Parcel Description

Ensure that each area is uniquely identified (encircled letter)

6.20.2.3 Balance Distances

Ensure balance or severance distances are shown where a permit does not include a whole parcel/ title.

6.20.2.4 Appellation of Land

The current appellation for the land is retained and shown.

6.20.2.5 Vinculum

Where a permit does not include the whole of a parcel/ title, a vinculum is used to join the balance land with the subject area.

6.20.2.6 Existing Permits

1. Ensure that all previously surveyed current Mining privileges that adjoin or are within 100m have been shown with any intersections. NB. This information can be checked by contacting Crown Minerals at Ph(04) 472 0030 or Fax 04 499 0968.

2. Where a new and existing permit overlaps, there must be sufficient detail to enable the exclusion of the overlap from the existing permit (dimensions and area).

6.20.3 Panel Detail

6.20.3.1 Survey Description

Ensure that the survey description includes:

- reference to survey type (eg Mining) Note that the underlying fee simple is not extinguished.

- reference to the permit application number.

6.20.3.2 Schedule

A schedule is to shown in the format:

Shown	Description	Title Reference	Area
A	*Part Lot 1 DP 6843(WN)*	*WN4B/140*	*3571 m²*

6.20.4 Survey Report

Refer to Rule 42

The survey report is to include a copy of the permit application.

6.21 SO Parliamentary Datasets

6.21.1 Application

6.21.1.1 Purpose

Parliamentary datasets to support an Act of Parliament, and for Private Bills are required to be in accordance with Appendix B(9) of Parliamentary Standing Orders. Datasets to support Local Bills and Local Legislation Bills are required to be in accordance with Appendix C(7) of Parliamentary Standing Orders.

Specific requirements should be discussed with the Senior Advisor to the Surveyor-General prior to the lodgement of the dataset.

6.21.1.2 Private Bills Dealing with Land

(Appendix B(9) Parlimentary Standing Orders)

Where it is intended in any Private Bill to take power to deal with any land, each deposited copy of the Bill must be accompanied by a description of the land together with a true copy of the plan of the land, both certified to be correct by LINZ.

A true copy of the plan is not required where it is proposed to deal –

- with the whole or the residue of the land comprised in any title issued under the Land Transfer Act 1952:

- with land previously dealt with and separately described in any statute, ordinance, Proclamation, declaration, notice or Order in Council:

- with the whole of the land comprised in a separate lot or other surveyed subdivision which is shown on a deposited plan in accordance with the provisions of the Land Transfer Act 1952 or lodged in the office of the Chief Executive of LINZ.

6.21.1.3 Local Bills Dealing with Land

(Appendix C(7) Parlimentary Standing Orders)

Where it is intended in any Local Bill to take power to deal with any land, each deposited copy of the Bill must be accompanied by a description of the land together with a true copy of the plan of the land, both certified to be correct by LINZ.

A true copy of the plan is not required where it is proposed to deal –

- with the whole or the residue of the land comprised in any title issued under the Land Transfer Act 1952:

- with land previously dealt with and separately described in any statute, ordinance, Proclamation, declaration, notice or Order in Council:

- with the whole of the land comprised in a separate lot or other surveyed subdivision which is shown on a deposited plan deposited in accordance with the provisions of the Land Transfer Act 1952 or lodged in the office of the Chief Executive of LINZ.

6.21.2 Plan Detail

Plan detail is to be in terms of:

- other guideline sections on *General Dataset Presentation* (section 6.2) and

- detail below.

6.21.2.1 Plan Type

Parliamentary datasets can be either:

- a survey dataset or

- a compiled or computed dataset or

- an existing approved survey

- a scheme type plan.

6.21.2.2 Parcel Description

Ensure each area is identified with a unique identifier (encircled letter)

6.21.3 Panel Detail

6.21.3.1 Survey Description

For Parliamentary datasets defining land held under the Land Transfer Act 1952 and for which title may issue, a survey purpose of LT Subdivision should be used.

For Parliamentary datasets consisting of a graphical depiction of land which is not to be approved as to survey, a survey purpose of Graphical Description should be used.

Ensure the survey description includes the name of the Bill for which the dataset is being prepared.

