

Circular Memorandum No. 1 / 2012

TOPIC: **Survey Audit Outcomes 2011**

DATE: **1 May 2012**

The 2011 audit program has been finalised. This circular is to advise surveyors of the more significant and persistent issues raised in audit reports, with the aim of having members of the profession continue to evaluate their practices for areas of potential risk of error.

It is clear that a significant number of surveyors do not appreciate that the **Survey Directions document the minimum standards** required of every survey, both in relation to field and office procedures. The requirement and section of the Survey Directions relating specifically to each of the common problems listed below is to be found on page three of this circular. Surveyors are requested to reassess their procedures in the light of the following information, to ensure that all surveys comply with the Survey Directions.

Common Problems

PROBLEM	COMMENTS
Failure to locate evidence	A significant number of surveys audited in 2011 failed to locate evidence that impacted boundary reinstatement. This in turn led to several instances of errors in the boundaries reinstated.
Inadequate documentation of occupation	This problem includes the lack of adequate documentation of occupation in survey notes, both as evidence of boundaries and rights associated with occupation.
History of natural boundaries not considered	Reinstatement of natural boundaries that does not consider the history of those boundaries in the light of accepted legal principles has led to errors in reinstatement of those boundaries.
Inadequate reporting of reinstatement methodology	Several surveys were encountered with inadequate reporting of reinstatement methodology, including reinstatement of natural boundaries and adequate reporting of adoption and compilation of boundaries. This has the potential to make it difficult for users, including registering authorities, to interpret and follow on from that survey.
Coordinate calculation errors	Several instances of coordinate calculation errors were found. This points to a lack of adequate quality assurance being undertaken.
Origin marks not documented	In some instances, it was impossible to determine the origin marks used for coordinate and bearing datum, and their respective coordinates and positional uncertainties. This is essential information for users of survey notes. In other cases, inappropriate origin marks were used.
Failure to provide an adequate estimate of positional uncertainty (EPU)	Some surveys exhibited a failure to provide an adequate EPU, the estimates failing to incorporate the positional uncertainty of an appropriate origin point, or the origin point being inappropriate for this purpose.

PROBLEM	COMMENTS
Corners not marked though shown marked	Surveys have been encountered with lot corners shown as marked in the survey notes not having been marked in the field, and with corners indicated by a nearby line peg for the convenience of the surveyor rather than impossibility of marking the actual corner. This has the potential to mislead owners as to the actual location of lot corners.

Recommended Practices

PRACTICE	COMMENTS
Full search of survey records Identify potential evidence Extend field search as far as necessary	Surveyors must undertake a full search of survey records and ensure that all potential evidence indicated in the records is identified. The field search for evidence must be extended as far as necessary to prove any additional evidence would not alter the reinstatement adopted if it was found to be inconsistent with that reinstatement.
Occupation must be documented	All occupation located on or adjacent to boundaries under survey must be documented in survey notes, together with adequate radiations or offsets to locate the occupation in relation to boundary marks.
Research natural boundary history	When reinstating natural boundaries, it is incumbent on the surveyor to research sufficient of its history to inform a reinstatement based on accepted legal principles.
Reinstatement methodology to be clearly discernable	Surveyors should evaluate their reinstatements from the point of view of an independent party and ensure that all reinstatement methodology is clearly discernable from the survey notes or by an additional report.
Independent field and office checking processes	Surveyors must have sufficient independent field and office checking processes to identify mathematical inconsistencies prior to completion of the survey and certification that the survey is correct.
Clearly document origin marks	Where state coordinated marks are used for coordinate or bearing origin, this must be clearly documented, together with the relevant coordinate and bearing information. Where a previous survey is used, the origin mark(s), together with relevant coordinates, positional uncertainties and bearings, must be documented. Marks or methods that do not conform to the requirements of the Survey Directions must not be used.
Calculation of estimates of positional uncertainty	Positional uncertainty is defined in the Survey Directions, being the uncertainty of coordinates relative to the GDA. In order to determine a realistic value for EPU of calculated coordinates, it is imperative that it incorporate <u>both</u> the positional uncertainty of a suitable origin point and the precision of the field measurement method used. Whereas the Survey Directions provide positional uncertainties for origin marks registered in SurCoM, origin coordinates sourced from a previously coordinated and registered survey will have the positional uncertainty shown on that survey.
Mark all surveyed corners	Boundary marking is a fundamental purpose of cadastral surveys. All corners of surveyed boundaries must be marked in accordance with the <i>Surveyors Regulations 2003</i> and the Survey Directions unless a specific

PRACTICE	COMMENTS
	exception is made in the Survey Directions.

Requirements

One or more of the following requirements have not been adequately met in 47% of surveys sampled in this round of audits. (Issues shown in *italics* were also present in the 2010 round of audits.)

- *Surveyors must locate all evidence that might impact on the reinstatement of boundaries under survey.*
 - *Section 3.2.2.3 of the Survey Directions states that “for evidence to be proved satisfactory the search for both primary and secondary evidence shall be extended as far as is necessary to prove that any additional evidence would not materially alter the reinstatement if it was found to be inconsistent with the evidence adopted”.*
 - This includes the requirement to adequately locate natural boundaries under reinstatement, applying accepted legal principles to the reinstatement process.
 - *In addition, location of evidence must extend to all evidence of occupation and other interests in the vicinity of surveyed boundaries, in particular relating survey marks to adjacent occupation by measurement.*
- *In compliance with section 3.3.2.1(h), reinstatement methodology, where not readily evident from the survey notes without further explanation, must be adequately reported.* This also applies to the reinstatement of natural boundaries.
- *All linear and coordinate values documented in survey notes, whether measured or calculated, must comply with the accuracy requirements of sections 3.1.2 and 3.1.3.*
- *Surveys must comply with section 3.3.2.1 in relation to the information required to be documented for coordinate and bearing datum and origin.*
- *The correct term to use in relation to the absolute accuracy of coordinates is ‘positional uncertainty’. Section 3.1.2.3 requires a realistic estimate of positional uncertainty (EPU) for lot corner coordinates to be documented, derived from an appropriate origin and propagated through the survey undertaken.*
- In compliance with section 3.5.2.2, all corners of surveyed boundaries must be marked unless otherwise stipulated in the Survey Directions. Section 3.5.2.3 allowing line marks in lieu of corner marks may only be relied on where a physical impediment preventing marking exists at the corner position.

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