

**Draft 0.1**

This is a draft update to CPPSIS6035 Conduct complex engineering set-out surveys:

<https://training.gov.au/Training/Details/CPPSIS6035>.

Code changed to CPPSUR6035.

Changed PCs to active voice.

Changed 'person' to 'candidate' in PE for consistency.

Range of Conditions added to Knowledge Evidence.

I've added mapping info.

TAG will need to reassess this as unit is redeveloped.

## Unit of Competency

### CPPSUR6035 Conduct complex engineering set-out surveys

#### Modification history

Release	Comments
1	<del>Replaces superseded equivalent CPPSIS6035A Conduct complex engineering set-out surveys.</del> <del>This version first released with CPP Property Services Training Package Version 3.</del>
	Replaces superseded equivalent CPPSIS6035 Conduct complex engineering set-out surveys

#### Application

This unit specifies the skills and knowledge required to conduct a complex engineering set-out survey based on specifications and client requirements. The unit covers analysing specifications and organisational priorities to identify and negotiate projects and organise resources.

The unit also covers implementing project management mechanisms relating to scheduling, measuring, recording, monitoring and reporting, and reviewing project progress and outcomes against organisational goals. It covers planning for risks and contingencies and staff supervision and involves setting up and using specialised surveying equipment to measure, record and reduce surveying data using an established control network and spatial coordinate and reference systems. The unit requires the ability to validate the accuracy of data and identify and resolve problems.

The unit supports those who work in a technical management role in a surveying team.

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

#### Prerequisite Unit

None

#### Unit Sector

Surveying and spatial information services

#### Elements and Performance Criteria

1. Prepare for complex engineering set-out survey.	1.1 Determine organisational priorities to identify project objectives and specifications. 1.2 Present project specifications to appropriate persons. 1.3 Identify characteristics of the operating environment and any special equipment or resource requirements according to organisational requirements. 1.4 Select and check surveying equipment to ensure correct operation and functionality according to manufacturer specifications.
2. Plan complex engineering set-out survey.	2.1 Interpret design to identify surveying data components required for set-out. 2.2 Develop plan detailing objectives, constraints, work activities, technologies and techniques to be used for set-out according to project specifications and client requirements.

	<p>2.3 Implement project management mechanisms to schedule, measure, record and report progress of activities in relation to agreed schedule and plans.</p> <p>2.4 Implement and maintain agreed communication processes between client and other appropriate persons.</p> <p>2.5 Devise and follow risk management and contingency strategies to ensure project complies with legal and statutory standards and organisational requirements.</p> <p>2.6 Allocate work responsibilities and supervisory processes and implement problem-solving techniques to ensure work is completed within time available.</p>
3. Manage complex engineering set-out survey.	<p>3.1 Set out identified project components accurately according to project specifications.</p> <p>3.2 Conduct, validate and record set-out measurements and calculations using control network according to project specifications.</p> <p>3.3 Review project progress and implement agreed changes to ensure consistency with project scope, objectives and constraints.</p> <p>3.4 Identify and resolve problems and manage contingencies according to organisational requirements.</p>
4. Finalise complex engineering set-out survey.	<p>4.1 Finalise and check project for compliance with project and organisational requirements.</p> <p>4.2 Notify appropriate persons of project results according to organisational requirements.</p> <p>4.3 Completed documentation and archive spatial data according to project and organisational requirements.</p>
5. Review project.	<p>5.1 Review project achievements against organisational strategic goals.</p> <p>5.2 Make recommendations on possible links between project achievements and future organisational goals.</p>

### Foundation Skills

Candidates require:

- planning and organising skills to:
  - plan and prioritise work to meet contracts and resource constraints
- numeracy skills to:
  - conduct precise measurements and calculations relating to height, depth, dimension, direction and position in actual operational activity and virtual representation
- oral communication skills to:
  - negotiate to meet client requirements
  - inform clients and other stakeholders of project progress
- reading skills to:
  - analyse graphical and technical information in engineering plans
- writing skills to:
  - record technical information in organisational documentation
- technology skills to:
  - connect equipment to coordinate systems
  - set up and calibrate specialised surveying equipment
- problem-solving skills to:
  - select appropriate validation methods to verify accuracy of data.