6.21.3.2 Schedule

A schedule in the approvals column is shown as follows:

Shown	Description	Title Reference	Area
A	Pt Bed Waitemata Harbour	Crown Land No Registration	2978 m²

6.21.3.3 Panel Note

The Senior Advisor to the Surveyor-General (see section 6.21.1.1) may require a note to appear in the approvals panel stating "*Definition not adequate for the issue of title*."

6.21.4 Survey Report

Refer to Rule 42

6.22 SO Redefinition Datasets

6.22.1 Application

6.22.1.1 Type of Survey

1. A redefinition survey is a survey for the reinstatement of any previously surveyed parcel boundary.

2. The survey is to be lodged as a Survey Office Dataset, regardless of land ownership except redefinition surveys supporting Flat/Unit Datasets. The latter may be lodged as a survey sheet incorporated with the Flat/Unit Title dataset.

6.22.1.2 Survey Issues

1. Documentary title dimensions cannot be altered by a redefinition survey.

   The redefinition survey is to validate title dimensions and may show differences within the limits of the Survey Regulations or Rules in force at the time of the original survey. If new boundary dimensions differ by more than these limits, a full Land Transfer survey is required.

2. Where the land under survey

   - is in a title limited as to parcels, or
   - is in a Interim title in Hawkes Bay, or
   - is registered under the Deeds Registration Act 1908, or
   - the original title dimensions cannot be redefined without impacting on adjoining titles; or
   - is in a title whose boundaries are defined by Diagram on Transfer

   then a full Land Transfer survey is required.

3. In some localities, whole surveys are known to contain significant distortions or scale errors outside SG Rule tolerances. Redefinition surveys may not be possible in these areas despite titles being “guaranteed as to parcels”.

4. Redefinition surveys of previously unsurveyed boundaries are not permissible. This includes Diagrams on Transfer and boundaries created by computed dataset. A full land transfer survey is required.

6.22.1.3 Survey Data Format

The surveyor is to identify the type of approval (refer also section 6.4.1) as follows:

- For Approval as to Survey - a full survey dataset is required. For future surveys the marks used off these datasets will not have to be validated. Data is to meet all the criteria required by the Surveyor-General's Rules for Cadastral Survey 2002/2 for a full land transfer survey.

- For Approval for Record Purposes Only - presented in either plan format or field notes. Any marks placed on these surveys will need validation by supporting evidence if used on future surveys.

Irrespective of whether the data lodged is to be approved as to survey or approved for record purposes only or in field note format it shall be certified by the surveyor in terms of the Surveyor-General's Rules for Cadastral Survey 2002/2.

6.22.2 Plan Detail

Where a dataset is shown in a plan format, ensure detail is to be in terms of:

- other guideline sections on *General Plan Presentation* (section 6.2) and

- detail below.

6.22.2.1 Plan Scale

Redefinition plans lodged for Record Purposes Only need not be to scale and may be lodged in diagram form. They should not therefore show grid cuts but are to be correctly oriented. Care should be taken to maintain correct relationships so that the plan can be easily followed.

6.22.2.2 Boundary Annotations

Boundary dimensions are to be shown. They are to be the documentary title dimensions or, (where they are within the accuracy limits of the Survey Regulations or Surveyor-General's Rules in force at the time of the original survey) different dimensions identified as calculated. When the plan is approved as to survey, this detail allows for future adoption for Land Transfer purposes.

6.22.2.3 Occupation

The position of occupation relative to monuments placed must be shown. Where new monuments fall on the line of, or at, junctions of occupation, this is often field verification of correct calculation. Extreme caution should be exercised where redefined positions fall clear of well established occupation.

6.22.3 Panel Detail

6.22.3.1 Survey Description

Ensure the survey description reads:

"Redefinition of Lot 6 DP4567" or

"Redefinition of Lot 6\7 DP4567 Boundary"

Where a redefinition survey is not possible and a full LT survey is required, the survey description is not to make reference to the word "*Redefinition*". The survey description in that case would be " *Lot 1 being definition of (Lot 2)....."* Refer section 6.7.3.1

6.22.4 Approval for Record Purposes only

Where data is presented for record purposes only, it shall:

- contain a record of all observations and measurements
- include a sketch plan
- record equipment used
- be certified in the normal manner
- be presented in standard format
- in the case of a plan, have the approval panel modified to erase or strike-out any reference to approval as to Survey, e.g. ~~Approved as to Survey~~. See also section 6.2.21.
- make reference to the current legal description of the land/boundary

Where field notes or drawn diagrams are lodged, the originals must be lodged and certified in the same manner as a plan.

