

RII06 Civil Construction

Training Package

Volume I of III

This Training Package comprises three (3) volumes.
Volume 1 contains the Introduction and the RII Units of Competency (to RIICC400 series). Volume II contains RIICC500 and 600 series Units of Competency.
Volume III contains the Imported Units of Competency.

RII06 Civil Construction Training Package

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Preliminary Information

Important Note to Users

Training Packages are not static documents; they are amended periodically to reflect the latest industry practices and are version controlled. It is essential that the latest version is always used.

Check the version number before commencing training or assessment.

This Training Package is Version 1 — check whether this is the latest version by going to the National Training Information Service (www.ntis.gov.au) and locating information about the Training Package. Alternatively, contact Resources and Infrastructure Industry Skills Council (www.riisc.com.au) to confirm the latest version number.

Explanation of version number conventions

The primary release Training Package is Version 1. When changes are made to a Training Package, sometimes the version number is changed and sometimes it is not, depending on the extent of the change. When a Training Package is reviewed it is considered to be a new Training Package for the purposes of version control, and is Version 1. Do not confuse the version number with the Training Package's national code (which remains the same during its period of endorsement).

Version modification history

The version details of this endorsed Training Package are in the table below. The latest information is at the top of the table.

Version	Release Date	Comments
1	14 July 2006	This RII06 Civil Construction Training Package covers AQF level Qualifications at Certificate 1, Certificate 4, Diploma and Advance Diploma and is an extension to the BB03 Civil Construction Training Package which covers AQF levels Certificate II and Certificate III

Summary of AQF qualifications in RII06

RII06 offers the following titles for its AQF level 1, 4, 5 and 6 qualifications.

Code	Title
RII10106	Certificate I in Resource and Infrastructure Operations
RII40106	Certificate IV in Civil Construction Operations
RII40206	Certificate IV in Civil Construction Supervision
RII40306	Certificate IV in Civil Construction Design
RII50106	Diploma of Civil Construction Management
RII50206	Diploma of Civil Construction Design
RII60106	Advanced Diploma of Civil Construction Management
RII60206	Advanced Diploma of Civil Construction Design Management
Competency Set	Leading Hand

The Training Package also provides the RII Competency Set for Leading Hand which articulates into the RII40206 Certificate IV in Civil Construction Supervision.

Summary of Units of Competency for RII06

RII Units of Competency for Certificate I, Certificate IV, Diploma and Advanced Diploma Qualifications

Code	Title
RIIG001A	Work safely and follow OH&S policies and procedures
RIIG002A	Communicate in the workplace
RIIG003A	Contribute to quality work outcomes
RIIG004A	Conduct local risk control
RIIG005A	Read and interpret maps
RIIG006A	Collect and prepare samples
RIIG2001A	Plan and organise work
RIIG2002A	Carry out measurements and calculations
RIIG2003A	Use hand and power tools
RIIG2004A	Operate small plant and equipment
RIIG2005A	Operate light vehicles
RIIG2006A	Handle resources and infrastructure materials and safely dispose of non toxic materials
RIIG2007A	Read and interpret plans and specifications
RIICC401A	Supervise civil works
RIICC402A	Supervise civil works contractors
RIICC403A	Apply the principles of earthworks construction
RIICC404A	Apply the principles of flexible pavement construction
RIICC405A	Apply the principles of rigid pavement construction
RIICC406A	Apply the principles of the stabilisation of materials
RIICC407A	Apply the principles for asphalt paving and compaction
RIICC408A	Apply the principles for the application of bituminous sprayed treatments
RIICC409A	Apply the principles for the selection and use of polymer modified binder
RIICC410A	Apply the principles for the selection and use of bituminous emulsion
RIICC411A	Apply the principles for the application of slurry surfacing
RIICC412A	Apply the principles of pavement profiling using a profiler
RIICC413A	Apply the principles for the manufacture and delivery of hot mix asphalt
RIICC414A	Apply the principles for the manufacture of cold mix
RIICC415A	Apply the principles for the manufacture of polymer modified binder
RIICC416A	Apply the principles for the manufacture of bituminous emulsion
RIICC417A	Apply the principles of the manufacture of slurry surfacing
RIICC418A	Inspect and report on pavement condition
RIICC419A	Carry out pavement condition measurement
RIICC420A	Apply the principles of pavement maintenance

Code	Title
RIICC421A	Apply the principles for the installation of underground service using open excavation
RIICC422A	Apply the principles for the installation of underground service using trenchless technology
RIICC423A	Apply the principles for the repair and rehabilitation of underground service using trenchless technology
RIICC424A	Apply the principles of tunnel construction
RIICC425A	Apply the principles of civil concrete structures construction
RIICC426A	Apply the principles of civil steel structures construction
RIICC427A	Apply the principles of civil timber structures construction
RIICC428A	Apply the principles of civil masonry, crib and gabion structure construction
RIICC429A	Carry out inspections of civil structures
RIICC430A	Apply principles of maintenance of civil structures
RIICC431A	Apply the principles of canal construction
RIICC432A	Apply the principles of demolitions
RIICC501A	Implement civil construction plans
RIICC502A	Implement civil works maintenance programs
RIICC503A	Prepare work zone traffic management plans
RIICC504A	Prepare civil works bills of quantities
RIICC505A	Prepare civil works schedule of rates
RIICC506A	Prepare civil works cost estimates
RIICC507A	Prepare detailed geotechnical design
RIICC508A	Prepare detailed design of rural roads
RIICC509A	Prepare detailed design of urban roads
RIICC510A	Prepare detailed design of busways
RIICC511A	Prepare detailed design of sub-divisions
RIICC512A	Prepare detailed design of motorways and interchanges
RIICC513A	Prepare detailed design of rail civil infrastructure
RIICC514A	Prepare detailed design of dams
RIICC515A	Prepare detailed design of airfield civil works
RIICC516A	Prepare detailed design of bicycle ways
RIICC517A	Prepare detailed design of industrial hardstands
RIICC518A	Prepare detailed design of open car parks
RIICC519A	Prepare detailed design of intermodal facilities civil works
RIICC520A	Prepare detailed design of rigid pavement
RIICC521A	Prepare detailed design of flexible pavement
RIICC522A	Prepare stabilised materials mix design
RIICC523A	Prepare asphalt mix design
RIICC524A	Prepare design of sprayed seal surfacing

Code	Title
RIICC525A	Select pavement surfacing
RIICC526A	Prepare detailed traffic analysis
RIICC527A	Prepare detailed design of traffic signals
RIICC528A	Prepare detailed design of traffic management systems
RIICC529A	Prepare detailed design of underground services
RIICC530A	Prepare detailed design of surface drainage
RIICC531A	Prepare detailed design of subsurface drainage
RIICC532A	Prepare detailed design of tunnels
RIICC533A	Prepare detailed design of civil concrete structures
RIICC534A	Prepare detailed design of civil steel structures
RIICC535A	Prepare detailed design of civil timber structures
RIICC536A	Prepare the detailed design of civil masonry, crib and gabion structures
RIICC537A	Prepare detailed design of marine structures civil works
RIICC538A	Prepare detailed design of foundations
RIICC539A	Prepare detailed design of lighting
RIICC540A	Prepare detailed design of environmental controls
RIICC541A	Prepare detailed design of landscaping
RIICC542A	Prepare detailed design of canals
RIICC543A	Implement and maintain environmental management plans
RIICC544A	Implement and maintain quality management plans
RIICC601A	Manage the civil works design process
RIICC602A	Establish civil construction plans
RIICC603A	Establish civil works maintenance programs

Imported Units of Competency for Certificate I, Certificate IV, Diploma and Advanced Diploma Qualifications

Code	Title	Prerequisite requirements for imported units		Training Package
BCCCM3003B	Implement traffic management plan	BCCCM1001B	Follow OH&S policies and procedures	BCC03
BSBCM402A	Develop work priorities	none		
BSBCM404A	Develop teams and individuals	none		
BSBCM408A	Report on financial activity	none		
BSBCM410A	Coordinate implementation of customer service strategies	None		
BSBCM411A	Monitor a safe workplace	none		
BSBCM412A	Promote innovation and change	none		
BSBCM413A	Implement and monitor environmental policies	none		

Code	Title	Prerequisite requirements for imported units		Training Package
BSBCM419A	Manage projects	none		
BSBFLM403B	Implement effective workplace relationships	none		
BSBFLM405B	Implement operational plan	none		
BSBFLM406B	Implement workplace information system	none		
BSBFLM409B	Implement continuous improvement	none		
BSBFLM412A	Promote team effectiveness	none		
BSBFLM501B	Manage personal work priorities and professional development	none		
BSBFLM503B	Manage effective workplace relationships	none		
BSBFLM505B	Manage operational plan	none		
BSBFLM506B	Manage workplace information systems	none		
BSBFLM507B	Manage quality customer service	none		
BSBFLM509B	Facilitate continuous improvement	none		
BSBFLM510B	Facilitate and capitalise on change and innovation	none		
BSBFLM511B	Develop a workplace learning environment	none		
BSBFLM512A	Ensure team effectiveness	none		
BSBFLM513A	Manage budgets and financial plans within the work team	none		
BSBHR504A	Manage industrial relations policies and procedures	none		
BSBHR506A	Manage recruitment selection and induction processes	none		
BSBMGT503A	Prepare budgets and financial plans	none		
BSBMGT504A	Manage budgets and financial plans	none		
BSBMGT505A	Ensure a safe workplace	none		
BSBMGT506A	Select, recruit and induct staff	none		
BSBMGT603A	Review and develop business plans	none	none	none
BSBMGT604A	Manage business operations	none	none	none
BSBMGT605A	Provide leadership across the organisation	none	none	none
BSBMGT606A	Manage customer focus	none	none	none
BSBMGT608A	Manage innovation and continuous improvement	none	none	none
BSBOHS607A	Advise on application of safe design principles to control OHS risk	none	none	none
BSBPM405A	Apply human resources	none		

Code	Title	Prerequisite requirements for imported units	Training Package
	management approaches		
BSBPM408A	Apply contract and procurement techniques	none	
BSBPM501A	Manage application of project integrative processes	none	
BSBPM502A	Manage project scope	none	
BSBPM503A	Manage project time	none	
BSBPM504A	Manage project costs	none	
BSBPM505A	Manage project quality	none	
BSBPM506A	Manage project human resources	none	
BSBPM507A	Manage project communications	none	
BSBPM508A	Manage project risk	none	
BSBPM509A	Manage project procurement	none	
BSBPM601A	Direct the integration of multiple projects/programs	none	
BSBPM602A	Direct the scope of multiple projects/programs	none	
BSBPM603A	Direct time management of multiple projects/ programs	none	
BSBPM604A	Direct cost management of multiple projects/ programs	none	
BSBPM605A	Direct quality management of multiple projects/ programs	none	
BSBPM606A	Direct human resources management of multiple projects/ programs	none	
BSBPM607A	Direct communications management of multiple projects/ programs	none	
BSBPM608A	Direct risk management of multiple projects/ programs	none	
BSBPM609A	Direct procurement and contracts of multiple projects/ programs	none	
BSBSBM402A	Undertake financial planning	none	
BSBSBM403A	Promote the business	none	
BSBSBM404A	Undertake business planning	none	
BSBSBM406A	Manage finances	none	
LGACOM401A	Administer contracts	none	
LGACOM402A	Arrange contracts	none	
LGACOM409A	Prepare tender documentation	none	
LGACOM410A	Prepare response to tenders	none	
LGADMIN417A	Conduct community consultations	none	
LGAWORK401A	Develop works maintenance schedule	none	

Code	Title	Prerequisite requirements for imported units		Training Package
LGAWORK402A	Prepare for operational works	none		
LGAWORK403A	Manage civil plant and resources	none		
LGAWORK501A	Prepare preliminary design for operational works	none		
LGAWORK502A	Prepare detailed works project documentation	none		
LGAWORK503A	Undertake project investigation	none		
MEM30.1A	Use computer aided drafting systems to produce basic engineering drawings	MEM16.6A	Organise and communicate information	MEM05
		MEM16.8A	Interact with computing technology	MEM05
MEM30.2A	Produce basic engineering graphics	MEM16.6A	Organise and communicate information	MEM05
		MEM16.8A	Interact with computing technology	MEM05
MEM30.3A	Produce detailed engineering drawings	MEM16.6A	Organise and communicate information	MEM05
		MEM16.8A	Interact with computing technology	MEM05
		MEM30.1A	Use computer aided drafting systems to produce basic engineering drawings	MEM05
		MEM30.2A	Produce basic engineering graphics	MEM05
MEM30.4A	Use CAD to create and display 3D models	MEM16.6	Organise and communicate information	MEM05
		MEM16.8A	Interact with computing technology	MEM05
		MEM30.1A	Use computer aided drafting systems to produce basic engineering drawings	MEM05
MEM9.11B	Apply basic engineering design concepts	MEM 9.2	Interpret technical drawing	MEM05
MNMMSU411A	Supervise work in confined space	none		
MNQGEN300A	Apply risk management processes	none		
MNQGEN340A	Communicate information	none		

Code	Title	Prerequisite requirements for imported units	Training Package
MNQGEN400A	Apply site risk management system	none	
MNQGEN401A	Apply site statutory compliance management plan	none	
MNQGEN403A	Foster positive community relations	none	
MNQGEN404A	Supervise dust and noise control	none	
MNQGEN430A	Apply site quality plan	none	
MNQGEN500A	Implement and maintain management plans to control risk	none	
MNQGEN600A	Establish and maintain the risk management systems	none	
MNQGEN601A	Establish and maintain the statutory compliance management system	none	
MNQGEN602A	Manage major incidents and emergencies	none	
MNQGEN610A	Establish and maintain the occupational health and safety management system	none	
MNQGEN620A	Establish and maintain the environmental management system	none	
MNQGEN630A	Establish and maintain the quality system	none	
MNQGEN661A	Conduct feasibility study	none	
MNQGEN662A	Establish operational performance management system	none	
MNQGEN663A	Initiate, monitor and supervise contracts	none	
MNQGEN664A	Conduct business negotiations	none	
MNQOPS403A	Apply site plant and resources management plan	none	
MNQOPS413A	Conduct shot firing	none	
MNQOPS450A	Apply site plant, equipment and infrastructure maintenance management plan	none	
MNQOPS503A	Implement site plant and resources management plan	none	
MNQOPS511A	Design surface blasts	none	
MNQOPS512A	Manage blast hole drilling operations	none	
MNQOPS513A	Manage blasting operations	none	
MNQOPS550A	Implement and maintain the site plant, equipment and infrastructure maintenance plan	none	
MNQOPS650A	Establish plant, equipment and infrastructure maintenance system	none	
PMLDATA400A	Process and interpret data	none	

Code	Title	Prerequisite requirements for imported units		Training Package
PMLDATA500B	Analyse data and report results	PMLDATA400A	Process and interpret data	PML04
PMLSAMP302A	Receive and prepare samples for testing	none		
PMLSAMP400B	Obtain representative samples in accordance with sampling plan	none		
PMLTEST300B	Perform basic tests	none		
PMLTEST303B	Prepare working solutions	none		
PMLTEST307B	Prepare trial batches for evaluation	none		
PMLTEST402B	Prepare, standardise and use solutions	none		
PMLTEST403B	Assist with geological site investigations	none		
PMLTEST404A	Perform chemical tests and procedures	none		
PMLTEST406A	Perform physical tests	none		
PMLTEST411A	Perform mechanical tests	none		
PMLTEST511B	Supervise earthworks inspection, sampling and testing operations	PMLTEST403B	Assist with geotechnical site investigations	PML04
		OR		
		PMLSAMP400B	Obtain representative samples in accordance with sampling plan	PML04
		AND		
		PMLTEST406A	Perform physical tests	PML04
PMLTEST520A	Perform complex tests to measure engineering properties of materials	PMLTEST411A	Perform mechanical tests	PML04
PRDSIS07A	Capture new data	none		
PRDSIS08A	Obtain and validate existing data	none		
PRDSIS14A	Integrate spatial data sets	none		
PRDSIS29A	Collect basic data	none		

Explanation of the review date

The review date (shown on the title page and in the footer of each page) indicates when the Training Package is expected to be reviewed in the light of changes such as changing technologies and circumstances. The review date is not an expiry date. Endorsed Training Packages and their components remain current until they are reviewed or replaced.

Overview of Training Packages

What is a Training Package?

A Training Package is an integrated set of nationally endorsed competency standards, assessment guidelines and Australian Qualifications Framework (AQF) qualifications for a specific industry, industry sector or enterprise.

Each Training Package:

- provides a consistent and reliable set of components for training, recognising and assessing people's skills, and may also have optional support materials
- enables nationally recognised qualifications to be awarded through direct assessment of workplace competencies
- encourages the development and delivery of flexible training which suits individual and industry requirements
- encourages learning and assessment in a work-related environment which leads to verifiable workplace outcomes.

How do Training Packages fit within the National Training Framework?

The National Training Framework is made up of the nationally agreed quality arrangements for the vocational education and training sector, the Australian Quality Training Framework (AQTF), and Training Packages endorsed by the National Training Quality Council (NTQC).

How are Training Packages Developed?

Training Packages are developed by Industry Skills Councils or enterprises, to meet the identified training needs of specific industries or industry sectors. To gain national endorsement of Training Packages, developers must provide evidence of extensive research, consultation and support within the industry area or enterprise.

How do Training Packages Encourage Flexibility?

Training Packages describe the skills and knowledge needed to perform effectively in the workplace without prescribing how people should be trained.

Training Packages acknowledge that people can achieve vocational competency in many ways by emphasising what the learner can do, not how or where they learned to do it. For example, some experienced workers might be able to demonstrate competency against the Units of Competency, and even gain a qualification, without completing a formal training program.

With Training Packages, assessment and training may be conducted at the workplace, off-the-job, at a training organisation, during regular work, or through work experience, work placement, work simulation or any combination of these.

Who can Deliver and Assess using Training Packages?

Training and assessment using Training Packages must be conducted by a Registered Training Organisation (RTO) that has the qualifications or specific Units of Competency on

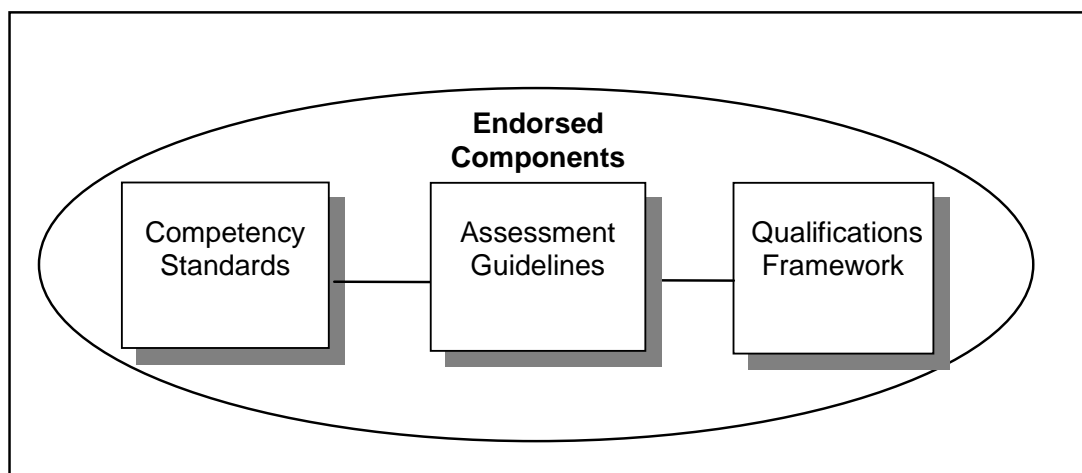
its scope of registration, or that works in partnership with another RTO as specified in the *AQTF Standards for Registered Training Organisations*.

Training Package Components

Training Packages are made up of mandatory components endorsed by the NTQC, and optional support materials.

Training Package Endorsed Components

The nationally endorsed components include the Competency Standards, Assessment Guidelines and Qualifications Framework. These form the basis of training and assessment in the Training Package and, as such, they must be used.



Competency Standards

Each Unit of Competency identifies a discrete workplace requirement and includes the knowledge and skills that underpin competency as well as language, literacy and numeracy skills; and Occupational Health and Safety requirements. The Units of Competency must be adhered to in training and assessment to ensure consistency of outcomes.

Assessment Guidelines

The Assessment Guidelines provide an industry framework to ensure all assessments meet industry needs and nationally agreed standards as expressed in the Training Package and the *Standards for Registered Training Organisations*. The Assessment Guidelines must be followed to ensure the integrity of assessment leading to nationally recognised qualifications.

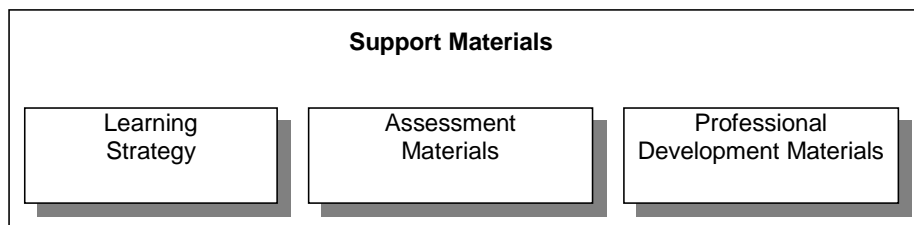
Qualifications Framework

Each Training Package provides details of those Units of Competency that must be achieved to award AQF qualifications. The rules around which Units of Competency can be combined to make up a valid AQF qualification in the Training Package are referred to as the 'packaging rules'. The packaging rules must be followed to ensure the integrity of nationally recognised qualifications issued.

Training Package Support Materials

The endorsed components of Training Packages are complemented and supported by optional support materials that provide for choice in the design of training and assessment to meet the needs of industry and learners.

Training Package support materials can relate to single or multiple Units of Competency, an industry sector, a qualification or the whole Training Package. They tend to fall into one or more of the categories illustrated below.



Training Package support materials are produced by a range of stakeholders such as RTOs, individual trainers and assessors, private and commercial developers and government agencies.

Where such materials have been quality assured through a process of 'noting' by the NTQC, they display the following official logo. Noted support materials are listed on the National Training Information Service (NTIS), together with a detailed description and information on the type of product and its availability (www.ntis.gov.au).



It is not compulsory to submit support materials for noting; any resources that meet the requirements of the Training Package can be used.

Training Package, Qualification and Unit of Competency Codes

There are agreed conventions for the national codes used for Training Packages and their components. Always use the correct codes, exactly as they appear in the Training Package, and with the title always following the code.

Training Package Codes

Each Training Package has a unique five-character national code assigned when the Training Package is endorsed, for example RII06. The first three characters are letters identifying the Training Package industry coverage and the last two characters are numbers identifying the year of endorsement.

Qualification Codes

Within each Training Package, each qualification has a unique eight-character code, for example RII30106. The first three letters identify the Training Package; the first number identifies the qualification level (note that arabic numbers are not used in qualification titles

themselves); the next two numbers identify the position in the sequence of the qualification at that level; and the last two numbers identify the year in which the qualification was endorsed. (Where qualifications are added after the initial Training Package endorsement, the last two numbers may differ from other Training Package qualifications — they identify the year in which those particular qualifications were endorsed, for example RII40106).

Unit of Competency Codes

Within each Training Package, each Unit of Competency has a unique code. The Unit of Competency codes are assigned when the Training Package is endorsed, or when new Units of Competency are added to an existing endorsed Training Package.

A typical code is made up of up to 12 characters, normally a mixture of uppercase letters and numbers, as in RIICC401A. The first three characters signify the Training Package (in this example: RII06 Resources and Infrastructure Civil Construction Training Package). The next two letters signify the sector of the Resources and Infrastructure industry, in this example Civil Construction. The function or skill area may follow. The last character is always a letter and identifies the Unit of Competency version. The 'A' in the example above indicates that this is the original Unit of Competency. An incremented version identifier usually means that minor changes have been made. Typically this would mean that wording has changed in the Range Statement or Evidence Guide, providing clearer intent. Where changes are made that alter the outcome, a new code is assigned and the title is changed.

Training Package, Qualification and Unit of Competency Titles

There are agreed conventions for titling Training Packages and their components. Always use the correct titles, exactly as they appear in the Training Package, and with the code always placed before the title.

Training Package Titles

The title of each endorsed Training Package is unique and relates to the Training Package's broad industry coverage.

Qualification Titles

The title of each endorsed Training Package qualification is unique. Qualification titles use the following sequence:

- first, the qualification is identified as either Certificate I, Certificate II, Certificate III, Certificate IV, Diploma or Advanced Diploma
- this is followed by the words 'in' for Certificates I to IV and 'of' for Diploma and Advanced Diploma
- then, the industry descriptor follows, for example Civil Construction
- if applicable, the occupational or functional stream follows in brackets, for example (Plant Operation).

For example:

- BCC30603 Certificate III in Civil Construction (Plant Operations)
- RII50106 Diploma of Civil Construction Management.

Unit of Competency Titles

Each Unit of Competency title is unique. Unit of Competency titles describe the competency outcome concisely, and are written in sentence case.

For example:

- RIICC429A Carry out inspections of civil structures
- RIICC401A Supervise civil works.

RII06 Resources and Infrastructure Civil Construction Training Package

Introduction

The Resources and Infrastructure Civil Construction Training Package RII06 is the first Training Package to be developed under the Resources and Infrastructure Industry Skills Council (RIISC) and is an addition to the Civil Construction Training Package BCC03. RIISC is in the process of consolidating all Training Packages under its coverage and this involves recoding all Units of Competency and qualifications as Resources and Infrastructure (RII) units and qualifications as each Training Package is reviewed.

The Civil Construction Training Package BCC03 covers Units of Competency and qualifications at Australian Qualifications Framework (AQF) Certificate II and Certificate III level. Extensive industry consultation identified the need for Units of Competency and qualifications to address all aspects of the Civil Construction industry and provide a career path with AQF qualifications from Certificate I to Advanced Diploma level. The Resources and Infrastructure Civil Construction Training Package RII06 has been developed to cover these additional areas. In particular RII06 would cover entry to the Civil Construction industry, higher technical operations, supervisory and management areas and civil construction design (in addition to the operational areas covered in BCC03).

The Civil Construction Training Package BCC03 review by date is the end of 2006. In the review of BCC03 all Units of Competency and qualifications will be recoded as RII units and qualifications. A revised Resources and Infrastructure Civil Construction Training Package RII06 will then cover Units of Competency and qualifications from AQF Certificate I to Advanced Diploma level for the Civil Construction industry.

RII06 Resources and Infrastructure Civil Construction Training Package details the sets of competencies required by those employed within the Civil Construction industry and covers new entrants, (including labour market entrants), operators and managers as well as the existing Civil Construction sector workforce.

The Civil Construction Industry

The Civil Construction industry plays a large part in Australia's economic life; it is an integral component in the infrastructure essential for our day to day living. Those working in the industry are primarily engaged in civil engineering work on infrastructure-related projects covering such diverse fields as roads, subdivisions, bridgeworks, railways, harbours, sewerage and drainage, electrical infrastructure, pipelines and recreation works.

Civil construction is the most significant participant in the built environment active across a range of sectors — the commercial sector, as well as Local and State Government. It is also associated with industries such as mining.

The Australian Industry Group's Construction Outlook 2005 survey shows that engineering infrastructure will maintain its position as a key driver of economic growth reflected in continued high levels of work on road and rail projects combined with solid growth in the utilities sector (electricity infrastructure, water supply and sewerage), telecommunications and other civil projects.

The Civil Construction industry is estimated to employ in excess of 97,000 (based on ABS2001 figures) in the range from design and supervisory occupations, plant operations to other labouring occupations. Total employment increased by 9.2% in the twelve months

to 2005 and these figures, combined with associated industries, mean that upwards of 164,135 Australians employed. Seasonally adjusted figures for 2004–2005, indicate that work done across the sector accounted for over \$48 billion (up from \$30 billion in 2003–2004); generally reflective of increased investment in infrastructure by various States and Territories as well as developments associated with the significant activities in the resources sector. Typical values of work (in \$billion) commenced during 2004–2005 are:

- Roads and subdivisions 12. 092
- Electrical infrastructure 5. 583
- Recreation works 1. 905
- Sewerage and drainage 1. 226
- Railways 1. 472
- Bridgework 0. 372
- Pipelines 0. 848
- Water storage and supply 1.157
- Harbours 0.483

Buoyant activity and strong investment in the industry drives continued employment growth. A significant factor in this is the fact that approximately 94% of enterprises operating in the Civil Construction sector employ 5 or fewer employees. The 2004 Australian Industry Group survey reported that 33.3% of the industry had major difficulty recruiting labour and sourcing sub contractors; therefore recruitment of qualified labour (including professional and supervisory staff) remains the dominant supply constraint for the industry.

There are significant changes in industry technology contributing to significant enhancement of existing practices and operations, or diversification of work organisation models (for example, via multifunctional plant and equipment requiring new and effective work models). Work demands on this vital industry sector will continue to grow as outsourcing of government activities related to Civil Construction continue to increase.

A number of general or broadly based peak employer and industry associations and a group of more narrowly focussed associations represent those employed in the industry. They include:

- Association of Consulting Engineers Australian (ACEA)
- Australian Asphalt Pavement Association (AAPA)
- Australian Contractors Association (ACA)
- Australian Stabilisation Industry Association (AustStab)
- Cement Concrete & Aggregates Australia (CCAA)
- Civil Contractors Federation (CCF)

- Demolition and Contractors Association
- Institute of Public Works and Engineers (IPWEA)
- Australian Local Government Association (ALGA)
- National Association of Women in Construction (NAWIC)

In general, the Australian Contractors Association covers the larger commercial interests and the Civil Contractors Federation covers a broad range of small, medium and large enterprises. Union representation and coverage is provided, in the main, by the Construction, Forestry, Mining and Energy Union (CFMEU) and the Australian Workers Union (AWU).

Qualifications Framework

The Australian Qualifications Framework

What is the Australian Qualifications Framework?

A brief overview of the Australian Qualifications Framework (AQF) follows. For a full explanation of the AQF see the *AQF Implementation Handbook, 3rd Edition 2002*. You can download it from the Australian Qualifications- Framework Advisory Board (AQFAB) website (www.aqf.edu.au) or obtain a hard copy by contacting AQFAB on phone 03 9639 1606 or by emailing AQFAB on aqfab@curriculum.edu.au

The AQF provides a comprehensive, nationally consistent framework for all qualifications in post-compulsory education and training in Australia. In the Vocational Education and Training (VET) sector it assists national consistency for all trainees, learners, employers and providers by enabling national recognition of qualifications and Statements of Attainment.

Training Package qualifications in the VET sector must comply with the titles and guidelines of the AQF. Endorsed Training Packages provide a unique title for each AQF qualification which must always be reproduced accurately.

Qualifications

Training Packages can incorporate the following six AQF qualifications:

- Certificate I in ...
- Certificate II in ...
- Certificate III in ...
- Certificate IV in ...
- Diploma of ...
- Advanced Diploma of ...

Graduate Certificates and Graduate Diplomas can also be awarded in the vocational education and training sector under certain conditions — see the *AQF Implementation Handbook* for details.

On completion of the requirements defined in the Training Package, a Registered Training Organisation (RTO) may issue a nationally recognised AQF qualification. The issuing of AQF qualifications must comply with the advice provided in the *AQF Implementation Handbook* and the Australian Quality Training Framework *Standards for Registered Training Organisations*, particularly Standard 10.

Statement of Attainment

Where an AQF qualification is partially achieved through the achievement of one or more endorsed Units of Competency, an RTO may issue a Statement of Attainment. The issuing of Statements of Attainment must comply with the advice provided in the *AQF Implementation Handbook* and the Australian Quality Training Framework *Standards for Registered Training Organisations*, particularly Standard 10.

Under the *Standards for Registered Training Organisations*, RTOs must recognise the achievement of competencies as recorded on a qualification or Statement of Attainment issued by other RTOs. Given this, recognised competencies can build towards a full AQF qualification.

AQF Guidelines and Learning Outcomes

The *AQF Implementation Handbook* provides a comprehensive guideline for each AQF qualification. A summary of the learning outcome characteristics and their distinguishing features for each VET related AQF qualification is provided below.

Certificate I

Characteristics of Learning Outcomes

Breadth, depth and complexity of knowledge and skills would prepare a person to perform a defined range of activities most of which may be routine and predictable.

Applications may include a variety of employment related skills including preparatory access and participation skills, broad-based induction skills and/or specific workplace skills. They may also include participation in a team or work group.

Distinguishing Features of Learning Outcomes

Do the competencies enable an individual with this qualification to:

- demonstrate knowledge by recall in a narrow range of areas
- demonstrate basic practical skills, such as the use of relevant tools
- perform a sequence of routine tasks given clear direction
- receive and pass on messages/information.

Certificate II

Characteristics of Learning Outcomes

Breadth, depth and complexity of knowledge and skills would prepare a person to perform a range of varied activities or knowledge applications where there is a clearly defined range of contexts in which the choice of actions required is usually clear and there is limited complexity in the range of operations to be applied.

Performance of a prescribed range of functions involving known routines and procedures and some accountability for the quality of outcomes.

Applications may include some complex or non-routine activities involving individual responsibility or autonomy and/or collaboration with others as part of a group or team.

Distinguishing Features of Learning Outcomes

Do the competencies enable an individual with this qualification to:

- demonstrate basic operational knowledge in a moderate range of areas
- apply a defined range of skills
- apply known solutions to a limited range of predictable problems
- perform a range of tasks where choice between a limited range of options is required
- assess and record information from varied sources
- take limited responsibility for own outputs in work and learning.

Certificate III

Characteristics of Learning Outcomes

Breadth, depth and complexity of knowledge and competencies would cover selecting, adapting and transferring skills and knowledge to new environments and providing technical advice and some leadership in resolution of specified problems. This would be applied across a range of roles in a variety of contexts with some complexity in the extent and choice of options available.

Performance of a defined range of skilled operations, usually within a range of broader related activities involving known routines, methods and procedures, where some discretion and judgement is required in the selection of equipment, services or contingency measures and within known time constraints.

Applications may involve some responsibility for others. Participation in teams including group or team coordination may be involved.

Distinguishing Features of Learning Outcomes

Do the competencies enable an individual with this qualification to:

- demonstrate some relevant theoretical knowledge
- apply a range of well developed skills
- apply known solutions to a variety of predictable problems
- perform processes that require a range of well developed skills where some discretion and judgement is required
- interpret available information, using discretion and judgement
- take responsibility for own outputs in work and learning
- take limited responsibility for the output of others.

Certificate IV

Characteristics of Learning Outcomes

Breadth, depth and complexity of knowledge and competencies would cover a broad range of varied activities or application in a wider variety of contexts most of which are complex and non-routine. Leadership and guidance are involved when organising activities of self and others as well as contributing to technical solutions of a non-routine or contingency nature.

Performance of a broad range of skilled applications, including the ability to evaluate and analyse current practices, develop new criteria and procedures for performing current practices and provide some leadership and guidance to others in the application and planning of the skills.

Applications involve responsibility for, and limited organisation of, others.

Distinguishing Features of Learning Outcomes

Do the competencies enable an individual with this qualification to:

- demonstrate understanding of a broad knowledge base incorporating some theoretical concepts
- apply solutions to a defined range of unpredictable problems
- identify and apply skill and knowledge areas to a wide variety of contexts, with depth in some areas
- identify, analyse and evaluate information from a variety of sources
- take responsibility for own outputs in relation to specified quality standards
- take limited responsibility for the quantity and quality of the output of others.

Diploma

Characteristics of Learning Outcomes

Breadth, depth and complexity covering planning and initiation of alternative approaches to skills or knowledge applications across a broad range of technical and/or management requirements, evaluation and coordination.

The self directed application of knowledge and skills, with substantial depth in some areas where judgement is required in planning and selecting appropriate equipment, services and techniques for self and others.

Applications involve participation in development of strategic initiatives as well as personal responsibility and autonomy in performing complex technical operations or organising others. It may include participation in teams including teams concerned with planning and evaluation functions. Group or team coordination may be involved.

The degree of emphasis on breadth as against depth of knowledge and skills may vary between qualifications granted at this level.

Distinguishing Features of Learning Outcomes

Do the competencies or learning outcomes enable an individual with this qualification to:

- demonstrate understanding of a broad knowledge base incorporating theoretical concepts, with substantial depth in some areas
- analyse and plan approaches to technical problems or management requirements
- transfer and apply theoretical concepts and/or technical or creative skills to a range of situations
- evaluate information, using it to forecast for planning or research purposes
- take responsibility for own outputs in relation to broad quantity and quality parameters
- take some responsibility for the achievement of group outcomes.

Advanced Diploma

Characteristics of Learning Outcomes

Breadth, depth and complexity involving analysis, design, planning, execution and evaluation across a range of technical and/or management functions including development of new criteria or applications or knowledge or procedures.

The application of a significant range of fundamental principles and complex techniques is required across a wide and often unpredictable variety of contexts in relation to either varied or highly specific functions. Contribution to the development of a broad plan, budget or strategy is involved and accountability and responsibility for self and others in achieving the outcomes.

Applications involve significant judgement in planning, design, technical or leadership/guidance functions related to products, services, operations or procedures.

The degree of emphasis on breadth as against depth of knowledge and skills may vary between qualifications granted at this level.

Distinguishing Features of Learning Outcomes

Do the competencies or learning outcomes enable an individual with this qualification to:

- demonstrate understanding of specialised knowledge with depth in some areas
- analyse, diagnose, design and execute judgements across a broad range of technical or management functions
- generate ideas through the analysis of information and concepts at an abstract level
- demonstrate a command of wide-ranging, highly specialised technical, creative or conceptual skills
- demonstrate accountability for personal outputs within broad parameters
- demonstrate accountability for personal and group outcomes within broad parameters.

RII06 Qualification Titles

The RII06 Resources and Infrastructure Civil Construction Training Package offers the following titles for its AQF level 1, 4, 5 and 6 qualifications.

RII10106 Certificate I in Resource and Infrastructure Operations

RII40106 Certificate IV in Civil Construction Operations

RII40206 Certificate IV in Civil Construction Supervision

RII40306 Certificate IV in Civil Construction Design

RII50106 Diploma of Civil Construction Management

RII50206 Diploma of Civil Construction Design

RII60106 Advanced Diploma of Civil Construction Management

RII60206 Advanced Diploma of Civil Construction Design Management

The Training Package also provides the RII Competency Set for Leading Hand which articulates into the RII40206 Certificate IV in Civil Construction Supervision.

Civil Construction Qualification Pathways

The packaging and alignment of Units of Competency to form qualifications at Certificate I, Certificate IV, Diploma and Advanced Diploma is based on wide industry consultation. This consultation determined that qualifications within the civil construction industry should:

- reflect realities in terms of work organisation and job design
- reflect specific functional groupings and levels of work
- provide flexibility while meeting industry specificity
- allow for the import of a limited number of units from other endorsed Training Packages at any level
- ensure knowledge and skills which contribute to effective workplace performance are achieved
- allow qualifications to be customised to meet workplace needs.

The packaging of Units of Competency complements but does not infringe on the responsibilities and requirements of State and Territory Regulatory Authorities. An individual seeking a qualification for a position covered by State and Territory regulatory requirements should check with the relevant Act and Regulatory Authority, the employer and the RTO providing training and assessment, when selecting elective Units of Competency to complete the qualification.

The qualifications are achievable through a variety of pathways and training delivery and assessment options. Training and Assessment pathways may include

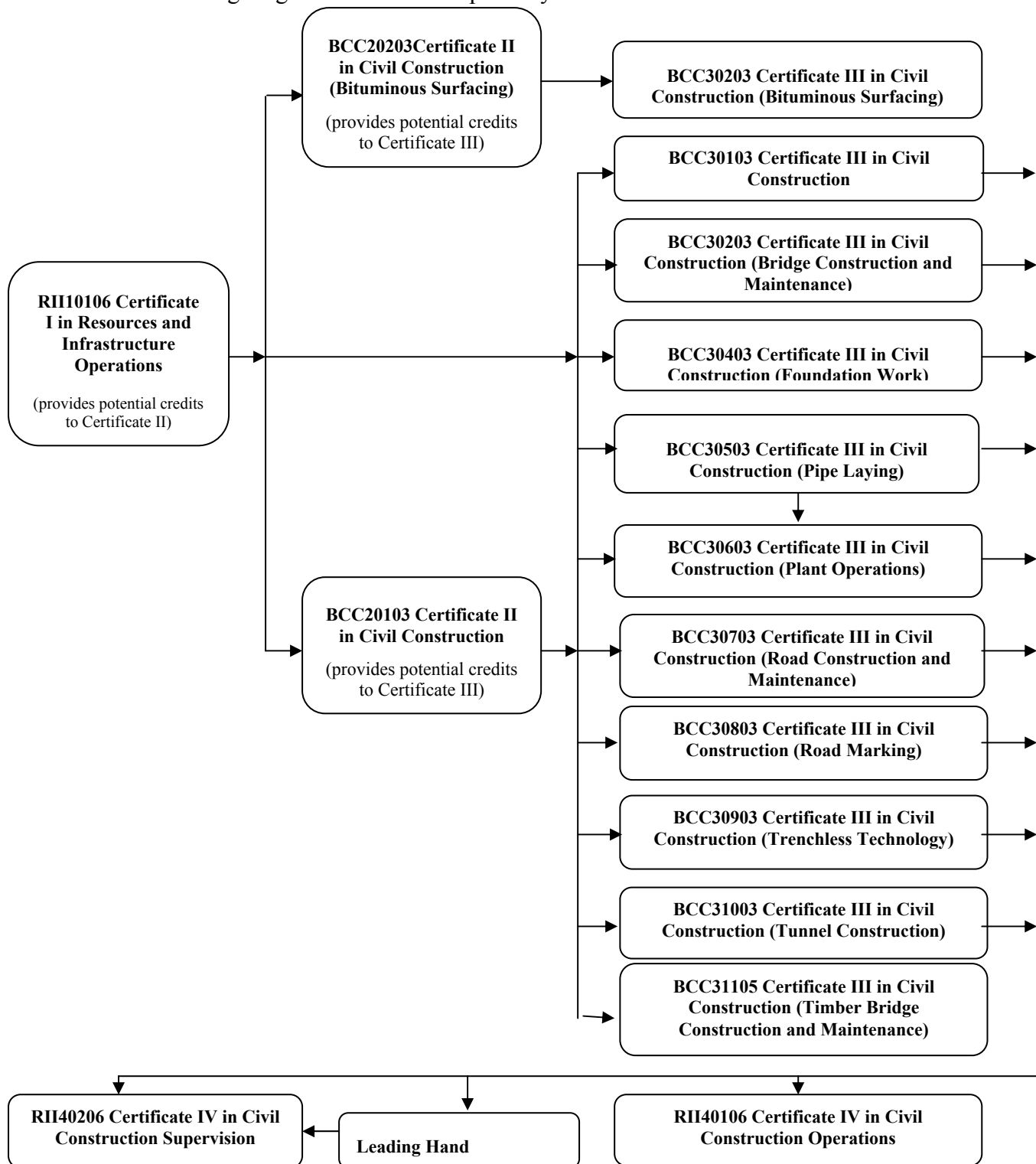
- work-based training and assessment
- a mixture of institution-based training and assessment combined with work-based training and assessment
- recognition of prior learning (RPL) and current competency.

Entry Level Pathway

The RII10106 Certificate I in Resources and Infrastructure Operations can serve as the basis of pre-employment training, VET in schools and as initial employment training for those entering the Civil Construction industry. This qualification is particularly relevant for Indigenous and other remote communities.

The Civil Construction Qualifications at Certificate IV, Diploma and Advanced Diploma are divided into two streams — General Operations and Design.

The following diagram illustrates the pathways from Certificate I to Certificate IV.



General Operations

The General Operations qualifications at AQF 4, 5 and 6 are:

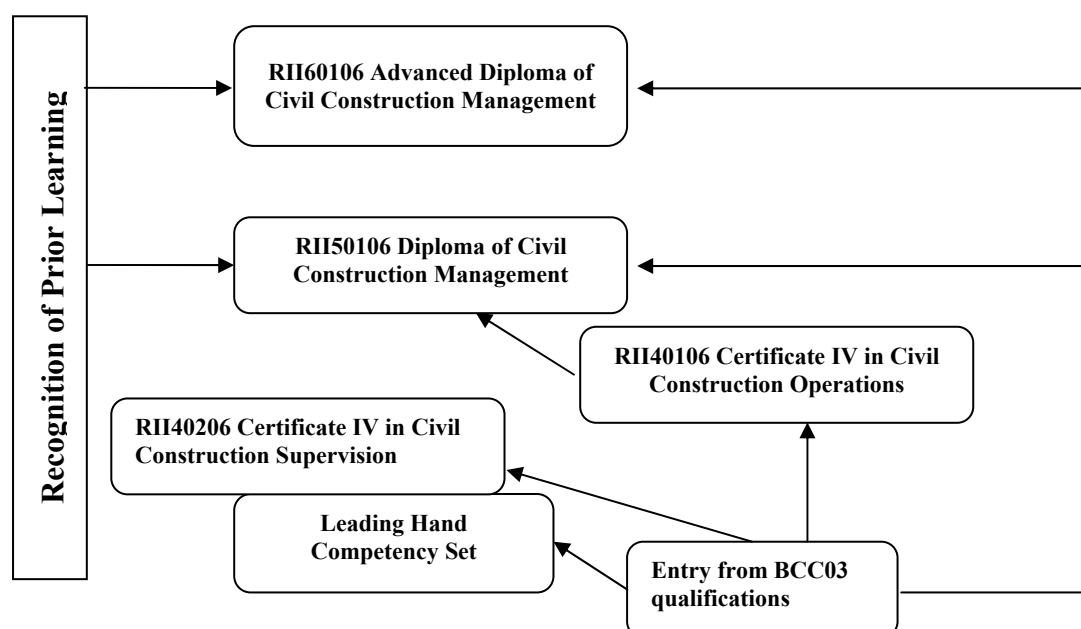
- RII40106 Certificate IV in Civil Construction Operations
- RII40206 Certificate IV in Civil Construction Supervision
- RII50106 Diploma of Civil Construction Management
- RII60106 Advanced Diploma of Civil Construction Management

The RII Competency Set identified for the specific job function of Leading Hand articulates into the RII40206 Certificate IV in Civil Construction Supervision. This Competency Set provides for the recognition of a qualified operator who takes on more responsibility and accountability within a team with limited supervision of others.

The General Operations qualifications utilise a core and elective model for packaging purposes with a group of mandatory Units of Competency plus electives. The electives include a number of units listed as electives in the qualification, as well as a specified number of units relevant to the job function which may be chosen from elsewhere in the Resources and Infrastructure Civil Construction Training Package, or from other endorsed Training Packages at any level.

There is external entry to the Certificate IV qualifications in this Training Package or entry from any of the Certificate III qualifications in BCC03.

The following diagram illustrates the pathways to achieve the AQF level 4, 5 and 6 General Operations qualifications.



Design

The Design stream qualifications are:

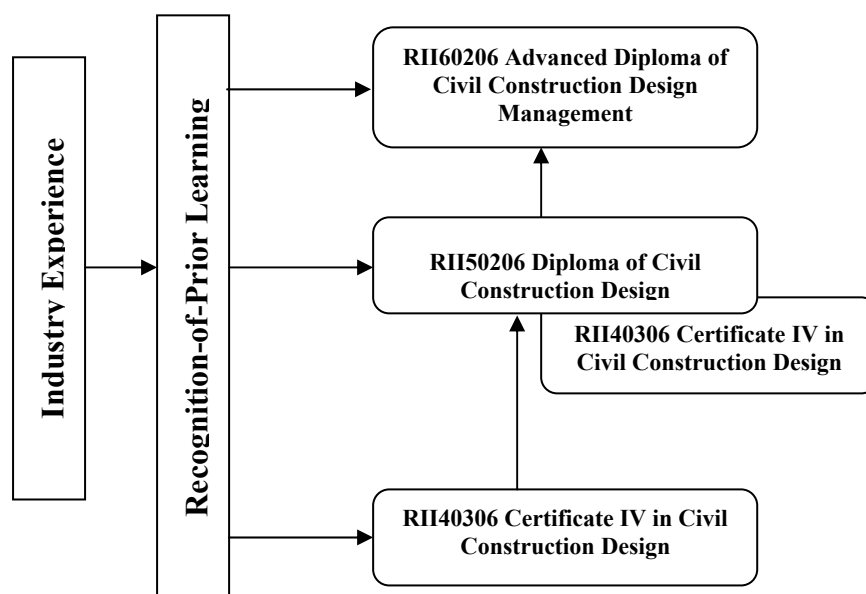
- RII40306 Certificate IV in Civil Construction Design
- RII50206 Diploma of Civil Construction Design

- RII60206 Advanced Diploma of Civil Construction Design Management

There is external entry into the Certificate IV in Civil Construction Design. The Certificate IV in Civil Construction Design is embedded in the Diploma of Civil Construction Design.

The Advanced Diploma of Civil Construction Design Management is structured with a group of mandatory Units of Competency plus electives of which a specified number of units relevant to the job function may be chosen from elsewhere in the Resources and Infrastructure Civil Construction Training Package, or from other endorsed Training Package at any level.

The following diagram illustrates the pathways to achieve the Design qualifications.



Customisation of Qualifications

It is possible to provide customised training that is tailored to the needs of specific workplaces. The opportunity for customisation of Civil Construction qualifications has been provided through mandatory and elective Units of Competency in each qualification. The mandatory units provide national consistency in core knowledge and skills. The elective units provide the flexibility required by different enterprises and/or training situations. Each qualification has a wide range of electives from which to choose, to meet specific work requirements.

All qualifications provide the option to select a small number of elective units, relevant to the job function, from elsewhere in the Resources and Infrastructure Civil Construction Training Package, or from other endorsed Training Packages. This allows for the situation where a candidate's range of work functions may include the mandatory and core functions in the Civil Construction industry but also require specialist functions performed in other industries not included in this Training Package. The requirement for the selection of units from other endorsed Training Packages is specified in each qualification.

Any customisation of Civil Construction industry qualifications must ensure quality outcomes and preserve the integrity of the qualification. This means that the following principles should be followed.

Selecting Elective Units of Competency

The qualifications within this Training Package may be customised by selecting elective units to suit the candidate's individual needs or work context, and a number of elective units have already been imported from other Training Packages. The elective units listed provide for skills development in a variety of Civil Construction environments. These units should be contextualised for the Civil Construction Industry.

Importing Elective Units from other Training Packages

The qualifications allow for Units of Competency relevant to the job function to be imported from other Training Packages. The imported Units of Competency selected should be directly relevant to the candidate's current or intended Civil Construction job function. The following rules apply when importing Units of Competency:

- the imported Units of Competency must relate to the core function or role of the candidate's current or intended work environment
- the original title and code of the imported unit must be retained
- imported units must be selected from an endorsed Training Package and not be modules from training programs
- all prerequisites specified in the imported Units of Competency must be complied with, but cannot be counted as electives in the Resources and Infrastructure Civil Construction Training Package qualification
- advice should be sought from the relevant State/Territory Training Authority to determine whether there is a requirement for an extension to the RTO's scope of registration in relation to the imported units.

New Apprenticeship Pathways

New Apprenticeship pathways applicable in the Resources and Infrastructure Civil Construction Training Package are:

- RII10106 Certificate 1 in Resources and Infrastructure Operations
- RII40106 Certificate IV in Civil Construction Operations
- RII40206 Certificate IV in Civil Construction Supervision
- RII40306 Certificate IV in Civil Construction Design

All qualifications may be gained through a New Apprenticeship pathway if approved by the relevant State Training Authority. Traineeships and apprenticeships are determined at a State and Territory level.

Employability Skills

Employability Skills replacing Key Competency information from 2006

In May 2005, the approach to incorporate Employability Skills within Training Package qualifications and units of competency was endorsed. As a result, from 2006 Employability Skills will progressively replace Key Competency information in Training Packages.

Background to Employability Skills

Employability Skills are also sometimes referred to as generic skills, capabilities or Key Competencies. The Employability Skills discussed here build on the Mayer Committee's Key Competencies, which were developed in 1992 and attempted to describe generic competencies for effective participation in work.

The Business Council of Australia (BCA) and the Australian Chamber of Commerce and Industry (ACCI), produced the *Employability Skills for the Future* report in 2002 in consultation with other peak employer bodies and with funding provided by the Department of Education, Science and Training (DEST) and the Australian National Training Authority (ANTA). Officially released by Dr Nelson (Minister for Education, Science and Training) on 23 May 2002, copies of the report are available from the DEST website at:

http://www.dest.gov.au/archive/ty/publications/employability_skills/index.htm.

The report indicated that business and industry now require a broader range of skills than the Mayer Key Competencies Framework and featured an Employability Skills Framework identifying eight Employability Skills¹:

- communication
- teamwork
- problem solving
- initiative and enterprise
- planning and organising
- self-management
- learning
- technology.

The report demonstrated how Employability Skills can be further described for particular occupational and industry contexts by sets of facets. The facets listed in the report are the aspects of the Employability Skills that the sample of employers surveyed identified as being important work skills. These facets were seen by employers as being dependent both in their nature and priority on an enterprise's business activity.

Employability Skills Framework

The following table contains the Employability Skills facets identified in the report *Employability Skills for the Future*.

¹ Personal attributes that contribute to employability were also identified in the report but are not part of the Employability Skills Framework.

Skill	Facets Aspects of the skill that employers identify as important. The nature and application of these facets will vary depending on industry and job type.
Communication that contributes to productive and harmonious relations across employees and customers	<ul style="list-style-type: none"> • listening and understanding • speaking clearly and directly • writing to the needs of the audience • negotiating responsively • reading independently • empathising • using numeracy effectively • understanding the needs of internal and external customers • persuading effectively • establishing and using networks • being assertive • sharing information • speaking and writing in languages other than English
Teamwork that contributes to productive working relationships and outcomes	<ul style="list-style-type: none"> • working across different ages irrespective of gender, race, religion or political persuasion • working as an individual and as a member of a team • knowing how to define a role as part of the team • applying teamwork to a range of situations e.g. futures planning and crisis problem solving • identifying the strengths of team members • coaching and mentoring skills, including giving feedback
Problem solving that contributes to productive outcomes	<ul style="list-style-type: none"> • developing creative, innovative and practical solutions • showing independence and initiative in identifying and solving problems • solving problems in teams • applying a range of strategies to problem solving • using mathematics, including budgeting and financial management to solve problems • applying problem-solving strategies across a range of areas • testing assumptions, taking into account the context of data and circumstances • resolving customer concerns in relation to complex project issues
Initiative and enterprise that contribute to innovative outcomes	<ul style="list-style-type: none"> • adapting to new situations • developing a strategic, creative and long-term vision • being creative • identifying opportunities not obvious to others • translating ideas into action • generating a range of options • initiating innovative solutions

Skill	Facets Aspects of the skill that employers identify as important. The nature and application of these facets will vary depending on industry and job type.
Planning and organising that contribute to long and short-term strategic planning	<ul style="list-style-type: none"> • managing time and priorities – setting time lines, coordinating tasks for self and with others • being resourceful • taking initiative and making decisions • adapting resource allocations to cope with contingencies • establishing clear project goals and deliverables • allocating people and other resources to tasks • planning the use of resources, including time management • participating in continuous improvement and planning processes • developing a vision and a proactive plan to accompany it • predicting – weighing up risk, evaluating alternatives and applying evaluation criteria • collecting, analysing and organising information • understanding basic business systems and their relationships
Self-management that contributes to employee satisfaction and growth	<ul style="list-style-type: none"> • having a personal vision and goals • evaluating and monitoring own performance • having knowledge and confidence in own ideas and visions • articulating own ideas and visions • taking responsibility
Learning that contributes to ongoing improvement and expansion in employee and company operations and outcomes	<ul style="list-style-type: none"> • managing own learning • contributing to the learning community at the workplace • using a range of mediums to learn – mentoring, peer support and networking, IT and courses • applying learning to technical issues (e.g. learning about products) and people issues (e.g. interpersonal and cultural aspects of work) • having enthusiasm for ongoing learning • being willing to learn in any setting – on and off the job • being open to new ideas and techniques • being prepared to invest time and effort in learning new skills • acknowledging the need to learn in order to accommodate change
Technology that contributes to the effective carrying out of tasks	<ul style="list-style-type: none"> • having a range of basic IT skills • applying IT as a management tool • using IT to organise data • being willing to learn new IT skills • having the OHS knowledge to apply technology • having the appropriate physical capacity

Employability Skills Summary

An Employability Skills Summary exists for each qualification. Summaries provide a lens through which to view Employability Skills at the qualification level and capture the key aspects or facets of the Employability Skills that are important to the job roles covered by the qualification. Summaries are designed to assist trainers and assessors to identify and include important industry application of Employability Skills in learning and assessment strategies.

The following is important information for trainers and assessors about Employability Skills Summaries.

- Employability Skills Summaries provide examples of how each skill is applicable to the job roles covered by the qualification.
- Employability Skills Summaries contain general information about industry context which is further explained as measurable outcomes of performance in the units of competency in each qualification.
- The detail in each Employability Skills Summary will vary depending on the range of job roles covered by the qualification in question.
- Employability Skills Summaries are not exhaustive lists of qualification requirements or checklists of performance (which are separate assessment tools that should be designed by trainers and assessors after analysis at the unit level).
- Employability Skills Summaries contain information that may also assist in building learners' understanding of industry and workplace expectations.

Packaging Rules for RII06 Qualifications

Competency Set for Leading Hand/Team Leader

The consultations carried out when developing RII06 have indicated that an accurate description of a Leading Hand/Team Leader is that of a qualified operator who takes on more responsibility and accountability within a team with limited supervision of others. The knowledge and skill required by a Leading Hand/Team Leader, for equipment/plant applications is consistent with a Certificate III in Civil Construction from the BCC03 Training Package but still requires additional people management knowledge and skill to cover the range of required duties. The Competency Set identifies 6 Units of Competency that would assist the Leading Hand/Team Leader fulfil a more responsible role within a team with limited supervision of others.

Once achieved, these following Units of Competency could contribute to a full Certificate IV in Civil Construction.

BSBFLM403B	Implement effective workplace relationships
BSBCMN402A	Develop work priorities
BSBCMN411A	Monitor a safe workplace
BSBCMN413A	Implement and monitor environmental policies
MNQGEN300A	Apply risk management processes
MNQGEN401A	Apply site statutory compliance management plan

RII10106 Certificate I in Resources and Infrastructure Operations

Characteristics of the Qualification

Descriptor The Certificate I in Resources and Infrastructure Operations reflects the role of entry level employees in operations within the Resources and Infrastructure industry sectors, who perform a defined range of activities, most of which may be routine and predictable. They would work as part of a team and demonstrate broad-based induction skills and/or specific workplace skills.

Requirements Successful completion of six (6) Units of Competency made up of:

- four (4) mandatory Units of Competency
- two (2) elective units to be completed from the specified units listed.

Note:

Achievement of the Certificate I in Resources and Infrastructure Operations may contribute to the Certificate II or Certificate III qualifications in the RIISC Training Packages.

