



Australian Government

CPPSSI5048 Conduct engineering surveys

Release: 1

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Modification History

Release 1 This version first released with CPP Property Services Training Package Release 12.0.

This unit supersedes and is equivalent to CPPSIS5048 Conduct engineering surveys.

Application

This unit specifies the skills and knowledge required to conduct an engineering survey based on specifications and information in construction or engineering designs. It includes topographical surveys, grid, road, pipe (stormwater and sewer) and building set-outs. The unit also includes using surveying equipment to measure, record and reduce surveying data; validating the accuracy of data; and identifying discrepancies between specifications and activities.

This unit is suitable for skilled surveying technicians and skilled spatial information system (SIS) technicians who use a broad range of cognitive, technical and communication skills to select and apply methods and technologies to analyse information and provide solutions to sometimes complex surveying/spatial information problems. Surveying and spatial information skills are applied in a range of industry contexts, including town planning, civil construction, mining, engineering, health, agriculture and defence.

All work must be carried out to comply with workplace procedures, in accordance with relevant state/territory regulations that govern surveying work, as well as work health and safety (WHS) legislation and regulations that apply to the workplace.

Cadastral surveying must be undertaken under the supervision of a registered surveyor. Users must check with the relevant regulatory state/territory authority before delivery.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Nil.

Unit Sector

Surveying and Spatial Information Services

Elements and Performance Criteria

Elements describe the Performance criteria describe what needs to be done to

essential outcomes.	demonstrate achievement of the element.
1 Prepare for engineering survey.	1.1 Analyse survey specifications, cross-sections and plans and technical descriptions of surveying data and their requirements. 1.2 Interpret design information to identify components to be measured. 1.3 Plan key survey activities according to available resources, and project and organisational requirements. 1.4 Create set-out files from design to meet project requirements. 1.5 Plan and document data collection methodologies that allow for contingencies. 1.6 Plan compliance with legislative requirements according to project requirements.
2 Carry out engineering surveying tasks.	2.1 Select and check surveying equipment for correct operation and functionality, and report or resolve problems according to manufacturer specifications. 2.2 Measure identified survey components according to project specifications. 2.3 Reduce measured surveying data according to project requirements and specifications. 2.4 Validate and record measurements according to project specifications and organisational requirements. 2.5 Identify and resolve problems and manage contingencies according to organisational requirements. 2.6 Comply with industry-accepted standards for validating accuracy of surveying data and identifying errors and discrepancies.
3 Finalise and report engineering survey results.	3.1 Finalise and check survey for compliance with project and organisational requirements. 3.2 Prepare conformance and non-conformance reports.

- 3.3 Notify appropriate persons of survey results according to organisational requirements.
- 3.4 Complete survey documentation and archive data according to project and organisational requirements.

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Unit Mapping Information

Supersedes and is equivalent to CPPSIS5048 Conduct engineering surveys.

Links

Companion volumes to this training package are available at the VETNet website - <https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=6f3f9672-30e8-4835-b348-205dfcf13d9b>

Assessment Requirements for CPPSSI5048 Conduct engineering surveys

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Performance Evidence

To demonstrate competency, a candidate must meet the elements and performance criteria of this unit by conducting two different engineering surveys.

For each engineering survey, the candidate must:

- develop project files in digital and hard copy formats
- collect data appropriate to surveying specifications by using three of the following pieces of surveying equipment:
 - global navigation satellite system (GNSS)
 - level
 - measuring tape
 - total station
- apply one of the following set-outs:
 - grid
 - road alignments
 - pipe (stormwater and sewer)
 - building
 - tunnel
 - bridge.

Knowledge Evidence

To be competent in this unit a candidate must demonstrate knowledge of:

- types and procedures for topographical surveys
- methods of feature coding
- data reduction techniques
- graphical and technical information in construction and engineering drawings
- methods for calibrating surveying equipment
- accuracy and precision requirements for surveying data

- measurements and computations relating to length, angle, elevation, area and volume
- industry-accepted standards for measurements and computations
- industry-accepted methods for validating data and identifying errors and discrepancies
- methods of identifying and reporting non-conformities in collected surveying data
- key features of reference systems for surveying data
- techniques for scheduling work tasks and planning for contingencies
- state/territory and Commonwealth standards for surveying
- safe work practices and use of personal protective equipment (PPE).

Assessment Conditions

Assessors must satisfy the requirements for assessors contained in the Standards for Registered Training Organisations.

Competency is to be assessed in the workplace or a simulated environment that accurately reflects performance in a real workplace setting where these skills and knowledge would be performed.

Candidates must have access to:

- PPE
- survey specifications which may include relevant construction or engineering plans and drawings.

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