6.22.5 Survey Report

Refer to Rule 42

6.23 Crown Forest Licence Datasets

6.23.1 Application

1. Crown Forest Licence (CFL) datasets are DPs that have been approved as to survey and deposited for the purposes of leasing the cutting/rights of the forest contained therein.

2. They are approved under the Crown Forest Assets Act 1989 and not classified as subdivisions under Part X of the Resource Management Act. They are generally an amalgamation of the land in the Forest Asset being licensed.

3. They show the area over which there is a right to cut forest but do not alter the status of the land.

4. Many of these datasets are compiled surveys of land that is already held under the Land Transfer Act 1952.

5. Under Section 6 of the Act, title can issue for areas depicted on a Crown Forest Licence dataset if that land is already in the Land Transfer system. Titles (issued in the name of the Crown) for 'licensed' land can (and probably will if survey definition is acceptable) be issued in terms of the new definition and appellation.

6.23.2 Survey Record

CFL datasets are cadastral surveys and are recorded with their appellation in **Land*online***.

6.23.3 Division of Land

1. Where land is being separated from part of a CFL:

   - The land is shown as a lot on a DP (as the Licensees of the forest need to execute a deed of surrender for the new lot),

   - The plan shows:-

     - the appellation and status of the parcel underlying the CFL.

     - in brackets: the appellation and title reference of the CFL as well as the notation "*Crown Forest Licence*".

     - the survey description referring to the appellation of the parcel underlying the CFL.

- the comprised in panel referring to the CFL as well as the underlying Crown Forest Land.

2. Road Legalisation

- Land to be acquired is shown as a section on an SO Legalisation Dataset.

- The plan shows:-

  - the appellation and status of the parcel underlying the CFL.

  - in brackets: the appellation and title reference of the CFL as well as the notation *"Crown Forest Licence"*.

  - the schedule of Land for Road referring to the land underlying the CFL & in brackets reference to the CFL.

  - the schedule of Road to be stopped referring to the land underlying the CFL.

6.23.4 Easements.

Where an easement is to be created over the CFL (including the situation where the existing certificate of title refers to the underlying appellation) the appellation is in terms of the CFL.

Note: Easements over a CFL are restricted to public access and covenants.

6.24 West Coast Indigenous Production Forest Datasets

6.24.1 Application

1. The West Coast Indigenous Production Forest datasets are only found in Nelson, Westland and Southland Land Districts.

2. These datasets, although SO datasets, serve a similar purpose as the Crown Forest Licence datasets, in that they define areas which are subject to a management agreement. The majority of these datasets are over Crown Land or State Forest and do not:

   - define the boundaries of the ownership of the land
   - alter the status of the land.

3. It is unlikely that titles for the land will ever issue from these datasets.

6.24.2 Survey Record

The West Coast Indigenous Production Forest datasets are cadastral surveys and are recorded, with their appellation in **Land*online***.

6.24.3 Division of Land

1. Where land is being separated from part of a Indigenous Production Forest:

   - The land is shown as a section on an SO Dataset.
   - The plan shows:-
     - the underlying appellation and gazette references.
     - the survey description referring to the underlying appellation.
     - the comprised in panel referring to the underlying gazette references, Crown Land (if applicable) and “Crown Forest Land”.

2. Road Legalisation

   - Land to be acquired is shown as a section on an SO Dataset.
   - The plan shows:-
     - the underlying appellation and gazette references.

- the notation *"Crown Forest Land"*.

- the schedule of Land for Road referring under Description to underlying appellation and under Status to "Crown Forest Land".

- the schedule of Road to be Stopped referring under Description to the underlying appellation.

6.24.4 Easements.

1. Where an easement is to be created over the Crown Forest Land, the plan shows:

   - the underlying appellation and gazette references.

   - the notation *"Crown Forest Land"*.

