



Australian Government

CPPSIS5047 Conduct GNSS surveys

Release: 1

CPPSIS5047 Conduct GNSS surveys

Modification History

Release 1.

Replaces superseded equivalent CPPSIS5047A Conduct an advanced GNSS data collection and set out survey.

This version first released with CPP Property Services Training Package Version 3.

Application

This unit of competency specifies the outcomes required to conduct global navigation satellite system (GNSS) surveys for data collection and engineering set-outs, using GNSS equipment and suitable software to communicate with GNSS receivers. The unit covers project managing data collection activities, including planning collection methodologies and allocating work tasks in a team environment. The unit requires the ability to validate the accuracy of data and identify discrepancies between specifications and actual activities.

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

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

Pre-requisite Unit

Nil

Unit Sector

Surveying and spatial information services

Elements and Performance Criteria

Elements describe the essential outcomes.

Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the range of conditions.

- | | |
|-----------------------------|---|
| 1. Prepare for GNSS survey. | 1.1. GNSS survey specifications and organisational requirements are identified and analysed, and key activities and timelines are scheduled according to available resources. |
| | 1.2. Equipment is prepared according to survey and organisational requirements. |
| | 1.3. Survey methodology is planned to meet survey |

- specifications and organisational requirements.
- 1.4. Existing survey control data is obtained and validated according to organisational requirements.
 - 1.5. Set-out data is collated, validated, manipulated and uploaded into GNSS receiver.
 - 1.6. Work responsibilities are allocated and communicated to **appropriate persons** according to survey and organisational requirements.
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2. Carry out GNSS surveying tasks.
 - 2.1. GNSS equipment is operated according to survey specifications and organisational requirements.
 - 2.2. GNSS instruments are related to a reference system based on survey specifications.
 - 2.3. GNSS data is collected using planned methodology according to survey specifications and organisational requirements.
 - 2.4. GNSS measurements are validated and recorded on the reference system according to specifications.
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3. Finalise GNSS survey.
 - 3.1. GNSS software is used to process data according to survey specifications and organisational requirements.
 - 3.2. Validation checks are completed according to specifications and organisational requirements.
 - 3.3. Discrepancies between specifications and actual data are identified and addressed according to survey specifications and organisational requirements.
 - 3.4. Survey is finalised and documentation completed according to organisational requirements.

Foundation Skills

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

Skill	Performance feature
Initiative and enterprise skills to:	analyse and decide GNSS data collection methods.
Planning and organising skills to:	plan and prioritise work to meet survey timeframes and resource constraints.
Numeracy skills to:	- analyse metadata and positional data, and set-out positional accuracy - solve problems relating to height, dimension, direction and position in actual operational activity and virtual representation.
Oral communication skills to:	ask questions to clarify colleagues' understanding of delegated tasks.
Reading skills to:	analyse graphical and technical information in maps, engineering drawings, field records and survey plots.
Writing skills to:	record technical information in organisational documentation.
Technology skills to:	- access, manipulate, retrieve and archive data - calibrate and validate GNSS equipment.
Problem-solving skills to:	select appropriate validation methods to verify accuracy of data.

Range of Conditions

This section specifies work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included. Bold italicised wording, if used in the performance criteria, is detailed below.

Appropriate persons • client

- must include at least one of the following:
- colleague
 - end user
 - manager
 - registered or qualified surveyor.

Unit Mapping Information

CPPSIS5047A Conduct an advanced GNSS data collection and set out survey

Links

Companion Volume implementation guides are found in VETNet -

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

Assessment Requirements for CPPSIS5047 Conduct GNSS surveys

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Performance Evidence

A person demonstrating competency in this unit must satisfy the requirements of the elements, performance criteria, foundation skills and range of conditions of this unit. The person must also plan and conduct a global navigation satellite system (GNSS) survey for data collection and engineering set-outs for two different projects.

While conducting the above GNSS surveys, the person must:

- plan and document data collection methodologies that account for the following:
 - accessibility of marks
 - environmental considerations
 - field reconnaissance
 - GNSS methodology to be used
 - network design
 - placement of survey marks
 - work health and safety considerations
- schedule and allocate resources and work tasks
- collect data for GNSS positions, including differential methods
- operate GNSS equipment and software, as specified in the assessment conditions, to collect data appropriate to survey specifications
- communicate clearly with others to clarify and report work information
- analyse survey specifications, including:
 - cross-sections and plans
 - technical descriptions of surveying data and their requirements
- apply projection and datum parameters when using GNSS equipment and software
- comply with industry-accepted standards for validating accuracy of GNSS data
- comply with organisational requirements for:
 - completing records and documentation
 - recording, storing and filing data
 - using and storing GNSS equipment
 - working safely and using personal protective equipment (PPE)

- use industry-accepted validation methods to test accuracy of data and identify errors and discrepancies.

Knowledge Evidence

A person demonstrating competency in this unit must demonstrate knowledge of:

- accuracy and precision requirements for GNSS data and network surveys
- GNSS data formats and collection methods
- industry-accepted methods for validating data to identify errors and discrepancies
- methods for accessing, manipulating, retrieving and archiving GNSS data
- organisational policies and procedures relating to:
 - health and safety relating to survey activities
 - reporting and documentation
 - using and allocating resources
 - using GNSS equipment and software
- projection and datum parameters required for GNSS equipment and processing software
- reference systems for GNSS data
- techniques for project management
- types of GNSS equipment and software and their uses.

Assessment Conditions

The following must be present and available to learners during assessment activities:

- equipment:
 - geodetic GNSS receiver
 - GNSS equipment, including equipment capable of differential and real time modes of operation
 - GNSS software application
 - PPE
- specifications:
 - survey specifications
 - organisational policies, procedures and documentation relating to work health and safety
- relationships with team members and supervisor:
 - working in a team.

Timeframe:

- as specified by project requirements.

Assessor requirements

As a minimum, assessors must satisfy the assessor requirements in the Standards for Registered Training Organisations (RTOs) current at the time of assessment.

Links

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