RII10106 Certificate I in Resources and Infrastructure Operations Completion of 6 Units of Competency		
Mandatory units — 4 units to be completed	RIIG001A	Work safely and follow OH&S policies and procedures
	RIIG002A	Communicate in the workplace
	RIIG003A	Contribute to quality work outcomes
	BSBCMN215A	Participate in environmental work practices
Elective units — 2 units to be completed	<i>Elective units — 2 units from this group</i>	
	RIIG004A	Conduct local risk control
	RIIG005A	Read and interpret maps
	RIIG006A	Collect and prepare samples
	RIIG2001A	Plan and organise work
	RIIG2002A	Carry out measurements and calculations
	RIIG2003A	Use hand and power tools
	RIIG2004A	Operate small plant and equipment
	RIIG2005A	Operate light vehicles
	RIIG2006A	Handle resources and infrastructure materials and safely dispose of non toxic materials
	RIIG2007A	Read and interpret plans and specifications
	HLTFA1A	Apply basic First Aid
	ICAITU128A	Operate personal computer

Suggested Elective Bank for Industry Training Programs

The following elective bank for industry training programs is suggested in each sector of the Resource and Infrastructure industry for the Certificate I in Resources and Infrastructure Operations.

RII10106 Certificate I in Resources and Infrastructure Operations		Metalliferous	Coal	Extractive	Drilling	Drilling Oil and Gas	Civil Construction
RIIG001A	Work safely and follow OH&S policies and procedures	M	M	M	M	M	M
RIIG002A	Communicate in the workplace	M	M	M	M	M	M
RIIG003A	Contribute to quality work outcomes	M	M	M	M	M	M
BSBCM215A	Participate in environmental work practices	M	M	M	M	M	M
Elective units							
RIIG004A	Conduct local risk control	√	√	√	√	√	√
RIIG005A	Read and interpret maps	√	√	√	√	√	√
RIIG006A	Collect and prepare samples	√	√	√	√	√	√
RIIG2001A	Plan and organise work	√	√	√	√	√	√
RIIG2002A	Carry out measurements and calculations						√
RIIG2003A	Use hand and power tools						√
RIIG2004A	Operate small plant and equipment	√	√	√	√	√	√
RIIG2005A	Operate light vehicles	√	√	√	√	√	
RIIG2006A	Handle resources and infrastructure materials and safely dispose of non toxic materials						√
RIIG2007A	Read and interpret plans and specifications						√
HLTFA1A	Apply basic First Aid	√	√	√	√	√	
ICAITU128A	Operate personal computer	√	√	√			

Note: In the table ‘M’ indicates the mandatory units and the tick ‘√’ shows elective units suitable for the particular industry sector.

Relationship between RII Certificate I Units and Existing Endorsed Units of Competency

New RII units	Equivalent units from other Resources and Infrastructure Industry Skills Council Training Packages				
	Civil Construction	Drilling	Coal	Metalliferous	Extractive
RIIG001A Work safely and follow OHS policies and procedures	BCCCM1001B Follow OH&S policies and procedures <i>Apply basic fire fighting techniques is an element</i>	DRTNHB01A Follow workplace health, safety and environment procedures <i>Critical aspects of evidence include compliance with access requirements and with environmental and heritage policies and procedure. Control/extinguish fire if appropriate is a PC under the element Respond to an emergency</i>	MNCC1001A Work safely <i>Critical aspects of evidence include applying basic fire fighting techniques</i>	MNMC201A Work safely <i>Applying basic fire fighting techniques is a PC under the element Apply emergency procedures</i>	MNQGEN210A Work safely <i>Critical aspects of evidence include applying basic fire fighting techniques</i>
RIIG002A Communicate in the workplace	BCCCM1002B Conduct workplace communication	N/A	MNCC1007A Communicate in the workplace	MNMC202A Communicate in the workplace	MNQGEN240A Communicate in the workplace
RIIG003A Contribute to quality work outcomes	N/A	N/A	MNCC1005A Comply with site work systems/procedures	MNMC203A Contribute to quality work outcomes	MNQGEN230A Contribute to site quality outcomes
RIIG004A Conduct local risk control	N/A	N/A	MNCC1006A Conduct local risk assessment	MNMC205A Conduct local risk assessment	MNQGEN200A Conduct local risk control
RIIG005A Read and interpret maps	N/A	N/A	N/A	N/A	N/A
RIIG006A Collect and prepare samples	N/A	N/A	N/A	MNMEGS204A Collect and prepare samples	N/A
RIIG2001A Plan and organise work	BCCCM1003B Plan and organise work	N/A	N/A	MNMG203A Plan and organise individual work	N/A
RIIG2002A Carry out measurements and calculations	BCCCM1004B Carry out measurements and calculations	N/A	N/A	N/A	N/A

New RII units	Equivalent units from other Resources and Infrastructure Industry Skills Council Training Packages				
	Civil Construction	Drilling	Coal	Metalliferous	Extractive
RIIG2003A Use hand and power tools	BCCCM2001B Use civil construction hand and power tools	N/A	MNCG1035A Apply operational maintenance skills	MNMG215A Apply operational maintenance skills	N/A
RIIG2004A Operate small plant and equipment	BCCCM2002B Use small plant and equipment	N/A	MNCG1060A Operate support equipment	N/A	N/A
RIIG2005A Operate light vehicles			MNCG1061A Operate light vehicle	MNMOMS207A Operate light vehicle	
RIIG2006A Handle resources and infrastructure materials and safely dispose of non toxic materials	BCCCM1005B Handle construction materials and safely dispose of non-toxic materials				
RIIG2007A Read and interpret plans and specifications	BCCCM2003B Read and interpret plans and specifications				

NOTE:

Units in the shaded column on the left represent the new RIISC units. The units in columns to the right of each unit are equivalent units. Where an individual has already attained one of these equivalent units, they should be granted Credit Transfer or equivalence with the related RIIG unit. In all other instances, where there is direct equivalence, students who have achieved the RII units should be granted credit with the related unit(s) when undertaking additional programs.

RII40106 Certificate IV in Civil Construction Operations

Characteristics of the Qualification

Descriptor The Certificate IV in Civil Construction Operations reflects the role of specialist civil construction personnel who perform technical specialist tasks involving a broad range of varied activities most of which can be complex and non-routine. They are responsible for applying the site work instructions and practices to ensure the quantity and quality of their outputs and contribute to the development of technical solutions to non-routine problems.

Requirements Successful completion of twelve (12) Units of Competency made up of:

- four (4) mandatory Units of Competency
- eight (8) elective units to be completed made up of:
 - a minimum of two (2) units from the specified Civil Construction General Operations units listed
 - a minimum of four (4) units from the specified Civil Construction Technical Specialist units listed
 - a maximum of one (1) unit, relevant to the job function, drawn from elsewhere in the Resources and Infrastructure Civil Construction Training Package or other endorsed Training Packages at any level

Shotfiring

The Units of Competency relating to shotfiring currently exist in the Extractive Industries Training Package (MNQ03). These units are considered as appropriate in the Resources and Infrastructure Civil Construction Training Package and are therefore included. However to be designated/appointed under any statutory requirements as a shotfirer, Units of Competency should be demonstrated to meet the State/Territory licensing requirements. State/Territory licensing requirements need to be confirmed by the Registered Training Organisation delivering and/or assessing the competency.

RII40106 Certificate IV in Civil Construction Operations Completion of 12 Units of Competency		
Mandatory units — 4 units to be completed	MNQGEN430A	Apply site quality plan
	MNQGEN300A	Apply risk management processes
	BSBCMN411A	Monitor a safe workplace
	BSBCMN413A	Implement and monitor environmental policies
Elective units — 8 units to be completed including: a minimum of 2 from the General Operations units a minimum of 4 from the Technical Specialist units a maximum of one (1) unit, relevant to the job function, drawn from elsewhere in the Resources and Infrastructure Civil Construction Training Package or other endorsed Training Packages at any level.	<i>General Operations units — a minimum of 2 units from this group</i>	
	RIICC402A	Supervise civil works contractors
	MNQGEN401A	Apply site statutory compliance management plan
	MNQGEN340A	Communicate information
	MNQGEN403A	Foster positive community relations
	BSBFLM405B	Implement operational plan
	BSBFLM409B	Implement continuous improvement
	<i>Technical Specialist units — a minimum of 4 units from the following groups</i>	
	Technical Specialist Pavement Construction and Maintenance	
	RIICC404A	Apply the principles of flexible pavement construction
	RIICC405A	Apply the principles of rigid pavement construction
	RIICC406A	Apply the principles of the stabilisation of materials
	RIICC407A	Apply the principles for asphalt paving and compaction
	RIICC408A	Apply the principles for the application of bituminous sprayed treatments
	RIICC409A	Apply the principles for the selection and use of polymer modified binder
	RIICC410A	Apply the principles for the selection and use of bituminous emulsion
	RIICC411A	Apply the principles for the application of slurry surfacing
	RIICC412A	Apply the principles of pavement profiling using a profiler
	RIICC413A	Apply the principles for the manufacture and delivery of hot mix asphalt
	RIICC414A	Apply the principles for the manufacture of cold mix
	RIICC415A	Apply the principles for the manufacture of polymer modified binder
	RIICC416A	Apply the principles for the manufacture of bituminous emulsion
	RIICC417A	Apply the principles of the manufacture of slurry surfacing
	RIICC418A	Inspect and report on pavement condition

	RIICC419A	Carry out pavement condition measurement
	RIICC420A	Apply the principles of pavement maintenance
	RIICC525A	Select pavement surfacing

<i>Technical Specialist Underground Construction</i>	
RIICC421A	Apply the principles for the installation of underground service using open excavation
RIICC422A	Apply the principles for the installation of underground service using trenchless technology
RIICC424A	Apply the principles of tunnel construction
<i>Technical Specialist Civil Structures Construction and Maintenance</i>	
RIICC403A	Apply the principles of earthworks construction
RIICC425A	Apply the principles of civil concrete structures construction
RIICC426A	Apply the principles of civil steel structures construction
RIICC427A	Apply the principles of civil timber structures construction
RIICC428A	Apply the principles of civil masonry, crib and gabion structure construction
RIICC429A	Carry out inspections of civil structures
RIICC430A	Apply the principles of maintenance of civil structures
RIICC431A	Apply the principles of canal construction
RIICC432A	Apply the principles of demolitions
<i>Technical Specialist Construction and Maintenance Project Planning and Maintenance</i>	
LGAWORK401A	Develop works maintenance schedule
LGAWORK402A	Prepare for operational works
LGAWORK403A	Manage civil plant and resources
<i>Technical Specialist Contract Management</i>	
LGACOM401A	Administer contracts
LGACOM402A	Arrange contracts
LGACOM409A	Prepare tender documentation
LGACOM410A	Prepare response to tenders
BSBPM408A	Apply contract and procurement techniques
<i>Technical Specialist Construction Materials and Geotechnical Services</i>	
PMLSAMP302A	Receive and prepare samples for testing
PMLSAMP400B	Obtain representative samples in accordance with sampling plan
PMLTEST402B	Prepare, standardise and use solutions
PMLTEST403B	Assist with geological site investigations
PMLTEST404A	Perform chemical tests and procedures
PMLTEST406A	Perform physical tests

	PMLTEST411A	Perform mechanical tests
	PMLTEST300B	Perform basic tests
	PMLTEST303B	Prepare working solutions
	PMLTEST307B	Prepare trial batches for evaluation
	PMLDATA400A	Process and interpret data
	<i>Surface Drilling and Blasting</i>	
	MNQOPS413A	Conduct shotfiring

NOTE: RTOs must ensure that all prerequisites (specified within the Unit of Competency) are complied with for any Unit of Competency chosen as an elective from any other endorsed Training Package.

Suggested Elective Bank for Industry Training Programs

The following elective bank for industry training programs is suggested for specific areas within Civil Construction for the RII40106 Certificate IV in Civil Construction Operations.

RII40106 Certificate IV in Civil Construction Operations		Suggested Elective Bank for Industry Training Programs					
		Earthworks	Roads and Pavements	Underground Services	Civil Structures	Asphalt	Spray Seal
MNQGEN430A	Apply site quality plan	M	M	M	M	M	M
MNQGEN300A	Apply risk management processes	M	M	M	M	M	M
BSBCM411A	Monitor a safe workplace	M	M	M	M	M	M
BSBCM413A	Implement and monitor environmental policies	M	M	M	M	M	M
Elective units							
BSBFLM405B	Implement operational plan	√	√	√	√	√	√
BSBFLM409B	Implement continuous improvement	√	√	√	√	√	√
BSBPM408A	Apply contract and procurement techniques	√	√	√	√	√	√
LGACOM401A	Administer contracts	√	√	√	√	√	√
LGACOM402A	Arrange contracts	√	√	√	√	√	√
LGACOM409A	Prepare tender documentation	√	√	√	√	√	√
LGACOM410A	Prepare response to tenders	√	√	√	√	√	√
LGAWORK401A	Develop works maintenance schedule	√	√	√	√	√	√
LGAWORK402A	Prepare for operational works	√	√	√	√	√	√
LGAWORK403A	Manage civil plant and resources	√	√	√	√	√	√
MNQGEN340A	Communicate information	√	√	√	√	√	√
MNQGEN401A	Apply site statutory compliance management plan	√	√	√	√	√	√
MNQGEN403A	Foster positive community relations	√	√	√	√	√	√
MNQOPS413A	Conduct shot firing	√	√	√			
PMLDATA400A	Process and interpret data	√	√	√	√	√	√
PMLSAMP302A	Receive and prepare samples for testing	√	√	√	√	√	√
PMLSAMP400B	Obtain representative samples in accordance with sampling plan	√	√	√	√	√	√
PMLTEST300B	Perform basic tests	√	√	√	√	√	√
PMLTEST303B	Prepare working solutions	√	√	√	√	√	√

RII40106 Certificate IV in Civil Construction Operations		Suggested Elective Bank for Industry Training Programs					
		Earthworks	Roads and Pavements	Underground Services	Civil Structures	Asphalt	Spray Seal
PMLTEST307B	Prepare trial batches for evaluation	√	√	√	√	√	√
PMLTEST402B	Prepare, standardise and use solutions	√	√	√	√	√	√
PMLTEST403B	Assist with geological site investigations	√	√	√	√	√	√
PMLTEST404A	Perform chemical tests and procedures	√	√	√	√	√	√
PMLTEST406A	Perform physical tests	√	√	√	√	√	√
PMLTEST411A	Perform mechanical tests	√	√	√	√	√	√
RIICC402A	Supervise civil works contractors	√	√	√	√	√	√
RIICC403A	Apply the principles of earthworks construction	√	√				
RIICC404A	Apply the principles of flexible pavement construction		√			√	√
RIICC405A	Apply the principles of rigid pavement construction						
RIICC406A	Apply the principles of the stabilisation of materials	√	√				
RIICC407A	Apply the principles for asphalt paving and compaction		√			√	
RIICC408A	Apply the principles for the application of bituminous sprayed treatments		√				√
RIICC409A	Apply the principles for the selection and use of polymer modified binder				√		√
RIICC410A	Apply the principles for the selection and use of bituminous emulsion		√				√
RIICC411A	Apply the principles for the application of slurry surfacing						√
RIICC412A	Apply the principles of pavement profiling using a profiler		√			√	√
RIICC413A	Apply the principles for the manufacture and delivery of hot mix asphalt					√	
RIICC414A	Apply the principles for the manufacture of cold mix					√	
RIICC415A	Apply the principles for the manufacture of polymer modified binder					√	√
RIICC416A	Apply the principles for the manufacture of bituminous emulsion					√	√

RII40106 Certificate IV in Civil Construction Operations		Suggested Elective Bank for Industry Training Programs					
		Earthworks	Roads and Pavements	Underground Services	Civil Structures	Asphalt	Spray Seal
RIICC417A	Apply the principles of the manufacture of slurry surfacing					√	√
RIICC418A	Inspect and report on pavement condition		√			√	√
RIICC419A	Carry out pavement condition measurement		√			√	√
RIICC420A	Apply the principles of pavement maintenance		√			√	√
RIICC525A	Select pavement surfacing					√	√
RIICC421A	Apply the principles for the installation of underground service using open excavation			√			
RIICC422A	Apply the principles for the installation of underground service using trenchless technology			√			
RIICC423A	Apply the principles for the repair and rehabilitation of underground service using trenchless technology			√			
RIICC424A	Apply the principles of tunnel construction			√			
RIICC425A	Apply the principles of civil concrete structures construction				√		
RIICC426A	Apply the principles of civil steel structures construction				√		
RIICC427A	Apply the principles of civil timber structures construction				√		
RIICC428A	Apply the principles of civil masonry, crib and gabion structure construction				√		
RIICC429A	Carry out inspections of civil structures				√		
RIICC430A	Apply principles of maintenance of civil structures				√		
RIICC431A	Apply the principles of canal construction	√					
RIICC432A	Apply the principles of demolitions				√		
RIICC504A	Prepare civil works bills of quantities	√	√	√	√	√	√
RIICC505A	Prepare civil works schedule of rates	√	√	√	√	√	√

RII40106 Certificate IV in Civil Construction Operations		Suggested Elective Bank for Industry Training Programs					
		Earthworks	Roads and Pavements	Underground Services	Civil Structures	Asphalt	Spray Seal
RIICC506A	Prepare civil works cost estimates	√	√	√	√	√	√

NOTE:

In the table ‘M’ indicates all mandatory units and the tick ‘√’ shows elective units suggested as suitable for the particular industry sector.

RII40206 Certificate IV in Civil Construction Supervision

Characteristics of the Qualification

Descriptor The Certificate IV in Civil Construction Supervision reflects the role of employees in Civil Construction operations who may fulfil roles such as foreman, site supervisor or works supervisor where they are responsible for applying the site work instructions and practices to ensure the quantity and quality of the output of others. They perform tasks involving a broad range of varied activities most of which can be complex and non-routine and contribute to the development of technical solutions to non-routine problems.

Requirements Successful completion of twelve (12) Units of Competency made up of:

- five (5) mandatory Units of Competency
- seven (7) elective units to be completed made up of:
 - a minimum of two (2) units from the specified Civil Construction General Operations units listed
 - a minimum of two (2) units from the specified Civil Construction Technical Specialist units listed
 - a maximum of one (1) unit, relevant to the job function, drawn from elsewhere in the Resources and Infrastructure Civil Construction Training Package or other endorsed Training Packages at any level.

RII40206 Certificate IV in Civil Construction Supervision Completion of 12 Units of Competency		
Mandatory units — 5 units to be completed	RIICC401A	Supervise civil works
	BSBCM411A	Monitor a safe workplace
	BSBFLM405B	Implement operational plan
	BSBFLM412A	Promote team effectiveness
	MNQGEN400A	Apply site risk management system
Elective units — 7 units to be completed made up of: a minimum of 2 from the specified General Operations units	<i>General Operations — a minimum of 2 units from this group</i>	
	BCCCM3003B	Implement traffic management plan
	RIICC503A	Prepare work zone traffic management plans
	RIICC504A	Prepare civil works bills of quantities
	RIICC505A	Prepare civil works schedule of rates
	RIICC506A	Prepare civil works cost estimates
	MNQGEN300A	Apply risk management processes
	MNQGEN340A	Communicate information
	BSBCM402A	Develop work priorities
	BSBCM404A	Develop teams and individuals
	BSBCM408A	Report on financial activity
	BSBCM410A	Coordinate implementation of customer service strategies
	BSBCM412A	Promote innovation and change
	BSBCM413A	Implement and monitor environmental policies
	BSBCM419A	Manage projects
	BSBFLM403B	Implement effective workplace relationships
	BSBFLM406B	Implement workplace information system
	BSBFLM409B	Implement continuous improvement
	BSBSBM402A	Undertake financial planning
	BSBSBM403A	Promote the business
	BSBSBM404A	Undertake business planning
	BSBSBM406A	Manage finances
	BSBPM405A	Apply human resources management approaches
	MNMSU411A	Supervise work in confined space
	MNQGEN401A	Apply site statutory compliance management plan
	MNQGEN403A	Foster positive community relations
	MNQGEN404A	Supervise dust and noise control

	MNQGEN430A	Apply site quality plan
	MNQOPS403A	Apply site plant and resources management plan
	MNQOPS450A	Apply site plant, equipment and infrastructure maintenance management plan
	LGADMIN417A	Conduct community consultations
	LGAWORK403A	Manage civil plant and resources
a minimum of 2 from the specified Technical Specialist units a maximum of 1 unit, relevant to the job function, drawn from elsewhere in the RII Civil Construction Training Package or any other endorsed Training Package at any level.	<i>Technical Specialist units — a minimum of 2 units from this group</i>	
	<i>Technical Specialist Pavement Construction and Maintenance</i>	
	RIICC404A	Apply the principles of flexible pavement construction
	RIICC405A	Apply the principles of rigid pavement construction
	RIICC406A	Apply the principles of the stabilisation of materials
	RIICC407A	Apply the principles for asphalt paving and compaction
	RIICC408A	Apply the principles for the application of bituminous sprayed treatments
	RIICC409A	Apply the principles for the selection and use of polymer modified binder
	RIICC410A	Apply the principles for the selection and use of bituminous emulsion
	RIICC411A	Apply the principles for the application of slurry surfacing
	RIICC412A	Apply the principles of pavement profiling using a profiler
	RIICC413A	Apply the principles for the manufacture and delivery of hot mix asphalt
	RIICC414A	Apply the principles for the manufacture of cold mix
	RIICC415A	Apply the principles for the manufacture of polymer modified binder
	RIICC416A	Apply the principles for the manufacture of bituminous emulsion
	RIICC417A	Apply the principles of the manufacture of slurry surfacing
	RIICC418A	Inspect and report on pavement condition
	RIICC419A	Carry out pavement condition measurement
	RIICC420A	Apply the principles for pavement maintenance
	RIICC525A	Select pavement surfacing
	<i>Technical Specialist Underground Services</i>	
	RIICC421A	Apply the principles for the installation of underground service using open excavation
	RIICC422A	Apply the principles for the installation of underground service using trenchless technology

	RIICC423A	Apply the principles for the repair and rehabilitation of underground service using trenchless technology
	RIICC424A	Apply the principles of tunnel construction
	<i>Technical Specialist Civil Structures Construction and Maintenance</i>	
	RIICC403A	Apply the principles of earthworks construction
	RIICC425A	Apply the principles of civil concrete structures construction
	RIICC426A	Apply the principles of civil steel structures construction
	RIICC427A	Apply the principles of civil timber structures construction
	RIICC428A	Apply the principles of civil masonry, crib and gabion structure construction
	RIICC429A	Carry out inspections of civil structures
	RIICC430A	Apply the principles of maintenance of civil structures
	RIICC431A	Apply the principles of canal construction
	RIICC432A	Apply the principles of demolitions
	<i>Technical Specialist Construction and Maintenance Project Planning and Maintenance</i>	
	LGAWORK401A	Develop works maintenance schedule
	LGAWORK402A	Prepare for operational works
	<i>Technical Specialist Contract Management</i>	
	LGACOM401A	Administer contracts
	LGACOM402A	Arrange contracts
	LGACOM409A	Prepare tender documentation
	LGACOM410A	Prepare response to tenders
	BSBPM408A	Apply contract and procurement techniques
	<i>Technical Specialist Construction Materials and Geotechnical Services</i>	
	PMLSAMP302A	Receive and prepare samples for testing
	PMLSAMP400B	Obtain representative samples in accordance with sampling plan
	PMLTEST402B	Prepare, standardise and use solutions
	PMLTEST403B	Assist with geological site investigations
	PMLTEST404A	Perform chemical tests and procedures
	PMLTEST406A	Perform physical tests
	PMLTEST411A	Perform mechanical tests
	PMLTEST300B	Perform basic tests
	PMLTEST303B	Prepare working solutions
	PMLTEST307B	Prepare trial batches for evaluation

	PMLDATA400A	Process and interpret data
	<i>Surface Drilling and Blasting</i>	
	MNQOPS413A	Conduct shotfiring

NOTE:

RTOs must ensure that all prerequisites (specified within the Unit of Competency) are complied with for any Unit of Competency chosen as an elective from any other endorsed Training Package.

Suggested Elective Bank for Industry Training Programs

The following elective bank for industry training programs is suggested for specific areas within Civil Construction RII40206 Certificate IV in Civil Construction Supervision.

RII40206 Certificate IV in Civil Construction Supervision		Suggested Elective Bank for Industry Training Programs					
		Earthworks	Roads & Pavements	Underground Services	Civil Structures	Asphalt	Spray Seal
RIICC401A	Supervise civil works	M	M	M	M	M	M
BSBCM411A	Monitor a safe workplace	M	M	M	M	M	M
BSBFLM405B	Implement operational plan	M	M	M	M	M	M
BSBFLM412A	Promote team effectiveness	M	M	M	M	M	M
MNQGEN400A	Apply site risk management system	M	M	M	M	M	M
<i>Elective units</i>							
BCCCM3003B	Implement traffic management plan	√	√	√	√	√	√
BSBCM402A	Develop work priorities	√	√	√	√	√	√
BSBCM404A	Develop teams and individuals	√	√	√	√	√	√
BSBCM408A	Report on financial activity	√	√	√	√	√	√
BSBCM410A	Coordinate implementation of customer service strategies	√	√	√	√	√	√
BSBCM412A	Promote innovation and change	√	√	√	√	√	√
BSBCM413A	Implement and monitor environmental policies	√	√	√	√	√	√
BSBCM419A	Manage projects	√	√	√	√	√	√
BSBFLM403B	Implement effective workplace relationships	√	√	√	√	√	√
BSBFLM406B	Implement workplace information system	√	√	√	√	√	√
BSBFLM409B	Implement continuous improvement	√	√	√	√	√	√
BSBPM405A	Apply human resources management approaches	√	√	√	√	√	√
BSBPM408A	Apply contract and procurement techniques	√	√	√	√	√	√
BSBSBM402A	Undertake financial planning	√	√	√	√	√	√
BSBSBM403A	Promote the business	√	√	√	√	√	√
BSBSBM404A	Undertake business planning	√	√	√	√	√	√

RII40206 Certificate IV in Civil Construction Supervision		Suggested Elective Bank for Industry Training Programs					
		Earthworks	Roads & Pavements	Underground Services	Civil Structures	Asphalt	Spray Seal
BSBSBM406A	Manage finances	√	√	√	√	√	√
LGACOM401A	Administer contracts	√	√	√	√	√	√
LGACOM402A	Arrange contracts	√	√	√	√	√	√
LGACOM409A	Prepare tender documentation	√	√	√	√	√	√
LGACOM410A	Prepare response to tenders	√	√	√	√	√	√
LGADMIN417A	Conduct community consultations	√	√	√	√	√	√
LGAWORK401A	Develop works maintenance schedule	√	√	√	√	√	√
LGAWORK402A	Prepare for operational works	√	√	√	√	√	√
LGAWORK403A	Manage civil plant and resources	√	√	√	√	√	√
MNMMSU411A	Supervise work in confined space	√	√	√	√	√	√
MNQGEN300A	Apply risk management processes	√	√	√	√	√	√
MNQGEN340A	Communicate information	√	√	√	√	√	√
MNQGEN401A	Apply site statutory compliance management plan	√	√	√	√	√	√
MNQGEN403A	Foster positive community relations	√	√	√	√	√	√
MNQGEN404A	Supervise dust and noise control	√	√	√	√	√	√
MNQGEN430A	Apply site quality plan	√	√	√	√	√	√
MNQOPS403A	Apply site plant and resources management plan	√	√	√	√	√	√
MNQOPS413A	Conduct shot firing	√	√				
MNQOPS450A	Apply site plant, equipment and infrastructure maintenance management plan	√	√	√	√	√	√
PMLDATA400A	Process and interpret data	√	√	√	√	√	√
PMLDATA500B	Analyse data and report results	√	√	√	√	√	√
PMLSAMP302A	Receive and prepare samples for testing	√	√	√	√	√	√
PMLSAMP400B	Obtain representative samples in accordance with sampling plan	√	√	√	√	√	√
PMLTEST300B	Perform basic tests	√	√	√	√	√	√
PMLTEST303B	Prepare working solutions	√	√	√	√	√	√
PMLTEST307B	Prepare trial batches for evaluation	√	√	√	√	√	√
PMLTEST402B	Prepare, standardise and use solutions	√	√	√	√	√	√
PMLTEST403B	Assist with geological site investigations	√	√	√	√	√	√

RII40206 Certificate IV in Civil Construction Supervision		Suggested Elective Bank for Industry Training Programs					
		Earthworks	Roads & Pavements	Underground Services	Civil Structures	Asphalt	Spray Seal
PMLTEST404A	Perform chemical tests and procedures	√	√	√	√	√	√
PMLTEST406A	Perform physical tests	√	√	√	√	√	√
PMLTEST411A	Perform mechanical tests	√	√	√	√	√	√
RIICC402A	Supervise civil works contractors	√	√	√	√	√	√
RIICC403A	Apply the principles of earthworks construction	√	√				
RIICC404A	Apply the principles of flexible pavement construction		√			√	√
RIICC405A	Apply the principles of rigid pavement construction		√				
RIICC406A	Apply the principles of the stabilisation of materials	√	√				√
RIICC407A	Apply the principles for asphalt paving and compaction		√			√	
RIICC408A	Apply the principles for the application of bituminous sprayed treatments		√			√	
RIICC409A	Apply the principles for the selection and use of polymer modified binder		√	√	√	√	√
RIICC410A	Apply the principles for the selection and use of bituminous emulsion		√				√
RIICC411A	Apply the principles for the application of slurry surfacing		√				√
RIICC412A	Apply the principles of pavement profiling using a profiler		√			√	√
RIICC413A	Apply the principles for the manufacture and delivery of hot mix asphalt					√	
RIICC414A	Apply the principles for the manufacture of cold mix					√	
RIICC415A	Apply the principles for the manufacture of polymer modified binder					√	√
RIICC416A	Apply the principles for the manufacture of bituminous emulsion					√	√
RIICC417A	Apply the principles of the manufacture of slurry surfacing					√	√
RIICC418A	Inspect and report on pavement condition						√

RII40206 Certificate IV in Civil Construction Supervision		Suggested Elective Bank for Industry Training Programs					
		Earthworks	Roads & Pavements	Underground Services	Civil Structures	Asphalt	Spray Seal
RIICC419A	Carry out pavement condition measurement		√			√	√
RIICC420A	Apply the principles of pavement maintenance		√			√	√
RIICC525A	Select pavement surfacing					√	√
RIICC421A	Apply the principles for the installation of underground service using open excavation			√			
RIICC422A	Apply the principles for the installation of underground service using trenchless technology			√			
RIICC423A	Apply the principles for the repair and rehabilitation of underground service using trenchless technology			√			
RIICC424A	Apply the principles of tunnel construction			√			
RIICC425A	Apply the principles of civil concrete structures construction				√		
RIICC426A	Apply the principles of civil steel structures construction				√		
RIICC427A	Apply the principles of civil timber structures construction				√		
RIICC428A	Apply the principles of civil masonry, crib and gabion structure construction				√		
RIICC429A	Carry out inspections of civil structures				√		
RIICC430A	Apply principles of maintenance of civil structures				√		
RIICC431A	Apply the principles of canal construction	√					
RIICC432A	Apply the principles of demolitions				√		
RIICC503A	Prepare work zone traffic management plans	√	√	√	√	√	√
RIICC504A	Prepare civil works bills of quantities	√	√	√	√	√	√
RIICC505A	Prepare civil works schedule of rates	√	√	√	√	√	√
RIICC506A	Prepare civil works cost estimates	√	√	√	√	√	√

NOTE:

In the table ‘M’ indicates all mandatory units and the tick ‘√’ shows elective units suggested as suitable for the particular industry sector.

RII40306 Certificate IV in Civil Construction Design

Characteristics of the Qualification

Descriptor The Certificate IV in Civil Construction Design reflects the role of people providing design support for professional engineers. They perform tasks involving a broad range of varied activities most of which are complex and non-routine. For example, this might include Civil Works drafting. They are responsible for applying the design work instructions and practices to ensure the quantity and quality of the output of others and contribute to the development of technical solutions to non-routine problems.

Requirements Successful completion of twelve (12) Units of Competency made up of:

- a minimum of two (2) Units of Competency from General units listed
- a minimum of two (2) Units of Competency from Drafting units listed
- a minimum of two (2) Units of Competency from Design units listed
- a minimum of two (2) Units of Competency from Technical units listed
- a maximum of one (1) unit, relevant to the job function, drawn from elsewhere in the Resources and Infrastructure Civil Construction Training Package or other endorsed Training Packages at any level.

RII40306 Certificate IV in Civil Construction Design		
Completion of 12 Units of Competency		
General units — minimum of 2 units to be completed	<i>General units — minimum of 2 from this group</i>	
	BSBCM402A	Develop work priorities
	BSBFLM403B	Implement effective workplace relationships
	BSBFLM406B	Implement workplace information system
	BSBFLM409B	Implement continuous improvement
	BSBFLM412A	Promote team effectiveness
	BSBCM412A	Promote innovation and change
Drafting units — a minimum of 2 units to be completed	<i>Drafting units — minimum of 2 units from this group</i>	
	MEM30.1A	Use computer aided drafting systems to produce basic engineering drawings
	MEM30.2A	Produce basic engineering graphics
	MEM30.3A	Produce detailed engineering drawings
	MEM30.4A	Use CAD to create and display 3D models
	MEM9.11B	Apply basic engineering design concepts
Design units — a minimum of 2 units to be completed	<i>Design units — minimum of 2 units from this group</i>	
	RIICC507A	Prepare detailed geotechnical design
	RIICC508A	Prepare detailed design of rural roads
	RIICC511A	Prepare detailed design of sub-divisions
	RIICC513A	Prepare detailed design of rail civil infrastructure
	RIICC514A	Prepare detailed design of dams
	RIICC515A	Prepare detailed design of airfield civil works
	RIICC516A	Prepare detailed design of bicycle ways
	RIICC517A	Prepare detailed design of industrial hardstands
	RIICC518A	Prepare detailed design of open car parks
	RIICC519A	Prepare detailed design of intermodal facilities civil works
	RIICC521A	Prepare detailed design of flexible pavement
	RIICC522A	Prepare stabilised materials mix design
	RIICC523A	Prepare asphalt mix design
	RIICC524A	Prepare design of sprayed seal surfacing
	RIICC525A	Select pavement surfacing
RIICC527A	Prepare detailed design of traffic signals	
RIICC529A	Prepare detailed design of underground services	
RIICC530A	Prepare detailed design of surface drainage	

	RIICC531A	Prepare detailed design of subsurface drainage
	RIICC537A	Prepare detailed design of marine structures civil works
	RIICC538A	Prepare detailed design of foundations
	RIICC539A	Prepare detailed design of lighting
	RIICC540A	Prepare detailed design of environmental controls
	RIICC541A	Prepare detailed design of landscaping
	RIICC542A	Prepare detailed design of canals
Technical units — a minimum of 2 units to be completed a maximum of 1 unit, relevant to the job function, drawn from elsewhere in the RII Civil Construction Training Package or other endorsed Training Packages at any level.	<i>Technical units — minimum of 2 from this group</i>	
	PMLDATA400A	Process and interpret data
	PMLSAMP400B	Obtain representative samples in accordance with sampling plan
	PMLTEST403B	Assist with geological site investigations
	PMLTEST404A	Perform chemical tests and procedures
	PMLTEST406A	Perform physical tests
	PMLTEST411A	Perform mechanical tests
	PMLTEST511B	Supervise earthworks inspection, sampling and testing operations
	PMLTEST520A	Perform complex tests to measure engineering properties of materials
	PRDSIS07A	Capture new data
	PRDSIS08A	Obtain and validate existing data
	PRDSIS14A	Integrate spatial data sets
	PRDSIS29A	Collect basic data
	RIICC403A	Apply principles of earthworks construction
	RIICC404A	Apply principles of flexible pavement construction
	RIICC405A	Apply principles of rigid pavement construction
	RIICC406A	Apply principles of the stabilisation of materials
	RIICC407A	Apply the principles for asphalt paving and compaction
	RIICC408A	Apply the principles for the application of bituminous sprayed treatments
	RIICC409A	Apply the principles for the selection and use of polymer modified binder
	RIICC410A	Apply the principles for the selection and use of bituminous emulsion
	RIICC411A	Apply the principles for the application of slurry surfacing
	RIICC412A	Apply the principles of pavement profiling using a profiler
RIICC413A	Apply the principles for the manufacture and delivery of hot mix asphalt	

	RIICC414A	Apply the principles for the manufacture of cold mix
	RIICC415A	Apply the principles for the manufacture of polymer modified binder
	RIICC416A	Apply the principles for the manufacture of bituminous emulsion
	RIICC417A	Apply the principles of the manufacture of slurry surfacing
	RIICC418A	Inspect and report on pavement condition
	RIICC419A	Carry out pavement condition measurement
	RIICC421A	Apply principles for the installation of underground service using open excavation
	RIICC422A	Apply the principles for the installation of underground service using trenchless technology
	RIICC423A	Apply the principles for the repair and rehabilitation of underground service using trenchless technology
	RIICC424A	Apply the principles of tunnel construction
	RIICC425A	Apply principles of civil concrete structures construction
	RIICC426A	Apply principles of civil steel structures construction
	RIICC427A	Apply principles of civil timber structures construction
	RIICC428A	Apply principles of civil masonry, crib and gabion structure construction
	RIICC431A	Apply principles of canal construction

NOTE:

RTOs must ensure that all prerequisites (specified within the Unit of Competency) are complied with for any Unit of Competency chosen as an elective from any other endorsed Training Package.

Suggested Elective Bank for Industry Training Programs

The following elective bank for industry training programs is suggested for specific areas within Civil Construction for the RII40306 Certificate IV in Civil Construction Design.

RII40306 Certificate IV in Civil Construction Design		Suggested Elective Bank for Industry Training Programs					
		Earthworks	Roads & Pavements	Underground Services	Civil Structures	Asphalt	Spray Seal
BSBCM402A	Develop work priorities	√	√	√	√	√	√
BSBFLM403B	Implement effective workplace relationships	√	√	√	√	√	√
BSBFLM406B	Implement workplace information system	√	√	√	√	√	√
BSBFLM409B	Implement continuous improvement	√	√	√	√	√	√
BSBFLM412A	Promote team effectiveness	√	√	√	√	√	√
MEM30.1A	Use computer aided drafting systems to produce basic engineering drawings	√	√	√	√	√	√
MEM30.2A	Produce basic engineering graphics	√	√	√	√	√	√
MEM30.3A	Produce detailed engineering drawings	√	√	√	√	√	√
MEM30.4A	Use CAD to create and display 3D models	√	√	√	√	√	√
MEM9.11B	Apply basic engineering design concepts	√	√	√	√	√	√
PMLDATA400A	Process and interpret data	√	√	√	√	√	√
PMLSAMP400B	Obtain representative samples in accordance with sampling plan	√	√	√	√	√	√
PMLTEST403B	Assist with geological site investigations	√	√	√	√	√	√
PMLTEST404A	Perform chemical tests and procedures	√	√	√	√	√	√
PMLTEST406A	Perform physical tests	√	√	√	√	√	√
PMLTEST411A	Perform mechanical tests	√	√	√	√	√	√
PMLTEST511B	Supervise earthworks inspection, sampling and testing operations	√	√	√	√	√	√
PMLTEST520A	Perform complex tests to measure engineering properties of materials	√	√	√	√	√	√
PRDSIS07A	Capture new data	√	√	√	√	√	√
PRDSIS08A	Obtain and validate existing data	√	√	√	√	√	√
PRDSIS14A	Integrate spatial data sets	√	√	√	√	√	√

PRDSIS29A	Collect basic data	√	√	√	√	√	√
RIICC403A	Apply the principles of earthworks construction	√					
RIICC404A	Apply the principles of flexible pavement construction		√			√	√
RIICC405A	Apply the principles of rigid pavement construction		√				
RIICC406A	Apply the principles of the stabilisation of materials	√					
RIICC407A	Apply the principles for asphalt paving and compaction						
RIICC408A	Apply the principles for the application of bituminous sprayed treatments					√	
RIICC409A	Apply the principles for the selection and use of polymer modified binder		√			√	√
RIICC410A	Apply the principles for the selection and use of bituminous emulsion		√				√
RIICC411A	Apply the principles for the application of slurry surfacing		√			√	√
RIICC412A	Apply the principles of pavement profiling using a profiler		√			√	√
RIICC413A	Apply the principles for the manufacture and delivery of hot mix asphalt					√	
RIICC414A	Apply the principles for the manufacture of cold mix					√	
RIICC415A	Apply the principles for the manufacture of polymer modified binder					√	√
RIICC416A	Apply the principles for the manufacture of bituminous emulsion					√	√
RIICC417A	Apply the principles of the manufacture of slurry surfacing					√	√
RIICC418A	Inspect and report on pavement condition		√				√
RIICC419A	Carry out pavement condition measurement		√			√	√
RIICC421A	Apply the principles for the installation of underground service using open excavation			√			
RIICC422A	Apply the principles for the installation of underground service using trenchless technology			√			
RIICC423A	Apply the principles for the repair and rehabilitation of underground service using trenchless technology			√			

RIICC424A	Apply the principles of tunnel construction			√			
RIICC425A	Apply the principles of civil concrete structures construction				√		
RIICC426A	Apply the principles of civil steel structures construction				√		
RIICC427A	Apply the principles of civil timber structures construction				√		
RIICC428A	Apply the principles of civil masonry, crib and gabion structure construction				√		
RIICC431A	Apply the principles of canal construction				√		
RIICC507A	Prepare detailed geotechnical design	√	√				
RIICC508A	Prepare detailed design of rural roads		√				
RIICC509A	Prepare detailed design of urban roads		√				
RIICC510A	Prepare detailed design of busways		√				
RIICC511A	Prepare detailed design of sub-divisions		√				
RIICC512A	Prepare detailed design of motorways and interchanges		√				
RIICC513A	Prepare detailed design of rail civil infrastructure				√		
RIICC514A	Prepare detailed design of dams	√					
RIICC515A	Prepare detailed design of airfield civil works	√	√				
RIICC516A	Prepare detailed design of bicycle ways		√				
RIICC517A	Prepare detailed design of industrial hardstands	√					
RIICC518A	Prepare detailed design of open car parks	√					
RIICC519A	Prepare detailed design of intermodal facilities civil works		√				
RIICC520A	Prepare detailed design of rigid pavement		√				
RIICC521A	Prepare detailed design of flexible pavement		√				
RIICC522A	Prepare stabilised materials mix design	√	√				
RIICC523A	Prepare asphalt mix design					√	
RIICC524A	Prepare design of sprayed seal surfacing						√
RIICC525A	Select pavement surfacing					√	√
RIICC526A	Prepare detailed traffic analysis	√	√	√	√	√	√
RIICC527A	Prepare detailed design of traffic signals		√				

RIICC528A	Prepare detailed design of traffic management systems	√	√	√	√	√	√
RIICC529A	Prepare detailed design of underground services			√			
RIICC530A	Prepare detailed design of surface drainage	√	√				
RIICC531A	Prepare detailed design of subsurface drainage	√	√				
RIICC532A	Prepare detailed design of tunnels			√			
RIICC533A	Prepare detailed design of civil concrete structures				√		
RIICC534A	Prepare detailed design of civil steel structures				√		
RIICC535A	Prepare detailed design of civil timber structures				√		
RIICC536A	Prepare the detailed design of civil masonry, crib and gabion structures				√		
RIICC537A	Prepare detailed design of marine structures civil works				√		
RIICC538A	Prepare detailed design of foundations		√		√		
RIICC539A	Prepare detailed design of lighting		√				
RIICC540A	Prepare detailed design of environmental controls	√	√	√	√	√	√
RIICC541A	Prepare detailed design of landscaping	√					
RIICC542A	Prepare detailed design of canals	√			√		

NOTE:

In the table, the tick ‘√’ indicates elective units suitable for the particular industry sector.

RII50106 Diploma of Civil Construction Management

Characteristics of the Qualification

Descriptor The Diploma of Civil Construction Management reflects the role of personnel working on a single or a group of Civil Construction sites, who perform tasks involving a high level of autonomy and require the application of significant judgement in planning and determining the selection of equipment/roles/techniques for themselves and others. They are required to develop site specific work instructions and practices to ensure the implementation of the site management systems, plans and policies. They demonstrate the application of a broad range of technical, managerial, coordination and planning skills.

Requirements Successful completion of thirteen (13) Units of Competency made up of:

- six (6) mandatory Units of Competency
- seven (7) elective units to be completed made up of:
 - a minimum of five (5) units from the Civil Construction units listed
 - a maximum of two (2) units, relevant to the job function, drawn from elsewhere in the Resources and Infrastructure Civil Construction Training Package or any other endorsed Training Packages at any level.

Shotfiring

The Units of Competency relating to shotfiring currently exist in the Extractive Industries Training Package (MNQ03). These units are considered appropriate and are therefore included in the Resources and Infrastructure Civil Construction Training Package. However to be designated/appointed under any statutory requirements as a shotfirer, Units of Competency should be demonstrated to meet the State/Territory licensing requirements. State/Territory licensing requirements need to be confirmed by the Registered Training Organisation delivering and/or assessing the competency.

RII50106 Diploma of Civil Construction Management Completion of 13 Units of Competency		
Mandatory units— 6 units to be completed	MNQGEN500A	Implement and maintain management plans to control risk
	BSBMGT505A	Ensure a safe workplace
	RIICC543A	Implement and maintain environmental management plans
	RIICC544A	Implement and maintain quality management plans
	BSBFLM512A	Ensure team effectiveness
	1 of the following units to be completed — other units may be chosen as electives	
	RIICC501A	Implement civil construction plans
	or	
	RIICC502A	Implement civil works maintenance programs
Elective units — 7 units to be completed, made up of: a minimum of 5 from the units listed a maximum of 2, relevant to the job function, drawn from elsewhere in the RII Civil Construction Training Package or any other endorsed Training Packages at any level.	RIICC503A	Prepare work zone traffic management plans
	RIICC504A	Prepare civil works bills of quantities
	RIICC505A	Prepare civil works schedule of rates
	RIICC506A	Prepare civil works cost estimates
	BSBFLM501B	Manage personal work priorities and professional development
	BSBFLM503B	Manage effective workplace relationships
	BSBFLM505B	Manage operational plan
	BSBFLM506B	Manage workplace information systems
	BSBFLM507B	Manage quality customer service
	BSBFLM509B	Facilitate continuous improvement
	BSBFLM510B	Facilitate and capitalise on change and innovation
	BSBFLM511B	Develop a workplace learning environment
	BSBFLM513A	Manage budgets and financial plans within the work team
	BSBHR504A	Manage industrial relations policies and procedures
	BSBHR506A	Manage recruitment selection and induction processes
	BSBMGT503A	Prepare budgets and financial plans
	BSBMGT504A	Manage budgets and financial plans
	BSBMGT506A	Select, recruit and induct staff
	BSBPM501A	Manage application of project integrative processes
	BSBPM502A	Manage project scope

	BSBPM503A	Manage project time
	BSBPM504A	Manage project costs
	BSBPM505A	Manage project quality
	BSBPM506A	Manage project human resources
	BSBPM507A	Manage project communications
	BSBPM508A	Manage project risk
	BSBPM509A	Manage project procurement
	LGACOM401A	Administer contracts
	LGAWORK501A	Prepare preliminary design for operational works
	LGAWORK502A	Prepare detailed works project documentation
	LGAWORK503A	Undertake project investigation
	MNQOPS503A	Implement site plant and resources management plan
	MNQOPS511A	Design surface blasts
	MNQOPS512A	Manage blast hole drilling operations
	MNQOPS513A	Manage blasting operations
	MNQOPS550A	Implement and maintain the site plant, equipment and infrastructure maintenance plan
	PMLDATA500B	Analyse data and report results
	PMLTEST511B	Supervise earthworks inspection, sampling and testing operations
	PMLTEST520A	Perform complex tests to measure engineering properties of materials

NOTE:

RTOs must ensure that all prerequisites (specified within the Unit of Competency) are complied with for any Unit of Competency chosen as an elective from any other endorsed Training Package.

RII50206 Diploma of Civil Construction Design

Characteristics of the Qualification

Descriptor The Diploma of Civil Construction Design reflects the role of personnel working as designers or design para-professionals who support professional engineers. They perform tasks involving a high level of autonomy and requiring the application of significant judgement in planning and determining the selection of equipment/roles/techniques for themselves and others. They are required to develop site specific work designs to ensure the implementation of the client's site requirements. They demonstrate the application of a broad range of technical, managerial, coordination and planning skills.

Requirements Successful completion of twenty (20) Units of Competency made up of:

- twelve (12) units satisfying the requirements of the Certificate IV in Civil Construction Design
- eight (8) elective Units of Competency made up of:
 - minimum of two (2) units from the General units listed
 - a minimum of two (2) Units of Competency from the Design units listed
 - a minimum of two (2) Units of Competency from the Technical units listed
 - a maximum of one (1) unit, relevant to the job function, drawn from elsewhere in the Resources and Infrastructure Civil Construction Training Package or other endorsed Training Packages at any level.

NOTE:

The Units of Competency chosen to satisfy the Diploma of Civil Construction Design must be additional to the Units of Competency achieved to satisfy the Certificate IV in Civil Construction Design.

RII50206 Diploma of Civil Construction Design Completion of 20 Units of Competency	
Twelve (12) units satisfying the Certificate IV in Civil Construction Design	
General units — a minimum of 2 units to be completed	<i>General units — a minimum of 2 units from this group</i>
	BSBFLM501B Manage personal work priorities and professional development
	BSBFLM503B Manage effective workplace relationships
	BSBFLM506B Manage workplace information systems
	BSBFLM507B Manage quality customer service
	BSBPM503A Manage project time
	BSBPM505A Manage project quality
	BSBPM508A Manage project risk
	BSBPM509A Manage project procurement
	BSBMGT608A Manage innovation and continuous improvement
Design units — a minimum of 2 units to be completed	<i>Design units — a minimum of 2 units from this group</i>
	RIICC507A Prepare detailed geotechnical design
	RIICC508A Prepare detailed design of rural roads
	RIICC509A Prepare detailed design of urban roads
	RIICC510A Prepare detailed design of busways
	RIICC511A Prepare detailed design of sub-divisions
	RIICC512A Prepare detailed design of motorways and interchanges
	RIICC513A Prepare detailed design of rail civil infrastructure
	RIICC514A Prepare detailed design of dams
	RIICC515A Prepare detailed design of airfield civil works
	RIICC516A Prepare detailed design of bicycle ways
	RIICC517A Prepare detailed design of industrial hardstands
	RIICC518A Prepare detailed design of open car parks
	RIICC519A Prepare detailed design of intermodal facilities civil works
	RIICC520A Prepare detailed design of rigid pavement
	RIICC521A Prepare detailed design of flexible pavement
	RIICC522A Prepare stabilised materials mix design
	RIICC523A Prepare asphalt mix design
	RIICC524A Prepare design of sprayed seal surfacing
	RIICC525A Select pavement surfacing
RIICC526A Prepare detailed traffic analysis	

	RIICC527A	Prepare detailed design of traffic signals
	RIICC528A	Prepare detailed design of traffic management systems
	RIICC529A	Prepare detailed design of underground services
	RIICC530A	Prepare detailed design of surface drainage
	RIICC531A	Prepare detailed design of subsurface drainage
	RIICC532A	Prepare detailed design of tunnels
	RIICC533A	Prepare detailed design of civil concrete structures
	RIICC534A	Prepare detailed design of civil steel structures
	RIICC535A	Prepare detailed design of civil timber structures
	RIICC536A	Prepare detailed design of civil masonry, crib and gabion structures
	RIICC537A	Prepare detailed design of marine structures civil works
	RIICC539A	Prepare detailed design of lighting
	RIICC540A	Prepare detailed design of environmental controls
	RIICC541A	Prepare detailed design of landscaping
	RIICC538A	Prepare detailed design of foundations
	RIICC542A	Prepare detailed design of canals
Technical units — a minimum of 2 units to be completed a maximum of 1 unit, relevant to the job function, drawn from elsewhere in the RII Civil Construction Training Package or any other endorsed Training Packages at any level.	<i>Technical units — a minimum of 2 units from this group</i>	
	RIICC403A	Apply principles of earthworks construction
	RIICC404A	Apply principles of flexible pavement construction
	RIICC405A	Apply principles of rigid pavement construction
	RIICC406A	Apply principles of the stabilisation of materials
	RIICC407A	Apply the principles for asphalt paving and compaction
	RIICC408A	Apply the principles for the application of bituminous sprayed treatments
	RIICC409A	Apply the principles for the selection and use of polymer modified binder
	RIICC410A	Apply the principles for the selection and use of bituminous emulsion
	RIICC411A	Apply the principles for the application of slurry surfacing
	RIICC412A	Apply the principles of pavement profiling using a profiler
	RIICC413A	Apply the principles for the manufacture and delivery of hot mix asphalt
	RIICC414A	Apply the principles for the manufacture of cold mix
	RIICC415A	Apply the principles for the manufacture of polymer modified binder
	RIICC416A	Apply the principles for the manufacture of bituminous emulsion

	RIICC417A	Apply the principles of the manufacture of slurry surfacing
	RIICC418A	Inspect and report on pavement condition
	RIICC421A	Apply principles for the installation of underground service using open excavation
	RIICC422A	Apply the principles for the installation of underground service using trenchless technology
	RIICC423A	Apply the principles for the repair and rehabilitation of underground service using trenchless technology
	RIICC424A	Apply the principles of tunnel construction
	RIICC425A	Apply principles of civil concrete structures construction
	RIICC426A	Apply principles of civil steel structures construction
	RIICC427A	Apply principles of civil timber structures construction
	RIICC428A	Apply principles of civil masonry, crib and gabion structure construction
	RIICC431A	Apply principles of canal construction
	PMLDATA500B	Analyse data and report results
	PMLTEST511B	Supervise earthworks inspection, sampling and testing operations
	PMLTEST520A	Perform complex tests to measure engineering properties of materials
	PRDSIS07A	Capture new data
	PRDSIS08A	Obtain and validate existing data
	PRDSIS14A	Integrate spatial data sets

NOTE:

RTOs must ensure that all prerequisites (specified within the Unit of Competency) are complied with for any Unit of Competency chosen as an elective from any other endorsed Training Package.

RII60106 Advanced Diploma of Civil Construction Management

Characteristics of the Qualification

Descriptor The Advanced Diploma of Civil Construction Management reflects the role of managers working in Civil Construction who perform tasks that are broad, specialised, complex and technical and include strategic areas and initiating activities. They are responsible for the establishment of the site management systems, plans and policies and are required to demonstrate self-directed application of theoretical and technical knowledge and initiate solutions to technical problems or management requirements.

Requirements Successful completion of twelve (12) Units of Competency made up of:

- six (6) mandatory Units of Competency
- six (6) elective units to be completed made up of:
 - a minimum of three (3) units from the Civil Construction management units listed
 - a maximum of two (2) units, relevant to the job function, drawn from elsewhere in the Resources and Infrastructure Civil Construction Training Package or any other endorsed Training Packages at any level.

RII60106 Advanced Diploma Civil Construction Management Completion of 12 Units of Competency		
Mandatory units — 6 units to be completed	MNQGEN600A	Establish and maintain the risk management system
	MNQGEN610A	Establish and maintain the Occupational Health and Safety management system
	MNQGEN620A	Establish and maintain the environmental management system
	MNQGEN630A	Establish and maintain the quality system
	BSBMGT605A	Provide leadership across the organisation
	1 of the following units to be completed — other unit may be chosen as an elective	
	RIICC602A	Establish civil construction plans
	or	
	RIICC603A	Establish civil works maintenance programs
Elective units — 6 units to be completed, made up of: a minimum of 3 from the units listed a maximum of 2 units, relevant to the job function, drawn from elsewhere in the RII Civil Construction Training Package or any other endorsed Training Packages at any level.	<i>General Management — a minimum of 3 units from this group</i>	
	RIICC504A	Prepare civil works bills of quantities
	RIICC506A	Prepare civil works cost estimates
	RIICC505A	Prepare civil works schedule of rates
	RIICC601A	Manage the civil works design process
	MNQGEN601A	Establish and maintain the statutory compliance management system
	MNQGEN602A	Manage major incidents and emergencies
	MNQGEN661A	Conduct feasibility study
	MNQGEN662A	Establish operational performance management system
	MNQGEN663A	Initiate, monitor and supervise contracts
	MNQGEN664A	Conduct business negotiations
	BSBMGT603A	Review and develop business plans
	BSBMGT604A	Manage business operations
	BSBMGT606A	Manage customer focus
	BSBMGT608A	Manage innovation and continuous improvement
	BSBPM601A	Direct the integration of multiple projects/programs
	BSBPM602A	Direct the scope of multiple projects/programs
	BSBPM603A	Direct time management of multiple projects/programs
	BSBPM604A	Direct cost management of multiple projects/programs
	BSBPM605A	Direct quality management of multiple projects/programs
BSBPM606A	Direct human resources management of multiple projects/programs	

	BSBPM607A	Direct communications management of multiple projects/programs
	BSBPM608A	Direct risk management of multiple projects/programs
	BSBPM609A	Direct procurement and contracts of multiple projects/programs
	MNQOPS650A	Establish plant, equipment and infrastructure maintenance system

NOTE:

RTOs must ensure that all prerequisites (specified within the Unit of Competency) are complied with for any Unit of Competency chosen as an elective from any other endorsed Training Package.

RII60206 Advanced Diploma of Civil Construction Design Management

Characteristics of the Qualification

Descriptor The Advanced Diploma of Civil Construction Design reflects the role of senior civil works designers or para-professional designers who support professional engineers. They perform tasks that are broad, specialised, complex and technical and include strategic areas and initiating activities. They are responsible for the design of complex projects to ensure the implementation of the client's site requirements and are required to demonstrate self-directed application of theoretical and technical knowledge and initiate solutions to technical problems or management requirements.

Requirements Successful completion of twelve (12) Units of Competency made up of:

- five (5) mandatory Units of Competency
- seven (7) elective Units of Competency made up of:
 - a minimum of four (4) Units of Competency from the General Management units listed
 - a minimum of one (1) Unit of Competency from the Design units listed
 - a maximum of two (2) units, relevant to the job function, drawn from elsewhere in the Resources and Infrastructure Civil Construction Training Package or other endorsed Training Packages at any level.

NOTE:

The Units of Competency chosen to satisfy the Advanced Diploma of Civil Construction Design must be additional to the Units of Competency achieved to satisfy the Diploma of Civil Construction Design.

