

**Draft 0.1**

This is a draft update to CPPSIS5061 Locate underground services in surveying practice:  
<https://training.gov.au/Training/Details/CPPSIS5061>

Changed PCs to active voice.

Changed 'person' to 'candidate' in PE.

## Unit of Competency

### CPPSUR5061 Locate underground services in surveying practice

#### Modification history

Release	Comments
1.	Replaces superseded equivalent CPPSIS5061A Locate underground services in surveying practice. This version first released with CPP Property Services Training Package Version 3.

#### Application

This unit specifies the skills and knowledge required to locate underground services in surveying practice. The unit covers using specialised surveying equipment and electronic locating and geophysics methods, such as electro-magnetic detecting and ground penetrating radar, to identify and interpret targets on lines of subterranean assets.

The unit also covers project management tasks relating to scheduling, recording, monitoring and reporting work progress, and planning for risks and contingencies. The unit requires the ability to perform surveying calculations and data reductions, read and interpret Dial Before You Dig (DBYD) plans, and to output data using equipment software.

The unit supports those who work under limited supervision in a surveying team.

Licensing, legislative, regulatory or certification requirements apply to this unit in some States. This unit may also require adherence to AS5488 Classification of Subsurface Utility Information (SUI). Relevant state and territory regulatory authorities should be consulted to confirm those requirements.

#### Prerequisite Unit

None

#### Unit Sector

Surveying and spatial information services

#### Elements and Performance Criteria

1. Plan location processes.	1.1. Identify and document project objectives, principal work activities, and constraints in consultation with appropriate persons. 1.2. Determine geophysics methods to locate services and spatial data requirements. 1.3. Evaluate and determine details of instruments and basic surveying techniques to be used according to project objectives. 1.4. Select, calibrate and verify surveying equipment according to manufacturer specifications. 1.5. Schedule work to be completed within available time according to organisational requirements.
2. Carry out surveying tasks.	2.1. Implement project management mechanisms to schedule, measure, record and report work progress according to organisational requirements. 2.2. Locate underground services and measure and mark required components according to project specifications.

	<p>2.3. Use surveying equipment to collect and scrutinise spatial data to determine targets on lines of subterranean assets.</p> <p>2.4. Reduce measured spatial data to project reference system for comparison with design.</p> <p>2.5. Validate and record measurements according to project specifications, organisational requirements and standards.</p> <p>2.6 Identify and resolve problems and manage contingencies according to organisational requirements and plans.</p>
3. Finalise location processes.	<p>3.1. Finalise location processes and review achievements against project and organisational requirements.</p> <p>3.2. Notify appropriate persons of results according to organisational requirements.</p> <p>3.3. Complete documentation and archive spatial data according to organisational requirements.</p>

### Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance in this unit, but not explicit in the performance criteria.

- numeracy skills to conduct surveying measurements and calculations relating to depth, dimension, direction, flow rates, position and angle.
- oral communication skills to ask questions to clarify project requirements.
- reading skills to analyse graphical and technical information in cross-sections and plans and to interpret and comply with DBYD plans.
- writing skills to record technical information in organisational documentation.
- technology skills to use geodetic software to output measured data.
- problem-solving skills to apply risk control and contingency strategies to anticipated and identified problems and to select appropriate validation methods to verify accuracy of data.

### Unit Mapping Information

Supersedes and is equivalent to CPPSIS5061 Locate underground services in surveying practice

### Links

Companion Volume Implementation Guide:

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

## Assessment Requirements for CPPSUR5061 Locate underground services in surveying practice

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### Performance Evidence

To demonstrate competency, a candidate must meet the performance criteria of this unit by:

- locating underground services in surveying practice for two different projects.

For each of these projects, two of the following pieces of equipment must be used:

- electro-magnetic equipment
- ground penetrating radar
- global navigation satellite system (GNSS)
- level
- total station.

While locating underground services in the above projects, the candidate must:

- plan work activities to identify and manage potential constraints, including those relating to:
  - confined spaces
  - traffic control
  - work health and safety
- prepare for survey by analysing specifications and operating environment to ensure adequate equipment and resources
- plan and implement project management mechanisms to ensure work is completed within required timeframes and that project complies with specifications and standards, including Dial Before You Dig (DBYD) requirements
- plan and implement risk management and contingency measures, including two of the following tools and strategies:
  - DBYD
  - non-destructive digging
  - pipe and cable tracers, including transmitter and receiver
  - pipe cameras
  - sonde
- analyse electronic and radar data to determine subterranean assets
- communicate clearly with clients and stakeholders to clarify and report project information
- comply with industry-accepted standards for validating accuracy of data and identifying errors and discrepancies
  - comply with organisational and legal requirements for:
  - completing records and documentation
  - recording, storing and filing data
  - using, checking and storing equipment

- working safely to identify and control hazards and risks, including those relating to traffic control and confined spaces, and to use personal protective equipment (PPE)
- use one the following geophysics methods to locate and measure underground services and components:
  - electro-magnetic locating
  - ground penetrating radar acquisition
  - interpreting presented data, including DBYD and other relevant evidence
  - spraying targets on the ground.

### Knowledge Evidence

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

- accuracy and precision requirements for locating underground services
- data reduction and manipulation techniques
- electro-magnetic and geophysics methods used for locating underground services
- basic concepts of algebra, geometry and trigonometry that relate to locating underground services
- industry-accepted methods for validating data to identify errors and discrepancies
- legislative, statutory and industry requirements and standards relating to work tasks
- methods for identifying targets on lines of radar
- organisational policies and procedures relating to:
  - client and stakeholder communication
  - contacting relevant utility providers
  - health and safety relating to work activities
  - reporting and documentation
  - using the equipment specified in the performance evidence
- procedures for calibrating specialised surveying equipment
- project management techniques for scheduling, measuring and monitoring work progress and planning for risks and contingencies
- relevant industry standards, including AS5488 *Classification of Subsurface Utility Information (SUI)*.

### 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
- specifications:
  - task specifications, including relevant plans and drawings
  - organisational policies, procedures and documentation relating to work health and safety
  - AS5488 *Classification of Subsurface Utility Information (SUI)*

- relationships with team members and supervisor:
  - working in a team.

Timeframe:

- as specified by project requirements.

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