2. Where an easement is to be created over the Crown Forest Land (including the situation where the existing certificate of title refers to the underlying appellation):

   - the appellation is in terms of the Crown Forest Land.

   - Note that easements over Crown Forest Land are restricted to public access and covenants.

6.25 Correcting Surveys

6.25.1 Application

There are three options for correcting errors found in existing surveys, depending on the extent of change required:

- In some instances, minor alterations can be undertaken by amending and re-imaging the plan. This is not an option with digital lodgement but it is still possible for hardcopy plans with the agreement of LINZ.
- If the amendment relates to a subdivision and is such that the "corrected" parcel layout will look quite different from what the local authority consented to, then a new subdivision dataset complete with new appellations, titles and resource consent will be required.
- if the correction is between these two extremes it can be dealt with as a correcting survey.

The following detail relates to the last (correcting survey) option The distinction between corrections that require a completely new survey and those that can be appropriately dealt with as a correcting survey is not always clear. It is therefore advisable that a Senior Adviser to the Surveyor-General be consulted prior to the preparation of a correcting survey. Note that correcting surveys are normally initiated by the Surveyor-General (or Senior Adviser to the Surveyor-General) pursuant to Section 52 Cadastral Survey Act 2002.

6.25.2 Type of Dataset

If the correcting data-set changes the dimensions of parcels on the original survey it will generally be of the same type as the data-set it is correcting.

However if the correction is to non-boundary data and does not result in any change to boundary dimensions (for example a data entry error on a traverse line where the boundary data is all correct) then a dataset of type Survey Information (for approval as to survey) may suffice.

6.25.3 Survey Description

The description of the data-set must be in the following form:

Correcting Survey of (existing appellations affected ie. Lots 3 to 5 DP 416580) .

It is important to note that a new number will be issued to the correcting data-set.

Where parcels are not affected the description could be similar to:

Correcting Survey of traverses on SO 12345 .

6.25.4 Plan Detail

The information provided in the correcting data-set will vary, depending on the nature of the error/s involved and the requirements of the Senior Advisor to the Surveyor-General. In a general context however, where boundaries are changing, the correct boundary dimensions and areas of every parcel that is affected must be provided. If on the other hand, it were traverse or boundary tie dimensions that are incorrect, then only the relevant lines, marks and origin connections would be required. Note: the new data-set must include all the necessary checks, so often a traverse circuit will be shown.

In cases where a draughting error has been made on only one line and is confirmed by other data (eg field notes, correction on an erroneous adoption) the minimum acceptable dataset is a bearing and distance between two marks. Dispensation will be required from the Senior Advisor to the Surveyor-General for such a survey which will, on the face of it, fail several Rules, such as requirements for origins, witness marks, old marks, etc.

6.25.5 Consents

Correcting surveys as defined in 6.25.1are not subdivisions, and therefore do not generally require new consents. In some cases however, particularly where there have been significant changes to dimensions and/or areas, an acknowledgment of the changes (in the form of a letter from the council) must be included with the correcting data-set. Similarly, confirmation that the relevant property rights holders understand the nature of and reason for the changes should be provided.

6.25.6 Fees

The correcting survey is treated like any other data-set, and therefore lodgement fees in accordance with the Fees and Charges Regulations current at the time of lodgement of the correcting survey are payable.

6.26 SO Treaty Settlement Datasets

6.26.1 Application

Treaty Settlement Datasets are prepared to define land for use in Treaty settlement legislation. In general, Treaty settlement datasets are to be presented as SO plans, even if some of the land is held under the Land Transfer Act.

These datasets are similar to Legalisation Datasets, in that the new parcels should not become part of the current layer in **Land*online*** until the land has been excluded from the parent title. This will usually occur after the passing of the settlement legislation.

Refer also to OSG Policy 1998/04 v.1.2 'Nohoanga Entitlement Recording' available on the LINZ website.

6.26.1.1 Survey Definition

Class IV surveys (including dispensation from monumentation) may be appropriate, particularly in remote areas (see sections 5.1 and 11.1).

Dispensation should be sought under Rule 44 (SG's Rules) from the Senior Advisor to the Surveyor-General. The factors taken into account will be as for any such application for dispensation and will be considered on a case-by-case basis. However, an application will usually be accepted if the property is small and is in a remote and heavily bushed site. In such situations dispensation from boundary monumentation may be given provided that there is a clearly defined or described physical feature (e.g. contour line or well defined vehicle track) – see section 5.2. However, pegging may be required in some cases where the surrounding land is not low value.