RII60206 Advanced Diploma Civil Construction Design Management Completion of 12 Units of Competency		
Mandatory units — 5 units to be completed	RIICC601A	Manage the civil works design process
	BSBOHS607A	Advise on application of safe design principles to control OHS risk
	BSBFLM512A	Ensure team effectiveness
	BSBPM608A	Direct risk management of multiple projects/programs
	MNQGEN630A	Establish and maintain the quality system
General Management electives — 4 units to be completed	<i>General Management — a minimum of 4 units from this group</i>	
	BSBPM601A	Direct the integration of multiple projects/programs
	BSBPM602A	Direct the scope of multiple projects/programs
	BSBPM603A	Direct time management of multiple projects/programs
	BSBPM604A	Direct cost management of multiple projects/programs
	BSBPM605A	Direct quality management of multiple projects/programs
	BSBPM606A	Direct human resources management of multiple projects/programs
	BSBPM607A	Direct communications management of multiple projects/programs
	BSBMGT608A	Manage innovation and continuous improvement
	BSBMGT603A	Review and develop business plans
	BSBMGT604A	Manage business operations
	MNQGEN664A	Conduct business negotiations
	MNQGEN661A	Conduct feasibility study
	MNQGEN663A	Initiate, monitor and supervise contracts

Design electives — a minimum of 1 unit to be completed a maximum of 2 units, relevant to the job function, drawn from elsewhere in the RII Civil Construction Training Package or any other endorsed Training Packages at any level.	<i>Design units — a minimum of 1 unit from this group</i>	
	RIICC507A	Prepare detailed geotechnical design
	RIICC509A	Prepare detailed design of urban roads
	RIICC510A	Prepare detailed design of busways
	RIICC512A	Prepare detailed design of motorways and interchanges
	RIICC520A	Prepare detailed design of rigid pavement
	RIICC526A	Prepare detailed traffic analysis
	RIICC528A	Prepare detailed design of traffic management systems
	RIICC532A	Prepare detailed design of tunnels
	RIICC533A	Prepare detailed design of civil concrete structures
	RIICC534A	Prepare detailed design of civil steel structures
	RIICC535A	Prepare detailed design of civil timber structures
RIICC536A	Prepare detailed design of civil masonry, crib and gabion structures	
NOTE: RTOs must ensure that all prerequisites (specified within the Unit of Competency) are complied with for any Unit of Competency chosen as an elective from any other endorsed Training Package.		

Employability Skills Qualification Summary

RII10106 Certificate I in Resources and Infrastructure Operations

The following table contains a summary of the employability skills as identified by the Resources and Infrastructure Industries for the Certificate I qualification. The employability skills facets described here are broad industry requirements that may vary depending on qualification packaging options.

Employability Skill	Industry/enterprise requirements for this qualification include the following:
Communication	<ul style="list-style-type: none"> • Speak clearly and directly • Listen carefully to instructions and information • Read and interpret work instructions and safety signs • Calculate basic weights, distances and volumes • Complete incident and maintenance reports
Teamwork	<ul style="list-style-type: none"> • Apply teamwork in a range of situations, particularly in a safety context • Contribute to the planning and execution of operations • Work cooperatively with people of different ages, gender, race, religion or political persuasion
Problem solving	<ul style="list-style-type: none"> • Adjust work methods in response to changing weather and site conditions • Participate in team solutions to safety issues
Initiative and enterprise	<ul style="list-style-type: none"> • Independently adapt to changing work conditions or different work areas • Identify potential improvements to working practice and conditions • Identify and assess risks in the workplace
Planning and organising	<ul style="list-style-type: none"> • Manage time and priorities to complete work • Identify and obtain appropriate equipment and permits • Identify potential hazards and prepare appropriate responses • Follow procedures and techniques relevant to the equipment and work being done
Self management	<ul style="list-style-type: none"> • Take responsibility for planning and organising own work priorities and completing assigned tasks • Monitor own performance to ensure work will be completed well and on time • Understand the standard of work expected at a work site
Learning	<ul style="list-style-type: none"> • Be willing to learn new ways of working • Seek information to improve performance from people and workplace documents like policies, procedures etc. • Understand equipment characteristics, technical capabilities, limitations and procedures
Technology	<ul style="list-style-type: none"> • Use technology to monitor and report on work progress • Use communications technology appropriate to the workplace (email, mobile, radio, etc) • Operate equipment safely

Certificate IV in Civil Construction Operations RII40106
Certificate IV in Civil Construction Supervision RII40206
Certificate IV in Civil Construction Design RII40306

The following table contains a summary of the employability skills as identified by the Civil Construction Industry for Certificate IV qualifications. The employability skills facets described here are broad industry requirements that may vary depending on qualification packaging options.

Employability Skill	Industry/enterprise requirements for this qualification include the following:
Communication	<ul style="list-style-type: none"> • Provide clear and direct feedback • Listen carefully to instructions and information • Read and interpret project plans and safety signs • Calculate basic weights, distances and volumes • Complete accurate work plans, technical reports, risk assessments, etc. • Negotiate solutions to customer and workplace based issues • Negotiate project details with clients • Network with other professionals working in the same field
Teamwork	<ul style="list-style-type: none"> • Plan and lead team performance and operations • Coordinate project activities and timelines with clients • Work cooperatively with people of different ages, gender, race, religion or political persuasion • Provide feedback and advice to staff • Participate in site-wide planning and coordination activities
Problem solving	<ul style="list-style-type: none"> • Re-allocate staff and resources in response to changing weather, site conditions and priorities • Work with staff to solve problems and coordinate team member's responsibilities and activities • Work cooperatively with clients to resolve contract and operational issues • Participate in ongoing review and adjustment of operations against performance indicators and project milestones
Initiative and enterprise	<ul style="list-style-type: none"> • Act independently to identify potential improvements to working practice and conditions • Identify and take steps to resolve risks in the workplace. • Encourage the exploration and application of innovative approaches to improve on operational performance
Planning and organising	<ul style="list-style-type: none"> • Manage and coordinate time and priorities for self and team • Identify and obtain appropriate personnel and resources for work • Ensure that risks are assessed and appropriate emergency plans are in place • Ensure that project planning incorporates the possibility of adapting to future changes

Employability Skill	Industry/enterprise requirements for this qualification include the following:
Self management	<ul style="list-style-type: none"> • Take responsibility for ensuring team targets and goals are achieved • Understand the standard of work expected at the work site • Proactively manage team performance • Develop trust and confidence in staff and customers
Learning	<ul style="list-style-type: none"> • Be willing to learn new ways of working • Seek information to improve performance from people and workplace documents like policies, procedures etc. • Understand equipment characteristics, technical capabilities, limitations and procedures • Participate in, and where appropriate, lead change processes • Work with staff to create learning and development plans • Prepare and lead formal or informal training sessions
Technology	<ul style="list-style-type: none"> • Apply a range of basic IT skills in monitoring and reporting on systems • Operate Equipment safely and according to manufacturer and workplace guidelines • Use communications technology appropriate to the workplace (email, mobile, radio, etc) • Computer technology is used to monitor and communicate project status • Use IT to create documents and maintain records of work activities

Diploma of Civil Construction Management RII50106
Diploma of Civil Construction Design RII50206

The following table contains a summary of the employability skills as identified by the Civil Construction Industry for the Diploma level qualifications. The employability skills facets described here are broad industry requirements that may vary depending on qualification packaging options.

Employability Skill	Industry/enterprise requirements for this qualification include the following:
Communication	<ul style="list-style-type: none"> • Provide clear and direct feedback • Listen carefully to instructions and information • Read and interpret project plans and safety signs • Calculate basic weights, distances and volumes • Complete accurate work plans, technical reports, risk assessments, etc. • Negotiate solutions to customer and workplace based issues • Negotiate project details with clients • Network with other professionals working in the same field
Teamwork	<ul style="list-style-type: none"> • Plan and lead team performance and operations • Coordinate project activities and timelines with clients • Work cooperatively with people of different ages, gender, race, religion or political persuasion • Provide feedback and advice to staff • Lead site-wide planning and coordination activities
Problem solving	<ul style="list-style-type: none"> • Re-allocate staff and resources in response to changing weather, site conditions and priorities • Manage staff to solve problems and coordinate individual responsibilities and activities • Work cooperatively with clients to resolve contract and operational issues • Manage the ongoing review and adjustment of operations against performance indicators and project milestones
Initiative and enterprise	<ul style="list-style-type: none"> • Act independently to identify potential improvements to working practice and conditions • Identify and take steps to resolve risks in the workplace. • Encourage the exploration and application of innovative approaches to improve on operational performance
Planning and organising	<ul style="list-style-type: none"> • Manage and coordinate time and priorities for self and team • Identify and obtain appropriate personnel and resources for work • Ensure that risks are assessed and appropriate emergency plans are in place • Ensure that project planning incorporates the possibility of adapting to future changes
Self management	<ul style="list-style-type: none"> • Take responsibility for ensuring team targets and goals are achieved • Understand the standard of work expected at the work site • Proactively manage team performance <p>Develop trust and confidence in staff and customers</p>

Employability Skill	Industry/enterprise requirements for this qualification include the following:
Learning	<ul style="list-style-type: none"> • Be willing to learn new ways of working • Seek information to improve performance from people and workplace documents like policies, procedures etc. • Understand equipment characteristics, technical capabilities, limitations and procedures • Lead change and continuous improvement processes • Manage learning and development plans • Prepare and lead formal or informal training sessions
Technology	<ul style="list-style-type: none"> • Apply a range of basic IT skills in monitoring and reporting on systems • Operate Equipment safely and according to manufacturer and workplace guidelines • Use communications technology appropriate to the workplace (email, mobile, radio, etc) • Computer technology is used to monitor and communicate project status • Use IT to create documents and maintain records of work activities

Advanced Diploma of Civil Construction Management RII60106
Advanced Diploma of Civil Construction Design Management RII60206

The following table contains a summary of the employability skills as identified by the Civil Construction Industry for the Advanced Diploma qualifications. The employability skills facets described here are broad industry requirements that may vary depending on qualification packaging options.

Employability Skill	Industry/enterprise requirements for this qualification include the following:
Communication	<ul style="list-style-type: none"> • Provide clear and direct feedback • Listen carefully to instructions and information • Read and interpret project plans and safety signs • Calculate basic weights, distances and volumes • Complete accurate work plans, technical reports, risk assessments, etc. • Negotiate solutions to customer and workplace based issues • Negotiate project details with clients • Network with other professionals working in the same field
Teamwork	<ul style="list-style-type: none"> • Plan and lead team performance and operations • Coordinate project activities and timelines with clients • Work cooperatively with people of different ages, gender, race, religion or political persuasion • Provide feedback and advice to staff • Lead site-wide planning and coordination activities
Problem solving	<ul style="list-style-type: none"> • Re-allocate staff and resources in response to changing weather, site conditions and priorities • Manage staff to solve problems and coordinate individual responsibilities and activities • Work cooperatively with clients to resolve contract and operational issues • Manage the ongoing review and adjustment of operations against performance indicators and project milestones
Initiative and enterprise	<ul style="list-style-type: none"> • Act independently to identify potential improvements to working practice and conditions • Identify and take steps to resolve risks in the workplace. • Encourage the exploration and application of innovative approaches to improve on operational performance
Planning and organising	<ul style="list-style-type: none"> • Manage and coordinate time and priorities for self and team • Identify and obtain appropriate personnel and resources for work • Ensure that risks are assessed and appropriate emergency plans are in place • Ensure that project planning incorporates the possibility of adapting to future changes

Employability Skill	Industry/enterprise requirements for this qualification include the following:
Self management	<ul style="list-style-type: none"> • Take responsibility for ensuring team targets and goals are achieved • Understand the standard of work expected at the work site • Proactively manage team performance • Develop trust and confidence in staff and customers
Learning	<ul style="list-style-type: none"> • Be willing to learn new ways of working • Seek information to improve performance from people and workplace documents like policies, procedures etc. • Understand equipment characteristics, technical capabilities, limitations and procedures • Lead change and continuous improvement processes • Manage learning and development plans • Prepare and lead formal or informal training sessions
Technology	<ul style="list-style-type: none"> • Apply a range of basic IT skills in monitoring and reporting on systems • Operate Equipment safely and according to manufacturer and workplace guidelines • Use communications technology appropriate to the workplace (email, mobile, radio, etc) • Computer technology is used to monitor and communicate project status • Use IT to create documents and maintain records of work activities

Assessment Guidelines

Introduction

These Assessment Guidelines provide the endorsed framework for assessment of Units of Competency in this Training Package. They are designed to ensure that assessment is consistent with the Australian Quality Training Framework (AQTF) Standards for Registered Training Organisations. Assessments against units of competency in this Training Package must be carried out in accordance with these Assessment Guidelines.

Assessment System Overview

This section provides an overview of the requirements for assessment when using this Training Package, including a summary of the AQTF requirements, licensing/ registration requirements, and assessment pathways.

Benchmarks for Assessment

Assessment within the National Training Framework involves collecting evidence and making judgements about whether competency has been achieved to confirm whether an individual can perform to the standards expected in the workplace, as expressed in the relevant endorsed Unit of Competency.

In the areas of work covered by this Training Package, the endorsed Units of Competency are the benchmarks for assessment. As such, they provide the basis for nationally recognised Australian Qualifications Framework (AQF) qualifications and Statements of Attainment issued by Registered Training Organisations (RTOs).

Australian Quality Training Framework Assessment Requirements

Assessment leading to nationally recognised AQF qualifications and Statements of Attainment in the Vocational Education and Training sector must meet the requirements of the AQTF as expressed in the *Standards for Registered Training Organisations*.

The *Standards for Registered Training Organisations* can be downloaded from the DEST website at www.dest.gov.au or can be obtained in hard copy from DEST. The following points summarise the assessment requirements under the AQTF.

- **Registration of Training Organisations**

Assessment must be conducted by, or on behalf of, an RTO formally registered by a State or Territory Registering/Course Accrediting Body in accordance with the *Standards for Registered Training Organisations*. The RTO must have the specific Units of Competency and/or AQF qualifications on its scope of registration. See Section 1 of the *Standards for Registered Training Organisations*.

- **Quality Training and Assessment**

Each RTO must have systems in place to plan for and provide quality training and assessment across all its operations. See Standard 1 of the *Standards for Registered Training Organisations*.

- **Assessor Competency Requirements**

Each person involved in training, assessment or client service must be competent for the functions they perform. See Standard 7 of the *Standards for Registered Training Organisations* for assessor competency requirements. Standard 7 also specifies the competencies that must be held by trainers.

- **Assessment Requirements**

The RTO's assessments must meet the requirements of the endorsed components of Training Packages within its scope of registration. See Standard 8 of the *Standards for Registered Training Organisations*.

- **Assessment Strategies**

Each RTO must identify, negotiate, plan and implement appropriate learning and assessment strategies to meet the needs of each of its clients. See Standard 9 of the *Standards for Registered Training Organisations*.

- **Mutual Recognition**

Each RTO must recognise the AQF qualifications and Statements of Attainment issued by any other RTO. See Standard 5 of the *Standards for Registered Training Organisations*.

- **Access and Equity and Client Services**

Each RTO must apply access and equity principles, provide timely and appropriate information, advice and support services that assist clients to identify and achieve desired outcomes. This may include reasonable adjustment in assessment. See Standard 6 of the *Standards for Registered Training Organisations*.

- **Partnership Arrangements**

RTOs must have, and comply with, written agreements with each organisation providing training and/or assessment on its behalf. See Standard 1.6 of *Standards for Registered Training Organisations*.

- **Recording Assessment Outcomes**

Each RTO must have effective administration and records management procedures in place, and must record AQF qualifications and Statements of Attainment issued. See Standards 4 and 10.2 of the *Standards for Registered Training*.

- **Issuing AQF Qualifications and Statement of Attainment**

Each RTO must issue AQF qualifications and Statements of Attainment that meet the requirements of the *AQF Implementation Handbook* and the endorsed Training Packages within the scope of its registration. An AQF qualification is issued once the full requirements for a qualification, as specified in the nationally endorsed Training Package, are met. A Statement of Attainment is issued where the individual is assessed as competent against fewer Units of Competency than required for an AQF qualification. See Standard 10 and Section 2 of the *Standards for Registered Training Organisations*.

Licensing/Registration Requirements

This section provides information on licensing/registration requirements for this Training Package, with the following important disclaimer.

Licensing and registration requirements that apply to specific industries, and vocational education and training, vary between each State and Territory and can regularly change. The developers of this Training Package, and DEST, consider that the licensing/registration requirements described in this section apply to RTOs, assessors or candidates with respect to this Training Package. While reasonable care has been taken in its preparation, the developers of this Training Package and DEST cannot guarantee that the list is definitive or accurate at the time of reading; the information in this section is provided in good faith on that basis.

Contact the relevant State or Territory department(s) to check if the licensing/registration requirements described below still apply, and to check if there are any others with which you must comply. For the latest information, contact the relevant State or Territory authority (see Table below).

Requirements for Assessors

In order to conduct assessments for statutory licensing or other industry registration requirements, assessors must meet the requirements outlined in the following chart, in addition to the AQTF requirements.

Requirements for RTOs

Selected Units of Competency and qualifications in this Training Package provide the basis for a range of statutory licensing and industry registration arrangements. To satisfy these licensing and registration arrangements, assessors and trainers are advised to contact the relevant licensing or registration body, details of which are outlined in the following chart to identify additional requirements.

License/Registration	Jurisdiction	Contact Details
Boom type elevating work platform (boom length 11m or more) Forklift truck Front end loader Front end loader/Backhoe Front end loader (skid steer type) Excavator	Australian Capital Territory	ACT WorkCover www.workcover.act.gov.au
Boom type elevating work platform (boom length 11m or more) Forklift truck Front end loader Front end loader/Backhoe Front end loader (skid steer type) Excavator Shotfirer	New South Wales	WorkCover New South Wales www.workcover.nsw.gov.au Department of Mineral Resources www.minerals.nsw.gov.au
Industrial truck (forklift) operation Shotfirer	Northern Territory	Northern Territory Work Health Authority www.deet.nt.gov.au/wha/
Operator of a boom type elevating work platform with boom length of 11m or more Operator of a dozer Operator of an excavator (engine capacity of more than 2L) Operator of a forklift truck (other than pedestrian operated) Operator of a front end loader (engine capacity of more than 2L) Operator of a front end loader/backhoe (engine capacity of more than 2L) Operator of a grader Operator of a roller (engine capacity of more than 2L) Operator of a skid steer loader	Queensland	Department of Industrial Relations (Workplace Health and Safety Division) www.dir.qld.gov.au

License/Registration	Jurisdiction	Contact Details
(engine capacity of more than 2L) Operator of a scraper Shotfirer		Department of Natural Resources and Mines www.nrm.qld.gov.au/mines
Forklift truck Front end loader Front end loader/backhoe Front end loader (skid steer type) Excavator Dozer Blaster Workzone traffic management	South Australia	WorkSafe SA www.workcover.com Workplace Services www.eric.sa.gov.au Transport SA www.transport.sa.gov.au
Boom type elevating work platform (boom length 11m or more) Forklift truck Traffic management	Tasmania	Workplace Standards Tasmania www.wst.tas.gov.au Department of Infrastructure, Energy and Resources www.transport.gov.au
Boom type elevating work platform (boom length 11m or more) Forklift truck Front end loader Front end loader/backhoe Front end loader (skid steer type) Excavator Blasting explosives	Victoria	Victorian WorkCover Authority www.workcover.vic.gov.au Department of Primary Industries (Minerals and Petroleum Division) www.nre.vic.gov.au
Forklift operation (requirement 2005) Tilt top construction Dogging	Western Australia	Department of Consumer and Employment Protection (Worksafe) www.safetyline.wa.gov.au

License/Registration	Jurisdiction	Contact Details
Rigging Boom type elevating work platform (boom length 11m or more) Shotfirer Basic traffic controller Advanced traffic controller		Department of Industry and Resources www.dme.wa.gov.au Main Roads WA www.mainroads.wa.gov.au

Requirements for Candidates

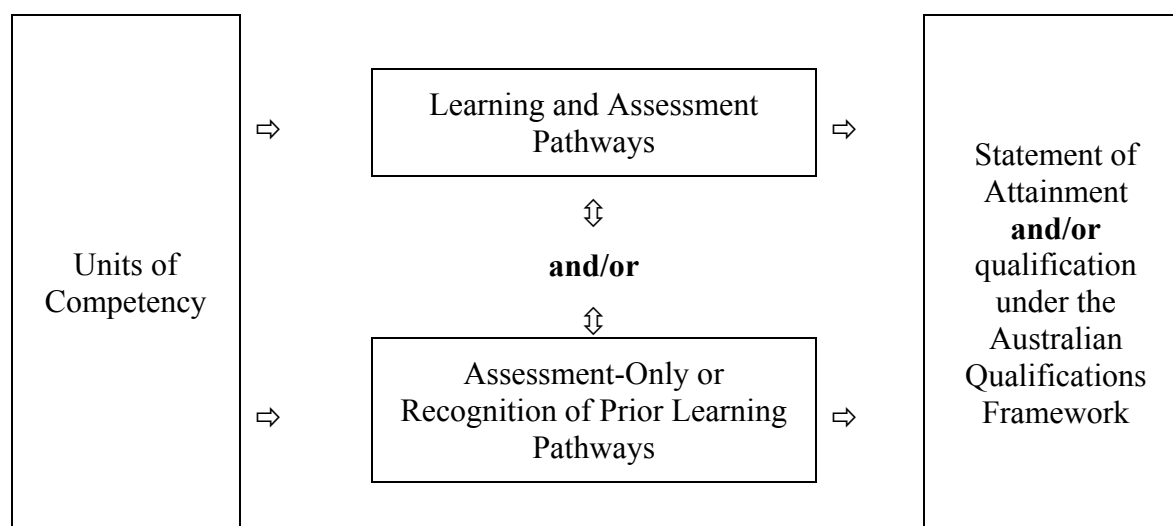
Individuals being assessed under statutory licensing and industry registration systems must comply with training and experience requirements additional to the minimum requirements identified in this Training Package

Pathways

The competencies in this Training Package may be attained in a number of ways, including through:

- formal or informal education and training
- experiences in the workplace
- general life experience, and/or
- any combination of the above.

Assessment under this Training Package leading to an AQF qualification or Statement of Attainment may follow a learning and assessment pathway, an assessment-only or recognition pathway, or a combination of the two as illustrated in the following diagram:



Each of these assessment pathways leads to full recognition of competencies held — the critical issue is that the candidate is competent, not how the competency was acquired.

Assessment, by any pathway, must comply with the assessment requirements set out in the *Standards for Registered Training Organisations*.

Learning and Assessment Pathways

Usually, learning and assessment are integrated, with assessment evidence being collected and feedback provided to the candidate at any time throughout the learning and assessment process.

Learning and assessment pathways may include structured programs in a variety of contexts using a range of strategies to meet different learner needs. Structured learning and assessment programs could be: group based, work based, project based, self paced, action learning based; conducted by distance or e-learning; and/or involve practice and experience in the workplace.

Learning and assessment pathways to suit New Apprenticeships have a mix of formal structured training and structured workplace experience including formative assessment activities through which candidates can acquire and demonstrate skills and knowledge from the relevant Units of Competency.

Assessment-Only or Recognition of Prior Learning Pathway

Competencies already held by individuals can be formally assessed against the Units of Competency in this Training Package, and should be recognised regardless of how, when or where they were achieved.

In an assessment-only or Recognition of Prior Learning (RPL) pathway, the candidate provides current, quality evidence of their competency against the relevant Unit of Competency. This process may be directed by the candidate and verified by the assessor, such as in the compilation of portfolios; or directed by the assessor, such as through observation of workplace performance and skills application, and oral and/or written assessment. Where the outcomes of this process indicate that the candidate is competent, structured training is not required. The RPL requirements are set out in Standard 8.2 of the *Standards for Registered Training Organisations* and must be met.

As with all assessment, the assessor must be confident that the evidence indicates that the candidate is currently competent against the endorsed Unit of Competency. This evidence may take a variety of forms and might include certification, references from past employers, testimonials from clients, and work samples. The onus is on the candidate to provide sufficient evidence to satisfy assessors that they currently hold the relevant competencies. In judging evidence, the assessor must ensure that the evidence of prior learning is:

- authentic (the candidate's own work)
- valid (directly related to the current version of the relevant endorsed Unit of Competency)
- reliable (shows that the candidate consistently meets the endorsed Unit of Competency)
- current (reflects the candidate's current capacity to perform the aspect of the work covered by the endorsed Unit of Competency)
- sufficient (covers the full range of elements in the relevant Unit of Competency and addresses the four dimensions of competency namely, task skills, task management skills, contingency management skills, and job/role environment skills).

The assessment-only or recognition of prior learning pathway is likely to be most appropriate in the following scenarios:

- candidates enrolling in qualifications who want recognition for prior learning or current competencies
- existing workers
- individuals with overseas qualifications
- recent migrants with established work histories
- people returning to the workplace
- people with disabilities or injuries requiring a change in career.

Combination of Pathways

Where candidates for assessment have gained competencies through work and life experience and gaps in their competence are identified, or where they require training in new areas, a combination of pathways may be appropriate.

In such situations, the candidate may undertake an initial assessment to determine their current competency. Once current competency is identified, a structured learning and assessment program ensures that the candidate acquires the required additional competencies identified as gaps.

Assessor Requirements

This section identifies the mandatory competencies for assessors, and clarifies how others may contribute to the assessment process where one person alone does not hold the required competencies.

Assessor Competencies

The *Standards for Registered Training Organisations* specify mandatory competency requirements for assessors. For information, Standard 7.3 from the *Standards for Registered Training Organisations* follows:

- 7.3 **a** The RTO must ensure that assessments are conducted by a person who has:
- i the following competencies² from the Training Package for Assessment and Workplace Training, or demonstrated equivalent competencies:
 - a TAAASS401A Plan and organise assessment;
 - b TAAASS402A Assess competence;
 - c TAAASS404A Participate in assessment validation;
 - ii relevant vocational competencies, at least to the level being assessed.
- b** However, if a person does not have all of the competencies in Standards 7.3 **a** (i) and the vocational competencies as defined in 7.3 **a** (ii), one person with the competencies listed in Standard 7.3 **a** (i), and one or more persons who have the competencies listed in Standard 7.3 **a** (ii) may work together to conduct assessments.

Designing Assessment Tools

This section provides an overview on the use and development of assessment tools.

Use of Assessment Tools

Assessment tools provide a means of collecting the evidence that assessors use in making judgements about whether candidates have achieved competency.

There is no set format or process for the design, production or development of assessment tools. Assessors may use prepared assessment tools, such as those specifically developed to support this Training Package, or may develop their own.

Using Prepared Assessment Tools

If using prepared assessment tools, assessors should ensure that these are benchmarked, or mapped, against the current version of the relevant Unit of Competency. This can be done by checking the materials listed on the National Training Information Service (www.ntis.gov.au). Materials on the list have been noted by the National Training Quality Council as meeting their quality criteria for Training Package support materials.

² A person who holds the competencies BSZ401A Plan assessment, BSZ402A Conduct assessment, and BSZ403A Review assessment from the Training Package for Assessment and Workplace Training will be accepted for the purposes of this standard. A person who has demonstrated equivalent competencies to BSZ401A and BSZ402A and BSZ403A in the period up to 12 months following publication of the Training and Assessment Training Package will also be accepted for the purposes of this standard.

Developing Assessment Tools

When developing assessment tools, assessors must ensure that the tools:

- are benchmarked against the relevant Unit or Units of Competency
- are reviewed as part of the validation of assessment strategies as required under 9.2i of the *Standards for Registered Training Organisations*
- meet the assessment requirements expressed in the *Standards for Registered Training Organisations*, particularly Standards 8 and 9.

A key reference for assessors developing assessment tools is TAA04 Training and Assessment Training Package and the Unit of Competency: TAAASS403A Develop assessment tools.

Conducting Assessment

This section details the mandatory assessment requirements and provides information on equity in assessment including reasonable adjustment.

Mandatory Assessment Requirements

Assessments must meet the criteria set out in Standard 8 from the *Standards for Registered Training Organisations*. For information, Standard 8 from the *Standards for Registered Training Organisations* is reproduced below.

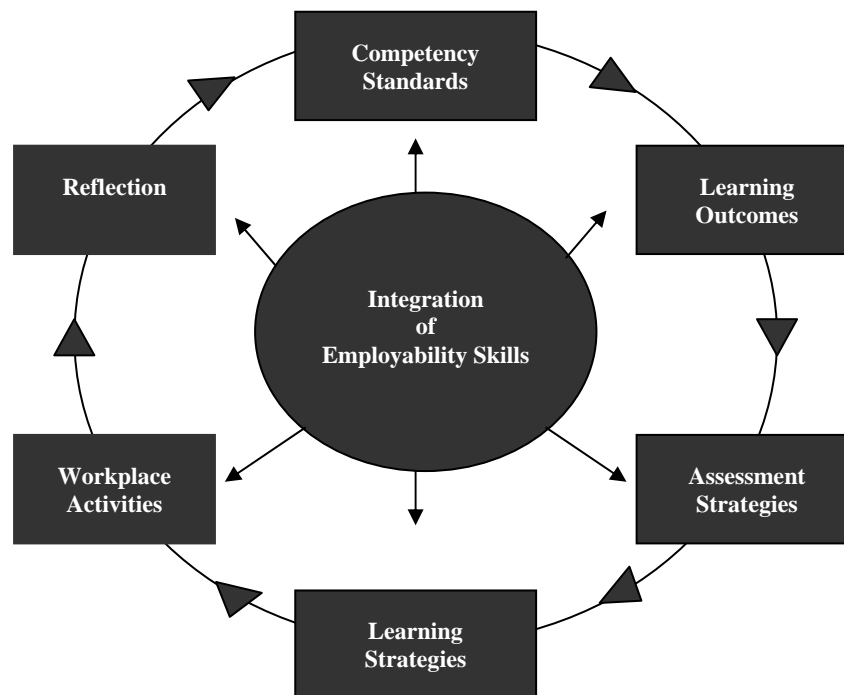
8. RTO Assessments

The RTO's assessments meet the requirements of the endorsed components of Training Packages and the outcomes specified in accredited courses within the scope of its registration.

- 8.1. The RTO must ensure that assessments (including RPL):
- i. comply with the assessment guidelines included in the applicable nationally endorsed Training Packages or the assessment requirements specified in accredited courses;
 - ii. lead to the issuing of a statement of attainment or qualification under the AQF when a person is assessed as competent against nationally endorsed unit(s) of competency in the applicable Training Package or modules specified in the applicable accredited course;
 - iii. are valid, reliable, fair and flexible;
 - iv. provide for applicants to be informed of the context and purpose of the assessment and the assessment process;
 - v. where relevant, focus on the application of knowledge and skill to the standard of performance required in the workplace and cover all aspects of workplace performance, including task skills, task management skills, contingency management skills and job role environment skills;
 - vi. involve the evaluation of sufficient evidence to enable judgements to be made about whether competency has been attained;
 - vii. provide for feedback to the applicant about the outcomes of the assessment process and guidance on future options in relation to those outcomes;
 - viii. are equitable for all persons, taking account of individual needs relevant to the assessment; and
 - ix. provide for reassessment on appeal.
- 8.2. a The RTO must ensure RPL is offered to all applicants on enrolment.
- b The RTO must have an RPL process that:
- i. is structured to minimise the time and cost to applicants; and
 - ii. provides adequate information, support and opportunities for participants to engage in the RPL process.

Delivery and assessment of Employability Skills

Employability Skills are integral to workplace competency and, as such, must be considered in the design, customisation, delivery and assessment of vocational education and training programs in an integrated and holistic way, as represented diagrammatically below.



Training providers must analyse the Employability Skills information contained in units of competency in order to design valid and reliable learning and assessment strategies. This analysis includes:

- reviewing unit(s) of competency to determine how each relevant Employability Skill is found and applied within the unit
- analysing the Employability Skills Summary for the qualification in which the unit(s) is/are packaged to help clarify relevant industry/workplace contexts with regard to the application of Employability Skills at that qualification level
- designing learning and assessment activities that address the Employability Skills requirements.

For more information on Employability Skills in the RII06 Civil Construction Training Package go to the Resources and Infrastructure Industry Skills Council website at www.riisc.com.au

Access and Equity

An individual's access to the assessment process should not be adversely affected by restrictions placed on the location or context of assessment beyond the requirements specified in this Training Package.

Reasonable adjustments can be made to ensure equity in assessment for people with disabilities. Adjustments include any changes to the assessment process or context that meet the individual needs of the person with a disability, but do not change competency outcomes. Such adjustments are considered 'reasonable' if they do not impose an unjustifiable hardship on the training provider or employer. When assessing people with disabilities, assessors are encouraged to apply good practice assessment methods with sensitivity and flexibility.

Further Sources of Information

This section provides a listing of useful contacts and resources to assist assessors in planning, designing, conducting and reviewing of assessments against this Training Package.

Contacts

Resources and Infrastructure Industry Skills Council

Level 7, 36 Carrington Street
SYDNEY NSW 2000
Telephone: (02) 9299 3014
Fax: (02) 9299 3015
Web: www.riisc.com.au
Email: riisc@riisc.com.au

Australian Training Products Ltd

Level 25, 150 Lonsdale Street
MELBOURNE VIC 3000
PO Box 5347BB
MELBOURNE VIC 3001
Telephone: (03) 9655 0600
Fax: (03) 9639 4684
Web: www.atpl.net.au
Email: sales@atpl.net.au

Innovation and Business Skills Australia

Level 2, Building B, 192 Burwood Road
HAWTHORN VIC 3122
Telephone: (03) 9815 7000
Fax: (03) 9815 7001
Email: virtual@ibsa.org.au

General Resources

Refer to <http://antapubs.dest.gov.au/publications/search.asp> to locate the following ANTA publications.

AQF Implementation Handbook, Third Edition. Australian Qualifications Framework Advisory Board, 2002, aqf.edu.au

Australian Quality Training Framework (AQTF) — for general information go to: www.dest.gov.au/sectors

Australian Quality Training Framework (AQTF) — for resources and information go to: www.dest.gov.au

Australian Quality Training Framework Standards for Registered Training Organisations, Australian National Training Authority, Melbourne, 2005. Available in hard copy from State and Territory Training Authorities or can be downloaded from www.dest.gov.au

TAA04 Training and Assessment Training Package. This is available from the Innovation and Business Skills Australia (IBSA) Industry Skills Council and can be viewed, and components downloaded, from the National Training Information Service (NTIS) www.ntis.gov.au

National Training Information Service, an electronic database providing comprehensive information about RTOs, Training Packages and accredited courses — www.ntis.gov.au

Style Guide for Training Package Support Materials, Australian National Training Authority, Melbourne, 2003. Can be downloaded from the ANTA publications page at www.dest.gov.au

Assessment Resources

Training Package Assessment Guides — a range of resources to assist RTOs in developing Training Package assessment materials developed by ANTA with funding from the Department of Education, Training and Youth Affairs. It is made up of 10 separate titles, as described at the ANTA publications page of www.dest.gov.au. Go to www.resourcegenerator.gov.au/loadpage.asp?TPAG.htm. Printed and/or CD Rom versions of the guides can be purchased from Australian Training Products (ATP). The resource includes the following guides:

1. Training Package assessment materials kit
2. Assessing competencies in higher qualifications
3. Recognition resource
4. Kit to support assessor training
5. Candidate's kit: Guide to assessment in New Apprenticeships
6. Assessment approaches for small workplaces
7. Assessment using partnership arrangements
8. Strategies for ensuring consistency in assessment
9. Networking for assessors
10. Quality assurance guide for assessment

An additional guide “Delivery and assessment strategies” has been developed to complement these resources.

Assessment Tool Design and Conducting Assessment

VETASSESS & Western Australian Department of Training and Employment 2000, *Designing tests — Guidelines for designing knowledge based tests for Training Packages*.

Vocational Education and Assessment Centre 1997, *Designing workplace assessment tools: A self-directed learning program*, NSW TAFE .

Manufacturing Learning Australia 2000, *Assessment solutions*, Australian Training Products, Melbourne.

Rumsey, David 1994, *Assessment practical guide*, Australian Government Publishing Service, Canberra.

Assessor Training

Australian Committee on Training Curriculum (ACTRAC) 1994, *Assessor training program — learning materials*, Australian Training Products, Melbourne.

Australian National Training Authority, ANTA, Brisbane. *A guide for professional development*

Australian Training Products Ltd, *Assessment and Workplace Training, Training Package — Toolbox*, ATPL Melbourne.

Green, M, et al. 1997, *Key competencies professional development package*, Department for Education and Children's Services, South Australia.

Victorian TAFE Association 2000, *The professional development CD: A learning tool*, VTA, Melbourne.

Assessment System Design and Management

Office of Training and Further Education 1998, *Demonstrating best practice in VET project — assessment systems and processes*, OTFE Victoria.

Toop, L., Gibb, J. & Worsnop, P, *Assessment system designs*, Australian Government Publishing Service, Canberra.

Western Australia Department of Training and VETASSESS 1998, *Kit for Skills Recognition Organisations*, WADOT, Perth.

Assessment in the Civil Construction Industry

The Civil Construction industry places a premium on skills and knowledge that can be demonstrated in a real workplace environment. Whilst assessment of some of the Units of Competency in the Resources and Infrastructure Civil Construction Training Package can be carried out in a simulated work environment, the industry strongly recommends that assessment is conducted in the workplace, wherever possible.

Assessment of competency requires the collection of evidence and this should be conducted over a period of time (at the workplace and/or a simulated work environment) to ensure that the demonstration of competency is valid and reliable. The individual being assessed should be aware that collection of evidence needs to be ongoing and they, therefore, need to be part of the planning, conduct and review of the assessment process.

Supporting Integrated Training Delivery and Assessment

As a general principle, the Civil Construction industry supports the integration of Units of Competency for assessment, where practical.

An integrated approach reflects real work practices in that it brings together a number of Units of Competency. For example, an employee working on a construction work site would complete a number of interrelated functions and Occupational, Health and Safety tasks at the same time, not simply one task at a time. An integrated assessment activity would be

designed to collect evidence for a number of units together rather than designing one assessment activity for each individual element of the relevant Performance Criteria.

Where both training and assessment are required, the industry supports an approach which provides for off-the-job training combined with assessment of the application of skills and knowledge in a real work situation.

The Resources and Infrastructure Civil Construction Training Package defines off-the-job assessment as that which occurs away from the normal operation of the business including, for example, assessment which may occur in the workplace but not under normal industry working conditions. The industry considers it important for candidates to have the opportunity to develop competency in structured learning programs, which includes assessing in the workplace whenever possible.

The Resources and Infrastructure Civil Construction Training Package defines on-the-job assessment as that assessment which occurs in the workplace as part of the normal operation of the business.

Where an integrated competency assessment approach is implemented it is expected that several integrated competency assessments would be necessary to cover the breadth and complexity of the qualification, from Certificate I to Advanced Diploma.

The context of the assessment, the role of the candidate and the complexity of the task will influence how many Units of Competency are to be integrated.

Registered Training Organisations' Roles and Responsibilities

Civil Construction industry members who participated in the development of this Training Package identified their expectations in relation to the roles and responsibilities of Registered Training Organisations (RTOs) who will deliver and assess against the Units of Competency and the qualifications in this package. The RTOs are expected to:

- ensure the quality of the delivery and assessment
- ensure trainers have relevant industry experience and maintain industry currency
- ensure these Assessment Guidelines are used as the basis for assessing against the Units of Competency and qualifications in this Training Package
- provide comprehensive and accessible advice to employers and learners on their responsibilities and rights
- ensure assessors have the appropriate qualifications and experience as set out in these Assessment Guidelines
- ensure appropriate processes for industry involvement in consultation and validation of assessment.

Assessors' Roles and Responsibilities

There are AQTF *mandatory* requirements to be met by individual assessors or collectively by the members of an assessment team or panel conducting assessments against this Training Package. It is industry's preferred approach that assessors also meet the following requirements:

- demonstrate current knowledge and experience of the industry, industry practices, and the job or role against which performance is being assessed. This may be demonstrated through evidence of actual workplace experience within the last two years or one or more of the following:

- attendance at professional development/training and education activities focusing on good practice in the relevant industry competencies
- participation in professional/industry networks
- demonstrate current knowledge and skill in assessing against this Training Package in a range of contexts. This may be demonstrated through at least one of the following:
- familiarity with the Units of Competency in this Training Package to be used by the learner as a basis of assessment
- recent planning, conduct and review of assessment and/or workplace training activities in a Civil Construction context
- participation in moderation/validation processes
- attendance at professional development activities focused on assessment and/or workplace training
- demonstrate the necessary interpersonal and communication skills required in the assessment process. This may be demonstrated through evidence of one or more of the following:
- attendance at professional development and/or training activities focused on effective communication in assessment and/or workplace training contexts
- knowledge of language, literacy and numeracy issues in the context of assessment and workplace training
- recent assessment and/or workplace training activities
- All assessors who are engaged in assessing against this Training Package must be either:
- employed by a RTO, **or**
- acting in partnership with an RTO where the assessor is working in an enterprise with a partnership arrangement with a private or public RTO, in accordance with Standard 1.6 of the Standards for RTOs.

Simulated Work Environment

Units of Competency from the Resources and Infrastructure Civil Construction Training Package should, wherever possible, be assessed in a work environment. Where this is not possible, assessment may occur in a simulated environment.

A simulated work environment may be required for the following reasons:

- the workplace may not use the relevant skill, equipment or process
- conducting assessments may be disruptive or interfere with work requirements, for example, there may be ethical, privacy or confidentiality issues to consider
- it may not be appropriate to apply the skills in the workplace due to potential risks such as those to health and safety or equipment being damaged.

In order to be a valid and reliable venue from which to assess a competency, the simulation must closely resemble a real work environment; the range of activities that occur must reflect real work experience.

When a simulated work environment is being set up, it is crucial that the assessor is thoroughly familiar with the competency standard being assessed, as well as experienced in the current circumstances of the work. The assessor will need to consider whether a simulation or an assessment environment has been adequately set up and might ask the following questions. Are there opportunities to:

- test the full range of equipment?
- use up-to-date equipment and software?
- reflect times and deadlines?
- show the complexity of dealing with multiple tasks?
- involve prioritising among competing tasks?
- deal with customers, including difficult ones?
- work with others in a team?
- communicate with diverse groups?
- find, discuss and test solutions to problems?
- explore Occupational, Health and Safety issues?
- answer practically oriented, applied knowledge questions?
- show the level of written and verbal expression sufficient for, but not exceeding, the work requirements?

Collecting Evidence

Assessors are required to collect evidence about the candidate's competency. The evidence will need to meet the rules of validity, authenticity, sufficiency and currency.

Validity ensures that the assessment process assesses what it claims to assess. The evidence collected must be relevant to the activity and focus on the knowledge and skills specified in the Performance Criteria and the Evidence Guides.

Authenticity ensures that the evidence collected actually relates to the performance of the person being assessed, and not that of another person. Where this is an issue, it may be necessary to validate the evidence with a third party.

Sufficiency ensures that enough evidence has been gathered to demonstrate competency in the standard being assessed. Evidence should be gathered on a number of occasions, in a range of contexts and using different assessment methods.

Currency ensures that evidence is not out-of-date and that the candidate is competent in terms of the most recent standards.

Meeting Access and Equity Requirements in Civil Construction

Access must be provided to appropriate learning and/or assessment support when required.

In all cases, it is expected that assessment will be supported by targeted questioning to assess the underpinning knowledge. Questioning will be undertaken as is appropriate to: the language and literacy levels of the operator, any cultural issues that may affect responses to the questions; and will reflect the requirements of the competency. For example, questions such as 'Do you understand?' could lead to 'Yes' answers; a 'No' may result in loss of face. It would be clearer to repeat or rephrase the question.

Where applicable, physical resources should include equipment modified for people with disabilities. The following resources are valuable for further information.

Access and Equity

Regularly check DEST publications for supporting resources:

www.dest.gov.au/sectors/training_skills/publications_resources

Legislation

Racial Discrimination Act 1975 <http://scaleplus.law.gov.au/html/pasteact/0/47/top.htm>

Disability Discrimination Act 1992 (DDA)
<http://scaleplus.law.gov.au/html/pasteact/0/311/top.htm>

Human Rights and Equal Opportunity Commission www.hreoc.gov.au

Working with Diversity

AQTF supporting resources:

- *Working with Diversity: A Guide to Equity and the AQTF*
- *Working with Diversity: Quality Training for People With a Disability*
- *Working with Diversity: Quality Training for Indigenous Australians*

Language and Literacy

Adult literacy www.dest.gov.au/literacynet/

Indigenous Issues

Partners in a Learning Culture: National Strategy and Blueprint for Implementation
www.dest.gov.au/archive/iae/analysis/learning/1/learning.htm

Australian Indigenous Training Advisory Council (AITAC)
www.dest.gov.au/sectors/training_skills/policy_issues_reviews/key_issues/nts/vet/aitac.htm

Indigenous Education Online <https://indigo.dest.gov.au/> and www.indigenous.gov.au

Indigenous Education Consultative Bodies (IECB): contact State/Territory Training Authorities, Telephone 1800 800 821, or go to
www.dest.gov.au/sectors/indigenous_education/organisation_contacts

Disability issues

Australian Disability Training Advisory Council (ADTAC)
www.trainability.edu.au/ADTACHomepage.htm

Disability employment agencies — contact State/Territory offices of Department of Family and Community Services for details of local disability employment agencies, or go to
<http://www.facs.gov.au/internet/facsinternet.nsf/disabilities/services-cdes.htm>

Gender issues

Women: Shaping Our Future
<http://antapubs.dest.gov.au/publications/publication.asp?qsID=607>

Equal Opportunity in the Workplace Agency (EOWA) www.eowa.gov.au

Competency Standards

What is Competency?

The broad concept of industry competency concerns the ability to perform particular tasks and duties to the standard of performance expected in the workplace. Competency requires the application of specified skills, knowledge and attitudes relevant to effective participation in an industry, industry sector or enterprise.

Competency covers all aspects of workplace performance and involves performing individual tasks, managing a range of different tasks, responding to contingencies or breakdowns, and dealing with the responsibilities of the workplace, including working with others. Workplace competency requires the ability to apply relevant skills, knowledge and attitudes consistently over time and in the required workplace situations and environments. In line with this concept of competency, Training Packages focus on what is expected of a competent individual in the workplace as an outcome of learning, rather than focussing on the learning process itself.

Competency standards in Training Packages are determined by industry to meet identified industry skill needs. Competency standards are made up of a number of Units of Competency each of which describes a key function or role in a particular job function or occupation. Each Unit of Competency within a Training Package is linked to one or more AQF qualifications.

Contextualisation of Units of Competency by RTOs

Registered Training Organisation (RTOs) may contextualise Units of Competency to reflect local outcomes required. Contextualisation could involve additions or amendments to the Unit of Competency to suit particular delivery methods, learner profiles, specific enterprise equipment requirements, or to otherwise meet local needs. However, the integrity of the overall intended outcome of the Unit of Competency must be maintained.

Any contextualising of Units of Competency in this endorsed Training Package must be within the bounds of the following advice. In contextualising Units of Competency, RTOs:

- must not remove or add to the number and content of elements and Performance Criteria
- may add specific industry terminology to Performance Criteria where this does not distort or narrow the competency outcomes
- may make amendments and additions to the Range Statement as long as such changes do not diminish the breadth of application of the competency and reduce its portability
- may add detail to the Evidence Guide in areas such as the critical aspects of evidence or resources and infrastructure required where these expand the breadth of the competency, but do not limit its use.

Components of Units of Competency

The components of Units of Competency are summarised below, in the order in which they appear in each Unit of Competency.

Unit Title

The unit title is a succinct statement of the outcome of the Unit of Competency. Each Unit of Competency title is unique, both within and across Training Packages.

Unit Descriptor

The unit descriptor broadly communicates the content of the Unit of Competency and the skill area it addresses. Where Units of Competency have been contextualised from Units of Competency from other endorsed Training Packages, summary information is provided. There may also be a brief second paragraph that describes its relationship with other Units of Competency, and any licensing requirements.

Application of the Unit

This sub-section fleshes out the Unit of Competency's scope, purpose and operation in different contexts, for example, by showing how the unit applies in the workplace.

Elements of Competency

The elements of competency are the basic building blocks of the Unit of Competency. They describe, in terms of outcomes, the significant functions and tasks that make up the competency.

Performance Criteria

The Performance Criteria specify the required performance in relevant tasks, roles, skills and in the applied knowledge that enables competent performance. They are usually written in passive voice. Critical terms or phrases may be written in bold italics and then defined in the Range Statement, in the order of their appearance in the Performance Criteria.

Required Skills and Knowledge

The Essential Skills and Knowledge are either identified separately or combined. *Knowledge* identifies what a person needs to know to perform the work in an informed and effective manner. *Skills* describe the application of knowledge to situations where understanding is converted into a workplace outcome.

Range Statement

The Range Statement provides a context for the Unit of Competency, describing essential operating conditions that may be present with training and assessment, depending on the work situation, the needs of the candidate, the accessibility of the item, and local industry and regional contexts. As applicable, the meanings of key terms used in the Performance Criteria will also be explained in the Range Statement.

Evidence Guide

The Evidence Guide is critical in assessment as it provides information to the Registered Training Organisation (RTO) and assessor about how the described competency may be demonstrated. The Evidence Guide does this by providing a range of evidence for the assessor to make determinations, and by providing the assessment context. The Evidence Guide describes:

- conditions under which competency must be assessed, including variables such as the assessment environment or necessary equipment
- relationships with the assessment of any other Units of Competency
- suitable methodologies for conducting assessment, including the potential for workplace simulation
- resource implications, for example access to particular equipment, infrastructure or situations
- how consistency in performance can be assessed over time, various contexts and with a range of evidence
- the required underpinning knowledge and skills.

Employability Skills statement

A standard Employability Skills statement appears in each unit of competency. This statement directs trainers and assessors to consider the information contained in the Employability Skills Summary in which the unit of competency is packaged.

Employability Skills in units of competency

The detail and application of Employability Skills facets will vary according to the job-role requirements of each industry. In developing Training Packages, industry stakeholders are consulted to identify appropriate facets of Employability Skills which are incorporated into the relevant units of competency and qualifications.

Employability Skills are not a discrete requirement contained in units of competency (as was the case with Key Competencies). Employability Skills are specifically expressed in the context of the work outcomes described in units of competency and will appear in elements, performance criteria, range statements and evidence guides. As a result, users of Training Packages are required to review the entire unit of competency in order to accurately determine Employability Skills requirements.

How Employability Skills relate to the Key Competencies

The eight nationally agreed Employability Skills now replace the seven Key Competencies in Training Packages. Trainers and assessors who have used Training Packages prior to the introduction of Employability Skills may find the following comparison useful.

Employability Skills	Mayer Key Competencies
Communication	Communicating ideas and information
Teamwork	Working with others and in teams
Problem solving	Solving problems Using mathematical ideas and techniques
Initiative and enterprise	
Planning and organising	Collecting, analysing and organising information Planning and organising activities
Self-management	
Learning	
Technology	Using technology

When analysing the above table it is important to consider the relationship and natural overlap of Employability Skills. For example, using technology may involve communication skills and combine the understanding of mathematical concepts.

Explicitly embedding Employability Skills in units of competency

This Training Package seeks to ensure that industry-endorsed Employability Skills are explicitly embedded in units of competency. The application of each skill and the level of detail included in each part of the unit will vary according to industry requirements and the nature of the unit of competency.

Employability Skills must be both explicit and embedded within units of competency. This means that Employability Skills will be:

- embedded in units of competency as part of the other performance requirements that make up the competency as a whole
- explicitly described within units of competency to enable Training Packages users to identify accurately the performance requirements of each unit with regards to Employability Skills.

This Training Package also seeks to ensure that Employability Skills are well-defined and written into units of competency so that they are apparent, clear and can be delivered and assessed as an essential component of unit work outcomes.

The following table contains examples of embedded Employability Skills for each component of a unit of competency. Please note that in the examples below the bracketed skills are provided only for clarification and will not be present in units of competency within this Training Package.

Unit component	Example of embedded Employability Skill
Unit title	Give formal presentations and take part in meetings (communication)
Unit descriptor	This unit covers the skills and knowledge required to promote the use and implementation of innovative work practices to effect change. (initiative and enterprise)
Element	Proactively resolve issues. (problem solving)
Performance criteria	Information is organised in a format suitable for analysis and dissemination in accordance with organisational requirements. (planning and organising)
Range statement	Software applications may include email, internet, word processing, spreadsheet, database or accounting packages. (technology)
Required skills and knowledge	Modify activities depending on differing workplace contexts, risk situations and environments. (learning) Work collaboratively with others during a fire emergency. (teamwork) Instructions, procedures and other information relevant the maintenance of vessel and port security. (communication)
Evidence guide	Evidence of having worked constructively with a wide range of community groups and stakeholders to solve problems and adapt or design new solutions to meet identified needs in crime prevention. In particular, evidence must be obtained on the ability to: <ul style="list-style-type: none"> • assess response options to identified crime-prevention needs and determine the optimal action to be implemented • in consultation with relevant others, design an initiative to address identified issues. (initiative and enterprise).

Contextualisation of Certificate I RII Units of Competency

The following table provides suggestions for the contextualisation of the RII units in Certificate I in Resources and Infrastructure Operation.

Unit Code and Title	Examples of Contextualisation for Civil Construction sector
RIIG001A Work safely and follow OHS policies and procedures	Include a focus on civil construction site hazards
RIIG002A Communicate in the workplace	Include a focus on communication equipment and technology relevant to a civil construction site
RIIG003A Contribute to quality work outcomes	Include examples of quality work outcomes required in the civil construction industry
RIIG004A Conduct local risk control	Include a focus on civil construction site hazards
RIIG005A Read and interpret maps	Include a focus on civil construction locations
RIIG006A Collect and prepare samples	Include examples of soil testing required in the civil construction industry
RIIG2001A Plan and organise work	Include examples of work outcomes required in the civil construction industry
RIIG2002A Carry out measurements and calculations	Aspects of mathematical ideas that relate to the industry need to be included. They should represent measurements and calculations usually made in a civil construction environment
RIIG2003A Use hand and power tools	Hand and power tools most commonly used in this industry must be used to demonstrate the competency.
RIIG2004A Operate small plant and equipment	Plant and equipment most commonly used in civil construction must be used to demonstrate the competency.
RIIG2005A Operate light vehicles	The types of light vehicles and the road and site conditions under which they are used in the civil construction industry must be used to demonstrate competency.
RIIG2006A Handle resources and infrastructure materials and safely dispose of non toxic materials	Range of non toxic materials must include those commonly used in the civil construction industry
RIIG2007A Read and interpret plans and specifications	Plans and specifications must be those commonly used in the civil construction industry
ICAITU128A Operate a personal computer	Imported units
HLTFA1A Apply basic First Aid	While delivering these units, civil construction contexts and examples should be used if possible.
BSBCMN215A Participate in environmental work practices	

Contextualisation of Imported Units

The training and assessment of all of the imported units in this training package should be contextualised to a civil construction work environment. This contextualisation should include the application of the units in at least one of the following civil construction fields:

- roads
- subdivisions
- bridgeworks
- railways
- harbours
- sewerage and drainage
- electrical infrastructure
- pipelines
- recreation works.

Imported units should be contextualised, as appropriate, in the following areas in the civil construction field in which the unit is being applied:

- legislation and regulations
- hazards and the consequent risks
- work practices.

RII06 Civil Construction Units of Competency

RIIG001A Work safely and follow OHS policies and procedures

Unit Descriptor This unit covers the knowledge and skill requirements to satisfy safe work practices. It includes accessing and identify site safety procedures, applying personal safety measures, applying operational safety measures, maintaining personal well-being and identifying and reporting incidents.

Employability Skills The required outcomes described in this Unit of Competency contain applicable facets of employability skills. The Employability Skills Qualification Summary for the qualification in which this Unit of Competency is packaged will assist in identifying employability skill requirements.

ELEMENT

Elements describe the essential outcomes of a Unit of Competency

PERFORMANCE CRITERIA

Performance Criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the Required Skills and Knowledge and/or the Range Statement. Assessment of performance is to be consistent with the Evidence Guide.

- | | |
|--|---|
| 1. Access and apply site safety procedures | 1.1 Conduct all activities according to <i>current relevant legislation, codes and practices.</i>
1.2 Access, confirm and implement relevant site safety policies and procedures.
1.3 Access, confirm and apply <i>safe operating procedures</i> for <i>managing potential hazards, risks and emergencies.</i>
1.4 Follow site safety reporting procedures. |
| 2. Apply personal safety measures | 2.1 Maintain a clean and tidy workplace.
2.2 Use appropriate <i>personal protective equipment</i>
2.3 Apply safe manual handling practices |
| 3. Identify and report incidents/hazards | 3.1 Identify, manage and report potential hazards, risks and emergencies
3.2 Report incidents and/or injury to approved personnel.
3.3 Record clearly and concisely the details of any incident, hazards and/or injury. |

- | | | | |
|----|------------------------------|-----|---|
| 4. | Apply emergency procedures | 4.1 | Recognise and respond to alarms and warning devices according to site procedures. |
| | | 4.2 | Apply site emergency response plans and procedures. |
| 5. | Maintain personal well-being | 5.1 | Adhere to site policies in relation to smoking, alcohol and drug use. |
| | | 5.2 | Maintain <i>standards of health, fitness and well-being</i> according to site and/or industry medical criteria. |

REQUIRED SKILLS AND KNOWLEDGE

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

Required Skills

Specific skills are required to achieve the performance criteria of this unit, particularly for their application in the variety of circumstances in which this unit may be applied. Skills include

- Communicate clearly and directly, listening carefully to instructions and information, responding to and clarifying directions
- Applying teamwork to a range of situations, particularly in a safety context
- Solving problems particularly in teams and in dealing practically with safety issues such as recognising and responding to alarms
- Showing initiative in adapting to changing work conditions or contexts particularly when working across a variety of work areas and in choosing appropriate personal protective equipment for each context
- Managing time, particularly in organising priorities and planning work
- Taking responsibility for self organisation of work priorities to follow site safe work procedures
- Showing a willingness to learn and to use a range of mediums to learn
- Applying and using appropriate technology in a safety context.

Required Knowledge

Specific knowledge is required to achieve the performance criteria of this unit, particularly for their application in the variety of circumstances in which this unit may be applied. Assessment requires evidence of the ability to identify and explain the purpose of:

- Emergency procedures
- Equipment safety requirements
- Personal protective equipment
- Hazardous substances procedures and handling techniques, including understanding of material safety data sheets (msdss) and their use
- Isolation procedures
- Lifting techniques, including an understanding of techniques for both manual and automated lifting
- Occupational health and safety procedures
- Primary and secondary ventilation
- Site safety requirements and procedures
- Participative procedures for workplace management of ohs (e.g. Consultation, safety representatives, committees, dispute resolution)
- Potential biological effects (e.g. Circadian rhythms, sleep, alertness, fatigue, stress, effects of heat stress and hyperthermia).

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. Bold italicised wording in the Performance Criteria is detailed below.

Current relevant legislation, regulations, codes and practices may include:

- Safety and health management system
- Explosive legislation
- OHS legislation
- Australian standards
- Industry guidelines and codes of practice
- Manufacturers' specifications and recommendations.

Safe operating procedures may include:

- Awareness and access to emergency exits
- Carrying out safety checks (e.g. Safety showers and eye washes)
- Emergency procedures
- First aid procedures

- Hazard identification and recognition procedures
- Work access permits
- Hot work procedures
- Housekeeping standards
- Observing smoking, use of radio and mobile phone restrictions at certain locations or times or during specific activities
- Observing electrical and mechanical procedures
- Observing right of way of heavy equipment
- Observing site speed limits
- Occupational health, safety and environment procedures around equipment, vehicles and personnel
- Tagging procedures (e.g. Out-of-service tags, danger tags, restrictive operations tags)
- Use of barricades and guards
- Use of fire extinguishers
- Hazardous substances safety procedures, including use of material safety data sheets (msdss)
- Use of two-way radios and site telephones
- Wearing equipment restraints
- Wearing personal protective equipment
- Working in confined spaces
- Wearing of seat belts
- Ensuring ventilation is operating
- Awareness of and access to escape ways
- Breakdown and recovery procedures
- Sign and barricade erection (including cleaning of signs)
- Observing right of way.

