



Defining by Survey

Introduction

In the past, there have been different interpretations of the term 'defined by survey' and how it is applied in particular circumstances.

For example, many surveyors associate it with the act of monumenting a boundary. However, the same principles can apply if the surveyor has done all the work necessary to place a monument but, for whatever reason, has not actually placed it. With 'defined by survey' now an explicit term in the Rules for Cadastral Survey 2010, a clear common understanding of the term is necessary.

Defining a boundary point by survey

The Rules define three categories that reflect the quality of boundary definition – these are:

- **defined by survey** – the highest quality of definition
- **defined by adoption**
- **accepted** – the lowest quality of definition

The following suggests one way of deciding on the requirements for defining boundaries by survey.

Step 1

Identify the boundary points that are permitted to be **accepted** under rule 6.3.

Step 2

For each boundary point that cannot be accepted, identify whether any of the provisions in rule 6.2(a) require it to be **defined by survey**. In particular, note sub-clause (iv), which applies to existing boundary points on class A boundaries.

Note: Any points that are not permitted to be **accepted** or are not required to be **defined by survey**, can fall into the middle category of definition, ie **defined by adoption**.

Step 3

For points that are required to be **defined by survey**, or that the surveyor voluntarily chooses to define by survey, the surveyor must then consider the requirements of rule 6.1. This rule requires the surveyor to gather relevant evidence, interpret it correctly, and use this to locate the correct position of the boundary.

Note: A boundary point that has to be **defined by survey** does not necessarily mean that it has to be monumented. Rule 7.1 covers that separately.

Step 4

Decide on the evidence relevant to the definition of the boundary position.

For a new boundary point not on an existing boundary, the surveyor simply decides where to place the boundary and provides the relevant information in the CSD.

For existing boundary points, the relevant evidence might be:

- the old boundary mark
- other nearby old marks coupled with adoptions
- the location of features that support the definition
- calculations based on other evidence
- re-calculations where the existing vectors are insufficiently accurate¹

The surveyor needs to exercise professional judgement as to the extent of evidence required to provide the highest level of confidence in that boundary position. For example, where the underlying survey is considered to be perfectly good, and the surveyor has appropriately connected to that survey, the use of adoptions (either along the boundary or from other marks into the boundary) may be judged to adequately **define by survey** the boundary point. This means the evidence is considered sufficient to ensure that a mark *could* have been reliably placed at the boundary position indicated by the adopted information had the surveyor chosen to do that.

Relationship between Mark Purpose and Mark State

The CSD must indicate two related items:

- **Mark Purpose**, and
- **Mark State**

The **Mark Purpose** for boundary marks represents the three categories of boundary definition and must be either:

- defined by survey,
- defined by adoption, or
- accepted

The CSD must also indicate one of three values for the **Mark State**. For each existing boundary point:

- where a reliable old boundary mark is found, the Mark State is **old**
- where an existing boundary point is monumented, the Mark State is **new**
- where an existing boundary point is not monumented the Mark State is **adopted**

The **Mark Purpose** and **Mark State** are separate items of information. However, the word 'adoption' or 'adopted' is available for both items and has different but related meanings in each context. The following table shows the potential relationships between Mark Purpose and Mark State.

¹ In this case, the adopted information cannot be relied upon, as it either does not comply with the Rules' accuracy standards or there is other more substantive evidence. Solutions include identifying and resolving any error, and/or providing a re-calculated vector or vectors that comply with the accuracy standards.

Mark State	Mark Purpose (quality of boundary definition)		
	Required to be defined by survey	Permitted to be defined by adoption	Permitted to be accepted
New	✓	Not applicable	Not applicable
Old	✓	Not applicable	Not applicable
Adopted	✓	✓	✓

A point required to be defined by survey can be a **new** mark, an **old** mark, or **adopted**.

Relationship between Mark Purpose and information relied on for defining existing boundaries

The following table presents an alternative view of the relationship between the quality of definition required (Mark Purpose) and the potential sources of information that can be used to define an existing boundary point.

Mark Purpose	Examples of evidence relied on for an existing boundary
Defined by survey	<p>New mark:</p> <ul style="list-style-type: none"> sufficiently accurate² adopted vectors from old marks determined as reliable, including witness, traverse, PRM, or other boundary marks measurements to features that support the definition calculations based on other evidence re-calculations derived from insufficiently accurate³ existing vectors <p>Old mark:</p> <ul style="list-style-type: none"> determined as reliable, found at the boundary point (including a renewed mark) <p>Adopted position:</p> <ul style="list-style-type: none"> sufficiently accurate² adopted vectors from old marks determined as reliable including witness, traverse, PRM, or other boundary marks
Defined by adoption	Boundary adoptions
Accepted	Boundary adoptions

² Compliant with the Rules' accuracy standards for adoptions

³ In this case, the adopted information cannot be relied upon, as it either does not comply with the Rules' accuracy standards or there is other more substantive evidence. Solutions include identifying and resolving any error, and/or providing a re-calculated vector or vectors that comply with the accuracy standards.

ENQUIRIES

If you have any queries about the transition, please email them to newcadastralrules@linz.govt.nz