



**Australian Government**

**Department of Education, Employment and Workplace Relations**

# **TLIS3029B Implement structures maintenance and installation of minor structures**

Release: 1

## **TLIS3029B Implement structures maintenance and installation of minor structures**

### **Modification History**

Not applicable.

### **Unit Descriptor**

This unit involves the skills and knowledge required to implement structures maintenance and installation of minor structures in accordance with approved standards, safeworking and regulatory requirements, and workplace procedures. It includes planning work, implementing maintenance activities, dealing with maintenance and construction problems, and completing required documentation.

Licensing or certification requirements are not applicable to this unit. Persons achieving competence in this unit will need to fulfil legislated rail safety requirements, including acts and regulations from each applicable state and territory, together with any nationally approved compliance codes and/or guidelines.

### **Application of the Unit**

Work is performed under minimal supervision, generally in a team environment. It involves the application of routine operational principles and procedures to the implementation of structures maintenance and installation of minor structures as part of workplace activities across a variety of operational contexts within the Australian rail system.

### **Licensing/Regulatory Information**

Refer to Unit Descriptor

### **Pre-Requisites**

Not Applicable

## **Employability Skills Information**

**Employability Skills**            This unit contains employability skills.

## **Elements and Performance Criteria Pre-Content**

Elements describe the essential outcomes of a unit of competency.

Performance criteria describe the required performance needed to demonstrate achievement of the element. Assessment of performance is to be consistent with the evidence guide.

## Elements and Performance Criteria

| <b>ELEMENT</b>   | <b>PERFORMANCE CRITERIA</b>   |
|--|---|
| <b>1 Plan work</b>   | <ul style="list-style-type: none"><li>1.1 Scope of work is confirmed</li><li>1.2 Operational constraints are identified</li><li>1.3 Information requirements are identified and accessed</li><li>1.4 Method of work is selected and general operating sequence is determined</li><li>1.5 Resources required for the work are arranged as required</li></ul>   |
| <b>2 Implement maintenance and construction activities</b> | <ul style="list-style-type: none"><li>2.1 Competent personnel are allocated tasks in accordance with the work sequence</li><li>2.2 Tasks are assessed as being in accordance with the predetermined sequence and appropriate for the work</li><li>2.3 Work procedures are monitored and evaluated as being appropriate and in accordance with standards and procedures</li><li>2.4 Human and other resources are assessed as being adequate for the work</li></ul>  |
| <b>3 Deal with maintenance and construction problems</b>   | <ul style="list-style-type: none"><li>3.1 Causes and effects of system faults and failures in the worksite are diagnosed</li><li>3.2 Impact of work on structure integrity is assessed</li><li>3.3 Impact of work on track system integrity is assessed</li><li>3.4 Appropriate action is taken to ensure structure and track system integrity</li><li>3.5 Scope of work is modified to include related tasks and/or interfaces</li><li>3.6 Related faults and/or failures beyond the authorised scope of work are reported</li></ul> |
| <b>4 Complete documentation</b>                            | <ul style="list-style-type: none"><li>4.1 Documentation on work undertaken is completed in accordance with workplace requirements</li></ul>   |

## Required Skills and Knowledge

### REQUIRED KNOWLEDGE AND SKILLS

This describes the essential knowledge and skills and their level required for this unit.

#### Required knowledge:

- Relevant safety, OH&S and environmental procedures and regulations
- Fundamentals of all rail infrastructure
- Structure infrastructure and the interaction of all interfaces
- Structure defects
- Range of structure maintenance and construction techniques and work processes
- Range of competencies required to carry out structure maintenance and construction
- Relevant engineering standards, specifications and codes of practice
- Problems that may occur during structure maintenance and minor construction, and action that can be taken to report or resolve them
- Hazards that may exist when undertaking structure maintenance and minor construction, and ways of controlling the risks involved
- Relevant communication systems and procedures
- Authorisation/approval processes and procedures
- Documentation and record-keeping requirements

#### Required skills:

- Communicate effectively with others when maintaining structures and installing minor structures
- Read and interpret instructions, procedures, information, technical data, standards and drawings relating to implementing structures maintenance and the installation of minor structures
- Interpret and follow operational instructions and prioritise work
- Select appropriate equipment
- Select appropriate work techniques
- Monitor, sequence and implement work activities in terms of planned schedule and appropriateness, in conformance with standards and procedures
- Complete documentation
- Operate electronic communication equipment to required protocols
- Work collaboratively with others when maintaining structures and installing minor structures
- Diagnose causes and effects of system faults and failures resulting from the work activities
- Assess impact of work on structure integrity and on track system integrity
- Report and rectify within limits of own role problems, faults and malfunctions that may occur when maintaining structures and installing minor structures, in accordance with regulatory

requirements and workplace procedures

- Implement contingency plans for unexpected events when maintaining structures and installing minor structures
- Apply precautions and required action to minimise, control or eliminate potential hazards during work activities
- Modify activities depending on differing operational contingencies, risk situations and environments
- Work systematically with required attention to detail without injury to self or others, or damage to goods or equipment
- Operate and adapt to differences in equipment in accordance with standard operating procedures
- Select and use required personal protective equipment (PPE)

## Evidence Guide

### EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required knowledge and skills, the range statement and the assessment guidelines for this Training Package.