Potential hazards, risks and emergencies may include:

- Personal safety (e.g. Crush injuries, burns, slips, trips, falls, chemical exposure, fatigue)
- Plant (e.g. Structural damage, emergency shut down)
 - environment (e.g. seepage, emissions, chemical spills, pollution, anything detrimental to fauna and flora).

Personal protective equipment may include:

- Eye protection (e.g. glasses)
- Hearing protection (e.g. ear plugs)
- Protection from the elements (e.g. sun block)
- Protective clothing (e.g. gloves, safety boots, helmet, shin guards, long sleeved shirt and trousers)
- Chemical/gas detectors
- Respiratory devices
- Safety harness when working at heights

Standards of health, fitness and well-being may include:

- Health surveillance and testing at intervals in accordance with site, industry and/or state regulatory requirements

EVIDENCE GUIDE

The Evidence Guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for this Training Package.

Critical aspects of assessment and evidence required to demonstrate competency in this unit

- The evidence required to demonstrate competency in this unit must be relevant to working safely and following OHS policy and procedures and satisfying all of the requirements of the Performance Criteria, Required Skills and Knowledge and the Range Statement of this unit and include evidence of:
 - working with others to plan, prepare and execute the tasks
 - consistent successful achievement of the requirement outcomes

Context of and specific resources for assessment

- This unit should be assessed in the context of the work environment wherever possible. Where this is not possible, assessment may occur in a simulated environment
- Evidence for assessment is best gathered using the outcomes of products and processes of the

workplace context

- The assessment environment should not disadvantage the participant. For example, language, literacy and numeracy demands of assessment should not be greater than those required on the job
- Assessment of this competency requires typical resources normally used in the work environment. Selection and use of resources for particular work sites may differ due to site circumstances
- Where applicable, physical resources should include equipment modified for people with disabilities
- Access must be provided to appropriate learning and/or assessment support when required
- This unit may be assessed in a holistic way with other units of competency
- Appropriate methods of assessment for this unit will usually include:
 - workplace observation of processes and procedures
 - oral and/or written questioning on required knowledge
 - testimony from supervisors, colleagues, clients and/or other appropriate persons
 - simulation and/or scenario analysis
- Where performance is not directly observed and/or is required to be demonstrated over a period of time and/or in a number of locations, any evidence should be authenticated by colleagues, supervisors, clients or other appropriate persons
- Questioning should be undertaken in a manner appropriate to the language and literacy levels of the candidate and to the requirements of the Unit of Competency
- Assessment should also reinforce the integration of the knowledge and skills aspect of this unit
- Questioning should be undertaken in such a manner as is appropriate to the oracy, language and literacy levels of the assessee, any cultural issues that may affect responses to the questions, reflecting the requirements of the competency and the work being performed

Methods of assessment

RIIG002A Communicate in the workplace

Unit Descriptor This unit covers the knowledge and skill requirements to communicate effectively with other workers in a workplace. It includes the use of oral and written forms of communication as well as technology to receive, convey, discuss and confirm communication related to clarification, decision making and reporting.

Employability Skills The required outcomes described in this Unit of Competency contain applicable facets of employability skills. The Employability Skills Qualification Summary for the qualification in which this Unit of Competency is packaged will assist in identifying employability skill requirements.

ELEMENT

Elements describe the essential outcomes of a Unit of Competency

PERFORMANCE CRITERIA

Performance Criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the Required Skills and Knowledge and/or the Range Statement. Assessment of performance is to be consistent with the Evidence Guide.

- | | |
|-----------------------------------|---|
| 1. Communicate verbally | <p>1.1 Speak clearly and listen carefully to ensure information is understood.</p> <p>1.2 Ask questions and confirm meaning of information where required.</p> <p>1.3 Use relevant <i>communication</i> processes with other personnel to assist flow of work activities.</p> <p>1.4 Use site approved <i>signalling</i> methods to convey information.</p> <p>1.5 Listen for information being supplied.</p> <p>1.6 Participate in discussion to obtain relevant information and clarify meaning.</p> <p>1.7 Communicate cooperatively with other personnel.</p> |
| 2. Complete written documentation | <p>2.1 Complete all required <i>documentation</i> clearly, concisely and on time, using <i>plain English</i>.</p> <p>2.2 Use approved documents as required according to site procedures.</p> <p>2.3 Pass on written information to appropriate personnel.</p> |

- 3. Identify and access communication equipment/system
 - 3.1 Identify and access *communication system* components.
 - 3.2 Establish and maintain communication in accordance with relevant legislative requirements and *site procedures*.
 - 3.3 Access and apply *safety requirements* related to communication equipment and systems.
- 4. Communicate using equipment and systems
 - 4.1 Identify and select for use the most appropriate method of communication.
 - 4.2 Operate or use communication equipment and systems in accordance with manufacturer and site requirements.
 - 4.3 Acknowledge and respond to communication or take, confirm and pass on promptly to the appropriate person.
 - 4.4 Pass communications in a clear and concise manner and in accordance with *site procedures*.
 - 4.5 Follow emergency procedures, including the passing of reports, and observe rules of communication during an emergency.
 - 4.6 Identify and report faults in communication equipment in accordance with site procedures.

REQUIRED SKILLS AND KNOWLEDGE

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

Required Skills

Specific skills are required to achieve the performance criteria of this unit, particularly for their application in the variety of circumstances in which this unit may be applied.

Skills include:

- Communicate clearly and directly, listening carefully to instructions and information
- Communicating with people of different gender, race, age groups or religious and cultural beliefs
- Solving problems through clarifying communication
- Showing initiative in adapting to changing work conditions or contexts particularly when working across a variety of work areas
- Managing time, particularly in organising priorities and planning work and in choosing the most efficient and effective communication medium
- Taking responsibility for self organisation of work priorities
- Showing a willingness to learn and to use a range of mediums to learn
- Using a variety of communication equipment and systems.

Required Knowledge

Specific knowledge is required to achieve the performance criteria of this unit, particularly for their application in the variety of circumstances in which this unit may be applied. Assessment requires evidence of the ability to identify and explain the purpose of:

- Current relevant legislative requirements, Standards and site procedures
- Types of communications equipment and systems and their applications
- Site communication system components
- Operational procedures and safety requirements of communication equipment and systems
- Efficiently and effectively confirming and passing on information in a clear and prompt manner
- Identification and reporting of equipment and system faults.

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. Bold italicised wording in the Performance Criteria is detailed below.

Communications may include:

- Verbal (teamwork interaction and personal)
- Written information
- Signals (hand)
- Audible sounds (bells, whistles, sirens and clear calls)
- Visual signs (flashing lights, lamps)
- Authorised signaling methods
- Computer based systems
- Emergency alarms
- Pa system
- Telemetry
- Telephone
- Two-way radio.

Signals may include:

- Hand signals
- Horn and/or whistle
- Safety lights
- Cap lamp
- Emergency communication and signaling procedures.

Documentation may include:

- End of shift documentation
- Work log
- Supplies log
- Computer readings
- Personal danger tags
- Warning tags.

Plain English can be defined as:

- Presenting information which is:
 - visually inviting
 - logically organised
 - understandable on the first reading
 - in an order the reader will understand .

Communication system may include:

- The systems overview
- Operating directories
- Communication equipment
- Site specific procedures and constraints.

Site procedures may contain:

- Induction documentation
- Safety and health management system
- Material safety data sheets (msdss)
- Operations manual
- Policy and procedures documents
- Standard work instructions or equivalent
- Training materials
- Verbal instructions.

Safety requirements may include:

- Avoidance of energy sources
- Care of equipment and wiring
- Compliance with hazardous zones procedures.

EVIDENCE GUIDE

The Evidence Guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for this Training Package.

Critical aspects of assessment and evidence required to demonstrate competency in this unit

- The evidence required to demonstrate competency in this unit must be relevant to communicating in the workplace and satisfying all of the requirements of the Performance Criteria, Required Skills and Knowledge and the Range Statement of this unit and include demonstration of:
 - working with others to plan, prepare and execute the tasks, and
 - consistent successful achievement of the requirement outcomes.

Context of and specific resources for assessment

- This unit should be assessed in the context of the work environment wherever possible. Where this is not possible, assessment may occur in a simulated environment
- Evidence for assessment is best gathered using the outcomes of products and processes of the workplace context.
- The assessment environment should not disadvantage the participant. For example, language, literacy and numeracy demands of assessment should not be greater than those required on the job.
- Assessment of this competency requires typical resources normally used in the work environment. Selection and use of resources for particular work sites may differ due to site circumstances.
- Where applicable, physical resources should include equipment modified for people with disabilities.
- Access must be provided to appropriate learning and/or assessment support when required.

Methods of assessment

- This unit maybe assessed in a holistic way with other units of competency
- Appropriate methods of assessment for this unit will usually include:
 - workplace observation of processes and procedures
 - oral and/or written questioning on required knowledge
 - testimony from supervisors, colleagues, clients and/or other appropriate persons
 - simulation and/or scenario analysis.
- Where performance is not directly observed and/or is required to be demonstrated over a period of time and/or in a number of locations, any evidence should be authenticated by colleagues, supervisors, clients or other appropriate persons.
- Questioning should be undertaken in a manner appropriate to the language and literacy levels of the candidate and to the requirements of the Unit of Competency.

- Assessment should also reinforce the integration of the knowledge and skills aspect of this unit.
- Questioning should be undertaken in such a manner as is appropriate to the oracy, language and literacy levels of the assessee, any cultural issues that may affect responses to the questions, reflecting the requirements of the competency and the work being performed.

RIIG003A Contribute to quality work outcomes

Unit Descriptor

This unit covers the knowledge and skill requirements to contribute to quality work outcomes. It includes the steps involved in aiding in the identification of site based hazards, assessing the risk and referring the outcomes to the appropriate person.

Employability Skills

The required outcomes described in this Unit of Competency contain applicable facets of employability skills. The Employability Skills Qualification Summary for the qualification in which this Unit of Competency is packaged will assist in identifying employability skill requirements.

ELEMENT

Elements describe the essential outcomes of a Unit of Competency

PERFORMANCE CRITERIA

Performance Criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the Required Skills and Knowledge and/or the Range Statement. Assessment of performance is to be consistent with the Evidence Guide.

- | | |
|--|---|
| 1. Plan and prepare for quality work outcomes | 1.1 Access, analyse and clarify the <i>relevant quality procedures</i> .
1.2 Identify and agree on <i>performance indicators</i> for individual work with the appropriate persons.
1.3 Ensure work is completed within time, quality, cost and productivity parameters.
1.4 Plan work to facilitate the achievement of <i>quality standards</i> . |
| 2. Apply quality systems to individual work activities | 2.1 Carry out work to relevant quality procedures.
2.2 Adjust and agree on performance indicators to meet changing circumstances with appropriate person.
2.3 Suggest and implement procedure improvements with relevant people including corrective actions.
2.4 Complete <i>relevant quality documentation</i> in accordance with site requirements. |
| 3. Monitor and report work outcomes | 3.1 Monitor quality of outputs and report non-conformance and/or implement necessary changes in accordance with site procedures. |

- 3.2 Monitor work processes, report incidents and apply local risk control processes to minimise quality non-conformance.

REQUIRED SKILLS AND KNOWLEDGE

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

Required Skills

Specific skills are required to achieve the performance criteria of this unit, particularly for their application in the variety of circumstances in which this unit may be applied.

Skills include:

- Speaking clearly and directly, listening carefully to instructions and information, responding to and clarifying directions
- Applying teamwork to a range of situations, particularly in a safety context
- Maintaining quality system documents
- Solving problems particularly in teams and in dealing practically with safety issues as well as adjusting performance indicators to meet changed circumstances
- Showing initiative in adapting to changing work conditions or contexts particularly when working across a variety of work areas
- Managing time, particularly in organising priorities and planning work
- Taking responsibility for self organisation of work priorities
- Showing a willingness to learn and to use a range of mediums to learn
- Using mathematical ideas and techniques to complete quality documentation.

Required Knowledge

Specific knowledge is required to achieve the performance criteria of this unit, particularly for their application in the variety of circumstances in which this unit may be applied. Assessment requires evidence of the ability to identify and explain the purpose of:

- Site/enterprise quality systems
- Work planning processes
- Site and equipment safety requirements
- Technical and operational capability and limitations of resources and equipment being used.

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. Bold italicised wording in the Performance Criteria is detailed below.

Relevant quality procedures may include the use of:

- Relevant Australian Standards
- Company or site quality policies, procedures and work instructions
- Site quality plan
- Codes of practice
- Manufacturers' instructions.

Performance indicators may include:

- Time parameters
- Productivity parameters
- Quality parameters
- Cost parameters
- Time targets for own work
- Criteria for evaluation of own work
- Measures to avoid wastage
- Criteria for measurement of internal and external customer satisfaction
- Processes to ensure 'right first time' approach.

Quality standards may include:

- Relevant Australian Standards
- Site, enterprise or customer specifications.

Relevant quality documentation may include:

- Daily production reports
- Specific product or process reports or records.

EVIDENCE GUIDE

The Evidence Guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for this Training Package.

Critical aspects of assessment and evidence required to demonstrate competency in this unit

- The evidence required to demonstrate competency in this unit must be relevant to contributing to quality work outcomes and satisfying all of the requirements of the Performance Criteria, Required Skills and Knowledge and the Range Statement of this unit and include demonstration of:
 - working with others to plan, prepare and execute the tasks, and
 - consistent successful achievement of the

requirement outcomes.

Context of and specific resources for assessment

- This unit should be assessed in the context of the work environment wherever possible. Where this is not possible, assessment may occur in a simulated environment. Evidence for assessment is best gathered using the outcomes of products and processes of the workplace context.
- The assessment environment should not disadvantage the participant. For example, language, literacy and numeracy demands of assessment should not be greater than those required on the job.
- Assessment of this competency requires typical resources normally used in the work environment. Selection and use of resources for particular work sites may differ due to site circumstances.
- Where applicable, physical resources should include equipment modified for people with disabilities.
- Access must be provided to appropriate learning and/or assessment support when required.

Methods of assessment

- This unit maybe assessed in a holistic way with other units of competency
- Appropriate methods of assessment for this unit will usually include:
 - workplace observation of processes and procedures
 - oral and/or written questioning on required knowledge
 - testimony from supervisors, colleagues, clients and/or other appropriate persons
 - simulation and/or scenario analysis.
- Where performance is not directly observed and/or is required to be demonstrated over a period of time and/or in a number of locations, any evidence should be authenticated by colleagues, supervisors, clients or other appropriate persons.
- Questioning should be undertaken in a manner appropriate to the language and literacy levels of the candidate and to the requirements of the Unit of Competency.
- Assessment should also reinforce the integration of the knowledge and skills aspect of this unit.

- Questioning should be undertaken in such a manner as is appropriate to the oracy, language and literacy levels of the assessee, any cultural issues that may affect responses to the questions, reflecting the requirements of the competency and the work being performed.

RIIG004A Conduct local risk control

Unit Descriptor

This unit covers the knowledge and skill requirements to contribute to site based risk analysis processes. The unit covers the steps of aiding in the identifying site based hazards, assessing the risk and referring the outcomes of the assessment to the appropriate person.

Employability Skills

The required outcomes described in this Unit of Competency contain applicable facets of employability skills. The Employability Skills Qualification Summary for the qualification in which this Unit of Competency is packaged will assist in identifying employability skill requirements.

ELEMENT

Elements describe the essential outcomes of a Unit of Competency

PERFORMANCE CRITERIA

Performance Criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the Required Skills and Knowledge and/or the Range Statement. Assessment of performance is to be consistent with the Evidence Guide.

- | | |
|---------------------|---|
| 1. Identify hazards | <p>1.1 Site conditions and functions are analysed to identify/recognise actual and potential hazards.</p> <p>1.2 Relevant safety systems information is accessed and analysed to eliminate situations covered by existing and adequate procedures.</p> <p>1.3 The type and scope of unresolved hazards and their likely impact are recognised and acted upon.</p> |
| 2. Assess risks | <p>2.1 Likelihood of the event happening is considered and determined.</p> <p>2.2 Consequence if the event should occur is evaluated and determined.</p> <p>2.3 Risk level (likelihood and consequence combined) is considered and determined.</p> |
| 3. Decide on action | <p>3.1 Risk assessment is reported to appropriate person for identification of unacceptable risks and decisions about actions.</p> <p>3.2 Complete records and reports for hazards and actions from personal risk assessment as specified by legislative and site requirements.</p> |

REQUIRED SKILLS AND KNOWLEDGE

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

Required Skills

Specific skills are required to achieve the performance criteria of this unit, particularly for their application in the variety of circumstances in which this unit may be applied.

Skills include

- Speaking clearly and directly, listening carefully to instructions and information, responding to and clarifying directions
- Collection analysis and organisation of information to access, interpret and apply site information on risk control systems
- Working with other team members on identifying hazards, assessing risks and deciding on control measures
- Applying teamwork to a range of situations, particularly in a safety context
- Solving problems particularly in teams and in dealing practically with safety issues
- Decision making skills to determine actions if risk analysis shows actions is required
- Showing initiative in adapting to changing work conditions or contexts particularly when working across a variety of work areas
- Managing time, particularly in organising priorities and planning work
- Taking responsibility for self organisation of work priorities
- Showing a willingness to learn and to use a range of mediums to learn
- Using mathematical skills to perform a basic risk ranking of hazards.

Required Knowledge

Specific knowledge is required to achieve the performance criteria of this unit, particularly for their application in the variety of circumstances in which this unit may be applied. Assessment requires evidence of the ability to identify and explain the purpose of:

- Risk management processes and methods, including: identifying hazards, assessing risks, determining acceptability of risks, identifying controls
- Az/nzs 4360:2004 risk management
- Specific work site risk management procedures
- Specific work site safety systems information
- Specific work site communication, reporting and recording procedures

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. Bold italicised wording in the Performance Criteria is detailed below.

- Hazards* may include:
- Equipment
 - Methods/plans
 - People
 - The work environment
 - A source of potential harm or a situation with a potential to cause loss
 - (AS/NZS 4360:2004 risk management).
- Risk* is defined as:
- The chance of something happening that will have an impact upon objectives. It is measured in terms of consequences and likelihood.
 - (AS/NZS 4360:2004 risk management).
- Consequence* is defined as:
- The outcome of an event expressed qualitatively or quantitatively, being a loss, injury, disadvantage or gain. There may be a range of possible outcomes associated with an event.
 - (AS/NZS 4360:2004 risk management).
- Records and reports* may include:
- Hazard reporting forms
 - Incident reports
 - Near miss reports
 - Shift reports.

EVIDENCE GUIDE

The Evidence Guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for this Training Package.

Critical aspects of assessment and evidence required to demonstrate competency in this unit

- The evidence required to demonstrate competency in this unit must be relevant to conducting local risk analysis and satisfy all of the requirements of the Performance Criteria, Required Skills and Knowledge and the Range Statement of this unit and include demonstration of:
 - working with others to plan, prepare and execute the tasks

- consistent successful achievement of the requirement outcomes

Context of and specific resources for assessment

- This unit should be assessed in the context of the work environment wherever possible. Where this is not possible, assessment may occur in a simulated environment. Evidence for assessment is best gathered using the outcomes of products and processes of the workplace context.
- The assessment environment should not disadvantage the participant. For example, language, literacy and numeracy demands of assessment should not be greater than those required on the job.
- Assessment of this competency requires typical resources normally used in the work environment. Selection and use of resources for particular work sites may differ due to site circumstances.
- Where applicable, physical resources should include equipment modified for people with disabilities.
- Access must be provided to appropriate learning and/or assessment support when required.

Methods of assessment

- This unit maybe assessed in a holistic way with other units of competency
- Appropriate methods of assessment for this unit will usually include:
 - workplace observation of processes and procedures
 - oral and/or written questioning on required knowledge
 - testimony from supervisors, colleagues, clients and/or other appropriate persons
 - simulation and/or scenario analysis
- Where performance is not directly observed and/or is required to be demonstrated over a period of time and/or in a number of locations, any evidence should be authenticated by colleagues, supervisors, clients or other appropriate persons
- Questioning should be undertaken in a manner appropriate to the language and literacy levels of the candidate and to the requirements of the Unit of Competency
- Assessment should also reinforce the integration of the knowledge and skills aspect of this unit

- Questioning should be undertaken in such a manner as is appropriate to the oracy, language and literacy levels of the assessee, any cultural issues that may affect responses to the questions, reflecting the requirements of the competency and the work being performed

RIIG005A Read and interpret maps

Unit Descriptor This unit specifies the skill and knowledge to read and interpret maps relevant to work activities in the resources and infrastructure industries.

The unit includes identification of locations using maps, compasses and other equipment, identification of types of maps and their functions, the recognition of commonly used symbols and abbreviations, the identification of key features and specifications on a map, and the navigating of a route using maps, compass and other equipment.

Employability Skills The required outcomes described in this Unit of Competency contain applicable facets of employability skills. The Employability Skills Qualification Summary for the qualification in which this Unit of Competency is packaged will assist in identifying employability skill requirements.

ELEMENT

Elements describe the essential outcomes of a Unit of Competency

PERFORMANCE CRITERIA

Performance Criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the Required Skills and Knowledge and/or the Range Statement. Assessment of performance is to be consistent with the Evidence Guide.

- | | |
|---------------------------|--|
| 1. Prepare for navigation | <p>1.1 Applicable safety and organisational requirements relevant to navigation are identified and complied with.</p> <p>1.2 Information is gathered and relevant factors identified and checked with appropriate personnel.</p> <p>1.3 Suitable maps, equipment and navigation aids are selected and checked for accuracy, currency and operational effectiveness in accordance with manufacturers' recommendations.</p> <p>1.4 Faults or errors in maps and equipment are detected and corrected.</p> <p>1.5 Communication with others is established and maintained in accordance with OHS requirements.</p> |
| 2. Plan the route | <p>2.1 Traverse route to destination is selected using information from map or plan and field observations.</p> |

- 2.2 Maps are examined to identify relevant *symbols and information* and *navigation data*.
- 2.3 Current position in the field is identified on map or plan in accordance with organisational procedures.
- 2.4 Current position in the field is located using landmarks and key geographical features.
- 2.5 Required destination is identified on map or plan in accordance with organisational procedures.
- 2.6 Hazards and potential hazards in traversing from location to destination are recognised and interpreted from map or plan, field observations, and local knowledge.
- 2.7 Distance to required destination is estimated using map scale and selected traverse route.
- 3. Conduct navigation
 - 3.1 Navigation is undertaken in accordance with planned route and schedule.
 - 3.2 Maps are correctly orientated to *surroundings* in accordance with planned route.
 - 3.3 Equipment and navigation aids are used in accordance with manufacturers' recommendations
 - 3.4 Alternative routes are navigated to bypass *obstacles* and improve efficiency of route or course

REQUIRED SKILLS AND KNOWLEDGE

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

Required Skills

Specific skills are required to achieve the performance criteria of this unit, particularly for their application in the variety of circumstances in which this unit may be applied. Skills include

- Speaking clearly and directly, listening carefully to instructions and information
- Accessing, interpreting and applying technical and operational information including work instructions, quality assurance procedures, manufacturers' instructions, material safety data sheets and equipment instructions
- Applying teamwork to a range of situations, particularly in a safety context
- Solving problems such as recognising clear discrepancies between available maps or other data and the actual site and taking action to correct these
- Showing initiative in adapting to changing work conditions or contexts particularly when working across a variety of work areas
- Managing time, particularly in organising priorities and planning work
- Taking responsibility for self organisation of work priorities
- Showing a willingness to learn and to use a range of mediums to learn
- Applying mathematical skills, including basic angles and geometry for compass bearings, estimation and measurement.

Required Knowledge

Specific knowledge is required to achieve the performance criteria of this unit, particularly for their application in the variety of circumstances in which this unit may be applied. Assessment requires evidence of the ability to identify and explain the purpose of:

- types of maps, charts and scales and their uses
- Representation of topographic features on maps and plans
- Common scales used on maps and plans
- Features and use of a compass and factors that affect compass accuracy
- Advantages and disadvantages of different map and chart types and sources of error
- Techniques for estimating distance travelled.

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. Bold italicised wording in the Performance Criteria is detailed below.

- | | |
|---|--|
| <i>Information</i> may include: | <ul style="list-style-type: none"> • Details of local inhabitants, type of terrain or features of the route, access and exit routes, natural protection or shelter, land management and legislative requirements, guide books |
| <i>Maps</i> may include: | <ul style="list-style-type: none"> • Cadastral and topographic maps, charts, guide books, aerial photographs, sketches and cave maps, and diagrams |
| <i>Equipment</i> may include: | <ul style="list-style-type: none"> • Compass, track and survey markers, beacons, personal protective equipment and clothing, GPS units |
| <i>Navigation aids</i> may include: | <ul style="list-style-type: none"> • Track and creek junctions and crossings, survey markers, beacons, track markers, cairns, paths, signs, arrows, compass and man-made objects or features |
| <i>Symbols and information</i> may include: | <ul style="list-style-type: none"> • Grid lines and numbers, contour lines, magnetic variation, scale, map legend, topographic features, markers and beacons, water depth |
| <i>Navigation data</i> may include: | <ul style="list-style-type: none"> • Grid reference points, grid and magnetic bearings, distances, estimated travelling times, height gain/loss, gradient, identifiable features and exit routes |
| <i>Surroundings</i> may include: | <ul style="list-style-type: none"> • Ground/terrain, bodies of water, beacons and markers, natural formations, landmarks and man-made features |
| <i>Obstacles</i> may include: | <ul style="list-style-type: none"> • Thick vegetation, drops and climbs, marshes and bogs, fog, rivers, lakes and dams, tides and hazards |

EVIDENCE GUIDE

The Evidence Guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for this Training Package.

Critical aspects of assessment and evidence required to demonstrate competency in this unit

- The evidence required to demonstrate competency in this unit must be relevant to reading and interpreting maps and satisfy all of the requirements of the Performance Criteria, Required Skills and Knowledge and the Range Statement of this unit and include demonstration of:
 - working with others to plan, prepare and execute the tasks
 - consistent successful achievement of the requirement outcomes

Context of and specific resources for assessment

- This unit should be assessed in the context of the work environment wherever possible. Where this is not possible, assessment may occur in a simulated environment. Evidence for assessment is best gathered using the outcomes of products and processes of the workplace context
- The assessment environment should not disadvantage the participant. For example, language, literacy and numeracy demands of assessment should not be greater than those required on the job
- Assessment of this competency requires typical resources normally used in the work environment. Selection and use of resources for particular work sites may differ due to site circumstances
- Where applicable, physical resources should include equipment modified for people with disabilities
- Access must be provided to appropriate learning and/or assessment support when required

Methods of assessment

- This unit may be assessed in a holistic way with other units of competency
- Appropriate methods of assessment for this unit will usually include:
 - workplace observation of processes and procedures
 - oral and/or written questioning on required knowledge

- testimony from supervisors, colleagues, clients and/or other appropriate persons
 - simulation and/or scenario analysis
- Where performance is not directly observed and/or is required to be demonstrated over a period of time and/or in a number of locations, any evidence should be authenticated by colleagues, supervisors, clients or other appropriate persons
- Questioning should be undertaken in a manner appropriate to the language and literacy levels of the candidate and to the requirements of the Unit of Competency
- Assessment should also reinforce the integration of the knowledge and skills aspect of this unit
- Questioning should be undertaken in such a manner as is appropriate to the oracy, language and literacy levels of the assessee, any cultural issues that may affect responses to the questions, reflecting the requirements of the competency and the work being performed

RIIG006A Collect and prepare samples

Unit Descriptor This unit covers the skills and knowledge to undertake fieldwork, investigating mineral deposits using a wide range of methods and equipment

Employability Skills The required outcomes described in this Unit of Competency contain applicable facets of employability skills. The Employability Skills Qualification Summary for the qualification in which this Unit of Competency is packaged will assist in identifying employability skill requirements.

ELEMENT

Elements describe the essential outcomes of a Unit of Competency

PERFORMANCE CRITERIA

Performance Criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the Required Skills and Knowledge and/or the Range Statement. Assessment of performance is to be consistent with the Evidence Guide.

- | | | | |
|----|---|-----|---|
| 1. | Plan <i>sample</i> collection and preparation | 1.1 | Identify and verify nature of <i>required sampling</i> prior to collection |
| | | 1.2 | Use and document procedures to ensure <i>representative sampling</i> |
| | | 1.3 | Ensure procedures are available to maintain sample integrity during collection, preparation and transport |
| | | 1.4 | Assemble required sampling <i>equipment</i> |
| 2. | Perform sample collection | 2.1 | Collect samples as specified in collection plan |
| | | 2.2 | Preserve sample integrity throughout collection |
| | | 2.3 | Place samples in suitable containers and label accurately |
| | | 2.4 | Store and transport samples |
| | | 2.5 | Identify and record characteristics of sampling environment, in particular any non-standard aspects |
| | | 2.6 | Maintain sampling equipment in a clean and safe working condition |
| 3. | Prepare samples | 3.1 | Verify sample, check documentation and required equipment for preparation |
| | | 3.2 | Perform <i>sample preparation</i> according to plan using recommended procedures |
| | | 3.3 | Reduce sample through primary reduction processes |

- 3.4 Process diamond core samples
- 3.5 Contain loss of material and protect sample against contamination
- 3.6 Recover and clean mineral *samples* using appropriate techniques and *equipment*
- 3.7 Store or dispose of residues and samples following OHS and environmental guidelines
- 4. Prepare samples for dispatch
 - 4.1 Label, store and transport core samples to maintain integrity of sample
 - 4.2 Use appropriate reference materials, *standards* and controls
 - 4.3 Prepare samples for analysis according to method adopted
 - 4.4 Contain loss of material and protect sample against contamination
 - 4.5 Document any change to preparation methods
 - 4.6 Forward samples for analysis to external laboratories
 - 4.7 Store, test and dispose of samples as determined by relevant procedures

REQUIRED SKILLS AND KNOWLEDGE

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

Required Skills

Specific skills are required to achieve the performance criteria of this unit, particularly for their application in the variety of circumstances in which this unit may be applied.

Skills include:

- Speaking clearly and directly, listening carefully to instructions and information to identify and verify the nature of required samples prior to collection
- Writing skills sufficient to report and complete documentation
- Applying teamwork to a range of situations, particularly in a safety context
- Solving problems particularly in teams and in containing loss of material and protecting samples against contamination
- Showing initiative in adapting to changing work conditions or contexts particularly when working across a variety of work placements
- Choosing and using relevant sampling equipment safely
- Maintaining sampling field equipment
- Managing time, particularly in organising priorities and planning sample collection and preparation
- Taking responsibility for self organisation of work priorities
- Showing a willingness to learn and to use a range of mediums to learn.

Required Knowledge

Specific knowledge is required to achieve the performance criteria of this unit, particularly for their application in the variety of circumstances in which this unit may be applied. Assessment requires evidence of the ability to identify and explain the purpose of:

- Sample collection methods
- Quality procedures
- Sampling equipment use
- Basic equipment maintenance

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. Bold italicised wording in the Performance Criteria is detailed below.

- Samples* may include:
- Water
 - Soils
 - Rocks
 - Minerals
 - Fossils
 - Hydrocarbons
 - Drill core
 - Stream sediment
 - Mine samples.

- Equipment* may include:
- Hand tools
 - Carrying devices
 - Portable power tools

- and mineral separation equipment and techniques including:
- Mechanical gravity separator
 - High specific gravity liquids
 - Hand magnets
 - Isodynamic magnetic separator
 - Electrostatic separator
 - Preferential crushing
 - Ultrasonic cleaner
 - Panning and hand jigging.

- Required sampling* may include:
- Crushing/grinding
 - Sieving
 - Riffing
 - Blending
 - Homogenisation

- Coning
 - Quartering
 - Preparing sub-sample including:
 - stain/polish
 - petrological and electron microscope/electron microprobes
- Representative sampling* may include:
- Size
 - Frequency
 - Location
- Primary reduction processes* may include:
- Hydraulic rock splitter
 - Diamond saw
 - Sledge hammer
 - Crushers
 - Screens.
- Diamond core processing* may include:
- Marking up
 - Specific gravity
 - Magnetic suspension
 - Core-cutting
- Sample preparation* may include:
- Splitting
 - Sub-sampling
 - Sealing
 - Size reduction.

EVIDENCE GUIDE

The Evidence Guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for this Training Package.

Critical aspects of assessment and evidence required to demonstrate competency in this unit

- The evidence required to demonstrate competency in this unit must be relevant to collecting and preparing samples and satisfy all of the requirements of the Performance Criteria, Required Skills and Knowledge and the Range Statement of this unit and include demonstration of:

- working with others to plan, prepare and execute the tasks
- consistent successful achievement of the requirement outcomes

Context of and specific resources for assessment

- This unit should be assessed in the context of the work environment wherever possible. Where this is not possible, assessment may occur in a simulated environment. Evidence for assessment is best gathered using the outcomes of products and processes of the workplace context
- The assessment environment should not disadvantage the participant. For example, language, literacy and numeracy demands of assessment should not be greater than those required on the job
- Assessment of this competency requires typical resources normally used in the work environment. Selection and use of resources for particular work sites may differ due to site circumstances
- Where applicable, physical resources should include equipment modified for people with disabilities
- Access must be provided to appropriate learning and/or assessment support when required

Methods of assessment

- This unit maybe assessed in a holistic way with other units of competency
- Appropriate methods of assessment for this unit will usually include:
 - workplace observation of processes and procedures
 - oral and/or written questioning on required knowledge
 - testimony from supervisors, colleagues, clients and/or other appropriate persons
 - simulation and/or scenario analysis
- Where performance is not directly observed and/or is required to be demonstrated over a period of time and/or in a number of locations, any evidence should be authenticated by colleagues, supervisors, clients or other appropriate persons
- Questioning should be undertaken in a manner appropriate to the language and literacy levels of the candidate and to the requirements of the Unit of Competency

- Assessment should also reinforce the integration of the knowledge and skills aspect of this unit
- Questioning should be undertaken in such a manner as is appropriate to the oracy, language and literacy levels of the assessee, any cultural issues that may affect responses to the questions, reflecting the requirements of the competency and the work being performed

RIIG2001A Plan and organise work

Unit Descriptor

This unit covers the skills and knowledge involved in the planning of allotted tasks to maximise personal productivity on a work site. It includes work organisation, planning schedules, materials, plant and people planning, contingency planning and reporting.

Employability Skills

The required outcomes described in this Unit of Competency contain applicable facets of employability skills. The Employability Skills Qualification Summary for the qualification in which this Unit of Competency is packaged will assist in identifying employability skill requirements.

ELEMENT

Elements describe the essential outcomes of a Unit of Competency

PERFORMANCE CRITERIA

Performance Criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the Required Skills and Knowledge and/or the Range Statement. Assessment of performance is to be consistent with the Evidence Guide.

- | | |
|-------------------------|--|
| 1. Plan and prepare | <p>1.1 Employment conditions, responsibilities and obligations are identified and clarified.</p> <p>1.2 <i>Work instructions</i> are obtained, confirmed and applied.</p> <p>1.3 Work is planned from an analysis of the required outcomes, standard work procedures, available time, resource requirements and known priorities.</p> <p>1.4 <i>Tools, plant and equipment</i> selected to carry out tasks are consistent with the requirements of the job, checked for serviceability and any faults are rectified or reported.</p> <p>1.5 Materials appropriate to the work application are identified, safely handled and located ready for use.</p> <p>1.6 Environmental protection requirements are identified from the project environmental management plan or appropriate regulatory specifications and applied.</p> |
| 2. Sequence work safely | <p>2.1 Work plan is determined and tasks performed in a logical, safe and efficient sequence.</p> <p>2.2 <i>Work documentation and/or reports</i> are completed to enterprise requirements.</p> |

3. Problems are resolved
- 3.1 Problems with work processes are identified and suggestions for improvement made.
 - 3.2 Modifications to work processes are made to suit changing circumstances, after consultation with supervisor or other relevant personnel.

REQUIRED SKILLS AND KNOWLEDGE

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

Required Skills

Specific skills are required to achieve the performance criteria of this unit, particularly for their application in the variety of circumstances in which this unit may be applied. Skills include

- Speaking clearly and directly, listening carefully to instructions and information
- Accessing, interpreting and applying technical and operational information including work instructions, quality assurance procedures, manufacturers' instructions, material safety data sheets and equipment instructions
- Applying teamwork to a range of situations, particularly in a safety context
- Solving problems particularly in teams and in dealing practically with blockages to work flow and systematically work around these to avoid or minimise reworking and avoid wastage
- Showing initiative in adapting to changing work conditions or contexts particularly when working across a variety of work placements
- Managing time, particularly in organising priorities and planning work
- Taking responsibility for self organisation of work priorities
- Showing a willingness to learn and to use a range of mediums to learn
- Using mathematical ideas and techniques to correctly calculate time to complete tasks, calculate material requirements and establish quality checks.

Required Knowledge

Specific knowledge is required to achieve the performance criteria of this unit, particularly for their application in the variety of circumstances in which this unit may be applied. Assessment requires evidence of the ability to identify and explain the purpose of:

- Basic work planning processes
- Operational safety requirements, such as equipment characteristics, technical capabilities and limitations, operational procedures, material data safety sheets (MSDS)

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. Bold italicised wording in the Performance Criteria is detailed below.

Work instructions may include the use of:

- Plans, specifications, quality requirements and operational details relevant to the tasks
- Documentation or verbal instructions

Work documentation and/or reports may include:

- Shift reports
- Handover briefs
- Time cards
- Other relevant records

Tools, plant and equipment may include:

- Those commonly used in relevant work environments

EVIDENCE GUIDE

The Evidence Guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for this Training Package.

Critical aspects of assessment and evidence required to demonstrate competency in this unit

- The evidence required to demonstrate competency in this unit must be relevant to planning and organising work and satisfy all of the requirements of the Performance Criteria, Required Skills and Knowledge and the Range Statement of this unit and include demonstration of:
 - working with others to plan, prepare and execute the tasks
 - consistent successful achievement of the requirement outcomes

Context of and specific resources for assessment

- This unit should be assessed in the context of the work environment wherever possible. Where this is not possible, assessment may occur in a simulated environment. Evidence for assessment is best gathered using the outcomes of products and processes of the workplace context
- The assessment environment should not disadvantage the participant. For example, language, literacy and numeracy demands of assessment should not be greater than those required on the job
- Assessment of this competency requires typical resources normally used in the work environment.

Selection and use of resources for particular work sites may differ due to site circumstances

Methods of assessment

- Where applicable, physical resources should include equipment modified for people with disabilities
- Access must be provided to appropriate learning and/or assessment support when required
- This unit maybe assessed in a holistic way with other units of competency
- Appropriate methods of assessment for this unit will usually include:
 - workplace observation of processes and procedures
 - oral and/or written questioning on required knowledge
 - testimony from supervisors, colleagues, clients and/or other appropriate persons
 - simulation and/or scenario analysis
- Where performance is not directly observed and/or is required to be demonstrated over a period of time and/or in a number of locations, any evidence should be authenticated by colleagues, supervisors, clients or other appropriate persons
- Questioning should be undertaken in a manner appropriate to the language and literacy levels of the candidate and to the requirements of the Unit of Competency
- Assessment should also reinforce the integration of the knowledge and skills aspect of this unit
- Questioning should be undertaken in such a manner as is appropriate to the oracy, language and literacy levels of the assessee, any cultural issues that may affect responses to the questions, reflecting the requirements of the competency and the work being performed

RIIG2002A Carry out measurements and calculations

Unit Descriptor

This unit covers the skills and knowledge in carrying out measurements and perform work related calculations to determine task and material requirements for a job task in a resources and infrastructure work environment.

Employability Skills

The required outcomes described in this Unit of Competency contain applicable facets of employability skills. The Employability Skills Qualification Summary for the qualification in which this Unit of Competency is packaged will assist in identifying employability skill requirements.

ELEMENT

Elements describe the essential outcomes of a Unit of Competency

PERFORMANCE CRITERIA

Performance Criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the Required Skills and Knowledge and/or the Range Statement. Assessment of performance is to be consistent with the Evidence Guide.

- | | |
|-------------------------|--|
| 1. Plan and prepare | <ul style="list-style-type: none"> 1.1 Work instructions are confirmed and applied. 1.2 Safety requirements are obtained from the site safety plan, other regulatory specifications or legal obligations and applied. 1.3 Measuring and calculating equipment selected to carry out tasks are consistent with the requirements of the job, checked for serviceability and any faults are rectified or reported. |
| 2. Perform measurements | <ul style="list-style-type: none"> 2.1 Method of obtaining the <i>measurement</i> is selected and applied. 2.2 Linear measurements are obtained using a rule or tape, accurate to 1mm. 2.3 Measurements are confirmed and recorded. |
| 3. Perform calculations | <ul style="list-style-type: none"> 3.1 Appropriate <i>calculation</i> method is selected for achieving the required result. 3.2 Material quantities for the project are correctly calculated using the appropriate factors. 3.3 Results are confirmed and recorded. |

- 4. Estimate quantities
 - 4.1 Calculations for determining material requirements are taken.
 - 4.2 Appropriate formulas for calculating quantities are selected.
 - 4.3 Quantities are estimated from the calculations taken
 - 4.4 Material quantities for the project are calculated, confirmed and recorded within enterprise tolerances.

REQUIRED SKILLS AND KNOWLEDGE

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

Required Skills

Specific skills are required to achieve the performance criteria of this unit, particularly for their application in the variety of circumstances in which this unit may be applied.

Skills include

- Speaking clearly and directly, listening carefully to instructions and information
- Collecting, organising and understanding the information required for the preparation and application of measurements and calculations, including work instructions, quality assurance procedures, manufacturers' instructions, material safety data sheets and equipment instructions
- Applying teamwork to a range of situations, particularly in a safety context
- Solving problems particularly in teams and in dealing practically with safety issues including establishing safe and effective work processes which anticipate likely problems and blockages and systematically work around these to avoid or minimise reworking and avoid wastage
- Showing initiative in adapting to changing work conditions or contexts particularly when working across a variety of work placements
- Managing time, particularly in organising priorities and planning work associated with the preparation and application of measurements and calculations, including the scheduling and use of equipment, materials and tools to avoid backtracking and rework
- Taking responsibility for self organisation of work priorities
- Showing a willingness to learn and to use a range of mediums to learn.

Required Knowledge

Specific knowledge is required to achieve the performance criteria of this unit, particularly for their application in the variety of circumstances in which this unit may be applied. Assessment requires evidence of the ability to identify and explain the purpose of:

- Measuring, calculating, geometry and determination of quantities
- Tolerances
- Calculators
- Processes for care of measuring equipment

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. Bold italicised wording in the Performance Criteria is detailed below.

Measurement may include:

- The determination of length, area, weight, height, width, depth, volume, mass, scales, ratios, perimeters, quantities, numbers, grade, percentages, addition, subtraction, multiplication and division

Calculations may include:

- Those performed manually and with the aid of a calculator
- Those required to measure or calculate
 - length
 - perimeter
 - circumference
 - area
 - volume
 - number
 - ratio
 - percentage
 - conversions, such as of metres to millimetres and millimetres to metres

EVIDENCE GUIDE

The Evidence Guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for this Training Package.

Critical aspects of assessment and evidence required to demonstrate competency in this unit

- The evidence required to demonstrate competency in this unit must be relevant to carrying out measurements and calculations and satisfying all of the requirements of the Performance Criteria, Required Skills and Knowledge and the Range Statement of this unit and include demonstration of:
 - working with others to plan, prepare and execute the tasks
 - consistent successful achievement of the requirement outcomes

Context of and specific resources for assessment

- This unit should be assessed in the context of the work environment wherever possible. Where this is not possible, assessment may occur in a simulated environment. Evidence for assessment is best gathered using the outcomes of products and processes of the workplace context
- The assessment environment should not disadvantage the participant. For example, language, literacy and numeracy demands of assessment should not be greater than those required on the job
- Assessment of this competency requires typical resources normally used in the work environment. Selection and use of resources for particular work sites may differ due to site circumstances
- Where applicable, physical resources should include equipment modified for people with disabilities
- Access must be provided to appropriate learning and/or assessment support when required

Methods of assessment

- This unit may be assessed in a holistic way with other units of competency
- Appropriate methods of assessment for this unit will usually include:
 - workplace observation of processes and procedures
 - oral and/or written questioning on required knowledge
 - testimony from supervisors, colleagues, clients and/or other appropriate persons
 - simulation and/or scenario analysis.
- Where performance is not directly observed and/or is required to be demonstrated over a period of time and/or in a number of locations, any evidence should be authenticated by colleagues, supervisors, clients or other appropriate persons.
- Questioning should be undertaken in a manner appropriate to the language and literacy levels of the candidate and to the requirements of the Unit of Competency.
- Assessment should also reinforce the integration of the knowledge and skills aspect of this unit.

- Questioning should be undertaken in such a manner as is appropriate to the oracy, language and literacy levels of the assessee, any cultural issues that may affect responses to the questions, reflecting the requirements of the competency and the work being performed.

RIIG2003A Use hand and power tools

Unit Descriptor This unit covers the skills and knowledge to safely and effectively identify, select and use a wide range of hand and power tools to aid in the completion of tasks.

Employability Skills The required outcomes described in this Unit of Competency contain applicable facets of employability skills. The Employability Skills Qualification Summary for the qualification in which this Unit of Competency is packaged will assist in identifying employability skill requirements.

ELEMENT

Elements describe the essential outcomes of a Unit of Competency

PERFORMANCE CRITERIA

Performance Criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the Required Skills and Knowledge and/or the Range Statement. Assessment of performance is to be consistent with the Evidence Guide.

- | | |
|-------------------------------|--|
| 1. <i>Plan and prepare</i> | 1.1 Work instructions, including plans, specifications, quality requirements and operational details relevant to the tasks are obtained, confirmed and applied |
| | 1.2 Safety requirements are obtained from the site safety plan and organisational policies and procedures, confirmed and applied to the allotted task |
| | 1.3 Environmental protection requirements are identified from the project environmental management plan, confirmed and applied to the allotted task |
| 2. Select and use hand tools | 2.1 <i>Hand tools</i> are selected consistent with needs of the job |
| | 2.2 Tools are checked for serviceability and safety, and faults reported |
| | 2.3 Materials are clamped or fixed in position |
| | 2.4 Hand tools are used safely and effectively according to their intended use |
| | 2.5 Hand tools are safely stored when not in immediate use |
| 3. Select and use power tools | 3.1 <i>Power tools</i> , leads and hoses are selected consistent with needs of job in accordance with standard work practice, and any faults reported |

- 3.2 Power leads/hoses are visually checked for serviceability/safety in accordance with the site safety plan
- 3.3 Route for safe placement of leads/hoses is cleared of identified hazards
- 3.4 Electrical power leads are run to power supply so they are clear of traffic or covered where possible
- 3.5 Electric power leads are connected to the power board or direct to power tool
- 3.6 Air hoses are run out to the compressed air supply and covered where potential trip hazards exist
- 3.7 Hose is connected to power tool and air supply
- 3.8 Material is clamped or fixed in position for power tool application where applicable
- 3.9 Power tools are safely and effectively used in application processes
- 3.10 Power tools are safely stored when not in use
- 4. Clean up
 - 4.1 Work area is cleared and materials disposed of or recycled in accordance with project environmental management plan
 - 4.2 Machinery, tools and equipment are cleaned, checked, maintained and stored in accordance with manufacturers' recommendations and standard work practices

REQUIRED SKILLS AND KNOWLEDGE

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

Required Skills

Specific skills are required to achieve the performance criteria of this unit, particularly for their application in the variety of circumstances in which this unit may be applied.

Skills include

- Speaking clearly and directly, listening carefully to instructions and information.
- Interpreting and understanding the information required for the preparation and application of hand and power tools, including work instructions, quality assurance procedures, manufacturers' instructions, material safety data sheets and equipment
- Applying teamwork to a range of situations, particularly in a safety context
- Solving problems particularly in teams and in dealing practically with safety issues
- Showing initiative in adapting to changing work conditions or contexts particularly when working across a variety of work placements
- Managing time, particularly in organising priorities and planning work including the scheduling and use of equipment, materials and tools to avoid back tracking and re work
- Taking responsibility for self organisation of work priorities
- Showing a willingness to learn and to use a range of mediums to learn
- Using technology related to determining requirements, the planning and application of hand and power tools, including the use of calculations, mechanical equipment and the reporting/recording of results.

Required Knowledge

Specific knowledge is required to achieve the performance criteria of this unit, particularly for their application in the variety of circumstances in which this unit may be applied. Assessment requires evidence of the ability to identify and explain the purpose of:

- Site and equipment safety requirements
- Hand tools
- Portable power tools
- Power sources
- Materials commonly used in the industry
- Equipment types, characteristics, technical capabilities and limitations
- Operational, maintenance and basic diagnostic procedures
- Materials Safety Data Sheets and materials handling methods
- Project quality requirements
- Industry and worksite terminology
- Electrical and compressed air safety
- JSA's/Safe work method 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. Bold italicised wording in the Performance Criteria is detailed below.

Planning and preparation is to include, but not be limited to:

- Worksite inspection, checking of electrical safety/inspection tag for currency, equipment defect identification, assessment of conditions and hazards and determination of work requirements

Hand tools are to include but not be limited to:

- Cramps, vices, adjustable spanners, crow bars, pinch bars, bolt cutters, brooms, chisels, hacksaws, handsaws, hammers, measuring tapes, axes, rakes, hand augers, picks, mattocks, pliers, shovels, spades, sledge hammers, spanners, wrenches, spirit levels and wire cutters

Power tools are to include but not be limited to:

- Those powered by 240 volt electricity and may include those powered by compressed air, battery driven power tools and hydraulic
- Kanga hammers, cut off saws, drills,

screwdrivers, angle grinders, pneumatic wrenches, impact hammers, tampers, rotary hammers/drills, circular saws, planers, sanders and scalers

EVIDENCE GUIDE

The Evidence Guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for this Training Package.

Critical aspects of assessment and evidence required to demonstrate competency in this unit

- The evidence required to demonstrate competency in this unit must be relevant to using hand and power tools and satisfying all of the requirements of the Performance Criteria, Required Skills and Knowledge and the Range Statement of this unit and include demonstration of:
 - working with others to plan, prepare and execute the tasks, and
 - consistent successful achievement of the requirement outcomes.

Context of and specific resources for assessment

- This unit should be assessed in the context of the work environment wherever possible. Where this is not possible, assessment may occur in a simulated environment. Evidence for assessment is best gathered using the outcomes of products and processes of the workplace context.
- The assessment environment should not disadvantage the participant. For example, language, literacy and numeracy demands of assessment should not be greater than those required on the job.
- Assessment of this competency requires typical resources normally used in the work environment. Selection and use of resources for particular work sites may differ due to site circumstances.
- Where applicable, physical resources should include equipment modified for people with disabilities.
- Access must be provided to appropriate learning and/or assessment support when required.

Methods of assessment

- This unit maybe assessed in a holistic way with other units of competency
- Appropriate methods of assessment for this unit will usually include:

- workplace observation of processes and procedures
- oral and/or written questioning on required knowledge
- testimony from supervisors, colleagues, clients and/or other appropriate persons
- simulation and/or scenario analysis.
- Where performance is not directly observed and/or is required to be demonstrated over a period of time and/or in a number of locations, any evidence should be authenticated by colleagues, supervisors, clients or other appropriate persons.
- Questioning should be undertaken in a manner appropriate to the language and literacy levels of the candidate and to the requirements of the Unit of Competency.
- Assessment should also reinforce the integration of the knowledge and skills aspect of this unit.
- Questioning should be undertaken in such a manner as is appropriate to the oracy, language and literacy levels of the assessee, any cultural issues that may affect responses to the questions, reflecting the requirements of the competency and the work being performed.

RIIG2004A Operate small plant and equipment

Unit Descriptor

This unit cover the skills and knowledge to operate a range of small plant and equipment commonly employed in resources and infrastructure activities and work sites.

It includes the selection of the most commonly used equipment, the planning and preparation for work, the conduct of checks, the use of the plant and/or equipment and the post operational maintenance and clean up.

Employability Skills

The required outcomes described in this Unit of Competency contain applicable facets of employability skills. The Employability Skills Qualification Summary for the qualification in which this Unit of Competency is packaged will assist in identifying employability skill requirements.

ELEMENT

Elements describe the essential outcomes of a Unit of Competency

PERFORMANCE CRITERIA

Performance Criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the Required Skills and Knowledge and/or the Range Statement. Assessment of performance is to be consistent with the Evidence Guide.

- | | |
|-----------------------------------|--|
| 1. Plan and prepare | <p>1.1 Work instructions, including plans, specifications, quality requirements and operational details are obtained, confirmed and applied to the allotted task</p> <p>1.2 Safety requirements are obtained from the site safety plan and organisational policies and procedures, confirmed and applied to the allotted task</p> <p>1.3 Plant, tools and equipment selected to carry out tasks are consistent with the requirements of the job</p> <p>1.4 Environmental protection requirements are identified from the project environmental management plan, confirmed and applied to the allotted task</p> |
| 2. Conduct pre operational checks | <p>2.1 Fuel and lubricants are selected according to manufacturers' specifications</p> <p>2.2 Fuel, oil, hydraulic fluid and water levels are checked and adjusted according to manufacturers' manual</p> |

- 2.3 Bolts, nuts, guards and attachment couplings are secured/tightened and maintained in accordance with manufacturers' instructions
- 2.4 Function of controls and gauges are checked and adjusted where necessary to comply with manufacturers' manual
- 2.5 Standard start-up and shut down procedures are conducted according to requirements of operators' manual
- 3. Use small plant and equipment
 - 3.1 Site hazards associated with ***small plant and equipment*** operations are identified and appropriate controls established in accordance with the requirements of the site safety plan
 - 3.2 Operating techniques for small plant and equipment are identified and applied to achieve optimum output in accordance with manufactures' design specifications while maintaining specified tolerances
 - 3.3 Machine is operated to produce results within design specifications to meet specified tolerances
 - 3.4 Plant and equipment are safely located when not in immediate use
- 4. Carry out ***operator maintenance***
 - 4.1 Plant/equipment is shut down and prepared for maintenance as per manufacturers' manual and organisational requirements
 - 4.2 Inspection and fault finding are conducted in accordance with manufactures' specifications and/or organisational requirements
 - 4.3 Defective parts are removed and replaced safely and effectively according to manufacturers' manual and organisational requirements
 - 4.4 Regular programmed maintenance tasks are carried out in accordance with manufacturers' and/or organisational requirements
- 5. Clean up
 - 5.1 Work area is cleared and materials disposed of or recycled in accordance with project environmental management plan
 - 5.2 Plant, equipment and tools are cleaned, checked, maintained and stored in accordance with manufacturers' recommendations and standard work practices

REQUIRED SKILLS AND KNOWLEDGE

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

Required Skills

Specific skills are required to achieve the performance criteria of this unit, particularly for their application in the variety of circumstances in which this unit may be applied.

Skills include

- Speaking clearly and directly, listening carefully to instructions and information
- Applying teamwork to a range of situations, particularly in a safety context
- Solving problems particularly in teams and in dealing practically with safety issues
- Interpreting and understanding the information required
- Showing initiative in adapting to changing work conditions or contexts particularly when working across a variety of work placements
- Managing time, particularly in organising priorities and planning work
- Taking responsibility for self organisation of work priorities
- Showing a willingness to learn and to use a range of mediums to learn
- Using technology related to determining requirements, the planning and application of small plant and equipment.

Required Knowledge

Specific knowledge is required to achieve the performance criteria of this unit, particularly for their application in the variety of circumstances in which this unit may be applied. Assessment requires evidence of the ability to identify and explain the purpose of:

- Small plant and equipment types, characteristics, technical capabilities and limitations
- Basic soil types and characteristics
- Site and equipment safety requirements
- Small plant and equipment operating techniques related to essential tasks
- Operational, maintenance and basic diagnostic procedures
- Site isolation and traffic control responsibilities and authorities
- Materials Safety Data Sheets and materials handling methods
- Project quality requirements
- Industry and site specific terminology
- JSA's/Safe work method 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. Bold italicised wording in the Performance Criteria is detailed below.

Small plant and equipment may include the use of:

- Compressors, concrete mixers, pedestrian rollers, water pumps, brick/masonry saws, jack hammers, kanga hammers, generator sets, lighting sets, vibrating plates, plate compactors, quick cut saws, concrete vibrators, pedestrian rollers, concrete saws and generators, industrial wet and dry vacuum cleaners, pallet trolleys, terrazzo grinders, hoists, brush-cutters and mowers

Operator maintenance is to include

- Cleaning, authorised servicing and the monitoring, recording and reporting of faults. It may also include the conduct of authorised minor replacements

EVIDENCE GUIDE

The Evidence Guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for this Training Package.

Critical aspects of assessment and evidence required to demonstrate competency in this unit

- The evidence required to demonstrate competency in this unit must be relevant to operating small plant and equipment and satisfying all of the requirements of the Performance Criteria, Required Skills and Knowledge and the Range Statement of this unit and include demonstration of:
 - working with others to plan, prepare and execute the tasks
 - consistent successful achievement of the requirement outcomes.

Context of and specific resources for assessment

- This unit should be assessed in the context of the work environment wherever possible. Where this is not possible, assessment may occur in a simulated environment. Evidence for assessment is best gathered using the outcomes of products and processes of the workplace context.
- The assessment environment should not disadvantage the participant. For example, language, literacy and numeracy demands of assessment should not be greater than those required on the job.

- Assessment of this competency requires typical resources normally used in the work environment. Selection and use of resources for particular work sites may differ due to site circumstances.
- Where applicable, physical resources should include equipment modified for people with disabilities.
- Access must be provided to appropriate learning and/or assessment support when required.
- This unit may be assessed in a holistic way with other units of competency
- Appropriate methods of assessment for this unit will usually include:
 - workplace observation of processes and procedures
 - oral and/or written questioning on required knowledge
 - testimony from supervisors, colleagues, clients and/or other appropriate persons
 - simulation and/or scenario analysis.
- Where performance is not directly observed and/or is required to be demonstrated over a period of time and/or in a number of locations, any evidence should be authenticated by colleagues, supervisors, clients or other appropriate persons.
- Questioning should be undertaken in a manner appropriate to the language and literacy levels of the candidate and to the requirements of the Unit of Competency.
- Assessment should also reinforce the integration of the knowledge and skills aspect of this unit.
- Questioning should be undertaken in such a manner as is appropriate to the oracy, language and literacy levels of the assessee, any cultural issues that may affect responses to the questions, reflecting the requirements of the competency and the work being performed.

Methods of assessment

RIIG2005A Operate light vehicles

Unit Descriptor

This unit covers the skills and knowledge to operate light vehicles (up to 4.5 tonnes GVM) including the starting, driving and stopping and the conduct of operator checks and actions.

Employability Skills

The required outcomes described in this Unit of Competency contain applicable facets of employability skills. The Employability Skills Qualification Summary for the qualification in which this Unit of Competency is packaged will assist in identifying employability skill requirements.