### Unit Mapping Information

Supersedes and is equivalent to CPPSIS6035 Conduct complex engineering set-out surveys

### Links

Companion Volume Implementation Guide:

<https://vetnet.education.gov.au/Pages/TrainingDocs.aspx?q=6f3f9672-30e8-4835-b348-205dfcf13d9b>

## Assessment Requirements for CPPSUR6035 Conduct complex engineering set-out surveys

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### Performance Evidence

To demonstrate competency, a candidate must meet the performance criteria of this unit by: conducting a complex engineering set-out survey for two different projects.

While conducting the above complex engineering set-out surveys, the candidate must:

- analyse survey set-out specifications, including:
  - cross-sections and plans
  - technical descriptions of surveying data and set-out requirements
- develop a project plan, including detail of:
  - project objectives and deliverables
  - constraints
  - risk management and contingency strategies
  - work activities
  - technologies and techniques to be used
- interpret engineering design information and specifications to identify components to be measured
- plan and document data collection methodologies that allow for contingencies
- schedule work tasks and organise resources and equipment
- apply industry-accepted standards for performing surveying measurements and computations
- communicate clearly with others to clarify and report work information and negotiate completion of tasks
- comply with industry-accepted standards for validating accuracy of surveying data and identifying errors and discrepancies
- comply with organisational, legal and statutory requirements for:
  - completing records and documentation
  - recording, storing and filing data
  - using, checking and storing surveying equipment
  - working safely and using personal protective equipment (PPE)
- conduct set-out measurements and calculations to meet engineering specifications using two of the following pieces of surveying equipment:
  - current meter
  - global navigation satellite system (GNSS)
  - level
  - tape
  - theodolite
  - total station

- implement project management mechanisms to ensure the survey is completed within required timeframes and complies with specifications
- review project outcomes against strategic organisational goals to identify links to future goals
- supervise staff to complete work tasks on time.

### Knowledge Evidence

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

- accuracy and precision requirements for setting out surveying data
- data capture, set-out and reduction techniques
- industry-accepted methods for validating data to identify errors and discrepancies
- legislative, statutory and industry requirements and standards relating to work tasks associated with set-out surveys
- methods for calculating surveying data and verifying its accuracy using primary and secondary controls
- methods for establishing a control network that meets specified tolerances
- methods for setting up, levelling and calibrating surveying equipment
- organisational policies and procedures relating to:
  - health and safety relating to surveying activities
  - reporting and documentation
  - using and allocating resources
  - using the surveying equipment specified in the performance evidence
- project management techniques for scheduling, measuring and monitoring work progress and planning for contingencies
- reference and coordinate systems for surveying data, including Australian Height Datum and Map Grid of Australia
- appropriate persons:
  - client
  - colleague
  - end user
  - engineer
  - manager
  - registered or qualified surveyor
  - supplier.

### Assessment Conditions

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

Assessment must be conducted in the workplace or a simulated workplace using realistic conditions, materials, activities, responsibilities, procedures, safety requirements and environmental considerations.

Candidates must have access to:

- equipment:
  - as specified in the performance evidence, including PPE
- materials:
  - paper for printing reports, documents and data
- specifications:
  - organisational policies, procedures and documentation relating to work health and safety
  - survey specifications, including relevant engineering plans and drawings
- relationships with team members and supervisor:
  - lead role in a team.

### Links

Companion Volume Implementation Guide:

<https://vetnet.education.gov.au/Pages/TrainingDocs.aspx?q=6f3f9672-30e8-4835-b348-205dfcf13d9b>