Title Calculate areas, contours, and volumes for survey purposes

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<th>Level</th>
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Purpose

This unit standard is for people working, or who intend to work, in the surveying profession as a survey technician.

People credited with this unit standard are able to: calculate areas for survey purposes; calculate volumes for survey purposes; and calculate contours for survey purposes.

Classification

Surveying > Survey Practice

Available grade

Achieved

Guidance Information

1 Evidence is required of calculating survey data using mathematical principles and showing working. Computer software may not be used in achievement of credit for this unit standard.


3 Recommended skills and knowledge:

Unit 5251, *Choose and apply trigonometric methods to solve problems involving lengths and angles*, or demonstrate equivalent knowledge and skills.

Outcomes and performance criteria

Outcome 1

Calculate areas for survey purposes.

Performance criteria

1.1 Areas incorporating circular boundaries are calculated using geometrical principles.

   Range area – a traffic roundabout, one other.

1.2 The area of a polygon is calculated using the double longitude method.
1.3 Areas of arbitrary shape are determined using a combination of calculations and a planimeter.

Range calculations – multiple polygons, trapezoids; one planimeter of – linear, polar, analogue, digital.

Outcome 2

Calculate volumes for survey purposes.

Range calculations for - an earthwork cut and fill, a stockpile, a pond.

Performance criteria

2.1 Volumes are calculated using a variety of methods appropriate to the item.

Range evidence is required of the following methods – end areas, prisms, cross sections, estimating, geometrical shapes.

Outcome 3

Calculate contours for survey purposes.

Performance criteria

3.1 Land contours are calculated from reduced levels involving no less than one hundred spot levels.

3.2 Contours are calculated for a stockpile of at least fifty cubic metres.

This unit standard is expiring. Assessment against the standard must take place by the last date for assessment set out below.

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Consent and Moderation Requirements (CMR) reference 0101

This CMR can be accessed at http://www.nzqa.govt.nz/framework/search/index.do.