ELEMENT

Elements describe the essential outcomes of a Unit of Competency

1. Plan and prepare for operations
2. Operate *light vehicle*

PERFORMANCE CRITERIA

Performance Criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the Required Skills and Knowledge and/or the Range Statement. Assessment of performance is to be consistent with the Evidence Guide.

- 1.1 Obtain, interpret and clarify/confirm work requirements and details before proceeding.
- 1.2 Access, interpret and apply *information* required to complete the allocated work in accordance with site procedures.
- 1.3 Access and apply *safety information and procedures* throughout the work.
- 2.1 Carry out start-up, park and shut-down procedures
- 2.2 Operate equipment within recommended speed, engine capability and limitations
- 2.3 Monitor equipment performance utilising appropriate indicators to aid efficient operations
- 2.4 Manoeuvre equipment to maximise efficiency and ensure safety of other equipment and personnel
- 2.5 Assess road conditions and site conditions and determine appropriate driving technique
- 2.6 Complete work according to agreed work plan and outcomes

- 3. Carry out operator maintenance
 - 3.1 Carry out equipment inspections and fault finding in accordance with manufacturer instructions and site requirements.
 - 3.2 Carry out routine operational servicing, lubrication and housekeeping tasks in accordance with manufacturer instructions and site authorised requirements
 - 3.3 Carry out minor maintenance to manufacturer instructions and site requirements.
 - 3.4 Process records in accordance with site requirements.

REQUIRED SKILLS AND KNOWLEDGE

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

Required Skills

Specific skills are required to achieve the performance criteria of this unit, particularly for their application in the variety of circumstances in which this unit may be applied.

Skills include

- Speaking clearly and directly, listening carefully to instructions and information
- Reading and writing vehicle log books, manufacturers' instructions and maintaining equipment records
- Applying teamwork to a range of situations, particularly in a safety context
- Solving problems, particularly applying diagnostic techniques related to operator maintenance techniques and procedures and in dealing practically with safety issues
- Showing initiative in adapting to changing work conditions or contexts such as operating different types of vehicles or in different weather or road/site conditions
- Choosing and using relevant hand tools
- Disposing of environmentally sensitive fluids and materials.
- Managing time, particularly in organising priorities and planning work
- Taking responsibility for self organisation of work priorities
- Showing a willingness to learn and to use a range of mediums to learn.

Required Knowledge

Specific knowledge is required to achieve the performance criteria of this unit, particularly for their application in the variety of circumstances in which this unit may be applied. Assessment requires evidence of the ability to identify and explain the purpose of:

- Site and equipment safety requirements
- Site operational procedures
- Equipment and trailer characteristics, technical capabilities and limitations
- Light vehicle maintenance requirements/procedures
- Vehicle record system
- Communication system
- Loading/offloading procedures.

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. Bold italicised wording in the Performance Criteria is detailed below.

- Information* may include:
- Geological and survey data
 - Work plans
 - Manufacturers instructions
- Safety information and procedures* may include:
- Use of seat belts
 - Security of door
 - Conditions of brakes and braking system (air pressure)
 - Load characteristics
 - Vehicle speed
 - Fluid levels.
- Light vehicle* may include:
- 4-wheel drive
 - Car
 - Utility
 - Small truck
 - Other authorised vehicle
- Pre-start procedures* may include:
- Fluid levels, including fuel, engine oil, brake fluid, coolant, clutch / transmission fluid and windscreen, washer fluid
 - Windows and mirrors for clear visibility
 - Tyres and wheels (air pressure, tyre damage, illegal tread depth and condition, abnormal wear pattern and tyre compatibility)
 - Fan belts
 - Seat belts
 - Door hatches and latches
 - Battery and connections
 - Visible and current registration and licences
 - Spare wheel
 - Wheel nuts
 - Rear guards
 - Warning horn.

EVIDENCE GUIDE

The Evidence Guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for this Training Package.

Critical aspects of assessment and evidence required to demonstrate competency in this unit

- The evidence required to demonstrate competency in this unit must be relevant to operating light vehicles and satisfy all of the requirements of the Performance Criteria, Required Skills and Knowledge and the Range Statement of this unit and include demonstration of:
 - working with others to plan, prepare and execute the tasks, and
 - consistent successful achievement of the requirement outcomes.

Context of and specific resources for assessment

- This unit should be assessed in the context of the work environment wherever possible. Where this is not possible, assessment may occur in a simulated environment. Evidence for assessment is best gathered using the outcomes of products and processes of the workplace context.
- The assessment environment should not disadvantage the participant. For example, language, literacy and numeracy demands of assessment should not be greater than those required on the job.
- Assessment of this competency requires typical resources normally used in the work environment. Selection and use of resources for particular work sites may differ due to site circumstances.
- Where applicable, physical resources should include equipment modified for people with disabilities.
- Access must be provided to appropriate learning and/or assessment support when required.

Methods of assessment

- This unit may be assessed in a holistic way with other units of competency
- Appropriate methods of assessment for this unit will usually include:
 - workplace observation of processes and procedures
 - oral and/or written questioning on required knowledge
 - testimony from supervisors, colleagues, clients and/or other appropriate persons

- simulation and/or scenario analysis.
- Where performance is not directly observed and/or is required to be demonstrated over a period of time and/or in a number of locations, any evidence should be authenticated by colleagues, supervisors, clients or other appropriate persons.
- Questioning should be undertaken in a manner appropriate to the language and literacy levels of the candidate and to the requirements of the Unit of Competency.
- Assessment should also reinforce the integration of the knowledge and skills aspect of this unit.
- Questioning should be undertaken in such a manner as is appropriate to the oracy, language and literacy levels of the assessee, any cultural issues that may affect responses to the questions, reflecting the requirements of the competency and the work being performed.

RIIG2006A Handle resources and infrastructure materials and safely dispose of non toxic materials

Unit Descriptor This unit covers the skills and knowledge to handle a range of commonly used materials and safety dispose of non-toxic materials.

Employability Skills The required outcomes described in this Unit of Competency contain applicable facets of employability skills. The Employability Skills Qualification Summary for the qualification in which this Unit of Competency is packaged will assist in identifying employability skill requirements.

ELEMENT

Elements describe the essential outcomes of a Unit of Competency

PERFORMANCE CRITERIA

Performance Criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the Required Skills and Knowledge and/or the Range Statement. Assessment of performance is to be consistent with the Evidence Guide.

- | | |
|----------------------------|---|
| 1. Plan and prepare | <ul style="list-style-type: none"> 1.1 Work instructions, including plans, specifications, quality requirements and operational details are obtained, confirmed and applied to the allotted task 1.2 Safety requirements are obtained from the site safety plan and organisational policies and procedures, confirmed and applied to the allotted task 1.3 Signage requirements are identified and obtained from the project traffic management plan and implemented 1.4 Tools and equipment selected to carry out tasks that are consistent with the requirements of the job, checked for serviceability and any faults are rectified or reported 1.5 Environmental protection requirements are identified from the project environmental management plan, confirmed and applied to the allotted task |
| 2. Handle and remove waste | <ul style="list-style-type: none"> 2.1 Material safety data sheets and requirements of regulatory authorities are complied with 2.2 Hazardous materials are identified for separate handling 2.3 Correct procedures are used to remove non-toxic materials |

- 2.4 **Dust suppression** procedures are used to minimise health risks to work personnel and others
3. Clean Up
- 3.1 **Tools and equipment** are cleaned, checked, maintained and stored in accordance with manufacturers' recommendations and standard work practices
- 3.2 Unused materials are safely stored/stacked for future use
- 3.3 Work area is cleared and materials disposed of or recycled in accordance with project environmental management plan

REQUIRED SKILLS AND KNOWLEDGE

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

Required Skills

Specific skills are required to achieve the performance criteria of this unit, particularly for their application in the variety of circumstances in which this unit may be applied.

Skills include

- Speaking clearly and directly, listening carefully to instructions and information
- Applying teamwork to a range of situations, particularly in a safety context
- Solving problems particularly in teams and in dealing practically with safety issues
- Showing initiative in adapting to changing work conditions or contexts particularly when working across a variety of work placements
- Managing time, particularly in organising priorities and planning work
- Taking responsibility for self organisation of work priorities
- Showing a willingness to learn and to use a range of mediums to learn.

Required Knowledge

Specific knowledge is required to achieve the performance criteria of this unit, particularly for their application in the variety of circumstances in which this unit may be applied. Assessment requires evidence of the ability to identify and explain the purpose of:

- The most commonly encountered waste materials on work sites
- Environmental management requirements
- Hazardous goods handling in accordance with company procedures
- Systems for packing and securing materials for movement
- Systems and equipments or materials for the short term protection of stacked/stored materials

- Methods of dust suppression
- Site and equipment safety requirements
- Site isolation and traffic control responsibilities and authorities
- Project quality requirements
- Industry and worksite terminology
- JSA's/Safe work method 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. Bold italicised wording in the Performance Criteria is detailed below.

Dust suppression procedures may include, but not be limited to:

- Spraying with water, covering, and use of vacuum cleaners

Tools and equipment may include, but not be limited to:

- Brooms, hoses, shovels, rakes, wet and dry industrial vacuum cleaners, wheelbarrows, pallet trolley, materials hoists and forklifts

EVIDENCE GUIDE

The Evidence Guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for this Training Package.

Critical aspects of assessment and evidence required to demonstrate competency in this unit

The evidence required to demonstrate competency in this unit must be relevant to handling materials safely; disposing of non toxic materials and satisfying all of the requirements of the Performance Criteria, Required Skills and Knowledge and the Range Statement of this unit and include demonstration of:

- working with others to plan, prepare and execute the tasks, and
- consistent successful achievement of the requirement outcomes.

Context of and specific resources for assessment

- This unit should be assessed in the context of the work environment wherever possible. Where this is not possible, assessment may occur in a simulated environment. Evidence for assessment is best gathered using the outcomes of products and processes of the workplace context.
- The assessment environment should not disadvantage the participant. For example, language, literacy and numeracy demands of

assessment should not be greater than those required on the job.

- Assessment of this competency requires typical resources normally used in the work environment. Selection and use of resources for particular work sites may differ due to site circumstances.
- Where applicable, physical resources should include equipment modified for people with disabilities.
- Access must be provided to appropriate learning and/or assessment support when required.

Methods of assessment

- This unit maybe assessed in a holistic way with other units of competency
- Appropriate methods of assessment for this unit will usually include:
 - o workplace observation of processes and procedures
 - o oral and/or written questioning on required knowledge
 - o testimony from supervisors, colleagues, clients and/or other appropriate persons
 - o simulation and/or scenario analysis.
- Where performance is not directly observed and/or is required to be demonstrated over a period of time and/or in a number of locations, any evidence should be authenticated by colleagues, supervisors, clients or other appropriate persons.
- Questioning should be undertaken in a manner appropriate to the language and literacy levels of the candidate and to the requirements of the Unit of Competency.
- Assessment should also reinforce the integration of the knowledge and skills aspect of this unit.
- Where practical assessment is used it will be combined with targeted questioning to assess the underpinning knowledge.
- Questioning should be undertaken in such a manner as is appropriate to the oracy, language and literacy levels of the assessee, any cultural issues that may affect responses to the questions, and reflecting the requirements of the competency and the work being performed.
- Questioning should be undertaken in such a manner as is appropriate to the oracy, language and literacy levels of the assessee, any cultural issues that may affect responses to the questions,

reflecting the requirements of the competency and the work being performed.

RIIG2007A Read and interpret plans and specifications

Unit Descriptor This unit specifies the skill and knowledge to read and verifying plans and specifications relevant to work activities in the resources and infrastructure industries.

The unit includes the identification of types of plans and drawings and their functions, the recognition of commonly used symbols and abbreviations, the identification of key features and specifications on a site plan, the comprehension of written job specifications and the recognition of document status and amendment detail.

Employability Skills The required outcomes described in this Unit of Competency contain applicable facets of employability skills. The Employability Skills Qualification Summary for the qualification in which this Unit of Competency is packaged will assist in identifying employability skill requirements.

ELEMENT

Elements describe the essential outcomes of a Unit of Competency

1. Identify types of drawings and their functions
2. Recognise amendments
3. Recognise commonly used symbols and abbreviations

PERFORMANCE CRITERIA

Performance Criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the Required Skills and Knowledge and/or the Range Statement. Assessment of performance is to be consistent with the Evidence Guide.

- 1.1 Main types of plans and ***drawings*** used in the industry are identified
- 1.2 Key functions of each type of drawing are identified
- 1.3 Quality requirements of company operations are recognised and adhered to
- 1.4 Environmental controls are identified from the job plans, specifications and environmental plan
- 2.1 Title panel is checked to verify latest amendments to drawing
- 2.2 Amendments to ***specifications*** are checked to ensure currency of information
- 3.1 Civil construction symbols and abbreviations are recognized
- 3.2 Legend is located on project drawings, symbols and abbreviations are correctly interpreted

- 4. Locate and identify key features on a site plan
 - 4.1 Orientation of the plan with the site is achieved
 - 4.2 **Key features** of the site are identified and located
 - 4.3 Access to site is gained and services, main features, contours and datum are identified
- 5. Read and interpret job specifications
 - 5.1 Job specifications are identified from drawings, notes and descriptions
 - 5.2 Standards of work, finishes and tolerances are identified from the project specifications
 - 5.3 Material attributes are identified from specifications

REQUIRED SKILLS AND KNOWLEDGE

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

Required Skills

Specific skills are required to achieve the performance criteria of this unit, particularly for their application in the variety of circumstances in which this unit may be applied.

Skills include

- Speaking clearly and directly, listening carefully to instructions and information
- Applying teamwork to a range of situations, particularly in a safety context
- Solving problems such as recognising clear discrepancies between the documents (map, plan, specifications) and the actual site and taking action to correct these
- Showing initiative in adapting to changing work conditions or contexts particularly when working across a variety of work areas
- Managing time, particularly in organising priorities and planning work
- Taking responsibility for self organisation of work priorities
- Applying mathematical skills, including basic calculations of heights, areas, volumes and grades
- Showing a willingness to learn and to use a range of mediums to learn
- Using workplace technology including the use of communication systems and the reporting/recording of results.

Required Knowledge

Specific knowledge is required to achieve the performance criteria of this unit, particularly for their application in the variety of circumstances in which this unit may be applied. Assessment requires evidence of the ability to identify and explain the purpose of:

- Features of plans and elevations including direction, scale, key, contours, symbols and abbreviations
- Commonly used symbols and abbreviations
- The processes for application of scales in plan preparation/interpretation
- Techniques for orienting/confirming the orientation of a plan
- Key features of formal job specifications
- Site and equipment safety requirements
- Project quality requirements
- Industry and specific work site terminology
- Drawing conventions
- JSA's/Safe work method 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. Bold italicised wording in the Performance Criteria is detailed below.

Drawings may include:

- Site plans
- Locality plans
- Cross sectional plans
- Longitudinal plans
- Structural detail and specification providing illustrations and dimensions and project plans
- Drawings
- Specifications
- Illustrations
- Dimensions and notes

Specifications may include:

- Materials and quality of work
- Quality assurance
- Nominated sub-contractors
- Provision of site access/facilities
- Details relating to performance including:
 - standards of work
 - tolerances
 - material types
 - characteristics
 - treatments and finishes

Key features of plans and specifications may include:

- Type of product/service
- Quantities
- Characteristics
- Sizes
- Pattern dimension
- Location
- Surfaces and compatibility

EVIDENCE GUIDE

The Evidence Guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for this Training Package.

Critical aspects of assessment and evidence required to demonstrate competency in this unit

- The evidence required to demonstrate competency in this unit must be relevant to reading and interpreting plans and specifications and satisfying all of the requirements of the Performance Criteria, Required Skills and Knowledge and the Range Statement of this unit and include demonstration of:
 - working with others to plan, prepare and execute the tasks, and
 - consistent successful achievement of the requirement outcomes.

Context of and specific resources for assessment

- This unit should be assessed in the context of the work environment wherever possible. Where this is not possible, assessment may occur in a simulated environment. Evidence for assessment is best gathered using the outcomes of products and processes of the workplace context.
- The assessment environment should not disadvantage the participant. For example, language, literacy and numeracy demands of assessment should not be greater than those required on the job.
- Assessment of this competency requires typical resources normally used in the work environment. Selection and use of resources for particular work sites may differ due to site circumstances.
- Where applicable, physical resources should include equipment modified for people with disabilities.
- Access must be provided to appropriate learning and/or assessment support when required.

Methods of assessment

- This unit may be assessed in a holistic way with other units of competency
- Appropriate methods of assessment for this unit will usually include:
 - workplace observation of processes and procedures
 - oral and/or written questioning on required knowledge
 - testimony from supervisors, colleagues, clients and/or other appropriate persons
 - simulation and/or scenario analysis.
- Where performance is not directly observed and/or is required to be demonstrated over a period of

time and/or in a number of locations, any evidence should be authenticated by colleagues, supervisors, clients or other appropriate persons.

- Questioning should be undertaken in a manner appropriate to the language and literacy levels of the candidate and to the requirements of the Unit of Competency.
- Assessment should also reinforce the integration of the knowledge and skills aspect of this unit.
- Questioning should be undertaken in such a manner as is appropriate to the oracy, language and literacy levels of the assessee, any cultural issues that may affect responses to the questions, reflecting the requirements of the competency and the work being performed.

RIICC401A Supervise civil works

Unit Descriptor This unit covers the supervision of civil works tasks. It includes the requirements for planning, preparing, initiating, monitoring, adjusting and reporting of civil works tasks.

Employability Skills The required outcomes described in this Unit of Competency contain applicable facets of employability skills. The Employability Skills Qualification Summary for the qualification in which this Unit of Competency is packaged will assist in identifying employability skill requirements.

ELEMENT

Elements describe the essential outcomes of a Unit of Competency

1. Plan and prepare for civil works tasks
2. Initiate civil works tasks
3. Monitor, adjust, communicate and report on the execution of civil works tasks

PERFORMANCE CRITERIA

Performance Criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the Required Skills and Knowledge and/or the Range Statement. Assessment of performance is to be consistent with the Evidence Guide.

- 1.1 Access and share with team members the ***legislative, organisational and manufacturers' requirements and procedures*** relevant to undertaking the tasks.
- 1.2 Access and share with team members the ***specific task information and requirements*** relevant to undertaking the task.
- 1.3 Prepare a ***job plan***, in conjunction with ***relevant team members***, which makes best use of the available resources and meets the task requirements.
- 2.1 Acquire and make available the necessary ***resources*** for the safe, effective and efficient conduct of the task, in accordance with the relevant ***legislative, organisational, client and manufacturers' requirements and procedures*** and the ***specific task information and requirements***.
- 2.2 Issue clear and timely ***instructions*** to team members and others involved, for the safe, effective and efficient conduct of the task, to meet the ***specific task requirements*** and the relevant ***legislative, organisational, client and manufacturers' requirements and procedures***.
- 3.1 Ensure the safe, effective and efficient execution of the tasks in accordance with the relevant ***legislative, organisational, client and manufacturers' requirements and procedures and the task requirements***.

- 3.2 **Monitor** the civil works task performance to ensure it achieves the **required outcomes**.
- 3.3 **Initiate** adjustments to **civil works practice** or **job plan** to ensure safe execution of work and achievement of **required outcomes**.
- 3.4 Ensure plant equipment and tools maintenance requirements are carried out and recorded in accordance with **relevant legislative, organisational and manufacturers' requirements**.
- 3.5 Complete and submit reports as required by **relevant legislative, organisational and task requirements**.
- 3.6 Recommend changes to improve the safety, efficiency and effectiveness of **civil works tasks**.

REQUIRED SKILLS AND KNOWLEDGE

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

Required Skills

Specific skills are required to achieve the Performance Criteria of this unit, particularly for their application in the variety of circumstances in which this unit may be applied.

This includes the ability to carry out the following, as required for the safe, effective and efficient execution of civil works:

- Interpreting legislative requirements and procedures
- Interpreting organisational requirements and procedures
- Interpreting client requirements and procedures
- Interpreting manufacturers' requirements and procedures
- Interpreting project site geological data
- Interpreting project site geotechnical data
- Interpreting project site hydrological data
- Interpreting project engineering survey information
- Interpreting project plans and drawings
- Interpreting project specifications
- Choosing appropriate operational techniques for the execution of civil works tasks
- Choosing and assigning appropriate plant and equipment for the execution civil works tasks
- Calculating quantities for the execution of civil works tasks, including:
 - volumes
 - grades
 - percentages

- areas
- resource consumption figures
- Determining task resource requirements
- Scheduling activities and materials delivery
- Drafting and administering job plans
- Implementing work zone traffic management plans
- Preparing for and conducting of briefings, toolbox and site meeting
- Preparing short messages
- Preparing and presenting job reports
- Preparing and maintaining log books and diaries
- Providing team leadership
- Assessment of individuals' performances
- Interpreting civil works test results materials properties and test results
- Providing recommendations for the improvement of the safe, effective and efficient execution of civil works task

Required Knowledge

Specific knowledge is required to achieve the Performance Criteria of this unit, particularly for their application in the variety of circumstances in which this unit may be applied. This includes knowledge of the following, as required for the safe, effective and efficient execution of civil works tasks:

- Risk assessment and management requirement and procedures
- Statutory compliance requirements and procedures
- Occupational Health and Safety requirements and procedures
- Environmental management requirements and procedures
- Quality management requirements and procedures
- Work zone traffic management requirements and procedures
- Contract management requirements and procedures
- Communication requirements and procedures
- Administrative requirements and procedures
- Procurement requirements and procedures
- Plant, equipment and tools maintenance requirements and procedures
- Reporting requirements and procedures
- Employment requirements and procedures
- Workplace relationship requirements and procedures

- Organisational and site operational requirements
- Relationship between various areas of civil works
- Operational techniques required for the execution of civil works construction tasks
- Civil works plant and equipment capabilities
- Team leadership techniques
- Works planning techniques
- Civil works monitoring methods
- Engineering survey principles

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. Bold italicised wording in the Performance Criteria is detailed below.

Civil works may include:

- Land clearing
- Bulk earthworks
- Surface drainage construction and maintenance
- Subsurface drainage construction and maintenance
- Water storage dams construction and maintenance
- Tailings dams construction and maintenance
- Topsoil management
- Rehabilitation works
- Road works preparation (including the sub grade)
- Pavement construction and maintenance, including:
 - Flexible pavements, including:
 - Natural pavement materials
 - Manufactured pavement materials
 - Asphalt placement
 - Spray seal application
 - Stabilisation
 - Rigid pavement
- Underground services construction and maintenance
- Applying trenchless technology
- Construction and maintenance of civil structures
- Tunnelling
- Dredging

Legislative requirements
may include:

- Requirements included in both legislation and regulations
- Federal, State and Local government legislation and regulations

Legislative, organisational, client and manufacturers requirements and procedures may include:

- Risk assessment and management requirements and procedures
- Statutory compliance requirements and procedures, including:
 - Equal Employment Opportunity
 - disability discrimination
 - planning and development
- Occupational Health and Safety requirements and procedures, including:
 - workplace safety
 - dangerous goods
 - occupational licensing
 - Material Safety Data Sheets
- Traffic management requirements and procedures
- Environmental management requirements and procedures
- Cultural and heritage requirements and procedures
- Quality requirements and procedures
- Australian and other relevant standards
- Current industry best practice
- Communication requirements and procedures
- Procurement requirements and procedures
- Employment requirements and procedures
- Workplace relations requirements and procedures
- Contract management requirements and procedures
- Administration requirements and procedures, including records and reporting
- Maintenance, servicing, and housekeeping requirements and procedures

Specific task information and requirements
may include:

- Site geological data
- Site geotechnical data
- Site hydrological data
- Site meteorological data

- Site engineering survey data
- Known and potential site hazards, constraints and conditions
- Site cultural and heritage information
- Task specifications
- Task drawings
- Sources of materials
- Other company and contractors involved in the task or related tasks
- Coordination, timing and budgeting requirements

Job plan may include:

- Human resource requirements
- Plant and machinery requirements
- Construction materials requirements
- Sub-contractor support requirements
- Waste disposal requirements
- Coordination requirements
- Activity scheduling
- Materials delivery scheduling
- Risk assessment and management requirements
- Occupational Health And Safety requirements
- Quality management requirements, including testing scheduling requirements
- Traffic management requirements
- Environmental requirements
- Task monitoring requirements
- Task performance monitoring requirements
- Communication requirements
- Reporting requirements

Relevant teams members may include:

- Other members of the organisation's management team
- Suppliers representatives
- Sub-contractors representatives
- Supervisors or managers of other organisations who are involved in related tasks

-
- Experienced members of the team directly involved in the task
- Resources** may include:
- Labour
 - Plant, equipment and tools
 - Highway haulage vehicles
 - Construction materials
 - Sub-contractor services
- Instructions** may include:
- Briefings
 - Handovers
 - Work orders
 - Toolbox meetings
 - Site meetings
- Monitor** may include:
- Ongoing risk assessment
 - Engineering survey
 - Sampling and testing
 - Recording and observation of construction practice
 - General supervision
- Required outcomes** may include:
- Task specifications requirements
 - Task drawings requirements
 - Coordination requirements
 - Activity scheduling requirements
 - Unit cost requirements
 - Overall task cost requirements
 - Waste management requirements
- Initiate** may include:
- Written communication
 - Oral communication
- Civil works practice** may include:
- Site preparation methods
 - Extraction methods
 - Load and haulage methods
 - Placement methods
 - Distribution methods
 - Surface finishing methods

- Line, grade and level control methods
- Compaction methods
- Water application methods
- Sediment control methods

EVIDENCE GUIDE

The Evidence Guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for this Training Package.

Overview of assessment

- To demonstrate competence in this unit a person must be able to provide evidence that they can successfully supervise civil works tasks which involves the application of the principles of at least one of the following areas of civil works:
 - land clearing
 - bulk earthworks
 - surface drainage construction and maintenance
 - subsurface drainage construction and maintenance
 - water storage dams construction and maintenance
 - tailings dams construction and maintenance
 - topsoil management
 - rehabilitation works
 - road works preparation (including the sub grade)
 - pavement construction and maintenance, including:
 - flexible pavements, including:
 - natural pavement materials
 - manufactured pavement materials
 - asphalt placement
 - spray seal application
 - stabilisation
 - rigid pavement
 - underground services construction and maintenance
 - applying trenchless technology
 - construction and maintenance of civil structures
 - tunnelling
 - dredging

Critical aspects of assessment and evidence required to demonstrate competency in this unit

- The evidence required to demonstrate competency in this unit must be relevant to worksite operations and satisfy all of the requirements of the Performance Criteria, Required Skills and Knowledge and the Range Statement of this unit and include evidence of the following:
 - knowledge of the requirements, procedures and instructions that are to apply in undertaking civil works tasks
 - implementation of appropriate procedures and techniques for the safe, effective and efficient achievement of the required outcomes of civil works tasks
 - working with others to plan, prepare and execute civil works tasks
 - job plans which reflect the requirements of these task and are capable of achieving all of their required outcomes
 - resource plans which have made available adequate resources for the safe, effective and efficient execution of civil works tasks
 - provision of clear and timely instruction and supervision by the individual of those involved in the undertaking of these task
 - evidence of the consistent successful completion of civil works tasks

Context of and specific resources for assessment

- This unit should be assessed in the context of the work environment wherever possible. Where this is not possible, assessment may occur in a simulated environment
- Evidence for assessment is best gathered using the outcomes of products and processes of the workplace context.
- The assessment environment should not disadvantage the participant. For example, language, literacy and numeracy demands of assessment should not be greater than those required on the job.
- Assessment of this competency requires typical resources normally used in a civil works environment. Selection and use of resources for particular work sites may differ due to site circumstances.
- Where applicable, physical resources should include equipment modified for people with disabilities.
- Access must be provided to appropriate learning and/or assessment support when required.

Methods of assessment

- This unit maybe assessed in a holistic way with other units of competency
- The suggested strategies for the assessment of this unit are:
 - written and/or oral assessment of the candidate's required knowledge
 - observed, documented and/or first hand testimonial evidence of the candidate's:
 - implementation of appropriate procedures and techniques for the safe, effective and efficient achievement of the required outcomes of civil works tasks
 - job plans which reflect the requirements of civil works tasks and are capable of achieving all of their required outcomes
 - resource plans which have made available adequate resources for the safe, effective and efficient execution of civil works tasks
 - consistent successful completion of civil works tasks
 - first hand testimonial evidence of the candidate
 - working with others to plan, prepare and execute civil works tasks
 - providing clear and timely instructions to and supervision of those involved in the undertaking civil works tasks
- meaningful contribution to the review and improvement of civil works schedule of rates processes
- where practical assessment is used it will be combined with targeted questioning to assess the required knowledge
- questioning should be appropriate to the oracy, language and literacy levels of the applicant being assessed and should reflect the requirements of the competency and the work being performed. assessors should be aware of any cultural issues that may affect responses to the questions
- where performance is not directly observed and/or is required to be demonstrated over a period of time and/or in a number of locations, any evidence should be authenticated by colleagues, supervisors, clients or other appropriate persons
- assessment should also reinforce the integration of the Employability Skills

RIICC402A Supervise civil works contractors

Unit Descriptor	This unit covers the supervision of civil works contractors. It includes the requirements for ensuring that the planning, preparing, initiating, monitoring, adjusting and reporting of civil works tasks are carried out by the contractor in accordance with the contract requirements.
Employability Skills	The required outcomes described in this Unit of Competency contain applicable facets of employability skills. The Employability Skills Qualification Summary for the qualification in which this Unit of Competency is packaged will assist in identifying employability skill requirements.
Application of the unit	This unit is applicable for those who perform the duties of: <ul style="list-style-type: none"> • Acting as a principal's supervisor of civil works constructions and/or maintenance tasks • Acting as a contractor's supervisor of sub-contractors carrying out of civil works construction and/or maintenance tasks

ELEMENT

Elements describe the essential outcomes of a Unit of Competency

1. Ensure appropriate planning and preparation is carried out for civil works tasks
2. Ensure appropriate initiation of civil works tasks is carried out

PERFORMANCE CRITERIA

Performance Criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the Required Skills and Knowledge and/or the Range Statement. Assessment of performance is to be consistent with the Evidence Guide.

- 1.1 Access, interpret and clarify the ***legislative, organisational and manufacturers' requirements and procedures*** relevant to undertaking the task.
- 1.2 Access, interpret and clarify the ***specific task information and requirements*** relevant to undertaking the task.
- 1.3 Ensure the contractor has a ***job plan*** available which makes best use of the available resources and meets the task requirements.
- 2.1 Confirm that the contractor has the necessary ***resources*** available for the safe, effective and efficient conduct of the task, in accordance with the relevant ***legislative, organisational, client and manufacturers' requirements and procedures*** and the ***specific task information and requirements***.

- 2.2 Ensure the contractor has communicated clear and timely *instructions* to *team members* and others involved, for the safe, effective and efficient conduct of the task, to meet the *specific task requirements* and the relevant *legislative, organisational, client and manufacturers' requirements and procedures*.
3. Monitor, adjust, communicate and report on the execution of civil works tasks
- 3.1 Ensure the contractor is applying relevant *legislative, organisational, client and manufacturers' requirements and procedures* for the safe, effective and efficient execution of the tasks, in accordance with the specific *task requirements*.
- 3.2 **Monitor** civil works contractors' performance to ensure they achieve the *required outcomes*.
- 3.3 **Initiate** adjustments to *civil works practice* or *job plan* to ensure safe execution of work and achievement of *required outcomes*.
- 3.4 Ensure plant equipment and tools maintenance requirements are carried out and recorded in accordance with *relevant legislative, organisational, client and manufacturers' requirements*.
- 3.5 Complete and submit reports as required by *relevant legislative, organisational, client and task requirements*.
- 3.6 Recommend changes to improve the safety, efficiency and effectiveness of the execution of *civil works tasks*.

REQUIRED SKILLS AND KNOWLEDGE

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

Required Skills

Specific skills are required to achieve the Performance Criteria of this unit, particularly for their application in the variety of circumstances in which this unit may be applied.

This includes the ability to carry out the following, as required for the safe, effective and efficient execution of civil works:

- Interpreting legislative requirements and procedures
- Interpreting organisational requirements and procedures
- Interpreting client requirements and procedures
- Interpreting manufacturers' requirements and procedures
- Interpreting civil works project site geological data

- Interpreting civil works project site geotechnical data
- Interpreting civil works project site hydrological data
- Interpreting civil works site meteorological data
- Interpreting civil works project engineering survey information
- Interpreting civil works project plans and drawings
- Interpreting civil works project specifications
- Preparing for and conducting of briefings, toolbox and site meeting
- Preparing short messages
- Preparing and presenting job reports
- Preparing and maintaining log books and diaries
- Providing leadership
- Calculating quantities for the execution of civil works tasks, including:
 - volumes
 - grades
 - percentages
 - areas
- Resource consumption figures applying civil works contractor performance monitoring skills
- Interpreting civil works test results materials properties and test results
- Providing recommendations for the improvement of the safe, effective and efficient execution of civil works tasks

Required Knowledge

Specific knowledge is required to achieve the Performance Criteria of this unit, particularly for their application in the variety of circumstances in which this unit may be applied.

This includes knowledge of the following, as required for the safe, effective and efficient execution of civil works tasks:

- Risk assessment and management requirement and procedures
- Statutory compliance requirements and procedures
- Occupational Health And Safety requirements and procedures
- Environmental management requirements and procedures
- Quality management requirements and procedures
- Work zone traffic management requirements and procedures
- Contract management requirements and procedures
- Communication requirements and procedures

- Administrative requirements and procedures
- Civil works plant and equipment capabilities and application
- Plant, equipment and tools maintenance requirements and procedures
- Operational techniques for the execution of civil works tasks
- Civil works task resource requirements and procedures
- Activities scheduling requirements and procedures
- Materials delivery requirements and procedures
- Job plan drafting of and administration requirements and procedures
- Reporting requirements and procedures
- Workplace relationship requirements and procedures
- Organisational, client and site operational requirements
- Relationship between various areas of civil works
- Team leadership techniques
- Works planning techniques
- Civil works monitoring methods
- Engineering survey principles

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. Bold italicised wording in the Performance Criteria is detailed below.

- Civil works*** may include:
- Land clearing
 - Bulk earthworks
 - Surface drainage construction and maintenance
 - Subsurface drainage construction and maintenance
 - Water storage dams construction and maintenance
 - Tailings dams construction and maintenance
 - Topsoil management
 - Rehabilitation works
 - Road works preparation (including the sub grade)
 - Pavement construction and maintenance, including:
 - flexible pavements, including:
 - natural pavement materials
 - manufactured pavement materials

- asphalt placement
- spray seal application
- stabilisation
- rigid pavement
- Underground services construction and maintenance
- Applying trenchless technology
- Construction and maintenance of civil structures
- Tunnelling
- Dredging

Legislative requirements may include:

- Requirements included in both legislation and regulations
- Federal, State and Local government legislation and regulations

Legislative, organisational, client and manufacturers requirements and procedures may include:

- Risk assessment and management requirements and procedures
- Statutory compliance requirements and procedures, including:
 - Equal Employment Opportunity
 - disability discrimination
 - planning and development
- Occupational Health And Safety requirements and procedures, including:
 - workplace safety
 - dangerous goods
 - occupational licensing
 - material safety data sheets
- Traffic management requirements and procedures
- Environmental management requirements and procedures
- Cultural and heritage requirements and procedures
- Quality requirements and procedures
- Australian and other relevant standards
- Current industry best practice
- Communication requirements and procedures
- Procurement requirements and procedures
- Employment requirements and procedures

- Workplace relations requirements and procedures
- Contract management requirements and procedures
- Administration requirements and procedures, including records and reporting
- Maintenance, servicing, and housekeeping requirements and procedures

Specific task information and requirements may include:

- Site geological data
- Site geotechnical data
- Site hydrological data
- Site meteorological data
- Site engineering survey data
- Known and potential site hazards, constraints and conditions
- Site cultural and heritage information
- Task specifications
- Task drawings
- Sources of materials
- Other organisations and contractors involved in the task or related tasks
- Coordination, timing and budgeting requirements

Job plan may include:

- Human resource requirements
- Plant and machinery requirements
- Construction materials requirements
- Sub-contractor support requirements
- Waste disposal requirements
- Coordination requirements
- Activity scheduling
- Materials delivery scheduling
- Risk assessment and management requirements
- Occupational health and safety requirements
- Quality management requirements, including testing scheduling requirements
- Traffic management requirements
- Environmental requirements

- Task monitoring requirements
- Task performance monitoring requirements
- Communication requirements
- Reporting requirements

Teams members
may include:

- Other members of the organisation's management team
- Members of the team directly involved in the task
- Suppliers representatives
- Sub-contractors representatives
- Supervisors or managers of other organisations who are involved in related tasks

Resources may include:

- Labour
- Plant, equipment and tools
- Highway haulage vehicles
- Construction materials
- Sub-contractor services

Instructions may include:

- Briefings
- Handovers
- Work orders
- Toolbox meetings
- Site meetings

Monitor may include:

- Ongoing risk assessment
- Engineering survey
- Sampling and testing
- Observation and recording
- General supervision

Required outcomes
may include:

- Task specifications requirements
- Task drawings requirements
- Coordination requirements
- Activity scheduling requirements
- Unit cost requirements
- Overall task cost requirements
- Waste management requirements

Initiate may include:

- Written communication
- Oral communication

Civil works practice may include:

- Site preparation methods
- Extraction methods
- Load and haulage methods
- Placement methods
- Distribution methods
- Surface finishing methods
- Line, grade and level control methods
- Compaction methods
- Water application methods
- Sediment control methods

EVIDENCE GUIDE

The Evidence Guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for this Training Package.

Overview of assessment

- To demonstrate competence in this unit a person must be able to provide evidence that they can successfully supervise civil works contractors and in the application of at least one of the following areas of civil works:
 - land clearing
 - bulk earthworks
 - surface drainage construction and maintenance
 - subsurface drainage construction and maintenance
 - water storage dams construction and maintenance
 - tailings dams construction and maintenance
 - topsoil management
 - rehabilitation works
 - road works preparation (including the sub grade)
 - pavement construction and maintenance, including:
 - flexible pavements, including:
 - natural pavement materials
 - manufactured pavement materials
 - asphalt placement

- spray seal application
- stabilisation
 - rigid pavement
- underground services construction and maintenance
- applying trenchless technology
- construction and maintenance of civil structures
- tunnelling
- dredging
- Assessment may be contextualised for the circumstances where a person is:
 - acting as a principal's supervisor of civil works constructions and/or maintenance tasks
 - acting as a contractor's supervisor of sub-contractors carrying out of civil works construction and/or maintenance tasks

Critical aspects of assessment and evidence required to demonstrate competency in this unit

- The evidence required to demonstrate competency in this unit must be relevant to worksite operations and satisfy all of the requirements of the Performance Criteria, Required Skills and Knowledge and the Range Statement of this unit and include evidence of the following:
 - knowledge of the requirements, procedures and instructions that are to apply in undertaking civil works tasks
 - implementation of appropriate procedures and techniques for the safe, effective and efficient achievement of the required outcomes of civil works tasks
 - working with others to plan, prepare and execute civil works tasks
 - job plans which reflect the requirements of these task and are capable of achieving all of their required outcomes
 - resource plans which have made available adequate resources for the safe, effective and efficient execution of civil works tasks
 - provision of clear and timely instruction and supervision by the individual of those involved in the undertaking of these task

- evidence of the consistent successful completion of civil works tasks

Context of and specific resources for assessment

- This unit should be assessed in the context of the work environment wherever possible. Where this is not possible, assessment may occur in a simulated environment. Evidence for assessment is best gathered using the outcomes of products and processes of the workplace context.
- The assessment environment should not disadvantage the participant. For example, language, literacy and numeracy demands of assessment should not be greater than those required on the job.
- Assessment of this competency requires typical resources normally used in a civil works environment. Selection and use of resources for particular work sites may differ due to site circumstances.
- Where applicable, physical resources should include equipment modified for people with disabilities.
- Access must be provided to appropriate learning and/or assessment support when required.

Methods of assessment

- This unit maybe assessed in a holistic way with other units of competency
- The suggested strategies for the assessment of this unit are:
 - written and/or oral assessment of the candidate's required knowledge
 - observed, documented and/or first hand testimonial evidence of the candidate's:
 - implementation of appropriate procedures and techniques for the safe, effective and efficient achievement of the required outcomes of civil works tasks
 - job plans which reflect the requirements of civil works tasks and are capable of achieving all of their required outcomes
 - resource plans which have made available adequate resources for the safe, effective and efficient execution of civil works tasks
 - consistent successful completion of civil works tasks
 - first hand testimonial evidence of the candidate:

- working with others to plan, prepare and execute civil works tasks
- providing clear and timely instructions to and supervision of contractors involved in the undertaking civil works tasks
- meaningful contribution to the review and improvement of civil works schedule of rates processes
- where practical assessment is used it will be combined with targeted questioning to assess the required knowledge
- questioning should be appropriate to the oracy, language and literacy levels of the applicant being assessed and should reflect the requirements of the competency and the work being performed. assessors should be aware of any cultural issues that may affect responses to the questions
- where performance is not directly observed and/or is required to be demonstrated over a period of time and/or in a number of locations, any evidence should be authenticated by colleagues, supervisors, clients or other appropriate persons
- assessment should also reinforce the integration of the Employability Skills

RIICC403A Apply the principles of earthworks construction

Unit Descriptor	This unit covers the supervision of earthworks construction tasks. It includes the requirements for ensuring that the planning, preparing, initiating, monitoring, adjusting and reporting of earthworks construction tasks are carried out in accordance with the accepted industry principles.
Employability Skills	The required outcomes described in this Unit of Competency contain applicable facets of employability skills. The Employability Skills Qualification Summary for the qualification in which this Unit of Competency is packaged will assist in identifying employability skill requirements.
Application of the unit	<p>This unit is applicable for those who perform the duties of:</p> <ul style="list-style-type: none"> • Acting as a technical specialist in earthworks construction • Acting as a principal's supervisor of earthworks construction tasks • Acting as a contractor's supervisor of sub-contractors carrying out of earthworks construction tasks • Directly supervising a team or teams carrying out earthworks construction tasks

ELEMENT

Elements describe the essential outcomes of a Unit of Competency

1. Ensure appropriate planning and preparation is carried out for earthworks construction tasks

PERFORMANCE CRITERIA

Performance Criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the Required Skills and Knowledge and/or the Range Statement. Assessment of performance is to be consistent with the Evidence Guide.

- 1.1 Access, interpret and clarify the ***legislative, organisational and manufacturers' requirements and procedures*** relevant to undertaking earthworks construction tasks.
- 1.2 Access, interpret and clarify the ***specific task information and requirements*** relevant to undertaking the earthworks construction task.
- 1.3 Ensure a ***job plan***, is available which makes best use of the available resources and meets the earthworks construction task requirements.

- | | | | |
|----|---|-----|--|
| 2. | Ensure appropriate initiation of earthworks construction tasks is carried out | 2.1 | Confirm that the necessary <i>resources</i> are available for the safe, effective and efficient conduct of the earthworks construction task, in accordance with the relevant <i>legislative, organisational, client and manufacturers' requirements and procedures</i> and the <i>specific task information and requirements</i> . |
| | | 2.2 | Ensure clear and timely <i>instructions</i> are communicated to <i>team members</i> and others involved, for the safe, effective and efficient conduct of the earthworks construction task, to meet the <i>specific task requirements</i> and the relevant <i>legislative, organisational, client and manufacturers' requirements and procedures</i> . |
| 3. | Monitor, adjust, communicate and report on the execution of earthworks construction tasks | 3.1 | Ensure relevant <i>legislative, organisational, client and manufacturers' requirements and procedures</i> are applied for the safe, effective and efficient execution of the earthworks construction tasks, in accordance with the specific <i>task requirements</i> . |
| | | 3.2 | <i>Monitor</i> earthworks construction task performance to ensure it achieves the <i>required outcomes</i> . |
| | | 3.3 | <i>Initiate</i> adjustments to <i>earthworks construction practice</i> or <i>job plan</i> to ensure safe execution of work and achievement of <i>required outcomes</i> . |
| | | 3.4 | Ensure plant equipment and tools maintenance requirements are carried out and recorded in accordance with <i>relevant legislative, organisational, client and manufacturers' requirements</i> . |
| | | 3.5 | Complete and submit reports as required by <i>relevant legislative, organisational, client and task requirements</i> . |
| | | 3.6 | Recommend changes to improve the safety, efficiency and effectiveness of the execution of <i>earthworks construction tasks</i> . |

REQUIRED SKILLS AND KNOWLEDGE

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

Required Skills

Specific skills are required to achieve the Performance Criteria of this unit, particularly for their application in the variety of circumstances in which this unit may be applied.

This includes the ability to carry out the following, as required for the safe, effective and efficient execution of earthworks construction:

- Interpreting legislative requirements and procedures
- Interpreting organisational requirements and procedures
- Interpreting client requirements and procedures
- Interpreting manufacturers' requirements and procedures
- Interpreting earthworks construction project site geological data
- Interpreting earthworks construction project site geotechnical data
- Interpreting earthworks construction project site hydrological data
- Interpreting earthworks construction site meteorological data
- Interpreting earthworks construction project engineering survey information
- Interpreting earthworks construction project plans and drawings
- Interpreting earthworks construction project specifications
- Preparing for and conducting of briefings, toolbox and site meeting
- Preparing short messages
- Preparing and presenting job reports
- Preparing and maintaining log books and diaries
- Providing leadership
- Calculating quantities for the execution of earthworks construction tasks, including:
 - Volumes
 - Grades
 - Percentages
 - Areas
 - Resource consumption figures
- Applying earthworks construction performance monitoring skills
- Interpreting earthworks construction materials properties and test results, including:
 - Soil density/moisture relationship

- Plasticity index
- Particle size distribution
- Providing recommendations for the improvement of the safe, effective and efficient execution of earthworks construction tasks

Required Knowledge

Specific knowledge is required to achieve the Performance Criteria of this unit, particularly for their application in the variety of circumstances in which this unit may be applied.

This includes knowledge of the following, as required for the safe, effective and efficient execution of earthworks construction tasks:

- Risk assessment and management requirement and procedures
- Statutory compliance requirements and procedures
- Occupational Health and Safety requirements and procedures
- Environmental management requirements and procedures
- Quality management requirements and procedures
- Work zone traffic management requirements and procedures
- Contract management requirements and procedures
- Communication requirements and procedures
- Administrative requirements and procedures
- Earthworks construction plant and equipment capabilities and application
- Plant, equipment and tools maintenance requirements and procedures
- Operational techniques for the execution of earthworks construction tasks
- Earthworks construction task resource requirements and procedures
- Activities scheduling requirements and procedures
- Earthworks construction materials delivery requirements and procedures
- Job plan drafting of and administration requirements and procedures
- Reporting requirements and procedures
- Workplace relationship requirements and procedures
- Organisational, client and site operational requirements
- Relationship between various areas of civil works
- Team leadership techniques
- Works planning techniques
- Earthworks construction monitoring methods
- Engineering survey principles

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. Bold italicised wording in the Performance Criteria is detailed below.

Earthworks construction may include:

- Land clearing
- Bulk earthwork
- Surface drainage works
- Water storage dam construction
- Tailings dam construction
- Rehabilitation works
- Road works preparation, including the sub-grade

Legislative requirements may include:

- Requirements included in both legislation and regulations
- Federal, State and Local Government legislation and regulations

Legislative, organisational, client and manufacturers requirements and procedures may include:

- Risk assessment and management requirements and procedures
- Statutory compliance requirements and procedures, including:
 - Equal Employment Opportunity
 - Disability Discrimination
 - Planning and development
- Occupational Health and Safety requirements and procedures, including:
 - Workplace safety
 - Dangerous goods
 - Occupational licensing
 - Material Safety Data Sheets
- Traffic management requirements and procedures
- Environmental management requirements and procedures
- Cultural and heritage requirements and procedures
- Quality requirements and procedures
- Australian and other relevant standards
- Current industry best practice
- Communication requirements and procedures

- Procurement requirements and procedures
- Employment requirements and procedures
- Workplace relations requirements and procedures
- Contract management requirements and procedures
- Administration requirements and procedures, including records and reporting
- Maintenance, servicing, and housekeeping requirements and procedures

Specific task information and requirements may include:

- Site geological data
- Site geotechnical data
- Site hydrological data
- Site meteorological data
- Site engineering survey data
- Known and potential site hazards, constraints and conditions
- Site cultural and heritage information
- Task specifications
- Task drawings
- Sources of materials
- Other organisations and contractors involved in the task or related tasks
- Coordination, timing and budgeting requirements

Job plan may include:

- Human resource requirements
- Plant and machinery requirements
- Construction materials requirements
- Sub-contractor support requirements
- Waste disposal requirements
- Coordination requirements
- Activity scheduling
- Materials delivery scheduling
- Risk assessment and management requirements
- Occupational Health and Safety requirements
- Quality management requirements, including testing scheduling requirements

- Traffic management requirements
- Environmental requirements
- Task monitoring requirements
- Task performance monitoring requirements
- Communication requirements
- Reporting requirements

Teams members
may include:

- Other members of the organisation's management team
- Members of the team directly involved in the task
- Suppliers representatives
- Sub-contractors representatives
- Supervisors or managers of other organisations who are involved in related tasks

Resources may include:

- Labour
- Plant, equipment and tools
- Highway haulage vehicles
- Construction materials
- Sub-contractor services

Instructions may include:

- Briefings
- Handovers
- Work orders
- Toolbox meetings
- Site meetings

Monitor may include:

- Ongoing risk assessment
- Engineering survey
- Sampling and testing
- Observation and recording
- General supervision

Required outcomes
may include:

- Task specifications requirements
- Task drawings requirements
- Coordination requirements
- Activity scheduling requirements
- Unit cost requirements

- Overall task cost requirements
 - Waste management requirements
- Initiate* may include:
- Written communication
 - Oral communication
- Earthworks construction practice* may include:
- Site preparation methods
 - Extraction methods
 - Load and haulage methods
 - Placement methods
 - Distribution methods
 - Surface finishing methods
 - Line, grade and level control methods
 - Compaction methods
 - Water application methods
 - Sedimentation control methods

EVIDENCE GUIDE

The Evidence Guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for this Training Package.

- Overview of assessment**
- To demonstrate competence in this unit a person must be able to provide evidence that they can successfully apply the principles of earthworks construction:
 - Assessment may be contextualised for the circumstances where a person is:
 - Acting as a technical specialist in earthworks construction
 - Acting as a principal's supervisor of earthworks construction tasks
 - Acting as a contractor's supervisor of sub-contractors carrying out of earthworks construction tasks
 - Directly supervising a team or teams carrying out earthworks construction tasks
- Critical aspects of assessment and evidence required to demonstrate competency in this unit**
- The evidence required to demonstrate competency in this unit must be relevant to worksite operations and satisfy all of the requirements of the Performance Criteria, Required Skills and Knowledge and the Range Statement of this unit and include evidence of the following:

- Knowledge of the requirements, procedures and instructions that are to apply in undertaking earthworks construction tasks
- Implementation of appropriate procedures and techniques for the safe, effective and efficient achievement of the required outcomes of earthworks construction tasks
- working with others to plan, prepare and execute earthworks construction tasks
- Job plans which reflect the requirements of these earthworks construction task and are capable of achieving all of their required outcomes
- Resource plans which have made available adequate resources for the safe, effective and efficient execution of earthworks construction tasks
- Provision of clear and timely instruction and supervision by the individual of those involved in the undertaking of these earthworks construction task
- Evidence of the consistent successful completion of earthworks construction tasks

Context of and specific resources for assessment

- This unit should be assessed in the context of the work environment wherever possible. Where this is not possible, assessment may occur in a simulated environment. Evidence for assessment is best gathered using the outcomes of products and processes of the workplace context.
- The assessment environment should not disadvantage the participant. For example, language, literacy and numeracy demands of assessment should not be greater than those required on the job.
- Assessment of this competency requires typical resources normally used in a civil works environment. Selection and use of resources for particular work sites may differ due to site circumstances.
- Where applicable, physical resources should include equipment modified for people with disabilities.
- Access must be provided to appropriate learning and/or assessment support when required.

Methods of assessment

- This unit maybe assessed in a holistic way with other units of competency
- The suggested strategies for the assessment of this unit are:
 - Written and/or oral assessment of the candidate's

- required knowledge
- Observed, documented and/or first hand testimonial evidence of the candidate's:
 - implementation of appropriate procedures and techniques for the safe, effective and efficient achievement of the required outcomes of earthworks construction tasks
 - job plans which reflect the requirements of earthworks construction tasks and are capable of achieving all of their required outcomes
 - resource plans which have made available adequate resources for the safe, effective and efficient execution of earthworks construction tasks
 - consistent successful completion of earthworks construction tasks
 - First hand testimonial evidence of the candidate
 - working with others to plan, prepare and execute earthworks construction tasks
 - providing clear and timely instructions to those involved in the undertaking earthworks construction tasks
- Meaningful contribution to the review and improvement of civil works schedule of rates processes
 - Where practical assessment is used it will be combined with targeted questioning to assess the required knowledge
 - Questioning should be appropriate to the oracy, language and literacy levels of the applicant being assessed and should reflect the requirements of the competency and the work being performed. Assessors should be aware of any cultural issues that may affect responses to the questions
 - Where performance is not directly observed and/or is required to be demonstrated over a period of time and/or in a number of locations, any evidence should be authenticated by colleagues, supervisors, clients or other appropriate persons
 - Assessment should also reinforce the integration of the Employability Skills

RIICC404A Apply the principles of flexible pavement construction

Unit Descriptor	This unit covers the supervision of flexible pavement construction tasks. It includes the requirements for ensuring that the planning, preparing, initiating, monitoring, adjusting and reporting of flexible pavement construction tasks are carried out in accordance with the accepted industry principles.
Employability Skills	The required outcomes described in this Unit of Competency contain applicable facets of employability skills. The Employability Skills Qualification Summary for the qualification in which this Unit of Competency is packaged will assist in identifying employability skill requirements.
Application of the unit	<p>This unit is applicable for those who perform the duties of:</p> <ul style="list-style-type: none"> • Acting as a technical specialist in flexible pavement construction • Acting as a principal's supervisor of flexible pavement construction tasks • Acting as a contractor's supervisor of sub-contractors carrying out of flexible pavement construction tasks • Directly supervising a team or teams carrying out flexible pavement construction tasks

ELEMENT

Elements describe the essential outcomes of a Unit of Competency

1. Ensure appropriate planning and preparation is carried out for flexible pavement construction tasks

PERFORMANCE CRITERIA

Performance Criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the Required Skills and Knowledge and/or the Range Statement. Assessment of performance is to be consistent with the Evidence Guide.

- 1.1 Access, interpret and clarify the ***legislative, organisational and manufacturers' requirements and procedures*** relevant to undertaking flexible pavement construction tasks.
- 1.2 Access, interpret and clarify the ***specific task information and requirements*** relevant to undertaking the flexible pavement construction task.
- 1.3 Ensure a ***job plan***, is available which makes best use of the available resources and meets the flexible pavement construction task requirements.

- | | | | |
|----|--|-----|---|
| 2. | Ensure appropriate initiation of flexible pavement construction tasks is carried out | 2.1 | Confirm that the necessary <i>resources</i> are available for the safe, effective and efficient conduct of the flexible pavement construction task, in accordance with the relevant <i>legislative, organisational, client and manufacturers' requirements and procedures</i> and the <i>specific task information and requirements</i> . |
| | | 2.2 | Ensure clear and timely <i>instructions</i> are communicated to <i>team members</i> and others involved, for the safe, effective and efficient conduct of the flexible pavement construction task, to meet the <i>specific task requirements</i> and the relevant <i>legislative, organisational, client and manufacturers' requirements and procedures</i> . |
| 3. | Monitor, adjust, communicate and report on the execution of flexible pavement construction tasks | 3.1 | Ensure relevant <i>legislative, organisational, client and manufacturers' requirements and procedures</i> are applied for the safe, effective and efficient execution of the flexible pavement construction tasks, in accordance with the specific <i>task requirements</i> . |
| | | 3.2 | <i>Monitor</i> flexible pavement construction task performance to ensure it achieves the <i>required outcomes</i> . |
| | | 3.3 | <i>Initiate</i> adjustments to <i>flexible pavement construction practice</i> or <i>job plan</i> to ensure safe execution of work and achievement of <i>required outcomes</i> . |
| | | 3.4 | Ensure plant equipment and tools maintenance requirements are carried out and recorded in accordance with <i>relevant legislative, organisational, client and manufacturers' requirements</i> . |
| | | 3.5 | Complete and submit reports as required by <i>relevant legislative, organisational, client and task requirements</i> . |
| | | 3.6 | Recommend changes to improve the safety, efficiency and effectiveness of the execution of <i>flexible pavement construction tasks</i> . |

REQUIRED SKILLS AND KNOWLEDGE

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

Required Skills

Specific skills are required to achieve the Performance Criteria of this unit, particularly for their application in the variety of circumstances in which this unit may be applied.

This includes the ability to carry out the following, as required for the safe, effective and efficient execution of flexible pavement construction:

- Interpreting legislative requirements and procedures
- Interpreting organisational requirements and procedures
- Interpreting client requirements and procedures
- Interpreting manufacturers' requirements and procedures
- Interpreting flexible pavement construction project site geological data
- Interpreting flexible pavement construction project site geotechnical data
- Interpreting flexible pavement construction project site hydrological data
- Interpreting flexible pavement construction site meteorological data
- Interpreting flexible pavement construction project engineering survey information
- Interpreting flexible pavement construction project plans and drawings
- Interpreting flexible pavement construction project specifications
- Preparing for and conducting of briefings, toolbox and site meeting
- Preparing short messages
- Preparing and presenting job reports
- Preparing and maintaining log books and diaries
- Calculating quantities for the execution of flexible pavement construction tasks, including:
 - Volumes
 - Grades
 - Percentages
 - Areas
- Resource consumption figures Providing leadership
- Applying flexible pavement construction performance monitoring skills
- Interpreting flexible pavement construction materials properties and test results, including:
 - Soil density/moisture relationship

- Plasticity index
- Particle size distribution
- Providing recommendations for the improvement of the safe, effective and efficient execution of flexible pavement construction tasks

Required Knowledge

Specific knowledge is required to achieve the Performance Criteria of this unit, particularly for their application in the variety of circumstances in which this unit may be applied.

This includes knowledge of the following, as required for the safe, effective and efficient execution of flexible pavement construction tasks:

- Risk assessment and management requirement and procedures
- Statutory compliance requirements and procedures
- Occupational Health and Safety requirements and procedures
- Environmental management requirements and procedures
- Quality management requirements and procedures
- Work zone traffic management requirements and procedures
- Contract management requirements and procedures
- Communication requirements and procedures
- Administrative requirements and procedures
- Flexible pavement construction plant and equipment capabilities and application
- Plant, equipment and tools maintenance requirements and procedures
- Operational techniques for the execution of flexible pavement construction tasks
- Flexible pavement construction task resource requirements and procedures
- Activities scheduling requirements and procedures
- Flexible pavement construction materials delivery requirements and procedures
- Job plan drafting of and administration requirements and procedures
- Reporting requirements and procedures
- Workplace relationship requirements and procedures
- Organisational, client and site operational requirements
- Relationship between various areas of civil works
- Team leadership techniques
- Works planning techniques
- Flexible pavement construction monitoring methods
- Engineering survey principles

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. Bold italicised wording in the Performance Criteria is detailed below.