6.26.2 Plan Detail

Plan detail is to be in terms of:

- other guideline sections on General Dataset Presentation (section 6.2);
- Chapter 11 for depiction of waterways. and
- detail below.

6.26.2.1 Parcel Annotation

Ensure that each parcel shows:

- a section number

- a metric area

6.26.2.2 Balance Land

Balance parcels must be shown pictorially or representatively, in whole, as specified for Parcel Diagrams in section 6.2.8.2.1

Boundary dimensions of balance parcels associated with **cultural redress properties** (as identified in legislation) do not need to be shown except for boundaries that are intersected by the new parcel definition.

For **commercial redress properties** (as identified in legislation), the balance parcel must be accounted for in the usual way.

> **Note** Rule 31(1)(c) requires all intersections with parcel boundaries to be marked. In cases where there is provision for an intersection to not be marked (Rules 31(2), 31(3), 34 or dispensation under Rule 44) the intersection must still be fully dimensioned – regardless of whether the parcels either side of the intersected boundary are held in the same title.

In the case of "donut" parcels, ie parcels contained entirely within the parent parcel, some form of survey dimensions will be required to link to, and orientate, the parcel with the cadastral fabric. This may need to be in the form of a calculated line to an existing cadastral survey mark.

6.26.3 Panel Detail

Panel detail is to be in terms of:

- other guideline sections on General Dataset Presentation (section 6.2) and
- detail below.

Ensure that the survey description includes reference to all of the sections shown on the plan.

6.26.3.1 Schedule

A schedule of areas is to be shown in the following form:

LAND TO BE USED FOR TREATY SETTLEMENT			
Shown	**Description**	**Comprised in**	**Area**
Section 1	Part Lot 1 DP 6843	WN4B/140	3571 m²

6.26.3.2 Exemptions from Other Legislation Requirements

Settlement legislation commonly provides for the transfer of settlement properties without section 11 or Part 10 of the Resource Management Act 1991 applying. Settlement legislation may also provide exemptions from section 348 of the Local Government Act and Part IVA of the Conservation Act. If these exemptions are applicable (or will when they are passed into law), they should be noted in the panel and in the survey report.

6.26.4 Survey Report

Refer to Rule 42.

7. TERRITORIAL AUTHORITY APPROVALS

CONTENTS

7. TERRITORIAL AUTHORITY APPROVALS

7.1 Resource Management Amendment Act 1997

7.1.1 Purpose

1. The Resource Management Amendment Act came into force on 17 December 1997 which amended numerous provisions of the Resource Management Act 1991.

2. Subdivisional approval and other matters in accordance with the new requirements.

7.1.2 Conditions of Resource Consents

1. Section 24 of the amendment Act modifies s108 of the principal Act. The provisions concerning bonds and covenants remain the same, although they are now contained in paragraphs (b) and (d) respectively of s108(2). Consequential amendments have been made to the registration provisions in s109 and to various other sections, including s224(c)(iii) and s245 (see s25, s42(1) and s49 of the amendment Act).

2. The new s108(2)(f) (which replaces the former s108(1)(f)) provides that conditions under s220 may be imposed in respect of a subdivision consent despite any limitation under s105(1)(a) or (b).

7.1.3 Meaning of "Subdivision of Land"

1. The original definition of "allotment" in s218(2) of the principal Act did not include the residue of land in a subdivision. As noted in Issue No 25 of the Land Titles Bulletin (see para 1.7 on page 3), this meant that territorial authorities were precluded from requiring esplanade reserves to be set aside in respect of the balance of the land in a subdivision. The same issue arose in connection with esplanade strips (see s237).

2. Section 39 of the amendment Act overcomes this obstacle by extending the definition of "allotment" to include balance land. This has been achieved by adding the following subsection to Section 218 of the principal Act:

   "(4) For the purposes of subsection (2), the balance of any land from which any allotment is being or has been subdivided is deemed to be an allotment."