#### **Critical aspects for assessment and evidence required to demonstrate competency in this unit**

- The evidence required to demonstrate competency in this unit must be relevant to and satisfy all of the requirements of the elements and performance criteria of this unit and include demonstration of applying:
  - the underpinning knowledge and skills
  - relevant legislation and workplace procedures
  - other relevant aspects of the range statement
- Assessment must include exercises that demonstrate competent performance of the following in a range of situations:
  - planning work, including selecting appropriate methods, sequencing work and arranging resources
  - implementing, monitoring and evaluating maintenance activities
  - dealing appropriately with a number of maintenance and construction problems
  - completing documentation according to workplace requirements
- Assessment must include exercises that demonstrate competent performance in implementing five of the listed activities below. These must be a combination of the 2 designated activities, plus 1 of the specified activities, plus 2 of the remaining activities:

- designated activities (2):
    - installing transoms
    - installing minor structures
  - specified activities (any 1):
    - repairing concrete/masonry structures
    - repairing timber structures
    - repairing steel structures
  - remaining activities (any 2):
    - maintaining bridge bearings
    - carrying out routine maintenance of structures
    - installing temporary track support
    - mixing and placing chemical repair products
- Context of and specific resources for assessment**
- Performance is demonstrated consistently over a period of time and in a suitable range of contexts
  - Resources for assessment include:
    - a range of relevant exercises, case studies and/or other simulated practical and knowledge assessment, and/or
    - access to an appropriate range of relevant operational situations in the workplace
  - In both real and simulated environments, access is required to:
    - relevant and appropriate materials and equipment, and
    - applicable documentation, including workplace procedures, regulations, codes of practice and operation manuals
- Method of assessment**
- As a minimum, assessment of knowledge must be conducted through appropriate written/oral tests
  - Practical assessment must occur:
    - through activities in an appropriately simulated environment, and/or
    - in an appropriate range of situations in the workplace



## Range Statement

### RANGE STATEMENT

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance.

- Scope of work may include:**
- identifying deficiencies
  - identifying preparatory or ancillary work required
- Work may involve:**
- exposure to chemicals, and dangerous or hazardous substances
  - movements of equipment, goods and vehicles
- Structures maintenance and construction activities may include:**
- maintaining structures
  - repairing structures
  - removing structure components
  - installing structure components
  - installing transoms
- Structures may include:**
- bridges
  - pipes and culverts
  - tunnels
  - platforms
  - retaining walls
  - overhead wiring structures
  - level crossings
  - buffer stops
- Work methods may vary according to:**
- location
  - type of structure
  - structure material type
  - climatic conditions
  - track availability
- Extent of activity may vary according to:**
- complexity of task
  - track availability
  - scope of work including:
    - type of structure being worked on
    - type of maintenance and construction activities being undertaken
- Track availability may include working:**
- during breaks in traffic
  - on limited track possession
  - during extended track possession
  - on non-operational track or track under construction
- Equipment may include:**
- mechanical handling/lifting equipment
  - hand tools
  - small power tools

## **RANGE STATEMENT**

- oxy cutting equipment
- scaffolding
- ladders
- elevated work platform (EWP)
- cranes

## RANGE STATEMENT

- Liaison may include:**
- internal or external personnel from other work areas (e.g. train controllers, electricians)
- Communications systems may include:**
- two-way radios
  - telephones/mobile phones
  - agreed audible or hand signal
- Depending on work context, safety and personal protective equipment may include:**
- high visibility clothing
  - hearing protection
  - gloves
  - sunscreen
  - sunglasses
  - safety glasses
  - dust mask
  - insect repellent
  - safety headwear
  - safety footwear
  - portable radios/mobile phones
  - hand lamps
  - flags
  - safety devices
- Depending on the type of organisation concerned and the local terminology used, workplace procedures may include:**
- company procedures
  - enterprise procedures
  - organisational procedures
  - established procedures
- Information and documents may include:**
- operational instructions, policies and workplace procedures
  - local authority regulations and procedures
  - information provided by other workplace personnel
  - track inspections and reports
  - work orders
  - technical instructions
  - manufacturer or workplace equipment instructions and operation manuals
  - emergency procedure manuals
  - two-way radio or mobile telephone operation procedures
  - quality assurance (QA) plans, data and document control
  - conditions of service, legislation and industrial agreements, including workplace agreements and awards
- Applicable procedures and codes may include:**
- legislated rail safety requirements, including acts and regulations from each applicable state and territory, together with any nationally approved compliance codes and/or

**RANGE STATEMENT**

guidelines

- relevant Australian standards (AS) and related requirements, including AS 4292
- relevant state and territory legislation relating to:
  - environmental protection
  - OH&S

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**Unit Sector(s)**

Not Applicable

**Competency Field**

**Competency Field**

S - Construction and Installation