Flexible pavement

construction may include:

- Roads
- Airfields
- Industrial hardstands
- Open car parks
- Bicycle ways and footpaths
- Including the applying of:
 - Natural materials
 - Manufactured materials
 - Stabilised materials
 - Geofabrics
 - Surfacing, including:
 - asphalt
 - spray seal
 - Line marking

Legislative requirements

may include:

- Requirements included in both legislation and regulations
- Federal, State and Local Government legislation and regulations

Legislative, organisational, client and manufacturers requirements and procedures may include:

- Risk assessment and management requirements and procedures
- Statutory compliance requirements and procedures, including:
 - Equal Employment Opportunity
 - Disability Discrimination
 - Planning and development
- Occupational Health and Safety requirements and procedures, including:
 - Workplace safety
 - Dangerous goods
 - Occupational licensing
 - Material Safety Data Sheets

- Traffic management requirements and procedures
- Environmental management requirements and procedures
- Cultural and heritage requirements and procedures
- Quality requirements and procedures
- Australian and other relevant standards
- Current industry best practice
- Communication requirements and procedures
- Procurement requirements and procedures
- Employment requirements and procedures
- Workplace relations requirements and procedures
- Contract management requirements and procedures
- Administration requirements and procedures, including records and reporting
- Maintenance, servicing, and housekeeping requirements and procedures

Specific task information and requirements
may include:

- Site geological data
- Site geotechnical data
- Site hydrological data
- Site meteorological data
- Site engineering survey data
- Known and potential site hazards, constraints and conditions
- Site cultural and heritage information
- Task specifications
- Task drawings
- Sources of materials
- Other organisations and contractors involved in the task or related tasks
- Coordination, timing and budgeting requirements

Job plan may include:

- Human resource requirements
- Plant and machinery requirements
- Construction materials requirements
- Sub-contractor support requirements

- Waste disposal requirements
- Coordination requirements
- Activity scheduling
- Materials delivery scheduling
- Risk assessment and management requirements
- Occupational Health and Safety requirements
- Quality management requirements, including testing scheduling requirements
- Traffic management requirements
- Environmental requirements
- Task monitoring requirements
- Task performance monitoring requirements
- Communication requirements
- Reporting requirements

Teams members may include:

- Other members of the organisation's management team
- Members of the team directly involved in the task
- Suppliers representatives
- Sub-contractors representatives
- Supervisors or managers of other organisations who are involved in related tasks

Resources may include:

- Labour
- Plant, equipment and tools
- Highway haulage vehicles
- Construction materials
- Sub-contractor services

Instructions may include:

- Briefings
- Handovers
- Work orders
- Toolbox meetings
- Site meetings

Monitor may include:

- Ongoing risk assessment
- Engineering survey
- Sampling and testing

- Observation and recording
 - General supervision
- Required outcomes**
may include:
- Task specifications requirements
 - Task drawings requirements
 - Coordination requirements
 - Activity scheduling requirements
 - Unit cost requirements
 - Overall task cost requirements
 - Waste management requirements

- Initiate** may include:
- Written communication
 - Oral communication

- Flexible pavement construction practice**
may include:
- Site preparation methods
 - Extraction methods
 - Load and haulage methods
 - Placement methods
 - Distribution methods
 - Surface finishing methods
 - Line, grade and level control methods
 - Compaction methods
 - Water application methods
 - Line marking procedures
 - Sediment control methods

EVIDENCE GUIDE

The Evidence Guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for this Training Package.

- Overview of assessment**
- To demonstrate competence in this unit a person must be able to provide evidence that they can successfully apply the principles of flexible pavement construction:
 - Assessment may be contextualised for the circumstances where a person is:
 - Acting as a technical specialist in flexible pavement construction

- Acting as a principal's supervisor of flexible pavement construction tasks
- Acting as a contractor's supervisor of sub-contractors carrying out of flexible pavement construction tasks
- Directly supervising a team or teams carrying out flexible pavement construction tasks

Critical aspects of assessment and evidence required to demonstrate competency in this unit

- The evidence required to demonstrate competency in this unit must be relevant to worksite operations and satisfy all of the requirements of the Performance Criteria, Required Skills and Knowledge and the Range Statement of this unit and include evidence of the following:
 - Knowledge of the requirements, procedures and instructions that are to apply in undertaking flexible pavement construction tasks
 - Implementation of appropriate procedures and techniques for the safe, effective and efficient achievement of the required outcomes of flexible pavement construction tasks
 - working with others to plan, prepare and execute flexible pavement construction tasks
 - Job plans which reflect the requirements of these flexible pavement construction task and are capable of achieving all of their required outcomes
 - Resource plans which have made available adequate resources for the safe, effective and efficient execution of flexible pavement construction tasks
 - Provision of clear and timely instruction and supervision by the individual of those involved in the undertaking of these flexible pavement construction tasks
 - Evidence of the consistent successful completion of flexible pavement construction tasks

Context of and specific resources for assessment

- This unit should be assessed in the context of the work environment wherever possible. Where this is not possible, assessment may occur in a simulated environment. Evidence for assessment is best gathered using the outcomes of products and processes of the workplace context.
- The assessment environment should not disadvantage the participant. For example, language, literacy and numeracy demands of assessment should not be greater than those required on the job.

Methods of assessment

- Assessment of this competency requires typical resources normally used in a civil works environment. Selection and use of resources for particular work sites may differ due to site circumstances.
- Where applicable, physical resources should include equipment modified for people with disabilities.
- Access must be provided to appropriate learning and/or assessment support when required.
- This unit maybe assessed in a holistic way with other units of competency
- The suggested strategies for the assessment of this unit are:
 - Written and/or oral assessment of the candidate's required knowledge
 - Observed, documented and/or first hand testimonial evidence of the candidate's:
 - implementation of appropriate procedures and techniques for the safe, effective and efficient achievement of the required outcomes of flexible pavement construction tasks
 - job plans which reflect the requirements of flexible pavement construction tasks and are capable of achieving all of their required outcomes
 - resource plans which have made available adequate resources for the safe, effective and efficient execution of flexible pavement construction tasks
 - consistent successful completion of flexible pavement construction tasks
 - First hand testimonial evidence of the candidate
 - working with others to plan, prepare and execute flexible pavement construction tasks
 - providing clear and timely instructions to those involved in the undertaking flexible pavement construction tasks
- Meaningful contribution to the review and improvement of civil works schedule of rates processes
- Where practical assessment is used it will be combined with targeted questioning to assess the required knowledge
- Questioning should be appropriate to the oracy, language and literacy levels of the applicant being assessed and should reflect the requirements of the competency and the

work being performed. Assessors should be aware of any cultural issues that may affect responses to the questions

- Where performance is not directly observed and/or is required to be demonstrated over a period of time and/or in a number of locations, any evidence should be authenticated by colleagues, supervisors, clients or other appropriate persons
- Assessment should also reinforce the integration of the Employability Skills

RIICC405A Apply the principles of rigid pavement construction

Unit Descriptor	This unit covers the supervision of rigid pavement construction tasks. It includes the requirements for ensuring that the planning, preparing, initiating, monitoring, adjusting and reporting of rigid pavement construction tasks are carried out in accordance with the accepted industry principles.
Employability Skills	The required outcomes described in this Unit of Competency contain applicable facets of employability skills. The Employability Skills Qualification Summary for the qualification in which this Unit of Competency is packaged will assist in identifying employability skill requirements.
Application of the unit	<p>This unit is applicable for those who perform the duties of:</p> <ul style="list-style-type: none"> • Acting as a technical specialist in rigid pavement construction • Acting as a principal's supervisor of rigid pavement construction tasks • Acting as a contractor's supervisor of sub-contractors carrying out of rigid pavement construction tasks • Directly supervising a team or teams carrying out rigid pavement construction tasks.

ELEMENT

Elements describe the essential outcomes of a Unit of Competency

1. Ensure appropriate planning and preparation is carried out for rigid pavement construction tasks

PERFORMANCE CRITERIA

Performance Criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the Required Skills and Knowledge and/or the Range Statement. Assessment of performance is to be consistent with the Evidence Guide.

- 1.1 Access, interpret and clarify the ***legislative, organisational and manufacturers' requirements and procedures*** relevant to undertaking rigid pavement construction tasks.
- 1.2 Access, interpret and clarify the ***specific task information and requirements*** relevant to undertaking the rigid pavement construction task.
- 1.3 Ensure a ***job plan***, is available which makes best use of the available resources and meets the rigid pavement construction task requirements.

2. Ensure appropriate initiation of rigid pavement construction tasks is carried out
 - 2.1 Confirm that the necessary *resources* are available for the safe, effective and efficient conduct of the rigid pavement construction task, in accordance with the relevant *legislative, organisational, client and manufacturers' requirements and procedures* and the *specific task information and requirements*.
 - 2.2 Ensure clear and timely *instructions* are communicated to *team members* and others involved, for the safe, effective and efficient conduct of the rigid pavement construction task, to meet the *specific task requirements* and the relevant *legislative, organisational, client and manufacturers' requirements and procedures*.
3. Monitor, adjust, communicate and report on the execution of rigid pavement construction tasks
 - 3.1 Ensure relevant *legislative, organisational, client and manufacturers' requirements and procedures* are applied for the safe, effective and efficient execution of the rigid pavement construction tasks, in accordance with the specific *task requirements*.
 - 3.2 *Monitor* rigid pavement construction task performance to ensure it achieves the *required outcomes*.
 - 3.3 *Initiate* adjustments to *rigid pavement construction practice* or *job plan* to ensure safe execution of work and achievement of *required outcomes*.
 - 3.4 Ensure plant equipment and tools maintenance requirements are carried out and recorded in accordance with *relevant legislative, organisational, client and manufacturers' requirements*.
 - 3.5 Complete and submit reports as required by *relevant legislative, organisational, client and task requirements*.
 - 3.6 Recommend changes to improve the safety, efficiency and effectiveness of the execution of *rigid pavement construction tasks*.

REQUIRED SKILLS AND KNOWLEDGE

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

Required Skills

Specific skills are required to achieve the Performance Criteria of this unit, particularly for their application in the variety of circumstances in which this unit may be applied.

This includes the ability to carry out the following, as required for the safe, effective and efficient execution of rigid pavement construction:

- Interpreting legislative requirements and procedures
- Interpreting organisational requirements and procedures
- Interpreting client requirements and procedures
- Interpreting manufacturers' requirements and procedures
- Interpreting rigid pavement construction project site geological data
- Interpreting rigid pavement construction project site geotechnical data
- Interpreting rigid pavement construction project site hydrological data
- Interpreting rigid pavement construction site meteorological data
- Interpreting rigid pavement construction project engineering survey information
- Interpreting rigid pavement construction project plans and drawings
- Interpreting rigid pavement construction project specifications
- Preparing for and conducting briefings, toolbox and site meeting
- Preparing short messages
- Preparing and presenting job reports
- Preparing and maintaining log books and diaries
- Providing leadership
- Calculating quantities for the execution of rigid pavement construction tasks, including:
 - Volumes
 - Grades
 - Percentages
 - Areas
 - Resource consumption figures
- Applying rigid pavement construction performance monitoring skills
- Conducting and interpreting rigid pavement construction materials properties and test results, including:

- Slump testing
- Test cylinder preparation
- Providing recommendations for the improvement of the safe, effective and efficient execution of rigid pavement construction tasks

Required Knowledge

Specific knowledge is required to achieve the Performance Criteria of this unit, particularly for their application in the variety of circumstances in which this unit may be applied.

This includes knowledge of the following, as required for the safe, effective and efficient execution of rigid pavement construction tasks:

- Risk assessment and management requirement and procedures
- Statutory compliance requirements and procedures
- Occupational Health and Safety requirements and procedures
- Environmental management requirements and procedures
- Quality management requirements and procedures
- Work zone traffic management requirements and procedures
- Contract management requirements and procedures
- Communication requirements and procedures
- Administrative requirements and procedures
- Concrete mix design principles
- Rigid pavement construction plant and equipment capabilities and application
- Plant, equipment and tools maintenance requirements and procedures
- Operational techniques for the execution of rigid pavement construction tasks
- Rigid pavement construction task resource requirements and procedures
- Activities scheduling requirements and procedures
- Rigid pavement construction materials delivery requirements and procedures
- Job plan drafting of and administration requirements and procedures
- Reporting requirements and procedures
- Workplace relationship requirements and procedures
- Organisational, client and site operational requirements
- Relationship between various areas of civil works
- Team leadership techniques
- Works planning techniques
- Rigid pavement construction monitoring methods

- Engineering survey principles

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. Bold italicised wording in the Performance Criteria is detailed below.

Rigid pavement

construction may include:

- Roads
- Airfields
- Industrial hardstands
- Open car parks
- Including the applying of:
 - Concrete
 - Bound materials
 - Line marking

Legislative requirements

may include:

- Requirements included in both legislation and regulations
- Federal, State and Local Government legislation and regulations

Legislative, organisational, client and manufacturers requirements and procedures may include:

- Risk assessment and management requirements and procedures
- Statutory compliance requirements and procedures, including:
 - Equal Employment Opportunity
 - Disability Discrimination
 - Planning and development
- Occupational Health and Safety requirements and procedures, including:
 - Workplace safety
 - Dangerous goods
 - Occupational licensing
 - Material Safety Data Sheets
- Traffic management requirements and procedures
- Environmental management requirements and procedures
- Cultural and heritage requirements and procedures
- Quality requirements and procedures
- Australian and other relevant standards

- Current industry best practice
- Communication requirements and procedures
- Procurement requirements and procedures
- Employment requirements and procedures
- Workplace relations requirements and procedures
- Contract management requirements and procedures
- Administration requirements and procedures, including records and reporting
- Maintenance, servicing, and housekeeping requirements and procedures

Specific task information and requirements may include:

- Site geological data
- Site geotechnical data
- Site hydrological data
- Site meteorological data
- Site engineering survey data
- Known and potential site hazards, constraints and conditions
- Site cultural and heritage information
- Task specifications
- Task drawings
- Sources of materials
- Other organisations and contractors involved in the task or related tasks
- Coordination, timing and budgeting requirements

Job plan may include:

- Human resource requirements
- Plant and machinery requirements
- Construction materials requirements
- Sub-contractor support requirements
- Waste disposal requirements
- Coordination requirements
- Activity scheduling
- Materials delivery scheduling
- Risk assessment and management requirements
- Occupational Health and Safety requirements

- Quality management requirements, including testing scheduling requirements
- Traffic management requirements
- Environmental requirements
- Task monitoring requirements
- Task performance monitoring requirements
- Communication requirements
- Reporting requirements

Teams members
may include:

- Other members of the organisation's management team
- Members of the team directly involved in the task
- Suppliers representatives
- Sub-contractors representatives
- Supervisors or managers of other organisations who are involved in related tasks

Resources may include:

- Labour
- Plant, equipment and tools
- Highway haulage vehicles
- Construction materials
- Formwork materials
- Sub-contractor services

Instructions may include:

- Briefings
- Handovers
- Work orders
- Toolbox meetings
- Site meetings

Monitor may include:

- Ongoing risk assessment
- Engineering survey
- Sampling and testing
- Observation and recording
- General supervision

Required outcomes
may include:

- Task specifications requirements
- Task drawings requirements

- Coordination requirements
- Activity scheduling requirements
- Unit cost requirements
- Overall task cost requirements
- Waste management requirements

Initiate may include:

- Written communication
- Oral communication

Rigid pavement construction practice may include:

- Site preparation methods
- Extraction methods
- Load and haulage methods
- Placement methods
- Distribution methods
- Compaction methods
- Surface finishing methods
- Line, grade and level control methods
- Curing and hot weather concreting techniques
- Sediment control methods
- Line marking methods

EVIDENCE GUIDE

The Evidence Guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for this Training Package.

Overview of assessment

- To demonstrate competence in this unit a person must be able to provide evidence that they can successfully apply the principles of rigid pavement construction:
- Assessment may be contextualised for the circumstances where a person is:
 - Acting as a technical specialist in rigid pavement construction
 - Acting as a principal's supervisor of rigid pavement construction tasks
 - Acting as a contractor's supervisor of sub-contractors carrying out of rigid pavement construction tasks
 - Directly supervising a team or teams carrying out rigid pavement construction tasks.

Critical aspects of assessment and evidence required to demonstrate competency in this unit

- The evidence required to demonstrate competency in this unit must be relevant to worksite operations and satisfy all of the requirements of the Performance Criteria, Required Skills and Knowledge and the Range Statement of this unit and include evidence of the following:
 - Knowledge of the requirements, procedures and instructions that are to apply in undertaking rigid pavement construction tasks
 - Implementation of appropriate procedures and techniques for the safe, effective and efficient achievement of the required outcomes of rigid pavement construction tasks
 - working with others to plan, prepare and execute rigid pavement construction tasks
 - Job plans which reflect the requirements of these rigid pavement construction task and are capable of achieving all of their required outcomes
 - Resource plans which have made available adequate resources for the safe, effective and efficient execution of rigid pavement construction tasks
 - Provision of clear and timely instruction and supervision by the individual of those involved in the undertaking of these rigid pavement construction task
 - Evidence of the consistent successful completion of rigid pavement construction tasks

Context of and specific resources for assessment

- This unit should be assessed in the context of the work environment wherever possible. Where this is not possible, assessment may occur in a simulated environment. Evidence for assessment is best gathered using the outcomes of products and processes of the workplace context.
- The assessment environment should not disadvantage the participant. For example, language, literacy and numeracy demands of assessment should not be greater than those required on the job.
- Assessment of this competency requires typical resources normally used in a civil works environment. Selection and use of resources for particular work sites may differ due to site circumstances.
- Where applicable, physical resources should include equipment modified for people with disabilities.
- Access must be provided to appropriate learning and/or assessment support when required.

Methods of assessment

- This unit maybe assessed in a holistic way with other units of competency
- The suggested strategies for the assessment of this unit are:
 - Written and/or oral assessment of the candidate's required knowledge
 - Observed, documented and/or first hand testimonial evidence of the candidate's:
 - implementation of appropriate procedures and techniques for the safe, effective and efficient achievement of the required outcomes of rigid pavement construction tasks
 - Job plans which reflect the requirements of rigid pavement construction tasks and are capable of achieving all of their required outcomes
 - Resource plans which have made available adequate resources for the safe, effective and efficient execution of rigid pavement construction tasks
 - Consistent successful completion of rigid pavement construction tasks
 - First hand testimonial evidence of the candidate
 - working with others to plan, prepare and execute rigid pavement construction tasks
 - providing clear and timely instructions to those involved in the undertaking rigid pavement construction tasks
- Meaningful contribution to the review and improvement of civil works schedule of rates processes
- Where practical assessment is used it will be combined with targeted questioning to assess the required knowledge
- Questioning should be appropriate to the oracy, language and literacy levels of the applicant being assessed and should reflect the requirements of the competency and the work being performed. Assessors should be aware of any cultural issues that may affect responses to the questions
- Where performance is not directly observed and/or is required to be demonstrated over a period of time and/or in a number of locations, any evidence should be authenticated by colleagues, supervisors, clients or other appropriate persons

- Assessment should also reinforce the integration of the Employability Skills

RIICC406A Apply the principles of the stabilisation of materials

Unit Descriptor This unit covers the supervision of the stabilisation of materials tasks. It includes the requirements for ensuring that the planning, preparing, initiating, monitoring, adjusting and reporting of the stabilisation of materials tasks are carried out in accordance with the accepted industry principles.

Employability Skills The required outcomes described in this Unit of Competency contain applicable facets of employability skills. The Employability Skills Qualification Summary for the qualification in which this Unit of Competency is packaged will assist in identifying employability skill requirements.

Application of the unit This unit is applicable for those who perform the duties of:

- Acting as a technical specialist in the stabilisation of materials
- Acting as a principal's supervisor of the stabilisation of materials tasks
- Acting as a contractor's supervisor of sub-contractors carrying out the stabilisation of materials tasks
- Directly supervising a team or teams carrying out the stabilisation of materials tasks.

ELEMENT

Elements describe the essential outcomes of a Unit of Competency

1. Ensure appropriate planning and preparation is carried out for the stabilisation of materials tasks

PERFORMANCE CRITERIA

Performance Criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the Required Skills and Knowledge and/or the Range Statement. Assessment of performance is to be consistent with the Evidence Guide.

- 1.1 Access, interpret and clarify the ***legislative, organisational and manufacturers' requirements and procedures*** relevant to undertaking the stabilisation of materials tasks.
- 1.2 Access, interpret and clarify the ***specific task information and requirements*** relevant to undertaking the stabilisation of materials task.
- 1.3 Ensure a ***job plan***, is available which makes best use of the available resources and meets the stabilisation of materials task requirements.

- | | | | |
|----|--|-----|---|
| 2. | Ensure appropriate initiation of the stabilisation of materials tasks is carried out | 2.1 | Confirm that the necessary <i>resources</i> are available for the safe, effective and efficient conduct of the stabilisation of materials task, in accordance with the relevant <i>legislative, organisational, client and manufacturers' requirements and procedures</i> and the <i>specific task information and requirements</i> . |
| | | 2.2 | Ensure clear and timely <i>instructions</i> are communicated to <i>team members</i> and others involved, for the safe, effective and efficient conduct of the stabilisation of materials task, to meet the <i>specific task requirements</i> and the relevant <i>legislative, organisational, client and manufacturers' requirements and procedures</i> . |
| 3. | Monitor, adjust, communicate and report on the execution of the stabilisation of materials tasks | 3.1 | Ensure relevant <i>legislative, organisational, client and manufacturers' requirements and procedures</i> are applied for the safe, effective and efficient execution of the stabilisation of materials tasks, in accordance with the specific <i>task requirements</i> . |
| | | 3.2 | Monitor the stabilisation of materials task performance to ensure it achieves the <i>required outcomes</i> . |
| | | 3.3 | Initiate adjustments to <i>the stabilisation of materials practice or job plan</i> to ensure safe execution of work and achievement of <i>required outcomes</i> . |
| | | 3.4 | Ensure plant equipment and tools maintenance requirements are carried out and recorded in accordance with <i>relevant legislative, organisational, client and manufacturers' requirements</i> . |
| | | 3.5 | Complete and submit reports as required by <i>relevant legislative, organisational, client and task requirements</i> . |
| | | 3.6 | Recommend changes to improve the safety, efficiency and effectiveness of the execution of <i>the stabilisation of materials tasks</i> . |

REQUIRED SKILLS AND KNOWLEDGE

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

Required Skills

Specific skills are required to achieve the Performance Criteria of this unit, particularly for their application in the variety of circumstances in which this unit may be applied.

This includes the ability to carry out the following, as required for the safe, effective and efficient execution of the stabilisation of materials:

- Interpreting legislative requirements and procedures
- Interpreting organisational requirements and procedures
- Interpreting client requirements and procedures
- Interpreting manufacturers' requirements and procedures
- Interpreting stabilisation of materials project site geological data
- Interpreting stabilisation of materials project site geotechnical data
- Interpreting stabilisation of materials project site hydrological data
- Interpreting stabilisation of materials site meteorological data
- Interpreting stabilisation of materials project engineering survey information
- Interpreting stabilisation of materials project plans and drawings
- Interpreting stabilisation of materials project specifications
- Preparing for and conducting of briefings, toolbox and site meeting
- Preparing short messages
- Preparing and presenting job reports
- Preparing and maintaining log books and diaries
- Providing leadership
- Applying stabilisation of materials performance monitoring skills
- Calculating quantities for the execution of stabilisation of materials tasks, including:
 - Volumes
 - Percentages
 - Areas
 - Resource consumption figures
- Interpreting stabilisation of materials properties and test results, including:
 - Soil density/moisture relationship
 - Plasticity index
 - Particle size distribution
- Providing recommendations for the improvement of the safe, effective and efficient execution of stabilisation of materials tasks

Required Knowledge

Specific knowledge is required to achieve the Performance Criteria of this unit, particularly for their application in the variety of circumstances in which this unit may be applied.

This includes knowledge of the following, as required for the safe, effective and efficient execution of the stabilisation of materials tasks:

- Risk assessment and management requirement and procedures
- Statutory compliance requirements and procedures
- Occupational Health and Safety requirements and procedures, including:
 - Binder safety and health requirements and procedures
 - Materials Safety Data Sheet requirements and procedures
- Environmental management requirements and procedures
- Quality management requirements and procedures
- Work zone traffic management requirements and procedures
- Contract management requirements and procedures
- Communication requirements and procedures
- Administrative requirements and procedures
- Stabilisation of materials plant and equipment capabilities and application
- Plant, equipment and tools maintenance requirements and procedures
- Operational techniques for the execution of stabilisation of materials tasks
- Stabilisation of materials task resource requirements and procedures
- Activities scheduling requirements and procedures
- Stabilisation agents and their characteristics
- Soils modification techniques
- Stabilisation of materials delivery requirements and procedures
- Job plan drafting of and administration requirements and procedures
- Reporting requirements and procedures
- Workplace relationship requirements and procedures
- Organisational, client and site operational requirements
- Relationship between various areas of civil works
- Team leadership techniques
- Works planning techniques
- Stabilisation of materials monitoring methods
- Engineering survey principles

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. Bold italicised wording in the Performance Criteria is detailed below.

The stabilisation of materials may include:

- New pavement construction
- Existing pavement repair and maintenance

Legislative requirements may include:

- Requirements included in both legislation and regulations
- Federal, State and Local Government legislation and regulations

Legislative, organisational, client and manufacturers requirements and procedures may include:

- Risk assessment and management requirements and procedures
- Statutory compliance requirements and procedures, including:
 - Equal Employment Opportunity
 - Disability Discrimination
 - Planning and development
- Occupational Health and Safety requirements and procedures, including:
 - Workplace safety
 - Dangerous goods
 - Occupational licensing
 - Material Safety Data Sheets
- Traffic management requirements and procedures
- Environmental management requirements and procedures
- Cultural and heritage requirements and procedures
- Quality requirements and procedures
- Australian and other relevant standards
- Current industry best practice
- Communication requirements and procedures
- Procurement requirements and procedures
- Employment requirements and procedures
- Workplace relations requirements and procedures
- Contract management requirements and procedures
- Administration requirements and procedures, including records and reporting
- Maintenance, servicing, and housekeeping

requirements and procedures

Specific task information and requirements may include:

- Site geological data
- Site geotechnical data
- Site hydrological data
- Site meteorological data
- Site engineering survey data
- Known and potential site hazards, constraints and conditions
- Site cultural and heritage information
- Task specifications
- Task drawings
- Sources of materials
- Other organisations and contractors involved in the task or related tasks
- Coordination, timing and budgeting requirements

Job plan may include:

- Human resource requirements
- Plant and machinery requirements
- Construction materials requirements
- Sub-contractor support requirements
- Waste disposal requirements
- Coordination requirements
- Activity scheduling
- Materials delivery scheduling
- Risk assessment and management requirements
- Occupational Health and Safety requirements
- Quality management requirements, including testing scheduling requirements
- Traffic management requirements
- Environmental requirements
- Task monitoring requirements
- Task performance monitoring requirements
- Communication requirements
- Reporting requirements

- Teams members** may include:
- Other members of the organisation's management team
 - Members of the team directly involved in the task
 - Suppliers representatives
 - Sub-contractors representatives
 - Supervisors or managers of other organisations who are involved in related tasks
- Resources** may include:
- Labour
 - Plant, equipment and tools
 - Highway haulage vehicles
 - Construction materials
 - Sub-contractor services
- Instructions** may include:
- Briefings
 - Handovers
 - Work orders
 - Toolbox meetings
 - Site meetings
- Monitor** may include:
- Ongoing risk assessment
 - Engineering survey
 - Sampling and testing
 - Observation and recording
 - General supervision
- Required outcomes** may include:
- Task specifications requirements
 - Task drawings requirements
 - Coordination requirements
 - Activity scheduling requirements
 - Unit cost requirements
 - Overall task cost requirements
 - Waste management requirements
- Initiate** may include:
- Written communication
 - Oral communication

The stabilisation of materials practice may include:

- Site preparation methods
- Extraction methods
- Load and haulage methods
- Placement methods
- Distribution methods
- Surface finishing methods
- Line, grade and level control methods
- Compaction and water application methods
- Sediment control methods

EVIDENCE GUIDE

The Evidence Guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for this Training Package.

Overview of assessment

- To demonstrate competence in this unit a person must be able to provide evidence that they can successfully apply the principles of the stabilisation of materials:
- Assessment may be contextualised for the circumstances where a person is:
 - Acting as a technical specialist in the stabilisation of materials
 - Acting as a principal's supervisor of the stabilisation of materials tasks
 - Acting as a contractor's supervisor of sub-contractors carrying out of the stabilisation of materials tasks
 - Directly supervising a team or teams carrying out the stabilisation of materials tasks

Critical aspects of assessment and evidence required to demonstrate competency in this unit

- The evidence required to demonstrate competency in this unit must be relevant to worksite operations and satisfy all of the requirements of the Performance Criteria, Required Skills and Knowledge and the Range Statement of this unit and include evidence of the following:
 - Knowledge of the requirements, procedures and instructions that are to apply in undertaking stabilisation of materials tasks
 - Implementation of appropriate procedures and techniques for the safe, effective and efficient achievement of the required outcomes of the stabilisation of materials tasks

- Working with others to plan, prepare and execute the stabilisation of materials tasks
- Job plans which reflect the requirements of these the stabilisation of materials task and are capable of achieving all of their required outcomes
- Resource plans which have made available adequate resources for the safe, effective and efficient execution of the stabilisation of materials tasks
- Provision of clear and timely instruction and supervision by the individual of those involved in the undertaking of these stabilisation of materials task
- Evidence of the consistent successful completion of the stabilisation of materials tasks

Context of and specific resources for assessment

- This unit should be assessed in the context of the work environment wherever possible. Where this is not possible, assessment may occur in a simulated environment. Evidence for assessment is best gathered using the outcomes of products and processes of the workplace context.
- The assessment environment should not disadvantage the participant. For example, language, literacy and numeracy demands of assessment should not be greater than those required on the job.
- Assessment of this competency requires typical resources normally used in a civil works environment. Selection and use of resources for particular work sites may differ due to site circumstances.
- Where applicable, physical resources should include equipment modified for people with disabilities.
- Access must be provided to appropriate learning and/or assessment support when required.

Methods of assessment

- This unit maybe assessed in a holistic way with other units of competency
- The suggested strategies for the assessment of this unit are:
 - Written and/or oral assessment of the candidate's required knowledge
 - Observed, documented and/or first hand testimonial evidence of the candidate's:
 - implementation of appropriate procedures and techniques for the safe, effective and efficient

- achievement of the required outcomes of stabilisation of materials tasks
- job plans which reflect the requirements of the stabilisation of materials tasks and are capable of achieving all of their required outcomes
- resource plans which have made available adequate resources for the safe, effective and efficient execution of the stabilisation of materials tasks
- consistent successful completion of the stabilisation of materials tasks
- First hand testimonial evidence of the candidate
 - working with others to plan, prepare and execute the stabilisation of materials tasks
 - providing clear and timely instructions to those involved in the undertaking stabilisation of materials tasks.
- Meaningful contribution to the review and improvement of civil works schedule of rates processes
- Where practical assessment is used it will be combined with targeted questioning to assess the required knowledge
- Questioning should be appropriate to the oracy, language and literacy levels of the applicant being assessed and should reflect the requirements of the competency and the work being performed. Assessors should be aware of any cultural issues that may affect responses to the questions
- Where performance is not directly observed and/or is required to be demonstrated over a period of time and/or in a number of locations, any evidence should be authenticated by colleagues, supervisors, clients or other appropriate persons
- Assessment should also reinforce the integration of the Employability Skills

RIICC407A Apply the principles for asphalt paving and compaction

Unit Descriptor This unit covers the supervision of asphalt paving and compaction tasks. It includes the requirements for ensuring that the planning, preparing, initiating, monitoring, adjusting and reporting of asphalt paving and compaction tasks are carried out in accordance with the accepted industry principles.

Employability Skills The required outcomes described in this Unit of Competency contain applicable facets of employability skills. The Employability Skills Qualification Summary for the qualification in which this Unit of Competency is packaged will assist in identifying employability skill requirements.

Application of the unit This unit is applicable for those who perform the duties of:

- Acting as a technical specialist in asphalt paving and compaction
- Acting as a principal's supervisor of asphalt paving and compaction tasks
- Acting as a contractor's supervisor of sub-contractors carrying out asphalt paving and compaction tasks
- Directly supervising a team or teams carrying out asphalt paving and compaction tasks.

ELEMENT

Elements describe the essential outcomes of a Unit of Competency

1. Ensure appropriate planning and preparation is carried out of asphalt paving and compaction tasks

PERFORMANCE CRITERIA

Performance Criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the Required Skills and Knowledge and/or the Range Statement. Assessment of performance is to be consistent with the Evidence Guide.

- 1.1 Access, interpret and clarify the ***legislative, organisational and manufacturers' requirements and procedures*** relevant to undertaking asphalt paving and compaction tasks.
- 1.2 Access, interpret and clarify the ***specific task information and requirements*** relevant to undertaking asphalt paving and compaction task.
- 1.3 Ensure a ***job plan***, is available which makes best use of the available resources and meets asphalt paving and compaction task requirements.

- | | | | |
|----|---|-----|---|
| 2. | Ensure appropriate initiation of asphalt paving and compaction tasks is carried out | 2.1 | Confirm that the necessary <i>resources</i> are available for the safe, effective and efficient conduct of asphalt paving and compaction tasks, in accordance with the relevant <i>legislative, organisational, client and manufacturers' requirements and procedures</i> and the <i>specific task information and requirements</i> . |
| | | 2.2 | Ensure clear and timely <i>instructions</i> are communicated to <i>team members</i> and others involved, for the safe, effective and efficient conduct of asphalt paving and compaction tasks, to meet the <i>specific task requirements</i> and the relevant <i>legislative, organisational, client and manufacturers' requirements and procedures</i> . |
| 3. | Monitor, adjust, communicate and report on the execution of asphalt paving and compaction tasks | 3.1 | Ensure relevant <i>legislative, organisational, client and manufacturers' requirements and procedures</i> are applied for the safe, effective and efficient execution of asphalt paving and compaction tasks, in accordance with the specific <i>task requirements</i> . |
| | | 3.2 | <i>Monitor</i> asphalt paving and compaction task performance to ensure it achieves the <i>required outcomes</i> . |
| | | 3.3 | <i>Initiate</i> adjustments to <i>asphalt paving and compaction practice</i> or <i>job plan</i> to ensure safe execution of work and achievement of <i>required outcomes</i> . |
| | | 3.4 | Ensure plant equipment and tools maintenance requirements are carried out and recorded in accordance with <i>relevant legislative, organisational, client and manufacturers' requirements</i> . |
| | | 3.5 | Complete and submit reports as required by <i>relevant legislative, organisational, client and task requirements</i> . |
| | | 3.6 | Recommend changes to improve the safety, efficiency and effectiveness of the execution of <i>asphalt paving and compaction tasks</i> . |

REQUIRED SKILLS AND KNOWLEDGE

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

Required Skills

Specific skills are required to achieve the performance criteria of this unit, particularly for their application in the variety of circumstances in which this unit may be applied. This includes the ability to carry out the following, as required for the safe, effective and efficient execution of asphalt paving and compaction:

- Interpreting legislative requirements and procedures

- Interpreting organisational requirements and procedures
- Interpreting client and specification requirements and procedures
- Interpreting manufacturers' requirements and procedures
- Interpreting asphalt paving and compaction project site geological data
- Interpreting asphalt paving and compaction project site geotechnical data
- Interpreting asphalt paving and compaction project site hydrological data
- Interpreting asphalt paving and compaction site meteorological data
- Interpreting asphalt paving and compaction project engineering survey information
- Interpreting asphalt paving and compaction project plans and drawings
- Interpreting asphalt paving and compaction project specifications
- Preparing for and conducting of briefings, toolbox and site meeting
- Preparing of short messages
- Preparing and presenting of job reports
- Preparing and maintaining of log books and diaries
- Providing leadership
- Applying asphalt paving and compaction performance monitoring skills
- Calculating quantities for the execution of asphalt paving and compaction tasks, including:
 - Volumes
 - Tonnage required
 - Paver and roller speeds
 - Grades
 - Percentages
 - Areas
 - Resource consumption figures, including required asphalt supply rates
- Interpreting asphalt paving and compaction properties and test results, including compaction test results
- Providing recommendations for the improvement of the safe, effective and efficient execution of asphalt paving and compaction tasks

Required Knowledge

Specific knowledge is required to achieve the performance criteria of this unit, particularly for their application in the variety of circumstances in which this unit may be applied.

This includes knowledge of the following, as required for the safe, effective and efficient execution of asphalt paving and compaction tasks:

- Risk assessment and management requirement and procedures

- Statutory compliance requirements and procedures
- Occupational Health and Safety requirements and procedures
- Environmental management requirements and procedures
- Quality management requirements and procedures
- Work zone traffic management requirements and procedures
- Contract management requirements and procedures
- Communication requirements and procedures
- Administrative requirements and procedures
- Asphalt paving and compaction plant and equipment capabilities and application
- Plant, equipment and tools maintenance requirements and procedures
- Operational techniques for the execution of asphalt paving and compaction tasks
- Asphalt paving and compaction task resource requirements and procedures
- Activities scheduling requirements and procedures
- Asphalt paving and compaction delivery requirements and procedures
- Job plan drafting of and administration requirements and procedures
- Reporting requirements and procedures
- Workplace relationship requirements and procedures
- Organisational, client and site operational requirements
- Relationship between various areas of civil works
- Team leadership techniques
- Works planning techniques
- Asphalt paving and compaction monitoring methods
- Engineering survey principles
- Characteristics, application and requirements and procedures for different types of asphalt
- Asphalt mix design philosophy and test methods relating to paving and compaction
- Straight line and intersection paving and compaction requirements and procedures

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. Bold italicised wording in the Performance Criteria is detailed below.

- Asphalt paving and compaction*** may include:
- New pavement construction
 - Existing pavement repair and maintenance

Legislative requirements may include:

- Requirements included in both legislation and regulations
- Federal, State and Local Government legislation and regulations

Legislative, organisational, client and manufacturers requirements and procedures may include:

- Risk assessment and management requirements and procedures
- Statutory compliance requirements and procedures, including:
 - Equal Employment Opportunity
 - disability discrimination
 - planning and development
- Occupational Health and Safety requirements and procedures, including:
 - workplace safety
 - dangerous goods
 - occupational licensing
 - Material Safety Data Sheets
- Traffic management requirements and procedures
- Environmental management requirements and procedures
- Cultural and heritage requirements and procedures
- Quality requirements and procedures
- Australian and other relevant standards
- Current industry best practice
- Communication requirements and procedures
- Procurement requirements and procedures
- Employment requirements and procedures
- Workplace relations requirements and procedures
- Contract management requirements and procedures
- Administration requirements and procedures, including records and reporting
- Maintenance, servicing, and housekeeping requirements and procedures

Specific task information and requirements may include:

- Site geological data
- Site geotechnical data
- Site hydrological data

- Site meteorological data
- Site engineering survey data
- Known and potential site hazards, constraints and conditions
- Site cultural and heritage information
- Task specifications
- Task drawings
- Sources of materials
- Types of asphalt
- Other organizations and contractors involved in the task or related tasks
- Coordination, timing and budgeting requirements

Job plan may include:

- Human resource requirements
- Plant and machinery requirements
- Construction materials requirements
- Sub-contractor support requirements
- Waste disposal requirements
- Coordination requirements
- Activity scheduling
- Materials delivery scheduling
- Risk assessment and management requirements
- Occupational Health and Safety requirements
- Quality management requirements, including testing scheduling requirements
- Traffic management requirements
- Environmental requirements
- Task monitoring requirements
- Task performance monitoring requirements
- Communication requirements
- Reporting requirements

Teams members
may include:

- Other members of the organisation's management team
- Members of the team directly involved in the task
- Suppliers representatives

- Sub-contractors representatives
- Supervisors or managers of other organisations who are involved in related tasks

Resources may include:

- Labour
- Plant, equipment and tools
- Material supply vehicles
- Construction materials, such as emulsion and asphalt
- Sub-contractor services

Instructions may include:

- Briefings
- Handovers
- Work orders
- Toolbox meetings
- Site meetings

Monitor may include:

- Ongoing risk assessment
- Engineering survey
- Sampling and testing
- Observation and recording
- General supervision

Required outcomes may include:

- Task specifications requirements
- Task drawings requirements
- Coordination requirements
- Activity scheduling requirements
- Unit cost requirements
- Overall task cost requirements
- Waste management requirements

Initiate may include:

- Written communication
- Oral communication

Asphalt paving and compaction practice may include:

- Site preparation methods
- Placement methods
- Distribution methods
- Joints
- Compaction methods

- Surface finishing methods
- Line, grade and level control methods
- Sediment control methods
- Signage requirements and procedures
- Remedial work methods
- Night work procedures
- Temporary line marking requirements and procedures
- Procedures for delivery vehicle access to pavers

EVIDENCE GUIDE

The Evidence Guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for this Training Package.

Overview of assessment

- To demonstrate competence in this unit a person must be able to provide evidence that they can successfully apply the principles for asphalt paving and compaction:
- Assessment may be contextualised for the circumstances where a person is:
 - Acting as a technical specialist in asphalt paving and compaction
 - Acting as a principal's supervisor for asphalt paving and compaction tasks
 - Acting as a contractor's supervisor of sub-contractors carrying out asphalt paving and compaction tasks
 - Directly supervising a team or teams carrying out asphalt paving and compaction tasks.

Critical aspects of assessment and evidence required to demonstrate competency in this unit

- The evidence required to demonstrate competency in this unit must be relevant to worksite operations and satisfy all of the requirements of the Performance Criteria, Required Skills and Knowledge and the Range Statement of this unit and include evidence of the following:
 - Knowledge of the requirements, procedures and instructions that are to apply in undertaking asphalt paving and compaction tasks.
 - Implementation of appropriate procedures and techniques for the safe, effective and efficient achievement of the required outcomes for asphalt paving and compaction tasks
 - Working with others to plan, prepare and execute asphalt paving and compaction tasks.
 - Job plans which reflect the requirements of these for

asphalt paving and compaction task and are capable of achieving all of their required outcomes.

- Resource plans which have made available adequate resources for the safe, effective and efficient execution of asphalt paving and compaction tasks
- Provision of clear and timely instruction and supervision by the individual of those involved in the undertaking of these for asphalt paving and compaction task
- Evidence of the consistent successful completion of a variety of asphalt paving and compaction tasks

Context of and specific resources for assessment

- This unit should be assessed in the context of the work environment wherever possible. Where this is not possible, assessment may occur in a simulated environment. Evidence for assessment is best gathered using the outcomes of products and processes of the workplace context.
- The assessment environment should not disadvantage the participant. For example, language, literacy and numeracy demands of assessment should not be greater than those required on the job.
- Assessment of this competency requires typical resources normally used in a civil works environment. Selection and use of resources for particular work sites may differ due to site circumstances.
- Where applicable, physical resources should include equipment modified for people with disabilities.
- Access must be provided to appropriate learning and/or assessment support when required.

Methods of assessment

- This unit maybe assessed in a holistic way with other units of competency
- The suggested strategies for the assessment of this unit are:
 - Written and/or oral assessment of the candidate's required knowledge.
 - Observed, documented and/or first hand testimonial evidence of the candidate's:
 - implementation of appropriate procedures and techniques for the safe, effective and efficient achievement of the required outcomes for asphalt paving and compaction tasks
 - job plans which reflect the requirements for asphalt paving and compaction tasks and are

- capable of achieving all of their required outcomes.
- resource plans which have made available adequate resources for the safe, effective and efficient execution for asphalt paving and compaction tasks
- consistent successful completion of a variety of asphalt paving and compaction tasks
- First hand testimonial evidence of the candidate:
 - working with others to plan, prepare and execute asphalt paving and compaction tasks.
 - providing clear and timely instructions to those involved in undertaking asphalt paving and compaction tasks.
- Meaningful contribution to the review and improvement of civil works schedule of rates processes
- Where practical assessment is used it will be combined with targeted questioning to assess the required knowledge
- Questioning should be appropriate to the oracy, language and literacy levels of the applicant being assessed and should reflect the requirements of the competency and the work being performed. Assessors should be aware of any cultural issues that may affect responses to the questions
- Where performance is not directly observed and/or is required to be demonstrated over a period of time and/or in a number of locations, any evidence should be authenticated by colleagues, supervisors, clients or other appropriate persons
- Assessment should also reinforce the integration of the Employability Skills

RIICC408A Apply the principles for the application of bituminous sprayed treatments

Unit Descriptor	This unit covers the supervision for bituminous sprayed treatment tasks. It includes the requirements for ensuring that the planning, preparing, initiating, monitoring, adjusting and reporting for bituminous sprayed treatment tasks are carried out in accordance with the accepted industry principles.
Employability Skills	The required outcomes described in this Unit of Competency contain applicable facets of employability skills. The Employability Skills Qualification Summary for the qualification in which this Unit of Competency is packaged will assist in identifying employability skill requirements.
Application of the unit	<p>This unit is applicable for those who perform the duties of:</p> <ul style="list-style-type: none"> • Acting as a technical specialist in the application of bituminous sprayed treatments • Acting as a principal's supervisor for bituminous sprayed treatment tasks • Acting as a contractor's supervisor of sub-contractors carrying out bituminous sprayed treatment tasks • Directly supervising a team or teams carrying out bituminous sprayed treatment tasks.

ELEMENT

Elements describe the essential outcomes of a Unit of Competency

1. Ensure appropriate planning and preparation is carried out for bituminous sprayed treatment tasks

PERFORMANCE CRITERIA

Performance Criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the Required Skills and Knowledge and/or the Range Statement. Assessment of performance is to be consistent with the Evidence Guide.

- 1.1 Access, interpret and clarify the ***legislative, organisational and manufacturers' requirements and procedures*** relevant to undertaking bituminous sprayed treatment tasks.
- 1.2 Access, interpret and clarify the ***specific task information and requirements*** relevant to undertaking bituminous sprayed treatment task.
- 1.3 Ensure a ***job plan***, is available which makes best use of the available resources and meets bituminous sprayed treatment task requirements.

- | | | | |
|----|--|-----|--|
| 2. | Ensure appropriate initiation for bituminous sprayed treatment tasks is carried out | 2.1 | Confirm that the necessary <i>resources</i> are available for the safe, effective and efficient conduct for bituminous sprayed treatment task, in accordance with the relevant <i>legislative, organisational, client and manufacturers' requirements and procedures</i> and the <i>specific task information and requirements</i> . |
| | | 2.2 | Ensure clear and timely <i>instructions</i> are communicated to <i>team members</i> and others involved, for the safe, effective and efficient conduct for bituminous sprayed treatment task, to meet the <i>specific task requirements</i> and the relevant <i>legislative, organisational, client and manufacturers' requirements and procedures</i> . |
| 3. | Monitor, adjust, communicate and report on the execution of bituminous sprayed treatment tasks | 3.1 | Ensure relevant <i>legislative, organisational, client and manufacturers' requirements and procedures</i> are applied for the safe, effective and efficient execution for bituminous sprayed treatment tasks, in accordance with the specific <i>task requirements</i> . |
| | | 3.2 | <i>Monitor</i> bituminous sprayed treatment task performance to ensure it achieves the <i>required outcomes</i> . |
| | | 3.3 | <i>Initiate</i> adjustments to <i>bituminous sprayed treatment practice</i> or <i>job plan</i> to ensure safe execution of work and achievement of <i>required outcomes</i> . |
| | | 3.4 | Ensure plant equipment and tools maintenance requirements are carried out and recorded in accordance with <i>relevant legislative, organisational, client and manufacturers' requirements</i> . |
| | | 3.5 | Complete and submit reports as required by <i>relevant legislative, organisational, client and task requirements</i> . |
| | | 3.6 | Recommend changes to improve the safety, efficiency and effectiveness of the execution of <i>bituminous sprayed treatment tasks</i> . |

REQUIRED SKILLS AND KNOWLEDGE

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

Required Skills

Specific skills are required to achieve the performance criteria of this unit, particularly for their application in the variety of circumstances in which this unit may be applied.

This includes the ability to carry out the following, as required for the safe, effective and efficient execution for bituminous sprayed treatment:

- Interpreting legislative requirements and procedures
- Interpreting organisational requirements and procedures
- Interpreting client requirements and procedures
- Interpreting manufacturers' requirements and procedures
- Interpreting bituminous sprayed treatment project site geological data
- Interpreting bituminous sprayed treatment project site geotechnical data
- Interpreting bituminous sprayed treatment project site hydrological data
- Interpreting bituminous sprayed treatment site meteorological data
- Interpreting bituminous sprayed treatment project engineering survey information
- Interpreting bituminous sprayed treatment project plans and drawings
- Interpreting bituminous sprayed treatment project specifications
- Preparing for and conducting of briefings, toolbox and site meeting
- Preparing of short messages
- Preparing and presenting of job reports
- Preparing and maintaining of log books and diaries
- Providing leadership
- Applying bituminous sprayed treatment performance monitoring skills
- Calculating quantities for the execution of bituminous sprayed treatment tasks, including:
 - Volumes
 - Tonnages of materials
 - Sprayer forward speed
 - Materials' rates of application
 - Additive requirements
 - Areas
 - Resource consumption figures, including the required delivery rates
- Interpreting bituminous sprayed treatment materials properties and test results
- Conducting and interpreting the outcomes of visual assessments of completed works, including bleeding and stripping
- Providing recommendations for the improvement of the safe, effective and efficient execution of bituminous sprayed treatment tasks

Required Knowledge

Specific knowledge is required to achieve the performance criteria of this unit, particularly for their application in the variety of circumstances in which this unit may be applied.

This includes knowledge of the following, as required for the safe, effective and efficient execution for bituminous sprayed treatment tasks:

- Risk assessment and management requirement and procedures
- Statutory compliance requirements and procedures
- Occupational Health and Safety requirements and procedures
- Environmental management requirements and procedures
- Quality management requirements and procedures
- Work zone traffic management requirements and procedures
- Contract management requirements and procedures
- Communication requirements and procedures
- Administrative requirements and procedures
- Bituminous sprayed treatment plant and equipment capabilities and application
- Plant, equipment and tools maintenance requirements and procedures
- Operational techniques for the execution of various bituminous sprayed treatment tasks, including:
 - Priming or pre-sealing
 - Normal bitumen sealing
 - Polymer modified binder sealing
 - Use of different aggregate sizes
 - Requirements for low, low-medium, high and very high traffic conditions
- Pavement preparation requirements and procedures
- Sprayer and spreader calibration requirements and procedures
- Design rates of application of bituminous spray treatment materials
- Bituminous sprayed treatment task resource requirements and procedures
- Activities scheduling requirements and procedures
- Bituminous sprayed treatment materials delivery requirements and procedures
- Job plan drafting of and administration requirements and procedures
- Reporting requirements and procedures
- Workplace relationship requirements and procedures
- Organisational, client and site operational requirements

- Relationship between various areas of civil works
- Team leadership techniques
- Works planning techniques
- Bituminous sprayed treatment monitoring methods
- Engineering survey principles

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. Bold italicised wording in the Performance Criteria is detailed below.

Bituminous sprayed treatment may include:

- New pavement construction
- Existing pavement repair and maintenance
- Priming or pre-sealing
- Normal bitumen sealing
- Poly modified binder (PMB) sealing

Legislative requirements may include:

- Requirements included in both legislation and regulations
- Federal, State and Local Government legislation and regulations

Legislative, organisational, client and manufacturers requirements and procedures may include:

- Risk assessment and management requirements and procedures
- Statutory compliance requirements and procedures, including:
 - Equal Employment Opportunity
 - Disability Discrimination
 - Planning and development
- Occupational Health and Safety requirements and procedures, including:
 - Workplace safety
 - Dangerous goods
 - Occupational licensing
 - Material Safety Data Sheets
- Traffic management requirements and procedures
- Environmental management requirements and procedures
- Cultural and heritage requirements and procedures
- Quality requirements and procedures

- Australian and other relevant standards
- Current industry best practice
- Communication requirements and procedures
- Procurement requirements and procedures
- Employment requirements and procedures
- Workplace relations requirements and procedures
- Contract management requirements and procedures
- Administration requirements and procedures, including records and reporting
- Maintenance, servicing, and housekeeping requirements and procedures

Specific task information and requirements may include:

- Site geological data
- Site geotechnical data
- Site meteorological data
- Site engineering survey data
- Known and potential site hazards, constraints and conditions
- Site cultural and heritage information
- Task specifications
- Task drawings
- Sources of materials
- Other organisations and contractors involved in the task or related tasks
- Coordination, timing and budgeting requirements

Job plan may include:

- Human resource requirements
- Plant and machinery requirements
- Construction materials requirements
- Sub-contractor support requirements
- Waste disposal requirements
- Coordination requirements
- Activity scheduling
- Materials delivery scheduling
- Risk assessment and management requirements
- Occupational Health and Safety requirements

- Quality management requirements, including testing scheduling requirements
- Traffic management requirements
- Environmental requirements
- Task monitoring requirements
- Task performance monitoring requirements
- Communication requirements
- Reporting requirements

Teams members may include:

- Other members of the organisations' management team
- Members of the team directly involved in the task
- Suppliers representatives
- Sub-contractors representatives
- Supervisors or managers of other organisations who are involved in related tasks

Resources may include:

- Labour
- Plant, equipment and tools
- Materials delivery vehicles
- Construction materials, such as bitumen, sealing aggregates and additives
- Sub-contractor services

Instructions may include:

- Briefings
- Handovers
- Work orders
- Toolbox meetings
- Site meetings

Monitor may include:

- Ongoing risk assessment
- Engineering survey
- Sampling and testing
- Observation and recording
- General supervision

Required outcomes may include:

- Task specifications requirements
- Task drawings requirements
- Coordination requirements

- Activity scheduling requirements
- Unit cost requirements
- Overall task cost requirements
- Waste management requirements

Initiate may include:

- Written communication
- Oral communication

Bituminous sprayed treatment practice may include:

- Site preparation methods
- Site signage requirements and procedures
- Binder spraying methods
- Aggregate spreading methods
- Loose aggregate removal methods
- Surface finishing methods
- Line control methods
- Rolling methods
- Remedial works methods
- Temporary line marking requirements and procedures
- New works protection methods
- Public protection methods
- Sediment control methods

EVIDENCE GUIDE

The Evidence Guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, Range Statement and Assessment Guidelines for this Training Package.

Overview of assessment

- To demonstrate competence in this unit a person must be able to provide evidence that they can successfully apply the principles for bituminous sprayed treatment
- Assessment may be contextualised for the circumstances where a person is:
 - Acting as a technical specialist in the application of bituminous sprayed treatments
 - Acting as a principal's supervisor for bituminous sprayed treatment tasks
 - Acting as a contractor's supervisor of sub-contractors carrying out bituminous sprayed treatment tasks
 - Directly supervising a team or teams carrying out bituminous sprayed treatment tasks

Critical aspects of assessment and evidence required to demonstrate competency in this unit

- The evidence required to demonstrate competency in this unit must be relevant to worksite operations and satisfy all of the requirements of the Performance Criteria, Required Skills and Knowledge and the Range Statement of this unit and include evidence of the following:
 - Knowledge of the requirements, procedures and instructions that are to apply in undertaking a variety of bituminous sprayed treatment tasks
 - Implementation of appropriate procedures and techniques for the safe, effective and efficient achievement of the required outcomes of a variety of bituminous sprayed treatment tasks
 - Working with others to plan, prepare and execute a variety of bituminous sprayed treatment tasks
 - Job plans which reflect the requirements of these bituminous sprayed treatment task and are capable of achieving all of their required outcomes
 - Resource plans which have made available adequate resources for the safe, effective and efficient execution of a variety of bituminous sprayed treatment tasks
 - Provision of clear and timely instruction and supervision by the individual of those involved in the undertaking of these bituminous sprayed treatment task
 - Evidence of the consistent successful completion of a variety of bituminous sprayed treatment tasks

Context of and specific resources for assessment

- This unit should be assessed in the context of the work environment wherever possible. Where this is not possible, assessment may occur in a simulated environment. Evidence for assessment is best gathered using the outcomes of products and processes of the workplace context
- The assessment environment should not disadvantage the participant. For example, language, literacy and numeracy demands of assessment should not be greater than those required on the job
- Assessment of this competency requires typical resources normally used in a civil works environment. Selection and use of resources for particular work sites may differ due to site

Methods of assessment

- circumstances
- Where applicable, physical resources should include equipment modified for people with disabilities
 - Access must be provided to appropriate learning and/or assessment support when required
 - This unit maybe assessed in a holistic way with other units of competency
 - The suggested strategies for the assessment of this unit are:
 - Written and/or oral assessment of the candidate's required knowledge.
 - Observed, documented and/or first hand testimonial evidence of the candidate's:
 - implementation of appropriate procedures and techniques for the safe, effective and efficient achievement of the required outcomes of a variety of bituminous sprayed treatment tasks
 - job plans which reflect the requirements of a variety of bituminous sprayed treatment tasks and are capable of achieving all of their required outcomes
 - resource plans which have made available adequate resources for the safe, effective and efficient execution of a variety of bituminous sprayed treatment tasks
 - consistent successful completion of a variety of bituminous sprayed treatment tasks
 - First hand testimonial evidence of the candidate
 - working with others to plan, prepare and execute a variety of bituminous sprayed treatment tasks
 - providing clear and timely instructions to those involved in the undertaking a variety of bituminous sprayed treatment tasks
 - Meaningful contribution to the review and improvement of civil works schedule of rates processes
 - Where practical assessment is used it will be combined with targeted questioning to assess the required knowledge
 - Questioning should be appropriate to the oracy, language and literacy levels of the applicant being assessed and should reflect the requirements of the

competency and the work being performed.

Assessors should be aware of any cultural issues that may affect responses to the questions

- Where performance is not directly observed and/or is required to be demonstrated over a period of time and/or in a number of locations, any evidence should be authenticated by colleagues, supervisors, clients or other appropriate persons
- Assessment should also reinforce the integration of the Employability Skills

RIICC409A Apply the principles for the selection and use of polymer modified binder

Unit Descriptor	This unit covers the supervision of the selection and use of polymer modified binders. It includes the requirements for ensuring that the planning, preparing, initiating, monitoring, adjusting and reporting of polymer modified binder selection and use are carried out in accordance with the accepted industry principles.
Employability Skills	The required outcomes described in this Unit of Competency contain applicable facets of employability skills. The Employability Skills Qualification Summary for the qualification in which this Unit of Competency is packaged will assist in identifying employability skill requirements.
Application of the unit	<p>This unit is applicable for those who perform the duties of:</p> <ul style="list-style-type: none"> • Acting as a technical specialist in the selection and use of polymer modified binder • Acting as a principal's supervisor of polymer modified binder selection and use Acting as a contractor's supervisor of sub-contractors carrying out polymer modified binder selection and use. • Directly supervising a team or teams carrying out polymer modified binder selection and use.