3. It appears that this amendment was also intended to tidy up other anomalies relating to subdivisions of balance or part allotments. As a part lot is now deemed to be an allotment, a division of it will be a subdivision for the purposes of Part X of the Resource Management Act 1991 and approval under s223 will be required. However it is doubtful that the loophole has been closed completely, as the balance has to be or have been created by an earlier subdivision (as defined in terms of the Resource Management Act) rather than by some action that does not amount to a subdivision.

7.1.4 Completion Certificates

1. Section 222(1) of the principal Act has been amended to provide for the issue of a completion certificate where a condition of subdivision consent requiring a financial contribution has been satisfied (see s40 of the amendment Act).

7.1.5 Approval of Survey Plan by Territorial Authority

1. The use of common seals has been abolished in respect of approvals under Section 223 of the principal Act (see s41 of the amendment Act). The provisions of that section now require the approval certificate to be signed by the principal administrative officer or other authorised officer of the territorial authority. The new formats for approvals under s223 are set out below:

   (a) s223 Approval - standard format:

   "I hereby certify that this plan was approved by the [XYZ City/District Council] pursuant to section 223 of the Resource Management Act 1991 on the_____day of_____19_____.

   _____

   [Principal Administrative Officer/ Authorised Officer] "

(b) s223 Approval - no conditions imposed:

" I hereby certify that this plan was approved by the [XYZ City/District Council] pursuant to section 223 of the Resource Management Act 1991 on the _____ day of _____ 19 _____ and no conditions have been imposed.

_____

[Principal Administrative Officer/ Authorised Officer] "

(c) s223 Approval - incorporating s224(c) certificate:

"I hereby certify that this plan was approved by the [XYZ City/District Council] pursuant to section 223 of the Resource Management Act 1991 on the _____ day of _____ 19 ____ and, for the purposes of Section 224(c) Resource Management Act 1991, that some/none of the conditions of the subdivision consent have been complied with to the satisfaction of the said Council and that a completion certificate/and/or consent notice has/have been issued and/or a bond has been entered into in respect of those conditions that have not been complied with.

_____

[Principal Administrative Officer/ Authorised Officer] "

N.B. Use of the above format is not mandatory. The s224(c) certificate may also be separately endorsed on the plan or lodged as a document.

(d) s223 Approval - incorporating easement or amalgamation condition:

" I hereby certify that this plan was approved by the [XYZ City/District Council] pursuant to section 223 of the Resource Management Act 1991 on the _____ day of _____ 19 ____ subject to the granting or reserving of the easements(s) set out in the Memorandum hereon [and/or subject to the amalgamation condition(s) set out heron] etc.

_____

[Principal Administrative Officer/ Authorised Officer] ”

(e) s223 Approval - incorporating certificate referring to amalgamation covenant:

“ I hereby certify that this plan was approved by the [XYZ City/District Council] pursuant to section 223 of the Resource Management Act 1991 on the _____ day of _____ 19 ____ and that the owner(s) has/have entered into a covenant pursuant to Section 220(2)(a) of the said Act see [Consultation Number _____]

_____

[Principal Administrative Officer/ Authorised Officer] ”

2. Approvals may involve a combination of two or more of the above certificates.

7.1.6 Restrictions Upon Deposit of Survey Plan

1. The wording for certificates pursuant to s224(f) of the principal Act has been modified by section 42(2) of the amendment Act. The new wording is set out below:

“ Pursuant to Section 224(f) of the Resource Management Act 1991 I hereby certify that the [XYZ City / District Council] is satisfied on reasonable grounds that every existing building or part of an existing building [including any building or part thereof under construction] shown on this plan complies with [or will comply with] the provisions of the building code specified in Section 46(4) of the Building Act 1991.

Dated this_____day of_____19___

_____

[Principal Administrative Officer/Authorised Officer]

7.1.7 Cancellation of Prior Approvals

1. Section 227(1) of the principal Act previously operated to save underlying amalgamation conditions where a new plan of subdivision was deposited under section 224 of the Resource Management Act 1991. A separate cancellation notice was usually required to be registered to remove redundant conditions in such cases.

2. Section 43 of the amendment Act has addressed this issue by removing the references to s240 and s241 from s227(1) of the principal Act. This means that any underlying amalgamation conditions will automatically be cancelled upon deposit of a new plan of subdivision under s224.