ELEMENT

Elements describe the essential outcomes of a Unit of Competency

1. Ensure appropriate planning and preparation is carried out for polymer modified binder selection and use

PERFORMANCE CRITERIA

Performance Criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the Required Skills and Knowledge and/or the Range Statement. Assessment of performance is to be consistent with the Evidence Guide.

- 1.1 Access, interpret and clarify the ***legislative, organisational and manufacturers' requirements and procedures*** relevant to undertaking polymer modified binder selection and use.
- 1.2 Access, interpret and clarify the ***specific task information and requirements*** relevant to undertaking polymer modified binder selection and use.
- 1.3 Ensure a ***job plan***, is available which makes best use of the available resources and meets polymer modified binder selection and use requirements.

- | | | | |
|----|---|-----|---|
| 2. | Ensure appropriate initiation of polymer modified binder selection and use is carried out | 2.1 | Confirm that the necessary <i>resources</i> are available for the safe, effective and efficient conduct of polymer modified binder selection and use, in accordance with the relevant <i>legislative, organisational, client and manufacturers' requirements and procedures</i> and the <i>specific task information and requirements</i> . |
| | | 2.2 | Ensure clear and timely <i>instructions</i> are communicated to <i>team members</i> and others involved, for the safe, effective and efficient conduct of polymer modified binder selection and use, to meet the <i>specific task requirements</i> and the relevant <i>legislative, organisational, client and manufacturers' requirements and procedures</i> . |
| 3. | Monitor, adjust, communicate and report on the execution of polymer modified binder selection and use | 3.1 | Ensure relevant <i>legislative, organisational, client and manufacturers' requirements and procedures</i> are applied for the safe, effective and efficient execution of polymer modified binder selection and use, in accordance with the specific <i>task requirements</i> . |
| | | 3.2 | <i>Monitor</i> polymer modified binder application task performance to ensure it achieves the <i>required outcomes</i> . |
| | | 3.3 | <i>Initiate</i> adjustments to <i>polymer modified binder selection and use practice</i> or <i>job plan</i> to ensure safe execution of work and achievement of <i>required outcomes</i> . |
| | | 3.4 | Ensure plant equipment and tools maintenance requirements are carried out and recorded in accordance with <i>relevant legislative, organisational, client and manufacturers' requirements</i> . |
| | | 3.5 | Complete and submit reports as required by <i>relevant legislative, organisational, client and task requirements</i> . |
| | | 3.6 | Recommend changes to improve the safety, efficiency and effectiveness of the execution of polymer <i>modified binder selection and use</i> . |

REQUIRED SKILLS AND KNOWLEDGE

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

Required Skills

Specific skills are required to achieve the performance criteria of this unit, particularly for their selection and use in the variety of circumstances in which this unit may be applied.

This includes the ability to carry out the following, as required for the safe, effective and efficient execution of polymer modified binder selection and use:

- Interpreting legislative requirements and procedures
- Interpreting organisational requirements and procedures
- Interpreting client requirements and procedures
- Interpreting manufacturers' requirements and procedures
- Interpreting polymer modified binder project site geological data
- Interpreting polymer modified binder project site geotechnical data
- Interpreting polymer modified binder project site hydrological data
- Interpreting polymer modified binder site meteorological data
- Interpreting polymer modified binder project engineering survey information
- Interpreting polymer modified binder project plans and drawings
- Interpreting polymer modified binder project specifications
- Preparing for and conducting of briefings, toolbox and site meeting
- Preparing of short messages
- Preparing and presenting of job reports
- Preparing and maintaining of log books and diaries
- Providing leadership
- Applying polymer modified binder performance monitoring skills
- Applying polymer modified binder selection processes
- Calculating quantities for the execution of polymer modified binder project, including:
 - Volumes
 - Grades
 - Percentages
 - Areas
 - Resource consumption figures
- Interpreting polymer modified binder properties and test results
- Providing recommendations for the improvement of the safe, effective and efficient execution of polymer modified binder selection and use

Required Knowledge

Specific knowledge is required to achieve the performance criteria of this unit, particularly for their selection and use in the variety of circumstances in which this unit may be applied.

This includes knowledge of the following, as required for the safe, effective and efficient execution of polymer modified binder selection and use:

- Risk assessment and management requirement and procedures
- Statutory compliance requirements and procedures
- Occupational Health and Safety requirements and procedures
- Environmental management requirements and procedures
- Quality management requirements and procedures
- Work zone traffic management requirements and procedures
- Contract management requirements and procedures
- Communication requirements and procedures
- Administrative requirements and procedures
- The types of polymer modified binders, their specifications, applications and constraints on their use.
- Polymer modified binder heating and handling methods
- Polymer modified binder plant and equipment capabilities, selection and use
- Plant, equipment and tools maintenance requirements and procedures
- Polymer modified binder manufacturing processes
- Operational techniques for the execution of polymer modified binder tasks
- Polymer modified binder task resource requirements and procedures
- Activities scheduling requirements and procedures
- Polymer modified binder materials delivery requirements and procedures
- Job plan drafting of and administration requirements and procedures
- Reporting requirements and procedures
- Workplace relationship requirements and procedures
- Organisational, client and site operational requirements
- Relationship between various areas of civil works
- Team leadership techniques
- Works planning techniques
- Polymer modified binder monitoring methods
- Polymer modified binder sampling and testing methods
- Engineering survey principles

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. Bold italicised wording in the Performance Criteria is detailed below.

- Polymer modified binder selection and use*** may include:
- New pavement construction
 - Existing pavement repair and rehabilitation
 - Application in spray seal, asphalt and slurry surfacing
- Legislative requirements*** may include:
- Requirements included in both legislation and regulations
 - Federal, State and Local Government legislation and regulations
- Legislative, organisational, client and manufacturers requirements and procedures*** may include:
- Risk assessment and management requirements and procedures
 - Statutory compliance requirements and procedures, including:
 - Equal Employment Opportunity
 - Disability Discrimination
 - Planning and development
 - Occupational Health and Safety requirements and procedures, including:
 - Workplace safety
 - Dangerous goods
 - Occupational licensing
 - Material Safety Data Sheets
 - Traffic management requirements and procedures
 - Environmental management requirements and procedures
 - Cultural and heritage requirements and procedures
 - Quality requirements and procedures
 - Australian and other relevant standards
 - Current industry best practice
 - Communication requirements and procedures
 - Procurement requirements and procedures
 - Employment requirements and procedures
 - Workplace relations requirements and procedures

- Contract management requirements and procedures
- Administration requirements and procedures, including records and reporting
- Maintenance, servicing, and housekeeping requirements and procedures

Specific task information and requirements may include:

- Site geological data
- Site geotechnical data
- Site meteorological data
- Site engineering survey data
- Known and potential site hazards, constraints and conditions
- Site cultural and heritage information
- Task specifications
- Task drawings
- Sources of materials
- Other organizations and contractors involved in the task or related tasks
- Coordination, timing and budgeting requirements

Job plan may include:

- Human resource requirements
- Plant and machinery requirements
- Construction materials requirements
- Sub-contractor support requirements
- Waste disposal requirements
- Coordination requirements
- Activity scheduling
- Materials delivery scheduling
- Risk assessment and management requirements
- Occupational Health and Safety requirements
- Quality management requirements, including testing scheduling requirements
- Traffic management requirements
- Environmental requirements
- Task monitoring requirements
- Task performance monitoring requirements

- Communication requirements
- Reporting requirements

Teams members
may include:

- Other members of the organisation's management team
- Members of the team directly involved in the task
- Suppliers representatives
- Sub-contractors representatives
- Supervisors or managers of other organizations who are involved in related tasks

Resources may include:

- Labour
- Plant, equipment and tools
- Highway haulage vehicles
- Construction materials
- Sub-contractor services

Instructions may include:

- Briefings
- Handovers
- Work orders
- Toolbox meetings
- Site meetings

Monitor may include:

- Ongoing risk assessment
- Engineering survey
- Sampling and testing
- Observation and recording
- General supervision

Required outcomes
may include:

- Task specifications requirements
- Task drawings requirements
- Coordination requirements
- Activity scheduling requirements
- Unit cost requirements
- Overall task cost requirements
- Waste management requirements

Initiate may include:

- Written communication
- Oral communication

Polymer modified binder selection and use practice may include:

- Site preparation methods
- Load and haulage methods
- Heating and handling methods
- Placement methods
- Distribution methods
- Surface finishing methods
- Line, grade and level control methods
- Compaction and water selection and use methods
- Sediment control methods
- Application in spray seal, asphalt and slurry surfacing

EVIDENCE GUIDE

The Evidence Guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for this Training Package.

Overview of assessment

- To demonstrate competence in this unit a person must be able to provide evidence that they can successfully apply the principles of polymer modified binder selection and use
- Assessment may be contextualised for the circumstances where a person is:
 - Acting as a technical specialist in the selection and use of polymer modified binder
 - Acting as a principal's supervisor of polymer modified binder selection and use
 - Acting as a contractor's supervisor of sub-contractors carrying out polymer modified binder selection and use
 - Directly supervising a team or teams carrying out polymer modified binder selection and use.

Critical aspects of assessment and evidence required to demonstrate competency in this unit

- The evidence required to demonstrate competency in this unit must be relevant to worksite operations and satisfy all of the requirements of the Performance Criteria, Required Skills and Knowledge and the Range Statement of this unit and include evidence of the following:

- Knowledge of the requirements, procedures and instructions that are to apply in undertaking polymer modified binder selection and use
- Implementation of appropriate procedures and techniques for the safe, effective and efficient achievement of the required outcomes of polymer modified binder selection and use
- Working with others to plan, prepare and execute polymer modified binder selection and use
- Job plans which reflect the requirements of these of polymer modified binder selection and use and are capable of achieving all of their required outcomes
- Resource plans which have made available adequate resources for the safe, effective and efficient execution of polymer modified binder selection and use
- Provision of clear and timely instruction and supervision by the individual of those involved in the undertaking of these of polymer modified binder selection and use task
- Evidence of the consistent successful completion of polymer modified binder selection and use

Context of and specific resources for assessment

- This unit should be assessed in the context of the work environment wherever possible. Where this is not possible, assessment may occur in a simulated environment. Evidence for assessment is best gathered using the outcomes of products and processes of the workplace context
- The assessment environment should not disadvantage the participant. For example, language, literacy and numeracy demands of assessment should not be greater than those required on the job
- Assessment of this competency requires typical resources normally used in a civil works environment. Selection and use of resources for particular work sites may differ due to site circumstances
- Where applicable, physical resources should include equipment modified for people with disabilities
- Access must be provided to appropriate learning and/or assessment support when required

Methods of assessment

- This unit maybe assessed in a holistic way with other units of competency

- The suggested strategies for the assessment of this unit are:
 - Written and/or oral assessment of the candidate's required knowledge.
 - Observed, documented and/or first hand testimonial evidence of the candidate's:
 - implementation of appropriate procedures and techniques for the safe, effective and efficient achievement of the required outcomes of polymer modified binder selection and use
 - job plans which reflect the requirements of polymer modified binder selection and use and are capable of achieving all of their required outcomes
 - resource plans which have made available adequate resources for the safe, effective and efficient execution of polymer modified binder selection and use
 - consistent successful completion of polymer modified binder selection and use
 - First hand testimonial evidence of the candidate
 - working with others to plan, prepare and execute polymer modified binder selection and use
 - providing clear and timely instructions to those involved in the undertaking polymer modified binder selection and use
- Meaningful contribution to the review and improvement of civil works schedule of rates processes
- Where practical assessment is used it will be combined with targeted questioning to assess the required knowledge
- Questioning should be appropriate to the oracy, language and literacy levels of the applicant being assessed and should reflect the requirements of the competency and the work being performed. Assessors should be aware of any cultural issues that may affect responses to the questions
- Where performance is not directly observed and/or is required to be demonstrated over a period of time and/or in a number of locations, any evidence should be authenticated by colleagues, supervisors, clients or other appropriate persons
- Assessment should also reinforce the integration of the Employability Skills

RIICC410A Apply the principles for the selection and use of bituminous emulsion

Unit Descriptor This unit covers the supervision of bituminous emulsion selection and use. It includes the requirements for ensuring that the planning, preparing, initiating, monitoring, adjusting and reporting of bituminous emulsion selection and use are carried out in accordance with the accepted industry principles.

Employability Skills The required outcomes described in this Unit of Competency contain applicable facets of employability skills. The Employability Skills Qualification Summary for the qualification in which this Unit of Competency is packaged will assist in identifying employability skill requirements.

Application of the unit This unit is applicable for those who perform the duties of:

- Acting as a technical specialist in the selection and use of bituminous emulsion
- Acting as a principal's supervisor of bituminous emulsion selection and use
- Acting as a contractor's supervisor of sub-contractors carrying out bituminous emulsion selection and use
- Directly supervising a team or teams carrying out bituminous emulsion selection and use

ELEMENT

Elements describe the essential outcomes of a Unit of Competency

1. Ensure appropriate planning and preparation is carried out for bituminous emulsion selection and use

PERFORMANCE CRITERIA

Performance Criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the Required Skills and Knowledge and/or the Range Statement. Assessment of performance is to be consistent with the Evidence Guide.

- 1.1 Access, interpret and clarify the ***legislative, organisational and manufacturers' requirements and procedures*** relevant to undertaking bituminous emulsion selection and use.
- 1.2 Access, interpret and clarify the ***specific task information and requirements*** relevant to undertaking bituminous emulsion selection and use.

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| | 1.3 | Ensure a <i>job plan</i> , is available which makes best use of the available resources and meets bituminous emulsion selection and use requirements. |
| 2. Ensure appropriate initiation of bituminous emulsion selection and use is carried out | 2.1 | Confirm that the necessary <i>resources</i> are available for the safe, effective and efficient conduct of bituminous emulsion selection and use, in accordance with the relevant <i>legislative, organisational, client and manufacturers' requirements and procedures</i> and the <i>specific task information and requirements</i> . |
| | 2.2 | Ensure clear and timely <i>instructions</i> are communicated to <i>team members</i> and others involved, for the safe, effective and efficient conduct of bituminous emulsion selection and use, to meet the <i>specific task requirements</i> and the relevant <i>legislative, organisational, client and manufacturers' requirements and procedures</i> . |
| 3. Monitor, adjust, communicate and report on the execution of bituminous emulsion selection and use | 3.1 | Ensure relevant <i>legislative, organisational, client and manufacturers' requirements and procedures</i> are applied for the safe, effective and efficient execution of bituminous emulsion selection and use, in accordance with the <i>specific task requirements</i> . |
| | 3.2 | <i>Monitor</i> bituminous emulsion selection and use performance to ensure it achieves the <i>required outcomes</i> . |
| | 3.3 | <i>Initiate</i> adjustments to <i>bituminous emulsion selection and use practice</i> or <i>job plan</i> to ensure safe execution of work and achievement of <i>required outcomes</i> . |
| | 3.4 | Ensure plant equipment and tools maintenance requirements are carried out and recorded in accordance with <i>relevant legislative, organisational, client and manufacturers' requirements</i> . |
| | 3.5 | Complete and submit reports as required by <i>relevant legislative, organisational, client and task requirements</i> . |
| | 3.6 | Recommend changes to improve the safety, efficiency and effectiveness of the execution of <i>bituminous emulsion selection and use</i> . |

REQUIRED SKILLS AND KNOWLEDGE

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

Required Skills

Specific skills are required to achieve the performance criteria of this unit, particularly for their selection and use in the variety of circumstances in which this unit may be applied. This includes the ability to carry out the following, as required for the safe, effective and efficient execution of bituminous emulsion selection and use:

- Interpreting legislative requirements and procedures
- Interpreting organisational requirements and procedures
- Interpreting client requirements and procedures
- Interpreting manufacturers' requirements and procedures
- Interpreting bituminous emulsion project site geological data
- Interpreting bituminous emulsion project site geotechnical data
- Interpreting bituminous emulsion project site hydrological data
- Interpreting bituminous emulsion site meteorological data
- Interpreting bituminous emulsion project site engineering survey information
- Interpreting bituminous emulsion project plans and drawings
- Interpreting bituminous emulsion project specifications
- Preparing for and conducting of briefings, toolbox and site meeting
- Preparing of short messages
- Preparing and presenting of job reports
- Preparing and maintaining of log books and diaries
- Providing leadership
- Applying bituminous emulsion performance monitoring skills
- Applying bituminous emulsion selection processes
- Calculating quantities for the execution of bituminous emulsion tasks, including:
 - Volumes
 - Grades
 - Percentages
 - Areas
 - Resource consumption figures
- Interpreting bituminous emulsion properties and test results
- Providing recommendations for the improvement of the safe, effective and efficient execution of bituminous emulsion selection and use

Required Knowledge

Specific knowledge is required to achieve the performance criteria of this unit, particularly for their selection and use in the variety of circumstances in which this unit may be applied.

This includes knowledge of the following, as required for the safe, effective and efficient execution of bituminous emulsion selection and use:

- Risk assessment and management requirement and procedures
- Statutory compliance requirements and procedures
- Occupational Health and Safety requirements and procedures
- Environmental management requirements and procedures
- Quality management requirements and procedures
- Work zone traffic management requirements and procedures
- Contract management requirements and procedures
- Communication requirements and procedures
- Administrative requirements and procedures
- Types of bituminous emulsion, their specifications, applications and constraints on their use
- Bituminous emulsion heating, handling and storage methods
- Bituminous emulsion plant and equipment capabilities
- Bituminous emulsion manufacturing processes
- Plant, equipment and tools maintenance requirements and procedures
- Operational techniques for the execution of bituminous emulsion tasks
- Bituminous emulsion task resource requirements and procedures
- Activities scheduling requirements and procedures
- Bituminous emulsion delivery requirements and procedures
- Job plan drafting of and administration requirements and procedures
- Reporting requirements and procedures
- Workplace relationship requirements and procedures
- Organisational, client and site operational requirements
- Relationship between various areas of civil works
- Team leadership techniques
- Works planning techniques
- Bituminous emulsion monitoring methods

- Bituminous emulsion sampling and testing methods
- Engineering survey principles

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. Bold italicised wording in the Performance Criteria is detailed below.

Bituminous emulsion selection and use may include:

- New pavements sealing
- Existing pavement repair and rehabilitation
- Their use as tack coat for asphalt, as spray seal, cold mix and stabilisation binders and in slurry sealing
- Modification with polymers

Legislative requirements may include:

- Requirements included in both legislation and regulations
- Federal, State and Local Government legislation and regulations

Legislative, organisational, client and manufacturers requirements and procedures may include:

- Risk assessment and management requirements and procedures
- Statutory compliance requirements and procedures, including:
 - Equal Employment Opportunity
 - Disability Discrimination
 - Planning and development
- Occupational Health and Safety requirements and procedures, including:
 - Workplace safety
 - Dangerous goods
 - Occupational licensing
 - Material Safety Data Sheets
- Traffic management requirements and procedures
- Environmental management requirements and procedures
- Cultural and heritage requirements and procedures
- Quality requirements and procedures
- Australian and other relevant standards
- Current industry best practice
- Communication requirements and procedures

- Procurement requirements and procedures
- Employment requirements and procedures
- Workplace relations requirements and procedures
- Contract management requirements and procedures
- Administration requirements and procedures, including records and reporting
- Maintenance, servicing, and housekeeping requirements and procedures

Specific task information and requirements may include:

- Site geological data
- Site geotechnical data
- Site meteorological data
- Site engineering survey data
- Known and potential site hazards, constraints and conditions
- Site cultural and heritage information
- Task specifications
- Task drawings
- Sources of materials
- Other organisations and contractors involved in the task or related tasks
- Coordination, timing and budgeting requirements

Job plan may include:

- Human resource requirements
- Plant and machinery requirements
- Construction materials requirements
- Sub-contractor support requirements
- Waste disposal requirements
- Coordination requirements
- Activity scheduling
- Materials delivery scheduling
- Risk assessment and management requirements
- Occupational Health and Safety requirements
- Quality management requirements, including testing scheduling requirements
- Traffic management requirements

- Environmental requirements
- Task monitoring requirements
- Task performance monitoring requirements
- Communication requirements
- Reporting requirements

Teams members may include:

- Other members of the organisation's management team
- Members of the team directly involved in the task
- Suppliers representatives
- Sub-contractors representatives
- Supervisors or managers of other organisations who are involved in related tasks

Resources may include:

- Labour
- Plant, equipment and tools
- Highway haulage vehicles
- Construction materials
- Sub-contractor services

Instructions may include:

- Briefings
- Handovers
- Work orders
- Toolbox meetings
- Site meetings

Monitor may include:

- Ongoing risk assessment
- Engineering survey
- Sampling and testing
- Observation and recording
- General supervision

Required outcomes may include:

- Task specifications requirements
- Task drawings requirements
- Coordination requirements
- Activity scheduling requirements
- Unit cost requirements

- Overall task cost requirements
 - Waste management requirements
- Initiate* may include:
- Written communication
 - Oral communication
- Bituminous emulsion selection and use practice* may include:
- Site preparation methods
 - Load and haulage methods
 - Heating, handling and storage methods
 - Placement methods
 - Distribution methods
 - Surface finishing methods
 - Line, grade and level control methods
 - Compaction and water selection and use methods
 - Sediment control methods
 - Application as tack coat for asphalt, as spray seal, cold mix and stabilisation binders and in slurry sealing

EVIDENCE GUIDE

The Evidence Guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for this Training Package.

- Overview of assessment**
- To demonstrate competence in this unit a person must be able to provide evidence that they can successfully apply the principles of bituminous emulsion selection and use:
 - Assessment may be contextualised for the circumstances where a person is:
 - Acting as a technical specialist in the selection and use of bituminous emulsion
 - Acting as a principal's supervisor of bituminous emulsion selection and use
 - Acting as a contractor's supervisor of sub-contractors carrying out bituminous emulsion selection and use
 - Directly supervising a team or teams carrying out bituminous emulsion selection and use
- Critical aspects of assessment and evidence required to demonstrate competency in this unit**
- The evidence required to demonstrate competency in this unit must be relevant to worksite operations and satisfy all of the requirements of the Performance Criteria, Required

Skills and Knowledge and the Range Statement of this unit and include evidence of the following:

- Knowledge of the requirements, procedures and instructions that are to apply in undertaking bituminous emulsion selection and use
- Implementation of appropriate procedures and techniques for the safe, effective and efficient achievement of the required outcomes of bituminous emulsion selection and use
- Working with others to plan, prepare and execute bituminous emulsion selection and use
- Job plans which reflect the requirements of these of bituminous emulsion selection and use and are capable of achieving all of their required outcomes
- Resource plans which have made available adequate resources for the safe, effective and efficient execution of bituminous emulsion selection and use
- Provision of clear and timely instruction and supervision by the individual of those involved in the undertaking of these of bituminous emulsion selection and use
- Evidence of the consistent successful completion of bituminous emulsion selection and use

Context of and specific resources for assessment

- This unit should be assessed in the context of the work environment wherever possible. Where this is not possible, assessment may occur in a simulated environment. Evidence for assessment is best gathered using the outcomes of products and processes of the workplace context
- The assessment environment should not disadvantage the participant. For example, language, literacy and numeracy demands of assessment should not be greater than those required on the job
- Assessment of this competency requires typical resources normally used in a civil works environment. Selection and use of resources for particular work sites may differ due to site circumstances
- Where applicable, physical resources should include equipment modified for people with disabilities
- Access must be provided to appropriate learning and/or assessment support when required

Methods of assessment

- This unit maybe assessed in a holistic way with other units of competency

- The suggested strategies for assessment of this unit are:
 - Written and/or oral assessment of the candidate's required knowledge.
 - Observed, documented and/or first hand testimonial evidence of the candidate's:
 - implementation of appropriate procedures and techniques for the safe, effective and efficient achievement of the required outcomes of bituminous emulsion selection and use
 - job plans which reflect the requirements of bituminous emulsion selection and use and are capable of achieving all of their required outcomes
 - resource plans which have made available adequate resources for the safe, effective and efficient execution of bituminous emulsion selection and use
 - consistent successful completion of bituminous emulsion selection and use
 - First hand testimonial evidence of the candidate
 - working with others to plan, prepare and execute bituminous emulsion selection and use
 - providing clear and timely instructions to those involved in the undertaking bituminous emulsion selection and use
- Meaningful contribution to the review and improvement of civil works schedule of rates processes
- Where practical assessment is used it will be combined with targeted questioning to assess the required knowledge
- Questioning should be appropriate to the oracy, language and literacy levels of the applicant being assessed and should reflect the requirements of the competency and the work being performed. Assessors should be aware of any cultural issues that may affect responses to the questions
- Where performance is not directly observed and/or is required to be demonstrated over a period of time and/or in a number of locations, any evidence should be authenticated by colleagues, supervisors, clients or other appropriate persons
- Assessment should also reinforce the integration of the Employability Skills

RIICC411A Apply the principles for the application of slurry surfacing

Unit Descriptor	This unit covers the supervision of slurry surfacing application tasks. It includes the requirements for ensuring that the planning, preparing, initiating, monitoring, adjusting and reporting of slurry surfacing application tasks are carried out in accordance with the accepted industry principles.
Employability Skills	The required outcomes described in this Unit of Competency contain applicable facets of employability skills. The Employability Skills Qualification Summary for the qualification in which this Unit of Competency is packaged will assist in identifying employability skill requirements.
Application of the unit	<p>This unit is applicable for those who perform the duties of:</p> <ul style="list-style-type: none"> • Acting as a technical specialist in the application of slurry surfacing • Acting as a principal's supervisor of slurry surfacing application tasks • Acting as a contractor's supervisor of sub-contractors carrying out slurry surfacing application tasks • Directly supervising a team or teams carrying out slurry surfacing application tasks

ELEMENT

Elements describe the essential outcomes of a Unit of Competency

1. Ensure appropriate planning and preparation is carried out for slurry surfacing application tasks

PERFORMANCE CRITERIA

Performance Criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the Required Skills and Knowledge and/or the Range Statement. Assessment of performance is to be consistent with the Evidence Guide.

- 1.1 Access, interpret and clarify the ***legislative, organisational and manufacturers' requirements and procedures*** relevant to undertaking slurry surfacing application tasks.
- 1.2 Access, interpret and clarify the ***specific task information and requirements*** relevant to undertaking slurry surfacing application task.
- 1.3 Ensure a ***job plan***, is available which makes best use of the available resources and meets slurry surfacing application task requirements.

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|----|--|-----|---|
| 2. | Ensure appropriate initiation of slurry surfacing application tasks is carried out | 2.1 | Confirm that the necessary <i>resources</i> are available for the safe, effective and efficient conduct of slurry surfacing application task, in accordance with the relevant <i>legislative, organisational, client and manufacturers' requirements and procedures</i> and the <i>specific task information and requirements</i> . |
| | | 2.2 | Ensure clear and timely <i>instructions</i> are communicated to <i>team members</i> and others involved, for the safe, effective and efficient conduct of slurry surfacing application task, to meet the <i>specific task requirements</i> and the relevant <i>legislative, organisational, client and manufacturers' requirements and procedures</i> . |
| 3. | Monitor, adjust, communicate and report on the execution of slurry surfacing application tasks | 3.1 | Ensure relevant <i>legislative, organisational, client and manufacturers' requirements and procedures</i> are applied for the safe, effective and efficient execution of slurry surfacing application tasks, in accordance with the specific <i>task requirements</i> . |
| | | 3.2 | <i>Monitor</i> slurry surfacing application task performance to ensure it achieves the <i>required outcomes</i> . |
| | | 3.3 | <i>Initiate</i> adjustments to <i>slurry surfacing application practice</i> or <i>job plan</i> to ensure safe execution of work and achievement of <i>required outcomes</i> . |
| | | 3.4 | Ensure plant equipment and tools maintenance requirements are carried out and recorded in accordance with <i>relevant legislative, organisational, client and manufacturers' requirements</i> . |
| | | 3.5 | Complete and submit reports as required by <i>relevant legislative, organisational, client and task requirements</i> . |
| | | 3.6 | Recommend changes to improve the safety, efficiency and effectiveness of the execution of <i>slurry surfacing application tasks</i> . |

REQUIRED SKILLS AND KNOWLEDGE

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

Required Skills

Specific skills are required to achieve the performance criteria of this unit, particularly for their application in the variety of circumstances in which this unit may be applied.

This includes the ability to carry out the following, as required for the safe, effective and

efficient execution of slurry surfacing application:

- Interpreting legislative requirements and procedures
- Interpreting organisational requirements and procedures
- Interpreting client requirements and procedures
- Interpreting manufacturers' requirements and procedures
- Interpreting slurry surfacing application project site geological data
- Interpreting slurry surfacing application project site geotechnical data
- Interpreting slurry surfacing application project site hydrological data
- Interpreting slurry surfacing application site meteorological data
- Interpreting slurry surfacing application project engineering survey information
- Interpreting slurry surfacing application project plans and drawings
- Interpreting slurry surfacing application project specifications
- Preparing for and conducting of briefings, toolbox and site meeting
- Preparing of short messages
- Preparing and presenting of job reports
- Preparing and maintaining of log books and diaries
- Providing leadership
- Applying slurry surfacing application performance monitoring skills
- Calculating quantities for the execution of slurry surfacing application tasks, including:
 - Volumes
 - Grades
 - Percentages
 - Areas
 - Resource consumption figures
- Interpreting slurry surfacing application properties and test results
- Providing recommendations for the improvement of the safe, effective and efficient execution of slurry surfacing application tasks

Required Knowledge

Specific knowledge is required to achieve the performance criteria of this unit, particularly for their application in the variety of circumstances in which this unit may be applied.

This includes knowledge of the following, as required for the safe, effective and efficient execution of slurry surfacing application tasks:

- Risk assessment and management requirement and procedures

- Statutory compliance requirements and procedures
- Occupational Health and Safety requirements and procedures
- Environmental management requirements and procedures
- Quality management requirements and procedures
- Work zone traffic management requirements and procedures
- Contract management requirements and procedures
- Communication requirements and procedures
- Administrative requirements and procedures
- Types of slurry mixes, their specifications, applications and constraints on their use
- Slurry mix materials properties and specifications
- Slurry mix design processes
- Slurry manufacture processes by truck and application equipment
- Slurry surfacing application plant and equipment capabilities and application
- Plant, equipment and tools maintenance requirements and procedures
- Operational techniques for the execution of slurry surfacing application tasks
- Slurry surfacing application task resource requirements and procedures
- Activities scheduling requirements and procedures
- Slurry surfacing application delivery requirements and procedures
- Job plan drafting of and administration requirements and procedures
- Reporting requirements and procedures
- Workplace relationship requirements and procedures
- Organisational, client and site operational requirements
- Relationship between various areas of civil works
- Team leadership techniques
- Works planning techniques
- Slurry surfacing application monitoring methods
- Slurry surfacing performance requirements
- Slurry surfacing sampling and testing methods
- Engineering survey principles

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. Bold italicised wording in the Performance Criteria is detailed below.

Slurry surfacing

application may include:

- New pavement sealing
- Existing pavement repair and rehabilitation
- Its use in rut filling, shape correction, surfacing (as an overlay) and as cape seal

Legislative requirements

may include:

- Requirements included in both legislation and regulations
- Federal, State and Local Government legislation and regulations

Legislative, organisational, client and manufacturers requirements and procedures

may include:

- Risk assessment and management requirements and procedures
- Statutory compliance requirements and procedures, including:
 - Equal Employment Opportunity
 - Disability Discrimination
 - Planning and development
- Occupational Health and Safety requirements and procedures, including:
 - Workplace safety
 - Dangerous goods
 - Occupational licensing
 - Material Safety Data Sheets
- Traffic management requirements and procedures
- Environmental management requirements and procedures
- Cultural and heritage requirements and procedures
- Quality requirements and procedures
- Australian and other relevant standards
- Current industry best practice
- Communication requirements and procedures
- Procurement requirements and procedures
- Employment requirements and procedures
- Workplace relations requirements and procedures

Specific task information and requirements may include:

- Contract management requirements and procedures
- Administration requirements and procedures, including records and reporting
- Maintenance, servicing, and housekeeping requirements and procedures
- Site geological data
- Site geotechnical data
- Site meteorological data
- Site engineering survey data
- Known and potential site hazards, constraints and conditions
- Site cultural and heritage information
- Task specifications
- Task drawings
- Sources of materials
- Other organisations and contractors involved in the task or related tasks
- Coordination, timing and budgeting requirements

Job plan may include:

- Human resource requirements
- Plant and machinery requirements
- Construction materials requirements
- Sub-contractor support requirements
- Waste disposal requirements
- Coordination requirements
- Activity scheduling
- Materials delivery scheduling
- Risk assessment and management requirements
- Occupational Health and Safety requirements
- Quality management requirements, including testing scheduling requirements
- Traffic management requirements
- Environmental requirements
- Task monitoring requirements
- Task performance monitoring requirements

- Communication requirements
 - Reporting requirements
- Teams members** may include:
- Other members of the organisation’s management team
 - Members of the team directly involved in the task
 - Suppliers representatives
 - Sub-contractors representatives
 - Supervisors or managers of other organisations who are involved in related tasks

- Resources** may include:
- Labour
 - Plant, equipment and tools
 - Highway haulage vehicles
 - Construction materials
 - Sub-contractor services

- Instructions** may include:
- Briefings
 - Handovers
 - Work orders
 - Toolbox meetings
 - Site meetings

- Monitor** may include:
- Ongoing risk assessment
 - Engineering survey
 - Sampling and testing
 - Observation and recording
 - General supervision

- Initiate** may include:
- Written communication
 - Oral communication

EVIDENCE GUIDE

The Evidence Guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for this Training Package.

- Overview of assessment**
- To demonstrate competence in this unit a person must be able to provide evidence that they can successfully apply the principles of slurry surfacing application:
 - Assessment may be contextualised for the circumstances where a person is:

- Acting as a technical specialist in the application of slurry surfacing
- Acting as a principal's supervisor of slurry surfacing application tasks
- Acting as a contractor's supervisor of sub-contractors carrying out slurry surfacing application tasks
- Directly supervising a team or teams carrying out slurry surfacing application tasks

Critical aspects of assessment and evidence required to demonstrate competency in this unit

- The evidence required to demonstrate competency in this unit must be relevant to worksite operations and satisfy all of the requirements of the Performance Criteria, Required Skills and Knowledge and the Range Statement of this unit and include evidence of the following:
 - Knowledge of the requirements, procedures and instructions that are to apply in undertaking slurry surfacing application tasks.
 - Implementation of appropriate procedures and techniques for the safe, effective and efficient achievement of the required outcomes of slurry surfacing application tasks
 - Working with others to plan, prepare and execute slurry surfacing application tasks.
 - Job plans which reflect the requirements of these of slurry surfacing application task and are capable of achieving all of their required outcomes.
 - Resource plans which have made available adequate resources for the safe, effective and efficient execution of slurry surfacing application tasks
 - Provision of clear and timely instruction and supervision by the individual of those involved in the undertaking of these of slurry surfacing application task
 - Evidence of the consistent successful completion of slurry surfacing application tasks

Context of and specific resources for assessment

- This unit should be assessed in the context of the work environment wherever possible. Where this is not possible, assessment may occur in a simulated environment. Evidence for assessment is best gathered using the outcomes of products and processes of the workplace context
- The assessment environment should not disadvantage the participant. For example, language, literacy and numeracy

demands of assessment should not be greater than those required on the job

Methods of assessment

- Assessment of this competency requires typical resources normally used in a civil works environment. Selection and use of resources for particular work sites may differ due to site circumstances
- Where applicable, physical resources should include equipment modified for people with disabilities
- Access must be provided to appropriate learning and/or assessment support when required
- This unit may be assessed in a holistic way with other units of competency
- The suggested strategies for the assessment of this unit are:
 - Written and/or oral assessment of the candidate's required knowledge.
 - Observed, documented and/or first hand testimonial evidence of the candidate's:
 - implementation of appropriate procedures and techniques for the safe, effective and efficient achievement of the required outcomes of slurry surfacing application tasks
 - Job plans which reflect the requirements of slurry surfacing application tasks and are capable of achieving all of their required outcomes.
 - Resource plans which have made available adequate resources for the safe, effective and efficient execution of slurry surfacing application tasks
 - Consistent successful completion of slurry surfacing application tasks
 - First hand testimonial evidence of the candidate:
 - working with others to plan, prepare and execute slurry surfacing application tasks.
 - providing clear and timely instructions to those involved in the undertaking slurry surfacing application tasks.
- Meaningful contribution to the review and improvement of civil works schedule of rates processes
- Where practical assessment is used it will be combined with targeted questioning to assess the required knowledge
- Questioning should be appropriate to the oracy, language and literacy levels of the applicant being assessed and

should reflect the requirements of the competency and the work being performed. Assessors should be aware of any cultural issues that may affect responses to the questions

- Where performance is not directly observed and/or is required to be demonstrated over a period of time and/or in a number of locations, any evidence should be authenticated by colleagues, supervisors, clients or other appropriate persons
- Assessment should also reinforce the integration of the Employability Skills

RIICC412A Apply the principles of pavement profiling using a profiler

Unit Descriptor This unit covers the supervision of pavement profiling using a profiler. It includes the requirements for ensuring that the planning, preparing, initiating, monitoring, adjusting and reporting of pavement profiling using a profiler are carried out in accordance with the accepted industry principles.

Employability Skills The required outcomes described in this Unit of Competency contain applicable facets of employability skills. The Employability Skills Qualification Summary for the qualification in which this Unit of Competency is packaged will assist in identifying employability skill requirements.

Application of the unit This unit is applicable for those who perform the duties of:

- Acting as a technical specialist in pavement profiling using a profiler
- Acting as a principal's supervisor of pavement profiling using a profiler
- Acting as a contractor's supervisor of sub-contractors carrying out of pavement profiling using a profiler
- Directly supervising a team or teams carrying out pavement profiling using a profiler

ELEMENT

Elements describe the essential outcomes of a Unit of Competency

1. Ensure appropriate planning and preparation is carried out for pavement profiling using a profiler

PERFORMANCE CRITERIA

Performance Criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the Required Skills and Knowledge and/or the Range Statement. Assessment of performance is to be consistent with the Evidence Guide.

- 1.1 Access, interpret and clarify the ***legislative, organisational and manufacturers' requirements and procedures*** relevant to undertaking pavement profiling using a profiler.
- 1.2 Access, interpret and clarify the ***specific task information and requirements*** relevant to undertaking the pavement profiling using a profiler.
- 1.3 Ensure a ***job plan***, is available which makes best use of the available resources and meets the pavement profiling requirements.

- | | | | |
|----|---|-----|---|
| 2. | Ensure appropriate initiation of pavement profiling using a profiler is carried out | 2.1 | Confirm that the necessary <i>resources</i> are available for the safe, effective and efficient conduct of the pavement profiling using a profiler, in accordance with the relevant <i>legislative, organisational, client and manufacturers' requirements and procedures</i> and the <i>specific task information and requirements</i> . |
| | | 2.2 | Ensure clear and timely <i>instructions</i> are communicated to <i>team members</i> and others involved, for the safe, effective and efficient conduct of the pavement profiling using a profiler, to meet the <i>specific task requirements</i> and the relevant <i>legislative, organisational, client and manufacturers' requirements and procedures</i> . |
| 3. | Monitor, adjust, communicate and report on the execution of pavement profiling using a profiler | 3.1 | Ensure relevant <i>legislative, organisational, client and manufacturers' requirements and procedures</i> are applied for the safe, effective and efficient execution of the pavement profiling using a profiler, in accordance with the specific <i>task requirements</i> . |
| | | 3.2 | <i>Monitor</i> pavement profiling performance to ensure it achieves the <i>required outcomes</i> . |
| | | 3.3 | <i>Initiate</i> adjustments to <i>pavement profiling</i> or <i>job plan</i> to ensure safe execution of work and achievement of <i>required outcomes</i> . |
| | | 3.4 | Ensure plant equipment and tools maintenance requirements are carried out and recorded in accordance with <i>relevant legislative, organisational, client and manufacturers' requirements</i> . |
| | | 3.5 | Complete and submit reports as required by <i>relevant legislative, organisational, client and task requirements</i> . |
| | | 3.6 | Recommend changes to improve the safety, efficiency and effectiveness of the execution of <i>pavement profiling using a profiler</i> . |

REQUIRED SKILLS AND KNOWLEDGE

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

Required Skills

Specific skills are required to achieve the performance criteria of this unit, particularly for their application in the variety of circumstances in which this unit may be applied.

This includes the ability to carry out the following, as required for the safe, effective and efficient execution of pavement profiling using a profiler:

- Interpreting legislative requirements and procedures
- Interpreting organisational requirements and procedures
- Interpreting client requirements and procedures
- Interpreting manufacturers' requirements and procedures
- Interpreting pavement profiling project site geological data
- Interpreting pavement profiling project site geotechnical data
- Interpreting pavement profiling project site hydrological data
- Interpreting pavement profiling site meteorological data
- Interpreting pavement profiling project engineering survey information
- Interpreting pavement profiling project plans and drawings
- Interpreting pavement profiling project specifications
- Preparing for and conducting of briefings, toolbox and site meeting
- Preparing of short messages
- Preparing and presenting of job reports
- Preparing and maintaining of log books and diaries
- Providing leadership
- Applying pavement profiling performance monitoring skills
- Calculating quantities for the execution of pavement profiling, including:
 - Volumes
 - Grades
 - Percentages
 - Areas
 - Resource consumption figures
- Interpreting pavement profiling materials properties and test results
- Providing recommendations for the improvement of the safe, effective and efficient execution of pavement profiling using a profiler

Required Knowledge

Specific knowledge is required to achieve the performance criteria of this unit, particularly for their application in the variety of circumstances in which this unit may be applied.

This includes knowledge of the following, as required for the safe, effective and efficient execution of pavement profiling using a profiler:

- Risk assessment and management requirement and procedures
- Statutory compliance requirements and procedures
- Occupational Health and Safety requirements and procedures
- Environmental management requirements and procedures
- Quality management requirements and procedures
- Work zone traffic management requirements and procedures
- Contract management requirements and procedures
- Communication requirements and procedures
- Administrative requirements and procedures
- Pavement profiling using a profiler plant and equipment capabilities and application
- Plant, equipment and tools maintenance requirements and procedures
- Operational techniques for the execution of pavement profiling using a profiler
- Recycled materials requirements and procedures, recycled asphalt
- Pavement profiling using a profiler resource requirements and procedures
- Activities scheduling requirements and procedures
- Pavement profiling materials delivery, removal and stockpiling requirements and procedures
- Job plan drafting of and administration requirements and procedures
- Reporting requirements and procedures
- Workplace relationship requirements and procedures
- Organisational, client and site operational requirements
- Relationship between various areas of civil works
- Team leadership techniques
- Works planning techniques
- Pavement profiling monitoring methods
- Engineering survey principles

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. Bold italicised wording in the Performance Criteria is detailed below.

- Pavement profiling using a profiler*** may include:
- Existing pavement repair and rehabilitation
 - Removal or excavation of:
 - existing subgrade

- granular loose material or surfacing
- asphalt
- concrete
- Trenching of asphalt or concrete
- Regulating surface profile
- Small areas to large works
- Clean up of finished surfaces to remove loose or dusty materials
- Side casting or loading into trucks

Legislative requirements may include:

- Requirements included in both legislation and regulations
- Federal, State and Local Government legislation and regulations

Legislative, organisational, client and manufacturers requirements and procedures may include:

- Risk assessment and management requirements and procedures
- Statutory compliance requirements and procedures, including:
 - Equal Employment Opportunity
 - Disability Discrimination
 - Planning and development
- Occupational Health and Safety requirements and procedures, including:
 - Workplace safety
 - Dangerous goods
 - Occupational licensing
 - Material Safety Data Sheets
- Traffic management requirements and procedures
- Environmental management requirements and procedures
- Cultural and heritage requirements and procedures
- Quality requirements and procedures
- Australian and other relevant standards
- Current industry best practice
- Communication requirements and procedures
- Procurement requirements and procedures
- Employment requirements and procedures
- Workplace relations requirements and procedures

Specific task information and requirements may include:

- Contract management requirements and procedures
- Administration requirements and procedures, including records and reporting
- Maintenance, servicing, and housekeeping requirements and procedures
- Site geotechnical data
- Site meteorological data
- Site engineering survey data
- Known and potential site hazards, constraints and conditions
- Site cultural and heritage information
- Task specifications
- Task drawings
- Sources of materials
- Other organisations and contractors involved in the task or related tasks
- Coordination, timing and budgeting requirements

Job plan may include:

- Human resource requirements
- Plant and machinery requirements
- Construction materials requirements
- Sub-contractor support requirements
- Waste disposal requirements
- Coordination requirements
- Activity scheduling
- Materials delivery scheduling
- Risk assessment and management requirements
- Occupational Health and Safety requirements
- Quality management requirements, including testing scheduling requirements
- Traffic management requirements
- Material removal and/or stockpiling
- Environmental requirements
- Task monitoring requirements
- Task performance monitoring requirements

- Communication requirements
 - Reporting requirements
- Teams members** may include:
- Other members of the organisation’s management team
 - Members of the team directly involved in the task
 - Suppliers representatives
 - Sub-contractors representatives
 - Supervisors or managers of other organisations who are involved in related tasks
- Resources** may include:
- Labour
 - Plant, equipment and tools
 - Highway haulage vehicles
 - Construction materials
 - Sub-contractor services
- Instructions** may include:
- Briefings and handovers
 - Work orders
 - Toolbox meetings
 - Site meetings
- Monitor** may include:
- Ongoing risk assessment
 - Engineering survey
 - Sampling and testing
 - Observation and recording
 - General supervision
- Required outcomes** may include:
- Task specifications requirements
 - Task drawings requirements
 - Coordination requirements
 - Activity scheduling requirements
 - Unit cost requirements
 - Overall task cost requirements
 - Waste management requirements
- Initiate** may include:
- Written communication
 - Oral communication

Pavement profiling using a profiler practice may include:

- Site preparation methods
- Extraction methods
- Load and haulage methods
- Stockpiling methods
- Surface finishing methods
- Clean up methods
- Line, grade and level control methods
- Sediment control methods

EVIDENCE GUIDE

The Evidence Guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for this Training Package.

Overview of assessment

- To demonstrate competence in this unit a person must be able to provide evidence that they can successfully apply the principles of pavement profiling using a profiler:
- Assessment may be contextualised for the circumstances where a person is:
 - Acting as a technical specialist in pavement profiling using a profiler
 - Acting as a principal's supervisor of pavement profiling using a profiler
 - Acting as a contractor's supervisor of sub-contractors carrying out of pavement profiling using a profiler.
 - Directly supervising a team or teams carrying out pavement profiling using a profiler.

Critical aspects of assessment and evidence required to demonstrate competency in this unit

- The evidence required to demonstrate competency in this unit must be relevant to worksite operations and satisfy all of the requirements of the Performance Criteria, Required Skills and Knowledge and the Range Statement of this unit and include evidence of the following:
 - Knowledge of the requirements, procedures and instructions that are to apply in undertaking pavement profiling using a profiler.
 - Implementation of appropriate procedures and techniques for the safe, effective and efficient achievement of the required outcomes of pavement profiling using a profiler
 - Working with others to plan, prepare and execute pavement profiling using a profiler.

- Job plans which reflect the requirements of these pavement profiling using a profiler and are capable of achieving all of their required outcomes.
- Resource plans which have made available adequate resources for the safe, effective and efficient execution of pavement profiling using a profiler
- Provision of clear and timely instruction and supervision by the individual of those involved in the undertaking of these pavement profiling using a profiler
- Evidence of the consistent successful completion of pavement profiling using a profiler

Context of and specific resources for assessment

- This unit should be assessed in the context of the work environment wherever possible. Where this is not possible, assessment may occur in a simulated environment. Evidence for assessment is best gathered using the outcomes of products and processes of the workplace context.
- The assessment environment should not disadvantage the participant. For example, language, literacy and numeracy demands of assessment should not be greater than those required on the job.
- Assessment of this competency requires typical resources normally used in a civil works environment. Selection and use of resources for particular work sites may differ due to site circumstances.
- Where applicable, physical resources should include equipment modified for people with disabilities.
- Access must be provided to appropriate learning and/or assessment support when required.

Methods of assessment

- This unit maybe assessed in a holistic way with other units of competency
- The suggested strategies for the assessment of this unit are:
 - Written and/or oral assessment of the candidate's required knowledge.
 - Observed, documented and/or first hand testimonial evidence of the candidate's:
 - implementation of appropriate procedures and techniques for the safe, effective and efficient achievement of the required outcomes of pavement profiling using a profiler

- Job plans which reflect the requirements of pavement profiling using a profiler and are capable of achieving all of their required outcomes.
- Resource plans which have made available adequate resources for the safe, effective and efficient execution of pavement profiling using a profiler
- Consistent successful completion of pavement profiling using a profiler
- First hand testimonial evidence of the candidate
 - working with others to plan, prepare and execute pavement profiling using a profiler.
 - providing clear and timely instructions to those involved in the undertaking pavement profiling using a profiler.
- Meaningful contribution to the review and improvement of civil works schedule of rates processes
- Where practical assessment is used it will be combined with targeted questioning to assess the required knowledge
- Questioning should be appropriate to the oracy, language and literacy levels of the applicant being assessed and should reflect the requirements of the competency and the work being performed. Assessors should be aware of any cultural issues that may affect responses to the questions
- Where performance is not directly observed and/or is required to be demonstrated over a period of time and/or in a number of locations, any evidence should be authenticated by colleagues, supervisors, clients or other appropriate persons
- Assessment should also reinforce the integration of the Employability Skills

RIICC413A Apply the principles for the manufacture and delivery of hot mix asphalt

Unit Descriptor	This unit covers the supervision of the manufacture and delivery of hot mix asphalt. It includes the requirements for ensuring that the planning, preparing, initiating, monitoring, adjusting and reporting of the manufacture and delivery of hot mix asphalt are carried out in accordance with the accepted industry principles.
Employability Skills	The required outcomes described in this Unit of Competency contain applicable facets of employability skills. The Employability Skills Qualification Summary for the qualification in which this Unit of Competency is packaged will assist in identifying employability skill requirements.
Application of the unit	<p>This unit is applicable for those who perform the duties of:</p> <ul style="list-style-type: none"> • Acting as a technical specialist in the manufacture and delivery of hot mix asphalt • Acting as a principal's supervisor of the manufacture and delivery of hot mix asphalt • Acting as a contractor's supervisor of sub-contractors carrying out the manufacture and delivery of hot mix asphalt. • Directly supervising a team or teams carrying out the manufacture and delivery of hot mix asphalt.

ELEMENT

Elements describe the essential outcomes of a Unit of Competency

1. Ensure appropriate planning and preparation is carried out for the manufacture and delivery of hot mix asphalt

PERFORMANCE CRITERIA

Performance Criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the Required Skills and Knowledge and/or the Range Statement. Assessment of performance is to be consistent with the Evidence Guide.

- 1.1 Access, interpret and clarify the ***legislative, organisational and manufacturers' requirements and procedures*** relevant to undertaking the manufacture and delivery of hot mix asphalt.
- 1.2 Access, interpret and clarify the ***specific task information and requirements*** relevant to undertaking the manufacture and delivery of hot mix asphalt.
- 1.3 Ensure a ***job plan***, is available which makes best use of the available resources and meets the hot mix asphalt manufacture and delivery requirements.

- | | | | |
|----|---|-----|---|
| 2. | Ensure appropriate initiation of the manufacture and delivery of hot mix asphalt is carried out | 2.1 | Confirm that the necessary <i>resources</i> are available for the safe, effective and efficient conduct of the manufacture and delivery of hot mix asphalt, in accordance with the relevant <i>legislative, organisational, client and manufacturers' requirements and procedures</i> and the <i>specific task information and requirements</i> . |
| | | 2.2 | Ensure clear and timely <i>instructions</i> are communicated to <i>team members</i> and others involved, for the safe, effective and efficient conduct of the manufacture and delivery of hot mix asphalt, to meet the <i>specific task requirements</i> and the relevant <i>legislative, organisational, client and manufacturers' requirements and procedures</i> . |
| 3. | Monitor, adjust, communicate and report on the execution of the manufacture and delivery of hot mix asphalt | 3.1 | Ensure relevant <i>legislative, organisational, client and manufacturers' requirements and procedures</i> are applied for the safe, effective and efficient execution of the manufacture and delivery of hot mix asphalt, in accordance with the specific <i>task requirements</i> . |
| | | 3.2 | <i>Monitor</i> the hot mix asphalt manufacture and delivery performance to ensure it achieves the <i>required outcomes</i> . |
| | | 3.3 | <i>Initiate</i> adjustments to <i>hot mix asphalt manufacturing and delivery practice</i> or <i>job plan</i> to ensure safe execution of work and achievement of <i>required outcomes</i> . |
| | | 3.4 | Ensure plant equipment and tools maintenance requirements are carried out and recorded in accordance with <i>relevant legislative, organisational, client and manufacturers' requirements</i> . |
| | | 3.5 | Complete and submit reports as required by <i>relevant legislative, organisational, client and task requirements</i> . |
| | | 3.6 | Recommend changes to improve the safety, efficiency and effectiveness of the execution of the manufacture and delivery of <i>hot mix asphalt</i> . |

REQUIRED SKILLS AND KNOWLEDGE

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

Required Skills

Specific skills are required to achieve the performance criteria of this unit, particularly for their application in the variety of circumstances in which this unit may be applied.

This includes the ability to carry out the following, as required for the safe, effective and efficient execution of the manufacture and delivery of hot mix asphalt:

- Interpreting legislative requirements and procedures
- Interpreting organisational requirements and procedures
- Interpreting client requirements and procedures
- Interpreting manufacturers' requirements and procedures
- Interpreting hot mix asphalt project geotechnical data
- Interpreting hot mix asphalt project meteorological data
- Interpreting hot mix asphalt project specifications and mix designs
- Selecting of binders
- Preparing for and conducting of briefings, toolbox and site meeting
- Preparing of short messages
- Preparing and presenting of job reports
- Preparing and maintaining of log books and diaries
- Providing leadership
- Applying hot mix asphalt manufacturing performance monitoring skills
- Calculating quantities for the execution of the manufacture and delivery of hot mix asphalt, including:
 - Volumes
 - Tonnages
 - Grades
 - Percentages
 - Resource consumption figures
- Interpreting the hot mix asphalt materials and product properties and test results
- Providing recommendations for the improvement of the safe, effective and efficient execution of the manufacture and delivery of hot mix asphalt

Required Knowledge

Specific knowledge is required to achieve the performance criteria of this unit, particularly for their application in the variety of circumstances in which this unit may be applied.

This includes knowledge of the following, as required for the safe, effective and efficient execution of the manufacture and delivery of hot mix asphalt:

- Risk assessment and management requirement and procedures
- Statutory compliance requirements and procedures
- Occupational Health and Safety requirements and procedures
- Environmental management requirements and procedures
- Quality management requirements and procedures, including aggregates, binders and product
- Work zone traffic management requirements and procedures
- Contract management requirements and procedures
- Communication requirements and procedures
- Administrative requirements and procedures
- Hot mix asphalt manufacturing and delivery plant and equipment capabilities and application
- Plant, equipment and tools maintenance requirements and procedures
- Hot mix delivery truck loading requirements and procedures
- Operational techniques for the execution of the manufacture and delivery of hot mix asphalt
- Hot mix asphalt raw materials and product handling, storage, moisture and temperature control requirements and procedures
- Hot mix asphalt manufacturing and delivery resource requirements and procedures
- Hot mix asphalt raw materials and product delivery requirements and procedures
- Hot mix asphalt manufacturing sampling, testing and production monitoring methods
- Activities scheduling requirements and procedures
- Job plan drafting of and administration requirements and procedures
- Reporting requirements and procedures
- Workplace relationship requirements and procedures
- Organisational, client and site operational requirements
- Relationship between various areas of civil works
- Team leadership techniques
- Works planning techniques
- Engineering survey principles

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. Bold italicised wording in the Performance Criteria is detailed below.

- Hot mix asphalt manufacture*** may include:
- Fixed and mobile batch plants
 - Fixed and mobile drum mixing plants
 - Dense Graded Asphalt (DGA)
 - Stone Mastic Asphalt (SMA)
 - Open Graded Asphalt (OGA)
 - Fine Gap Graded (FGG)
 - Bitumen and modified binders
- Legislative requirements*** may include:
- Requirements included in both legislation and regulations
 - Federal, State and Local Government legislation and regulations
- Legislative, organisational, client and manufacturers requirements and procedures*** may include:
- Risk assessment and management requirements and procedures
 - Statutory compliance requirements and procedures, including:
 - Equal Employment Opportunity
 - Disability Discrimination
 - Planning and development
 - Occupational Health and Safety requirements and procedures, including:
 - Workplace safety
 - Dangerous goods
 - Occupational licensing
 - Material Safety Data Sheets
 - Traffic management requirements and procedures
 - Environmental management requirements and procedures
 - Cultural and heritage requirements and procedures
 - Quality requirements and procedures
 - Australian and other relevant standards
 - Current industry best practice
 - Communication requirements and procedures

- Procurement requirements and procedures
- Employment requirements and procedures
- Workplace relations requirements and procedures
- Contract management requirements and procedures
- Administration requirements and procedures, including records and reporting
- Maintenance, servicing, and housekeeping requirements and procedures

Specific task information and requirements may include:

- Site geotechnical data
- Site meteorological data
- Known and potential site hazards, constraints and conditions
- Site cultural and heritage information
- Asphalt product specifications
- Sources of materials and their specifications
- Other organisations and contractors involved in the task or related tasks
- Materials and product sampling and testing requirements
- Coordination, timing and budgeting requirements

Job plan may include:

- Human resource requirements
- Plant and machinery requirements
- Construction materials requirements
- Sub-contractor support requirements
- Waste disposal requirements
- Coordination requirements
- Activity scheduling
- Materials delivery scheduling
- Risk assessment and management requirements
- Occupational Health and Safety requirements
- Quality management requirements, including materials and product sampling and testing requirements
- Plant site traffic management requirements
- Environmental requirements
- Task monitoring requirements

- Task performance monitoring requirements
- Communication requirements
- Reporting requirements

Teams members

may include:

- Other members of the organisation's management team
- Members of the team directly involved in the task
- Suppliers representatives
- Sub-contractors representatives
- Supervisors or managers of other organisations who are involved in related tasks

Resources may include:

- Labour
- Plant, equipment and tools
- Materials for the manufacture of asphalt
- Highway haulage vehicles
- Sub-contractor services

Instructions may include:

- Briefings and handovers
- Work orders
- Toolbox meetings
- Site meetings

Monitor may include:

- Ongoing risk assessment
- Sampling and testing
- Process control information
- Observation and recording
- General supervision

Required outcomes

may include:

- Asphalt mix specifications requirements
- Coordination requirements
- Activity scheduling requirements
- Unit cost requirements
- Overall task cost requirements
- Waste management requirements

Initiate may include:

- Written communication
- Oral communication

Hot mix asphalt manufacture and delivery practicing may include:

- Site preparation
- Site set out
- Plant set up
- Delivery and product vehicle access and control
- Raw materials receipt, acceptance and storage
- Use of recycled asphalt
- Raw materials loading into the plant
- Binder and product temperature control
- Product batching or proportioning and mixing
- Process control
- Product loading and despatch
- Use of release agents in delivery trucks
- Pollution control methods
- Sediment control methods

EVIDENCE GUIDE

The Evidence Guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for this Training Package.