3. It should be noted however that nothing has changed in regard to underlying compulsory easement conditions. Such conditions will still survive the later subdivision.

7.1.8 Creation of Esplanade Strips by Agreement

1. Section 235(1) of the principal Act provides that certain sections of the Act relating to esplanade strips created upon subdivision apply to esplanade strips created by agreement with all necessary modifications. Section 44 of the amendment Act amends this provision by excluding the references to s233, s236, ss(1) and ss(3) to (5) of s237, s237A, s237B and s237D.

2. The exclusion of s233 seems somewhat strange as it contains the provisions which enable the esplanade strip to move with any shift in the position of the adjacent water boundary. It would appear that this now only applies to esplanade strips created upon subdivision. Any change in the position of the water boundary in relation to an esplanade strip created by agreement will presumably have to be dealt with by cancelling the existing esplanade strip instrument and registering a fresh one.

3. The rationale for this amendment is otherwise fairly obvious as the remainder of the excluded provisions clearly do not relate to esplanade strips created by agreement.

7.1.9 Covenants Against Transfer of Allotments

1. Section 240(3) of the principal Act originally required amalgamation covenants to be executed by the territorial authority under common seal. That requirement has been removed and such covenants must now be signed by the principal administrative officer or other authorised officer of the territorial authority (see s46(1) of the amendment Act).

2. The provisions relating to cancellation of amalgamation covenants have also been modified. The original s240(5)(b) provided that cancellation following approval as to survey must be effected by forwarding to the DLR an authenticated copy of the resolution of the territorial authority revoking the covenant.

3. This has been replaced with a new provision which requires such cancellations to be effected in the form of a certificate signed by the principal administrative officer or other authorised officer of the territorial authority (see s46(2) of the amendment Act). A precedent for such a certificate is set out below:

   " In the matter of [Deposited] Plan _____and pursuant to section 240(5)(b) Resource Management Act 1991 I hereby certify that the _____ [XYZ City/District Council] has cancelled the amalgamation covenant referred to in the certificate endorsed on the said Plan [and registered under number _____].

   Dated this _____ day of _____ 19_____

   _____

   [Principal Administrative Officer/Authorised Officer] "

7.1.10 Amalgamation of allotments

1. Section 241(4)(b) of the principal Act, which provides for cancellation of amalgamation conditions, has been amended in a similar fashion to section 240(5)(b) (see s47 of the amendment Act and refer to the commentary in paragraphs 18 and 19 above). A precedent for such a cancellation is set out below:

   " In the matter of [Deposited] Plan _____ and pursuant to section 241(4)(b) Resource Management Act 1991 I hereby certify that the _____ [XYZ City/District Council] has cancelled the amalgamation condition(s) endorsed on the said Plan.

   Dated this _____ day of _____ 19_____

   _____

   [Principal Administrative Officer/Authorised Officer] "

7.1.11 Survey Plan Approved Subject to Grant or Reservation of Easements

1. The provisions relating to the cancellation of conditions as to easements have also been modified. The original s243(f)(ii) provided that cancellation following approval as to survey must be effected by forwarding to the DLR an authenticated copy of the resolution of the territorial authority cancelling the condition as to easements.

2. This has been replaced with a new provision which requires such cancellation to be effected in the form of a certificate signed by the principal administrative officer or other authorised officer of the territorial authority (see s48 of the amendment Act). A precedent for such a certificate is set out below:

" In the matter of [Deposited] Plan _____ and pursuant to section 243(e) Resource Management Act 1991 I hereby certify that the _____ [XYZ City/District Council] has revoked the condition as to the easements set out in the Memorandum of Easements endorsed on the said Plan.

Dated this _____ day of _____ 19_____

_____

[Principal Administrative Officer/Authorised Officer] "

7.1.12 Transitional provisions

1. It is important to note that the transitional provisions in section 78 of the amendment Act require the principal Act to be applied as if the amendment Act had not been passed in certain circumstances. Subsection (6) is of particular relevance:

   " (6) Where, before the commencement of this section, an application for a subdivision consent has been made or a subdivision consent has been granted, all proceedings in relation to that subdivision, including the approval and deposit of any survey plan, must be considered and completed under the principal Act as if this Act had not been enacted."

2. This means that the requirements in force prior to 17 December 1997 will continue to apply in respect of a subdivision where the application for subdivision consent was made before that date.

3. Therefore some plans will still require approval in the traditional manner (i.e. under common seal), even where the date of approval falls on or after 17 December 1997.

   Plans approved prior to 17 December 1997 cannot be deposited unless the common seal of the territorial authority has been affixed.

7.1.13 Interests that do not extinguish in vested land

The format for a certificate when an interest will be retained in the vested land is:

Pursuant to section 239(2) of the resource Management Act 1991 I hereby certify that the[XYZ City/District Council] desires that [Lot 1 hereon]shall remain subject to [the interest being retained].

Dated this _____ day of _____ 20__

Authorised Officer_____

7.2 Subdivisions

The provisions of Part X Resource Management Act 1991 apply to all owners of land in a district who propose to subdivide (as defined in Section 218) their land. These provisions require a subdivision consent and a plan prepared in accordance with it.

7.2.1 Approvals and Certifications

The approvals are generally endorsed on the plan, however they can be endorsed on a copy of the plan.

7.2.2 Revocation of Easement Conditions

It is possible, at any time, for the Territorial Authority to revoke, in whole or in part, any easement condition.

Unapproved Plans:

Where the plan has not been approved as to survey, a memorandum of the cancellation is to be endorsed on the plan by the Territorial Authority.

Approved Plans:

Where the plan has been approved as to survey, an authenticated copy of the Territorial Authority resolution cancelling the condition is to be registered with the DLR.

7.3 Building Line Restrictions

Sections 327 and 328 both enacted by Section 2 Local Government Amendment Act 1978 have been repealed in the Eighth Schedule Resource Management Act 1991 and a new section (327A) has been inserted. This section now provides only for the cancellation of existing building line restrictions. The cancellation is not to be endorsed on the plan but is lodged with the DLR as a document.

7.4 Exemptions

All plans of subdivision are required to have Council consent or where an exemption is being claimed the authority for it must be stated on the plan.

The appropriate Department or Council is to decide whether the provisions of Part X Resource Management Act 1991 apply to a subdivision of that land.

If Part X does not apply the appropriate exemption certificate is to be shown as follows:

> Exempt from the provisions of Part X of the Resource Management Act 1991 (insert plan purpose and appropriate exemption authority, see below)
>
> Dated this ___ day of _____ 19 ___
>
> _____
>
> Appropriate Officer of instigating Department or Council

FAR NORTH DISTRICT COUNCIL:

> Land vested in the Far North District Council exempt by Section 7(1) Northland Regional Council and Far North District Council Vesting and Empowering Act 1992

PUBLIC WORKS:

> Land to be acquired for a Public Work exempt by Section 11(1)(b) Resource Management Act 1991
>
> Land to be disposed of under the Public Works Act 1981 exempt by Section 11(1)(b) Resource Management Act 1991

NB: Disposals are lodged as LT plans.

EDUCATION:

Land to be transferred to an Institution exempt by Section 206(4) Education Act 1989

STATE-OWNED ENTERPRISES:

Land to be transferred to a State-Owned Enterprise exempt by Section 23(4) State-Owned Enterprises Act 1986

RAILWAYS:

Land to be vested in a Crown Transferee Company exempt by Section 7(4) New Zealand Railways Corporation Restructuring Act 1990

CROWN RESEARCH INSTITUTES:

Land to be transferred to a Crown Research Institute exempt by Section 32 Crown Research Institutes Act 1992

CROWN HEALTH ENTERPRISES:

Land to be transferred to a Crown Health Enterprise exempt by Clause 5 of the First Schedule to the Health Reforms (Transitional Provisions) Act 1993

8. FEES AND CHARGES

Survey lodgement, search and data fees are set by regulations in accordance with section 48 of the Cadastral Survey Act 2002.

For an up-to-date summary of fees and charges refer to the LINZ web site at:

http://www.linz.govt.nz/rcs/linz/pub/web/root/core/TitlesAndRecords/feesandcodes/index.jsp

Alternatively, you can navigate to the “LINZ Survey and Title Fees” page via the “Fees & Codes” link on the “Titles & Records” page.