Overview of assessment

- To demonstrate competence in this unit a person must be able to provide evidence that they can successfully apply the principles of the manufacture and delivery of hot mix asphalt:
- Assessment may be contextualised for the circumstances where a person is:
 - Acting as a technical specialist in the manufacture and delivery of hot mix asphalt
 - Acting as a principal's supervisor of the manufacture and delivery of hot mix asphalt
 - Acting as a contractor's supervisor of sub-contractors carrying out the manufacture and delivery of hot mix asphalt.
 - Directly supervising a team or teams carrying out the manufacture and delivery of hot mix asphalt.

Critical aspects of assessment and evidence required to demonstrate competency in this unit

- The evidence required to demonstrate competency in this unit must be relevant to worksite operations and satisfy all of the requirements of the Performance Criteria, Required Skills and Knowledge and the Range Statement of this unit and include evidence of the following:
 - Knowledge of the requirements, procedures and instructions that are to apply in undertaking the manufacture and delivery of hot mix asphalt.
 - Implementation of appropriate procedures and techniques for the safe, effective and efficient achievement of the required outcomes of the manufacture and delivery of hot mix asphalt
 - Working with others to plan, prepare and execute the manufacture and delivery of hot mix asphalt
 - Job plans which reflect the requirements of the manufacture and delivery of hot mix asphalt and are capable of achieving all of their required outcomes.
 - Resource plans which have made available adequate resources for the safe, effective and efficient execution of the manufacture and delivery of hot mix asphalt
 - Provision of clear and timely instruction and supervision by the individual of those involved in the undertaking of the manufacture and delivery of hot mix asphalt
 - Evidence of the consistent successful completion of the manufacture and delivery of hot mix asphalt

Context of and specific resources for assessment

- This unit should be assessed in the context of the work environment wherever possible. Where this is not possible, assessment may occur in a simulated environment. Evidence for assessment is best gathered using the outcomes of products and processes of the workplace context.
- The assessment environment should not disadvantage the participant. For example, language, literacy and numeracy demands of assessment should not be greater than those required on the job.
- Assessment of this competency requires typical resources normally used in a civil works environment. Selection and use of resources for

particular work sites may differ due to site circumstances.

- Where applicable, physical resources should include equipment modified for people with disabilities.
- Access must be provided to appropriate learning and/or assessment support when required.

Methods of assessment

- This unit maybe assessed in a holistic way with other units of competency
- The suggested strategies for the assessment of this unit are:
 - Written and/or oral assessment of the candidate's required knowledge.
 - Observed, documented and/or first hand testimonial evidence of the candidate's:
 - implementation of appropriate procedures and techniques for the safe, effective and efficient achievement of the required outcomes of the manufacture and delivery of hot mix asphalt
 - Job plans which reflect the requirements of the manufacture and delivery of hot mix asphalt and are capable of achieving all of their required outcomes.
 - Resource plans which have made available adequate resources for the safe, effective and efficient execution of the manufacture and delivery of hot mix asphalt
 - Consistent successful completion of the manufacture and delivery of hot mix asphalt
 - First hand testimonial evidence of the candidate
 - working with others to plan, prepare and execute the manufacture and delivery of hot mix asphalt.
 - providing clear and timely instructions to those involved in the undertaking the manufacture and delivery of hot mix asphalt.
- Meaningful contribution to the review and improvement of civil works schedule of rates processes

- Where practical assessment is used it will be combined with targeted questioning to assess the required knowledge.
- Questioning should be appropriate to the oracy, language and literacy levels of the applicant being assessed and should reflect the requirements of the competency and the work being performed. Assessors should be aware of any cultural issues that may affect responses to the questions
- Where performance is not directly observed and/or is required to be demonstrated over a period of time and/or in a number of locations, any evidence should be authenticated by colleagues, supervisors, clients or other appropriate persons
- Assessment should also reinforce the integration of the Employability Skills

RIICC414A Apply the principles of the manufacture of cold mix

Unit Descriptor	This unit covers the supervision of the manufacture of cold mix. It includes the requirements for ensuring that the planning, preparing, initiating, monitoring, adjusting and reporting of the manufacture of cold mix are carried out in accordance with the accepted industry principles.
Employability Skills	The required outcomes described in this Unit of Competency contain applicable facets of employability skills. The Employability Skills Qualification Summary for the qualification in which this Unit of Competency is packaged will assist in identifying employability skill requirements.
Application of the unit	<p>This unit is applicable for those who perform the duties of:</p> <ul style="list-style-type: none"> • Acting as a technical specialist in the manufacture of cold mix • Acting as a principal's supervisor of the manufacture of cold mix • Acting as a contractor's supervisor of sub-contractors carrying out the manufacture of cold mix. • Directly supervising a team or teams carrying out the manufacture of cold mix.

ELEMENT

Elements describe the essential outcomes of a Unit of Competency

1. Ensure appropriate planning and preparation is carried out of the manufacture of cold mix

PERFORMANCE CRITERIA

Performance Criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the Required Skills and Knowledge and/or the Range Statement. Assessment of performance is to be consistent with the Evidence Guide.

- 1.1 Access, interpret and clarify the ***legislative, organisational and manufacturers' requirements and procedures*** relevant to undertaking the manufacture of cold mix.
- 1.2 Access, interpret and clarify the ***specific task information and requirements*** relevant to undertaking the manufacture of cold mix.
- 1.3 Ensure a ***job plan***, is available which makes best use of the available resources and meets the manufacture of cold mix requirements.

2. Ensure appropriate initiation of the manufacture of cold mix is carried out
 - 2.1 Confirm that the necessary *resources* are available for the safe, effective and efficient conduct of the manufacture of cold mix, in accordance with the relevant *legislative, organisational, client and manufacturers' requirements and procedures* and the *specific task information and requirements*.
 - 2.2 Ensure clear and timely *instructions* are communicated to *team members* and others involved, for the safe, effective and efficient conduct of the manufacture of cold mix, to meet the *specific task requirements* and the relevant *legislative, organisational, client and manufacturers' requirements and procedures*.
3. Monitor, adjust, communicate and report on the execution of the manufacture of cold mix
 - 3.1 Ensure relevant *legislative, organisational, client and manufacturers' requirements and procedures* are applied for the safe, effective and efficient execution of the manufacture of cold mix, in accordance with the specific *task requirements*.
 - 3.2 *Monitor* the manufacture of cold mix performance to ensure it achieves the *required outcomes*.
 - 3.3 *Initiate* adjustments to *cold mix manufacturing practice* or *job plan* to ensure safe execution of work and achievement of *required outcomes*.
 - 3.4 Ensure plant equipment and tools maintenance requirements are carried out and recorded in accordance with *relevant legislative, organisational, client and manufacturers' requirements*.
 - 3.5 Complete and submit reports as required by *relevant legislative, organisational, client and task requirements*.
 - 3.6 Recommend changes to improve the safety, efficiency and effectiveness of the execution of the *manufacture of cold mix*.

REQUIRED SKILLS AND KNOWLEDGE

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

Required Skills

Specific skills are required to achieve the performance criteria of this unit, particularly for their application in the variety of circumstances in which this unit may be applied.

This includes the ability to carry out the following, as required for the safe, effective and efficient execution of the manufacture of cold mix:

- Interpreting legislative requirements and procedures
- Interpreting organisational requirements and procedures
- Interpreting client requirements and procedures
- Interpreting manufacturers' requirements and procedures
- Interpreting cold mix project geotechnical data
- Interpreting cold mix project site meteorological data
- Interpreting cold mix project specifications and mix designs
- Preparing for and conducting of briefings, toolbox and site meeting
- Preparing of short messages
- Preparing and presenting of job reports
- Preparing and maintaining of log books and diaries
- Providing leadership
- Applying cold mix manufacturing performance monitoring skills
- Calculating quantities for the execution of the manufacture of cold mix, including:
 - Volumes
 - Tonnages
 - Grades
 - Percentages
 - Resource consumption figures
- Interpreting cold mix materials and product properties and test results
- Providing recommendations for the improvement of the safe, effective and efficient execution of the manufacture of cold mix

Required Knowledge

Specific knowledge is required to achieve the performance criteria of this unit, particularly for their application in the variety of circumstances in which this unit may be applied.

This includes knowledge of the following, as required for the safe, effective and efficient execution of the manufacture of cold mix:

- Risk assessment and management requirement and procedures
- Statutory compliance requirements and procedures
- Occupational Health and Safety requirements and procedures
- Environmental management requirements and procedures
- Quality management requirements and procedures, including aggregate, binder and product sampling and testing
- Work zone traffic management requirements and procedures
- Contract management requirements and procedures
- Communication requirements and procedures
- Administrative requirements and procedures
- Cold mix manufacturing plant and equipment capabilities and application
- Plant, equipment and tools maintenance requirements and procedures
- Binder and product handling and storage requirements and procedures
- Cold mix delivery truck loading requirements and procedures
- Operational techniques for the execution of the manufacture of cold mix
- Cold mix manufacturing resource requirements and procedures
- Cold mix manufacturing, sampling testing and production monitoring methods
- Cold mix raw materials and product delivery requirements and procedures
- Activities scheduling requirements and procedures
- Job plan drafting of and administration requirements and procedures
- Reporting requirements and procedures
- Workplace relationship requirements and procedures
- Organisational, client and site operational requirements
- Relationship between various areas of civil works
- Team leadership techniques
- Works planning techniques
- Engineering survey principles

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. Bold italicised wording in the Performance Criteria is detailed below.

Cold mix manufacture
may include:

- Fixed and mobile batch plants
- Fixed and mobile drum mixing plants
- Cutback bitumen binder
- Bituminous emulsion binder
- Polymer modified binders

Legislative requirements
may include:

- Requirements included in both legislation and regulations
- Federal, State and Local Government legislation and regulations

Legislative, organisational, client and manufacturers requirements and procedures may include:

- Risk assessment and management requirements and procedures
- Statutory compliance requirements and procedures, including:
 - Equal Employment Opportunity
 - Disability Discrimination
 - Planning and development
- Occupational Health and Safety requirements and procedures, including:
 - Workplace safety
 - Dangerous goods
 - Occupational licensing
 - Material Safety Data Sheets
- Traffic management requirements and procedures
- Environmental management requirements and procedures
- Cultural and heritage requirements and procedures
- Quality requirements and procedures
- Australian and other relevant standards
- Current industry best practice
- Communication requirements and procedures
- Procurement requirements and procedures
- Employment requirements and procedures
- Workplace relations requirements and procedures
- Contract management requirements and procedures

Specific task information and requirements may include:

- Administration requirements and procedures, including records and reporting
- Maintenance, servicing, and housekeeping requirements and procedures
- Site geotechnical data
- Site meteorological data
- Known and potential site hazards, constraints and conditions
- Site cultural and heritage information
- Cold mix specifications
- Sources of materials and their specifications
- Other organisations and contractors involved in the task or related tasks
- Materials and product sampling and testing requirements
- Coordination, timing and budgeting requirements

Job plan may include:

- Human resource requirements
- Plant and machinery requirements
- Construction materials requirements
- Sub-contractor support requirements
- Waste disposal requirements
- Coordination requirements
- Activity scheduling
- Materials delivery scheduling
- Risk assessment and management requirements
- Occupational Health and Safety requirements
- Quality management requirements, including materials and product sampling and testing requirements
- Plant area traffic management requirements
- Environmental requirements
- Task monitoring requirements
- Task performance monitoring requirements
- Communication requirements
- Reporting requirements

- Teams members** may include:
- Other members of the organisation's management team
 - Members of the team directly involved in the task
 - Suppliers representatives
 - Sub-contractors representatives
 - Supervisors or managers of other organisations who are involved in related tasks
- Resources** may include:
- Labour
 - Plant, equipment and tools
 - Highway haulage vehicles
 - Materials for the manufacture of cold mix
 - Sub-contractor services
- Instructions** may include:
- Briefings and handovers
 - Work orders
 - Toolbox meetings
 - Site meetings
- Monitor** may include:
- Ongoing risk assessment
 - Sampling and testing
 - Process control information
 - Observation and recording
 - General supervision
- Required outcomes** may include:
- Cold mix specifications requirements
 - Coordination requirements
 - Activity scheduling requirements
 - Unit cost requirements
 - Overall task cost requirements
 - Waste management requirements
- Initiate** may include:
- Written communication
 - Oral communication
- Cold mix manufacturing practice** may include:
- Site preparation
 - Site set out
 - Plant set up

- Delivery and product vehicle access and control
- Raw materials receipt, acceptance and storage
- Raw materials loading into the plant
- Binder and product temperature control
- Product batching or proportioning and mixing
- Process control
- Product loading and despatch
- Use of release agents in delivery trucks
- Pollution control methods
- Sediment control methods

EVIDENCE GUIDE

The Evidence Guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for this Training Package.

Overview of assessment

- To demonstrate competence in this unit a person must be able to provide evidence that they can successfully apply the principles of the manufacture of cold mix:
- Assessment may be contextualised for the circumstances where a person is:
 - Acting as a technical specialist in the manufacture of cold mix
 - Acting as a principal's supervisor of the manufacture of cold mix
 - Acting as a contractor's supervisor of sub-contractors carrying out the manufacture of cold mix.
 - Directly supervising a team or teams carrying out the manufacture of cold mix.

Critical aspects of assessment and evidence required to demonstrate competency in this unit

- The evidence required to demonstrate competency in this unit must be relevant to worksite operations and satisfy all of the requirements of the Performance Criteria, Required Skills and Knowledge and the Range Statement of this unit and include evidence of the following:
 - Knowledge of the requirements, procedures and instructions that are to apply in undertaking the manufacture of cold mix.
 - Implementation of appropriate procedures and techniques for the safe, effective and efficient achievement of the required outcomes of the manufacture of cold mix

- Working with others to plan, prepare and execute the manufacture of cold mix.
- Job plans which reflect the requirements of the manufacture of cold mix and are capable of achieving all of their required outcomes.
- Resource plans which have made available adequate resources for the safe, effective and efficient execution of the manufacture of cold mix
- Provision of clear and timely instruction and supervision by the individual of those involved in the undertaking of the manufacture of cold mix
- Evidence of the consistent successful completion of the manufacture of cold mix

Context of and specific resources for assessment

- This unit should be assessed in the context of the work environment wherever possible. Where this is not possible, assessment may occur in a simulated environment. Evidence for assessment is best gathered using the outcomes of products and processes of the workplace context.
- The assessment environment should not disadvantage the participant. For example, language, literacy and numeracy demands of assessment should not be greater than those required on the job.
- Assessment of this competency requires typical resources normally used in a civil works environment. Selection and use of resources for particular work sites may differ due to site circumstances.
- Where applicable, physical resources should include equipment modified for people with disabilities.
- Access must be provided to appropriate learning and/or assessment support when required.

Methods of assessment

- This unit maybe assessed in a holistic way with other units of competency
- The suggested strategies for the assessment of this unit are:
 - Written and/or oral assessment of the candidate's required knowledge.
 - Observed, documented and/or first hand testimonial evidence of the candidate's:
 - implementation of appropriate procedures and techniques for the safe, effective and efficient

- achievement of the required outcomes of the manufacture of cold mix
 - Job plans which reflect the requirements of the manufacture of cold mix and are capable of achieving all of their required outcomes.
 - Resource plans which have made available adequate resources for the safe, effective and efficient execution of the manufacture of cold mix
 - Consistent successful completion of the manufacture of cold mix
- First hand testimonial evidence of the candidate
 - working with others to plan, prepare and execute the manufacture of cold mix.
 - providing clear and timely instructions to those involved in the undertaking the manufacture of cold mix.
- Meaningful contribution to the review and improvement of civil works schedule of rates processes
- Where practical assessment is used it will be combined with targeted questioning to assess the required knowledge
- Questioning should be appropriate to the oracy, language and literacy levels of the applicant being assessed and should reflect the requirements of the competency and the work being performed. Assessors should be aware of any cultural issues that may affect responses to the questions
- Where performance is not directly observed and/or is required to be demonstrated over a period of time and/or in a number of locations, any evidence should be authenticated by colleagues, supervisors, clients or other appropriate persons
- Assessment should also reinforce the integration of the Employability Skills

RIICC415A Apply the principles for the manufacture of polymer modified binder

Unit Descriptor	This unit covers the supervision of the manufacture of polymer modified binder. It includes the requirements for ensuring that the planning, preparing, initiating, monitoring, adjusting and reporting of the manufacture of polymer modified binder are carried out in accordance with the accepted industry principles.
Employability Skills	The required outcomes described in this Unit of Competency contain applicable facets of employability skills. The Employability Skills Qualification Summary for the qualification in which this Unit of Competency is packaged will assist in identifying employability skill requirements.
Application of the unit	<p>This unit is applicable for those who perform the duties of:</p> <ul style="list-style-type: none"> • Acting as a technical specialist in the manufacture of polymer modified binder • Acting as a principal's supervisor of the manufacture of polymer modified binder • Acting as a contractor's supervisor of sub-contractors carrying out the manufacture of polymer modified binder. • Directly supervising a team or teams carrying out the manufacture of polymer modified binder.

ELEMENT

Elements describe the essential outcomes of a Unit of Competency

1. Ensure appropriate planning and preparation is carried out for the manufacture of polymer modified binder

PERFORMANCE CRITERIA

Performance Criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the Required Skills and Knowledge and/or the Range Statement. Assessment of performance is to be consistent with the Evidence Guide.

- 1.1 Access, interpret and clarify the ***legislative, organisational and manufacturers' requirements and procedures*** relevant to undertaking the manufacture of polymer modified binder.
- 1.2 Access, interpret and clarify the ***specific task information and requirements*** relevant to undertaking the manufacture of polymer modified binder.
- 1.3 Ensure a ***job plan***, is available which makes best use of the available resources and meets the manufacture of polymer modified binder requirements.

- | | | | |
|----|--|-----|---|
| 2. | Ensure appropriate initiation of the manufacture of polymer modified binder is carried out | 2.1 | Confirm that the necessary <i>resources</i> are available for the safe, effective and efficient conduct of the manufacture of polymer modified binder task, in accordance with the relevant <i>legislative, organisational, client and manufacturers' requirements and procedures</i> and the <i>specific task information and requirements</i> . |
| | | 2.2 | Ensure clear and timely <i>instructions</i> are communicated to <i>team members</i> and others involved, for the safe, effective and efficient conduct of the manufacture of polymer modified binder task, to meet the <i>specific task requirements</i> and the relevant <i>legislative, organisational, client and manufacturers' requirements and procedures</i> . |
| 3. | Monitor, adjust, communicate and report on the execution of the manufacture of polymer modified binder | 3.1 | Ensure relevant <i>legislative, organisational, client and manufacturers' requirements and procedures</i> are applied for the safe, effective and efficient execution of the manufacture of polymer modified binder, in accordance with the <i>specific task requirements</i> . |
| | | 3.2 | <i>Monitor</i> the manufacture of polymer modified binder task performance to ensure it achieves the <i>required outcomes</i> . |
| | | 3.3 | <i>Initiate</i> adjustments to <i>polymer modified binder manufacturing practice</i> or <i>job plan</i> to ensure safe execution of work and achievement of <i>required outcomes</i> . |
| | | 3.4 | Ensure plant equipment and tools maintenance requirements are carried out and recorded in accordance with <i>relevant legislative, organisational, client and manufacturers' requirements</i> . |
| | | 3.5 | Complete and submit reports as required by <i>relevant legislative, organisational, client and task requirements</i> . |
| | | 3.6 | Recommend changes to improve the safety, efficiency and effectiveness of the execution of the <i>manufacture of polymer modified binder</i> . |

REQUIRED SKILLS AND KNOWLEDGE

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

Required Skills

Specific skills are required to achieve the Performance Criteria of this unit, particularly for their

application in the variety of circumstances in which this unit may be applied.

This includes the ability to carry out the following, as required for the safe, effective and efficient execution of the manufacture of polymer modified binder:

- Interpreting legislative requirements and procedures
- Interpreting organisational requirements and procedures
- Interpreting client requirements and procedures
- Interpreting manufacturers' requirements and procedures
- Interpreting polymer modified binder project geotechnical data
- Interpreting polymer modified binder project meteorological data
- Interpreting polymer modified binder project specifications
- Preparing for and conducting of briefings, toolbox and site meeting
- Preparing short messages
- Preparing and presenting job reports
- Preparing and maintaining log books and diaries
- Providing leadership
- Applying polymer modified binder manufacturing performance monitoring skills
- Calculating quantities for the execution of the manufacture of polymer modified binder, including:
 - Volumes
 - Grades
 - Percentages
 - Areas
 - Resource consumption figures
- Interpreting polymer modified binder properties and test results,
- Providing recommendations for the improvement of the safe, effective and efficient execution of the manufacture of polymer modified binder

Required Knowledge

Specific knowledge is required to achieve the Performance Criteria of this unit, particularly for their application in the variety of circumstances in which this unit may be applied.

This includes knowledge of the following, as required for the safe, effective and efficient execution of the manufacture of polymer modified binder:

- Risk assessment and management requirement and procedures
- Statutory compliance requirements and procedures

- Occupational Health and Safety requirements and procedures
- Environmental management requirements and procedures
- Quality management requirements and procedures
- Work zone traffic management requirements and procedures
- Contract management requirements and procedures
- Communication requirements and procedures
- Administrative requirements and procedures
- Polymer modified binder manufacturing plant and equipment capabilities and application
- Plant, equipment and tools maintenance requirements and procedures
- Operational techniques for the execution of the manufacture of polymer modified binder
- Polymer modified binder manufacture resource requirements and procedures
- Activities scheduling requirements and procedures
- Polymer modified binder raw materials and product delivery requirements and procedures
- Job plan drafting of and administration requirements and procedures
- Reporting requirements and procedures
- Workplace relationship requirements and procedures
- Organisational, client and site operational requirements
- Relationship between various areas of civil works
- Team leadership techniques
- Works planning techniques
- Polymer modified binder manufacture monitoring methods
- Engineering survey principles

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. Bold italicised wording in the Performance Criteria is detailed below.

Legislative requirements may include:

- Requirements included in both legislation and regulations
- Federal, State and Local Government legislation and regulations

Legislative, organisational, client and manufacturers requirements and procedures may include:

- Risk assessment and management requirements and procedures
- Statutory compliance requirements and procedures, including:
 - Equal Employment Opportunity

- Disability Discrimination
- Planning and development
- Occupational Health and Safety requirements and procedures, including:
 - Workplace safety
 - Dangerous goods
 - Occupational licensing
 - Material Safety Data Sheets
- Traffic management requirements and procedures
- Environmental management requirements and procedures
- Cultural and heritage requirements and procedures
- Quality requirements and procedures
- Australian and other relevant standards
- Current industry best practice
- Communication requirements and procedures
- Procurement requirements and procedures
- Employment requirements and procedures
- Workplace relations requirements and procedures
- Contract management requirements and procedures
- Administration requirements and procedures, including records and reporting
- Maintenance, servicing, and housekeeping requirements and procedures

Specific task information and requirements may include:

- Site geotechnical data
- Site meteorological data
- Known and potential site hazards, constraints and conditions
- Site cultural and heritage information
- Task specifications
- Sources of materials
- Other organisations and contractors involved in the task or related tasks
- Coordination, timing and budgeting requirements

Job plan may include:

- Human resource requirements
- Plant and machinery requirements
- Construction materials requirements
- Sub-contractor support requirements
- Waste disposal requirements
- Coordination requirements
- Activity scheduling
- Materials delivery scheduling
- Risk assessment and management requirements
- Occupational Health and Safety requirements
- Quality management requirements, including testing scheduling requirements
- Traffic management requirements
- Environmental requirements
- Task monitoring requirements
- Task performance monitoring requirements
- Communication requirements
- Reporting requirements

Teams members may include:

- Other members of the organisation's management team
- Members of the team directly involved in the task
- Suppliers representatives
- Sub-contractors representatives
- Supervisors or managers of other organisations who are involved in related tasks

Resources may include:

- Labour
- Plant, equipment and tools
- Highway haulage vehicles
- Construction materials
- Sub-contractor services

Instructions may include:

- Briefings
- Handovers
- Work orders
- Toolbox meetings

- Site meetings
- Monitor** may include:
- Ongoing risk assessment
 - Engineering survey
 - Sampling and testing
 - Observation and recording
 - General supervision
- Required outcomes** may include:
- Task specifications requirements
 - Coordination requirements
 - Activity scheduling requirements
 - Unit cost requirements
 - Overall task cost requirements
 - Waste management requirements
- Initiate** may include:
- Written communication
 - Oral communication
- Polymer modified binder manufacturing practice** may include:
- Site preparation methods
 - Traffic management methods
 - Load and haulage methods
 - Manufacture methods
 - Pollution control methods
 - Product dispatch methods
 - Sediment control methods

EVIDENCE GUIDE

The Evidence Guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for this Training Package.

- Overview of assessment**
- To demonstrate competence in this unit a person must be able to provide evidence that they can successfully apply the principles of the manufacture of polymer modified binder:
 - Assessment may be contextualised for the circumstances where a person is:
 - Acting as a technical specialist in the manufacture of polymer modified binder

Critical aspects of assessment and evidence required to demonstrate competency in this unit

- Acting as a principal's supervisor of the manufacture of polymer modified binder
- Acting as a contractor's supervisor of sub-contractors carrying out the manufacture of polymer modified binder.
- Directly supervising a team or teams carrying out the manufacture of polymer modified binder.
- The evidence required to demonstrate competency in this unit must be relevant to worksite operations and satisfy all of the requirements of the Performance Criteria, Required Skills and Knowledge and the Range Statement of this unit and include evidence of the following:
 - Knowledge of the requirements, procedures and instructions that are to apply in undertaking the manufacture of polymer modified binder.
 - Implementation of appropriate procedures and techniques for the safe, effective and efficient achievement of the required outcomes of the manufacture of polymer modified binder
 - Working with others to plan, prepare and execute the manufacture of polymer modified binder.
 - Job plans which reflect the requirements of the manufacture of polymer modified binder and are capable of achieving all of their required outcomes
 - Resource plans which have made available adequate resources for the safe, effective and efficient execution of the manufacture of polymer modified binder
 - Provision of clear and timely instruction and supervision by the individual of those involved in the undertaking of the manufacture of polymer modified binder
 - Evidence of the consistent successful completion of the manufacture of polymer modified binder

Context of and specific resources for assessment

- This unit should be assessed in the context of the work environment wherever possible. Where this is not possible, assessment may occur in a simulated environment. Evidence for assessment is best gathered using the outcomes of products and processes of the workplace context.
- The assessment environment should not disadvantage the participant. For example, language, literacy and numeracy

demands of assessment should not be greater than those required on the job.

- Assessment of this competency requires typical resources normally used in a civil works environment. Selection and use of resources for particular work sites may differ due to site circumstances.
- Where applicable, physical resources should include equipment modified for people with disabilities.
- Access must be provided to appropriate learning and/or assessment support when required.

Methods of assessment

- This unit maybe assessed in a holistic way with other units of competency
- The suggested strategies for the assessment of this unit are:
 - Written and/or oral assessment of the candidate's required knowledge
 - Observed, documented and/or first hand testimonial evidence of the candidate's:
 - implementation of appropriate procedures and techniques for the safe, effective and efficient achievement of the required outcomes of the manufacture of polymer modified binder
 - Job plans which reflect the requirements of the manufacture of polymer modified binder and are capable of achieving all of their required outcomes
 - Resource plans which have made available adequate resources for the safe, effective and efficient execution of the manufacture of polymer modified binder
 - Consistent successful completion of the manufacture of polymer modified binder
 - First hand testimonial evidence of the candidate
 - working with others to plan, prepare and execute the manufacture of polymer modified binder.
 - providing clear and timely instructions to those involved in the undertaking the manufacture of polymer modified binder.
- Meaningful contribution to the review and improvement of civil works schedule of rates processes
- Where practical assessment is used it will be combined with targeted questioning to assess the required knowledge

- Questioning should be appropriate to the oracy, language and literacy levels of the applicant being assessed and should reflect the requirements of the competency and the work being performed. Assessors should be aware of any cultural issues that may affect responses to the questions
- Where performance is not directly observed and/or is required to be demonstrated over a period of time and/or in a number of locations, any evidence should be authenticated by colleagues, supervisors, clients or other appropriate persons
- Assessment should also reinforce the integration of the Employability Skills

RIICC416A Apply the principles for the manufacture of bituminous emulsion

Unit Descriptor This unit covers the supervision of the manufacture of bituminous emulsion. It includes the requirements for ensuring that the planning, preparing, initiating, monitoring, adjusting and reporting of the manufacture of bituminous emulsion are carried out in accordance with the accepted industry principles.

Employability Skills The required outcomes described in this Unit of Competency contain applicable facets of employability skills. The Employability Skills Qualification Summary for the qualification in which this Unit of Competency is packaged will assist in identifying employability skill requirements.

Application of the unit This unit is applicable for those who perform the duties of:

- Acting as a technical specialist in the manufacture of bituminous emulsion
- Acting as a principal's supervisor of the manufacture of bituminous emulsion
- Acting as a contractor's supervisor of sub-contractors carrying out the manufacture of bituminous emulsion.
- Directly supervising a team or teams carrying out the manufacture of bituminous emulsion.

ELEMENT

Elements describe the essential outcomes of a Unit of Competency

1. Ensure appropriate planning and preparation is carried out for the manufacture of bituminous emulsion

PERFORMANCE CRITERIA

Performance Criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the Required Skills and Knowledge and/or the Range Statement. Assessment of performance is to be consistent with the Evidence Guide.

- 1.1 Access, interpret and clarify the ***legislative, organisational and manufacturers' requirements and procedures*** relevant to undertaking the manufacture of bituminous emulsion.
- 1.2 Access, interpret and clarify the ***specific task information and requirements*** relevant to undertaking the manufacture of bituminous emulsion.
- 1.3 Ensure a ***job plan***, is available which makes best use of the available resources and meets the manufacture of bituminous emulsion requirements.

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| 2. | Ensure appropriate initiation of the manufacture of bituminous emulsion is carried out | 2.1 | Confirm that the necessary <i>resources</i> are available for the safe, effective and efficient conduct of the manufacture of bituminous emulsion, in accordance with the relevant <i>legislative, organisational, client and manufacturers' requirements and procedures</i> and the <i>specific task information and requirements</i> . |
| | | 2.2 | Ensure clear and timely <i>instructions</i> are communicated to <i>team members</i> and others involved, for the safe, effective and efficient conduct of the manufacture of bituminous emulsion, to meet the <i>specific task requirements</i> and the relevant <i>legislative, organisational, client and manufacturers' requirements and procedures</i> . |
| 3. | Monitor, adjust, communicate and report on the execution of the manufacture of bituminous emulsion | 3.1 | Ensure relevant <i>legislative, organisational, client and manufacturers' requirements and procedures</i> are applied for the safe, effective and efficient execution of the manufacture of bituminous emulsion, in accordance with the specific <i>task requirements</i> . |
| | | 3.2 | <i>Monitor</i> the manufacture of bituminous emulsion performance to ensure it achieves the <i>required outcomes</i> . |
| | | 3.3 | <i>Initiate</i> adjustments to the <i>bituminous emulsion manufacturing practice</i> or <i>job plan</i> to ensure safe execution of work and achievement of <i>required outcomes</i> . |
| | | 3.4 | Ensure plant equipment and tools maintenance requirements are carried out and recorded in accordance with <i>relevant legislative, organisational, client and manufacturers' requirements</i> . |
| | | 3.5 | Complete and submit reports as required by <i>relevant legislative, organisational, client and task requirements</i> . |
| | | 3.6 | Recommend changes to improve the safety, efficiency and effectiveness of the execution of the manufacture <i>of bituminous emulsion</i> . |

REQUIRED SKILLS AND KNOWLEDGE

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

Required Skills

Specific skills are required to achieve the Performance Criteria of this unit, particularly for their application in the variety of circumstances in which this unit may be applied.

This includes the ability to carry out the following, as required for the safe, effective and efficient execution of the manufacture of bituminous emulsion:

- Interpreting legislative requirements and procedures
- Interpreting organisational requirements and procedures
- Interpreting client requirements and procedures
- Interpreting manufacturers' requirements and procedures
- Interpreting bituminous emulsion project site meteorological data
- Interpreting bituminous emulsion project specifications
- Preparing for and conducting of briefings, toolbox and site meeting
- Preparing short messages
- Preparing and presenting job reports
- Preparing and maintaining log books and diaries
- Providing leadership
- Applying bituminous emulsion performance monitoring skills
- Calculating quantities for the execution of the manufacture of bituminous emulsion, including:
 - Volumes
 - Grades
 - Percentages
 - Areas
 - Resource consumption figures
- Interpreting the manufacture of bituminous emulsion properties and test results
- Providing recommendations for the improvement of the safe, effective and efficient execution of the manufacture of bituminous emulsion

Required Knowledge

Specific knowledge is required to achieve the Performance Criteria of this unit, particularly for their application in the variety of circumstances in which this unit may be applied.

This includes knowledge of the following, as required for the safe, effective and efficient execution of the manufacture of bituminous emulsion:

- Risk assessment and management requirement and procedures
- Statutory compliance requirements and procedures
- Occupational Health and Safety requirements and procedures
- Environmental management requirements and procedures
- Quality management requirements and procedures
- Work zone traffic management requirements and procedures
- Contract management requirements and procedures
- Communication requirements and procedures
- Administrative requirements and procedures
- Bituminous emulsion manufacturing plant and equipment capabilities and application
- Plant, equipment and tools maintenance requirements and procedures
- Operational techniques for the execution of the manufacture of bituminous emulsion
- Bituminous emulsion resource requirements and procedures
- Activities scheduling requirements and procedures
- Bituminous emulsion raw materials and product delivery requirements and procedures
- Job plan drafting of and administration requirements and procedures
- Reporting requirements and procedures
- Workplace relationship requirements and procedures
- Organisational, client and site operational requirements
- Relationship between various areas of civil works
- Team leadership techniques
- Works planning techniques
- Bituminous emulsion manufacturing monitoring methods
- Engineering survey principles

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. Bold italicised wording in the Performance Criteria is detailed below.

Legislative requirements may include:

- Requirements included in both legislation and regulations
- Federal, State and Local Government legislation and regulations

Legislative, organisational, client and manufacturers requirements and procedures may include:

- Risk assessment and management requirements and procedures
- Statutory compliance requirements and procedures, including:
 - Equal Employment Opportunity
 - Disability Discrimination
 - Planning and development
- Occupational Health and Safety requirements and procedures, including:
 - Workplace safety
 - Dangerous goods
 - Occupational licensing
 - Material Safety Data Sheets
- Traffic management requirements and procedures
- Environmental management requirements and procedures
- Cultural and heritage requirements and procedures
- Quality requirements and procedures
- Australian and other relevant standards
- Current industry best practice
- Communication requirements and procedures
- Procurement requirements and procedures
- Employment requirements and procedures
- Workplace relations requirements and procedures
- Contract management requirements and procedures
- Administration requirements and procedures, including records and reporting
- Maintenance, servicing, and housekeeping requirements and procedures

Specific task information and requirements may include:

- Site meteorological data
- Known and potential site hazards, constraints and conditions
- Site cultural and heritage information
- Task specifications
- Task drawings
- Sources of materials

- Other organisations and contractors involved in the task or related tasks
- Coordination, timing and budgeting requirements

Job plan may include:

- Human resource requirements
- Plant and machinery requirements
- Construction materials requirements
- Sub-contractor support requirements
- Waste disposal requirements
- Coordination requirements
- Activity scheduling
- Materials delivery scheduling
- Risk assessment and management requirements
- Occupational Health and Safety requirements
- Quality management requirements, including testing scheduling requirements
- Traffic management requirements
- Environmental requirements
- Task monitoring requirements
- Task performance monitoring requirements
- Communication requirements
- Reporting requirements

Teams members may include:

- Other members of the organisation's management team
- Members of the team directly involved in the task
- Suppliers representatives
- Sub-contractors representatives
- Supervisors or managers of other organisations who are involved in related tasks

Resources may include:

- Labour
- Plant, equipment and tools
- Highway haulage vehicles
- Construction materials
- Sub-contractor services

Instructions may include:

- Briefings
- Handovers

- Work orders
- Toolbox meetings
- Site meetings

Monitor may include:

- Ongoing risk assessment
- Sampling and testing
- Observation and recording
- General supervision

Required outcomes may include:

- Task specifications requirements
- Coordination requirements
- Activity scheduling requirements
- Unit cost requirements
- Overall task cost requirements
- Waste management requirements

Initiate may include:

- Written communication
- Oral communication

Bituminous emulsion manufacturing practice may include:

- Site preparation methods
- Traffic management methods
- Load and haulage methods
- Manufacture methods
- Pollution control methods
- Product dispatch methods
- Sediment control methods

EVIDENCE GUIDE

The Evidence Guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for this Training Package.

Overview of assessment

- To demonstrate competence in this unit a person must be able to provide evidence that they can successfully apply the principles of the manufacture of bituminous emulsion:
- Assessment may be contextualised for the circumstances where a person is:
 - Acting as a technical specialist in the manufacture of bituminous emulsion

Critical aspects of assessment and evidence required to demonstrate competency in this unit

- Acting as a principal's supervisor of the manufacture of bituminous emulsion
- Acting as a contractor's supervisor of sub-contractors carrying out the manufacture of bituminous emulsion.
- Directly supervising a team or teams carrying out the manufacture of bituminous emulsion.
- The evidence required to demonstrate competency in this unit must be relevant to worksite operations and satisfy all of the requirements of the Performance Criteria, Required Skills and Knowledge and the Range Statement of this unit and include evidence of the following:
 - Knowledge of the requirements, procedures and instructions that are to apply in undertaking the manufacture of bituminous emulsion.
 - Implementation of appropriate procedures and techniques for the safe, effective and efficient achievement of the required outcomes of the manufacture of bituminous emulsion
 - Working with others to plan, prepare and execute the manufacture of bituminous emulsion.
 - Job plans which reflect the requirements of the manufacture of bituminous emulsion and are capable of achieving all of their required outcomes
 - Resource plans which have made available adequate resources for the safe, effective and efficient execution of the manufacture of bituminous emulsion
 - Provision of clear and timely instruction and supervision by the individual of those involved in the undertaking of the manufacture of bituminous emulsion
 - Evidence of the consistent successful completion of the manufacture of bituminous emulsion

Context of and specific resources for assessment

- This unit should be assessed in the context of the work environment wherever possible. Where this is not possible, assessment may occur in a simulated environment. Evidence for assessment is best gathered using the outcomes of products and processes of the workplace context.
- The assessment environment should not disadvantage the participant. For example, language, literacy and numeracy demands of assessment should not be greater than those required on the job.

- Assessment of this competency requires typical resources normally used in a civil works environment. Selection and use of resources for particular work sites may differ due to site circumstances.
- Where applicable, physical resources should include equipment modified for people with disabilities.
- Access must be provided to appropriate learning and/or assessment support when required.
- This unit maybe assessed in a holistic way with other units of competency
- The suggested strategies for the assessment of this unit are:
 - Written and/or oral assessment of the candidate's required knowledge
 - Observed, documented and/or first hand testimonial evidence of the candidate's:
 - implementation of appropriate procedures and techniques for the safe, effective and efficient achievement of the required outcomes of the manufacture of bituminous emulsion
 - Job plans which reflect the requirements of the manufacture of bituminous emulsion and are capable of achieving all of their required outcomes
 - Resource plans which have made available adequate resources for the safe, effective and efficient execution of the manufacture of bituminous emulsion
 - Consistent successful completion of the manufacture of bituminous emulsion
 - First hand testimonial evidence of the candidate
 - working with others to plan, prepare and execute the manufacture of bituminous emulsion
 - providing clear and timely instructions to those involved in the undertaking the manufacture of bituminous emulsion
- Meaningful contribution to the review and improvement of civil works schedule of rates processes
- Where practical assessment is used it will be combined with targeted questioning to assess the required knowledge
- Questioning should be appropriate to the oracy, language and literacy levels of the applicant being assessed and should reflect the requirements of the competency and the

Methods of assessment

work being performed. Assessors should be aware of any cultural issues that may affect responses to the questions

- Where performance is not directly observed and/or is required to be demonstrated over a period of time and/or in a number of locations, any evidence should be authenticated by colleagues, supervisors, clients or other appropriate persons
- Assessment should also reinforce the integration of the Employability Skills

RIICC417A Apply the principles of the manufacture of slurry surfacing

Unit Descriptor This unit covers the supervision of the manufacture of slurry surfacing. It includes the requirements for ensuring that the planning, preparing, initiating, monitoring, adjusting and reporting of the manufacture of slurry surfacing are carried out in accordance with the accepted industry principles.

Employability Skills The required outcomes described in this Unit of Competency contain applicable facets of employability skills. The Employability Skills Qualification Summary for the qualification in which this Unit of Competency is packaged will assist in identifying employability skill requirements.

Application of the unit This unit is applicable for those who perform the duties of:

- Acting as a technical specialist in the manufacture of slurry surfacing
- Acting as a principal's supervisor of the manufacture of slurry surfacing
- Acting as a contractor's supervisor of sub-contractors carrying out the manufacture of slurry surfacing.
- Directly supervising a team or teams carrying out the manufacture of slurry surfacing.

ELEMENT

Elements describe the essential outcomes of a Unit of Competency

1. Ensure appropriate planning and preparation is carried out of the manufacture of slurry surfacing

PERFORMANCE CRITERIA

Performance Criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the Required Skills and Knowledge and/or the Range Statement. Assessment of performance is to be consistent with the Evidence Guide.

- 1.1 Access, interpret and clarify the ***legislative, organisational and manufacturers' requirements and procedures*** relevant to undertaking the manufacture of slurry surfacing.
- 1.2 Access, interpret and clarify the ***specific task information and requirements*** relevant to undertaking the manufacture of slurry surfacing.
- 1.3 Ensure a ***job plan***, is available which makes best use of the available resources and meets the slurry surfacing manufacturing requirements.

- | | | | |
|----|---|-----|---|
| 2. | Ensure appropriate initiation of the manufacture of slurry surfacing is carried out | 2.1 | Confirm that the necessary <i>resources</i> are available for the safe, effective and efficient conduct of the manufacture of slurry surfacing, in accordance with the relevant <i>legislative, organisational, client and manufacturers' requirements and procedures</i> and the <i>specific task information and requirements</i> . |
| | | 2.2 | Ensure clear and timely <i>instructions</i> are communicated to <i>team members</i> and others involved, for the safe, effective and efficient conduct of the manufacture of slurry surfacing, to meet the <i>specific task requirements</i> and the relevant <i>legislative, organisational, client and manufacturers' requirements and procedures</i> . |
| 3. | Monitor, adjust, communicate and report on the execution of the manufacture of slurry surfacing | 3.1 | Ensure relevant <i>legislative, organisational, client and manufacturers' requirements and procedures</i> are applied for the safe, effective and efficient execution of the manufacture of slurry surfacing, in accordance with the specific <i>task requirements</i> . |
| | | 3.2 | Monitor slurry surfacing manufacturing performance to ensure it achieves the <i>required outcomes</i> . |
| | | 3.3 | Initiate adjustments to the <i>slurry surfacing manufacturing practice</i> or <i>job plan</i> to ensure safe execution of work and achievement of <i>required outcomes</i> . |
| | | 3.4 | Ensure plant equipment and tools maintenance requirements are carried out and recorded in accordance with <i>relevant legislative, organisational, client and manufacturers' requirements</i> . |
| | | 3.5 | Complete and submit reports as required by <i>relevant legislative, organisational, client and task requirements</i> . |
| | | 3.6 | Recommend changes to improve the safety, efficiency and effectiveness of the execution of the manufacture of <i>slurry surfacing</i> . |

REQUIRED SKILLS AND KNOWLEDGE

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

Required Skills

Specific skills are required to achieve the Performance Criteria of this unit, particularly for their application in the variety of circumstances in which this unit may be applied.

This includes the ability to carry out the following, as required for the safe, effective and efficient execution of the manufacture of slurry surfacing:

- Interpreting legislative requirements and procedures
- Interpreting organisational requirements and procedures
- Interpreting client requirements and procedures
- Interpreting manufacturers' requirements and procedures
- Interpreting slurry surfacing project site meteorological data
- Interpreting slurry surfacing project specifications
- Preparing for and conducting of briefings, toolbox and site meeting
- Preparing short messages
- Preparing and presenting job reports
- Preparing and maintaining log books and diaries
- Providing leadership
- Applying slurry surfacing manufacturing performance monitoring skills
- Calculating quantities for the execution of the manufacture of slurry surfacing, including:
 - Volumes
 - Grades
 - Percentages
 - Areas
 - Resource consumption figures
- Interpreting the manufacture of slurry surfacing properties and test results
- Providing recommendations for the improvement of the safe, effective and efficient execution of the manufacture of slurry surfacing

Required Knowledge

Specific knowledge is required to achieve the Performance Criteria of this unit, particularly for their application in the variety of circumstances in which this unit may be applied.

This includes knowledge of the following, as required for the safe, effective and efficient execution of the manufacture of slurry surfacing:

- Risk assessment and management requirement and procedures
- Statutory compliance requirements and procedures
- Occupational Health and Safety requirements and procedures
- Environmental management requirements and procedures
- Quality management requirements and procedures

- Work zone traffic management requirements and procedures
- Contract management requirements and procedures
- Communication requirements and procedures
- Administrative requirements and procedures
- Slurry surfacing manufacturing plant and equipment capabilities and application
- Plant, equipment and tools maintenance requirements and procedures
- Operational techniques for the execution of the manufacture of slurry surfacing
- Slurry surfacing manufacturing resource requirements and procedures
- Activities scheduling requirements and procedures
- Slurry surfacing raw materials and product delivery requirements and procedures
- Job plan drafting of and administration requirements and procedures
- Reporting requirements and procedures
- Workplace relationship requirements and procedures
- Organisational, client and site operational requirements
- Relationship between various areas of civil works
- Team leadership techniques
- Works planning techniques
- Slurry surfacing manufacturing monitoring methods
- Engineering survey principles

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. Bold italicised wording in the Performance Criteria is detailed below.

Legislative requirements may include:

- Requirements included in both legislation and regulations
- Federal, State and Local Government legislation and regulations

Legislative, organisational, client and manufacturers requirements and procedures may include:

- Risk assessment and management requirements and procedures
- Statutory compliance requirements and procedures, including:
 - Equal Employment Opportunity
 - Disability Discrimination
 - Planning and development

- Occupational Health and Safety requirements and procedures, including:
 - Workplace safety
 - Dangerous goods
 - Occupational licensing
 - Material Safety Data Sheets
- Traffic management requirements and procedures
- Environmental management requirements and procedures
- Cultural and heritage requirements and procedures
- Quality requirements and procedures
- Australian and other relevant standards
- Current industry best practice
- Communication requirements and procedures
- Procurement requirements and procedures
- Employment requirements and procedures
- Workplace relations requirements and procedures
- Contract management requirements and procedures
- Administration requirements and procedures, including records and reporting
- Maintenance, servicing, and housekeeping requirements and procedures

Specific task information and requirements may include:

- Site meteorological data
- Known and potential site hazards, constraints and conditions
- Site cultural and heritage information
- Task specifications
- Sources of materials
- Other organisations and contractors involved in the task or related tasks
- Coordination, timing and budgeting requirements

Job plan may include:

- Human resource requirements
- Plant and machinery requirements
- Construction materials requirements
- Sub-contractor support requirements
- Waste disposal requirements

- Coordination requirements
- Activity scheduling
- Materials delivery scheduling
- Risk assessment and management requirements
- Occupational Health and Safety requirements
- Quality management requirements, including testing scheduling requirements
- Traffic management requirements
- Environmental requirements
- Task monitoring requirements
- Task performance monitoring requirements
- Communication requirements
- Reporting requirements

Teams members may include:

- Other members of the organisation's management team
- Members of the team directly involved in the task
- Suppliers representatives
- Sub-contractors representatives
- Supervisors or managers of other organisations who are involved in related tasks

Resources may include:

- Labour
- Plant, equipment and tools
- Highway haulage vehicles
- Construction materials
- Sub-contractor services

Instructions may include:

- Briefings
- Handovers
- Work orders
- Toolbox meetings
- Site meetings

Monitor may include:

- Ongoing risk assessment
- Sampling and testing
- Observation and recording
- General supervision

Required outcomes
may include:

- Task specifications requirements
- Coordination requirements
- Activity scheduling requirements
- Unit cost requirements
- Overall task cost requirements
- Waste management requirements

Initiate may include:

- Written communication
- Oral communication

**Slurry surfacing
manufacturing practice**
may include:

- Site preparation methods
- Traffic management methods
- Load and haulage methods
- Manufacture methods
- Pollution control methods
- Product dispatch methods
- Sediment control methods

EVIDENCE GUIDE

The Evidence Guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for this Training Package.

Overview of assessment

- To demonstrate competence in this unit a person must be able to provide evidence that they can successfully apply the principles of the manufacture of slurry surfacing:
- Assessment may be contextualised for the circumstances where a person is:
 - Acting as a technical specialist in the manufacture of slurry surfacing
 - Acting as a principal's supervisor of the manufacture of slurry surfacing
 - Acting as a contractor's supervisor of sub-contractors carrying out the manufacture of slurry surfacing.
 - Directly supervising a team or teams carrying out the manufacture of slurry surfacing.

Critical aspects of assessment and evidence required to demonstrate competency in this unit

- The evidence required to demonstrate competency in this unit must be relevant to worksite operations and satisfy all of the requirements of the Performance Criteria, Required Skills and Knowledge and the Range Statement of this unit and include evidence of the following:
 - Knowledge of the requirements, procedures and instructions that are to apply in undertaking the manufacture of slurry surfacing.
 - Implementation of appropriate procedures and techniques for the safe, effective and efficient achievement of the required outcomes of the manufacture of slurry surfacing
 - Working with others to plan, prepare and execute the manufacture of slurry surfacing.
 - Job plans which reflect the requirements of the manufacture of slurry surfacing and are capable of achieving all of their required outcomes
 - Resource plans which have made available adequate resources for the safe, effective and efficient execution of the manufacture of slurry surfacing
 - Provision of clear and timely instruction and supervision by the individual of those involved in the undertaking of the manufacture of slurry surfacing
 - Evidence of the consistent successful completion of the manufacture of slurry surfacing

Context of and specific resources for assessment

- This unit should be assessed in the context of the work environment wherever possible. Where this is not possible, assessment may occur in a simulated environment. Evidence for assessment is best gathered using the outcomes of products and processes of the workplace context.
- The assessment environment should not disadvantage the participant. For example, language, literacy and numeracy demands of assessment should not be greater than those required on the job.
- Assessment of this competency requires typical resources normally used in a civil works environment. Selection and use of resources for particular work sites may differ due to site circumstances.
- Where applicable, physical resources should include equipment modified for people with disabilities.

Methods of assessment

- Access must be provided to appropriate learning and/or assessment support when required.
- This unit maybe assessed in a holistic way with other units of competency
- The suggested strategies for the assessment of this unit are:
 - Written and/or oral assessment of the candidate's required knowledge
 - Observed, documented and/or first hand testimonial evidence of the candidate's:
 - implementation of appropriate procedures and techniques for the safe, effective and efficient achievement of the required outcomes of the manufacture of slurry surfacing
 - Job plans which reflect the requirements of the manufacture of slurry surfacing and are capable of achieving all of their required outcomes
 - Resource plans which have made available adequate resources for the safe, effective and efficient execution of the manufacture of slurry surfacing
 - Consistent successful completion of the manufacture of slurry surfacing
 - First hand testimonial evidence of the candidate
 - working with others to plan, prepare and execute the manufacture of slurry surfacing
 - providing clear and timely instructions to those involved in the undertaking the manufacture of slurry surfacing
- Meaningful contribution to the review and improvement of civil works schedule of rates processes
- Where practical assessment is used it will be combined with targeted questioning to assess the required knowledge
- Questioning should be appropriate to the oracy, language and literacy levels of the applicant being assessed and should reflect the requirements of the competency and the work being performed. Assessors should be aware of any cultural issues that may affect responses to the questions
- Where performance is not directly observed and/or is required to be demonstrated over a period of time and/or in a number of locations, any evidence should be

authenticated by colleagues, supervisors, clients or other appropriate persons

- Assessment should also reinforce the integration of the Employability Skills

RIICC418A Inspect and report on pavement condition

Unit Descriptor	This unit covers the inspection of and reporting on pavement condition. It includes the requirements for ensuring that the planning, preparing, initiating, monitoring, adjusting and reporting of pavement condition are carried out in accordance with the accepted industry principles.
Employability Skills	The required outcomes described in this Unit of Competency contain applicable facets of employability skills. The Employability Skills Qualification Summary for the qualification in which this Unit of Competency is packaged will assist in identifying employability skill requirements.
Application of the unit	<p>This unit is applicable for those who perform the duties of:</p> <ul style="list-style-type: none"> • Acting as a technical specialist in pavement condition inspection • Acting as a principal's supervisor of pavement condition inspection • Acting as a contractor's supervisor of sub-contractors carrying out of pavement condition inspection. • Directly supervising a team or teams carrying out pavement condition inspection.

ELEMENT

Elements describe the essential outcomes of a Unit of Competency

1. Ensure appropriate planning and preparation is carried out for pavement condition inspections

PERFORMANCE CRITERIA

Performance Criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the Required Skills and Knowledge and/or the Range Statement. Assessment of performance is to be consistent with the Evidence Guide.

- 1.1 Access, interpret and clarify the ***legislative, organisational and manufacturers' requirements and procedures*** relevant to undertaking pavement condition inspections.
- 1.2 Access, interpret and clarify the ***specific task information and requirements*** relevant to undertaking the pavement condition inspection.
- 1.3 Ensure a ***job plan***, is available which makes best use of the available resources and meets the pavement condition inspection requirements.

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|----|--|-----|---|
| 2. | Ensure appropriate initiation of pavement condition inspections is carried out | 2.1 | Confirm that the necessary <i>resources</i> are available for the safe, effective and efficient conduct of the pavement condition inspection, in accordance with the relevant <i>legislative, organisational, client and manufacturers' requirements and procedures</i> and the <i>specific task information and requirements</i> . |
| | | 2.2 | Ensure clear and timely <i>instructions</i> are communicated to <i>team members</i> and others involved, for the safe, effective and efficient conduct of the pavement condition inspection, to meet the <i>specific task requirements</i> and the relevant <i>legislative, organisational, client and manufacturers' requirements and procedures</i> . |
| 3. | Monitor, adjust, communicate and report on the execution of pavement condition inspections | 3.1 | Ensure relevant <i>legislative, organisational, client and manufacturers' requirements and procedures</i> are applied for the safe, effective and efficient execution of the pavement condition inspections, in accordance with the specific <i>task requirements</i> . |
| | | 3.2 | <i>Monitor</i> pavement condition inspection performance to ensure it achieves the <i>required outcomes</i> . |
| | | 3.3 | <i>Initiate</i> adjustments to <i>pavement condition inspection practice</i> or <i>job plan</i> to ensure safe execution of work and achievement of <i>required outcomes</i> . |
| | | 3.4 | Ensure plant equipment and tools maintenance requirements are carried out and recorded in accordance with <i>relevant legislative, organisational, client and manufacturers' requirements</i> . |
| | | 3.5 | Complete and submit reports as required by <i>relevant legislative, organisational, client and task requirements</i> . |
| | | 3.6 | Recommend changes to improve the safety, efficiency and effectiveness of the execution of <i>pavement condition inspections</i> . |

REQUIRED SKILLS AND KNOWLEDGE

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

Required Skills

Specific skills are required to achieve the Performance Criteria of this unit, particularly for their application in the variety of circumstances in which this unit may be applied.

This includes the ability to carry out the following, as required for the safe, effective and efficient execution of pavement condition:

- Interpreting legislative requirements and procedures
- Interpreting organisational requirements and procedures
- Interpreting client requirements and procedures
- Interpreting manufacturers' requirements and procedures
- Interpreting pavement condition project site geological data
- Interpreting pavement condition project site geotechnical data
- Interpreting pavement condition project site hydrological data
- Interpreting pavement condition site meteorological data
- Interpreting pavement condition project engineering survey information
- Interpreting pavement condition project plans and drawings
- Interpreting pavement condition project specifications
- Preparing for and conducting of briefings, toolbox and site meeting
- Preparing short messages
- Preparing and presenting job reports
- Preparing and maintaining log books and diaries
- Providing leadership
- Applying pavement condition performance monitoring skills
- Calculating quantities for the execution of pavement condition inspections, including:
 - Volumes
 - Grades
 - Percentages
 - Areas
 - Resource consumption figures
- Interpreting pavement condition materials properties and test results, including:
 - Soil density/moisture relationship
 - Plasticity index
 - Particle size distribution
- Providing recommendations for the improvement of the safe, effective and efficient execution of pavement condition inspections

Required Knowledge

Specific knowledge is required to achieve the Performance Criteria of this unit, particularly for their application in the variety of circumstances in which this unit may be applied.

This includes knowledge of the following, as required for the safe, effective and efficient execution of pavement condition inspections:

- Risk assessment and management requirement and procedures
- Statutory compliance requirements and procedures
- Occupational Health and Safety requirements and procedures
- Environmental management requirements and procedures
- Quality management requirements and procedures
- Work zone traffic management requirements and procedures
- Contract management requirements and procedures
- Communication requirements and procedures
- Administrative requirements and procedures
- Pavement condition inspection plant and equipment capabilities and application
- Plant, equipment and tools maintenance requirements and procedures
- Operational techniques for the execution of pavement condition inspections
- Pavement condition inspection resource requirements and procedures
- Activities scheduling requirements and procedures
- Job plan drafting of and administration requirements and procedures
- Reporting requirements and procedures
- Workplace relationship requirements and procedures
- Organisational, client and site operational requirements
- Relationship between various areas of civil works
- Team leadership techniques
- Works planning techniques
- Pavement condition monitoring methods
- Engineering survey principles

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. Bold italicised wording in the Performance Criteria is detailed below.

- Pavement condition*** may include:
- Roads
 - Open car parks
 - Industrial hardstands

Legislative requirements
may include:

- Requirements included in both legislation and regulations
- Federal, State and Local Government legislation and regulations

Legislative, organisational, client and manufacturers requirements and procedures may include:

- Risk assessment and management requirements and procedures
- Statutory compliance requirements and procedures, including:
 - Equal Employment Opportunity
 - Disability Discrimination
 - Planning and development
- Occupational Health and Safety requirements and procedures, including:
 - Workplace safety
 - Dangerous goods
 - Occupational licensing
 - Material Safety Data Sheets
- Traffic management requirements and procedures
- Environmental management requirements and procedures
- Cultural and heritage requirements and procedures
- Quality requirements and procedures
- Australian and other relevant standards
- Current industry best practice
- Communication requirements and procedures
- Procurement requirements and procedures
- Employment requirements and procedures
- Workplace relations requirements and procedures
- Contract management requirements and procedures
- Administration requirements and procedures, including records and reporting
- Maintenance, servicing, and housekeeping requirements and procedures

Specific task information and requirements
may include:

- Site geological data
- Site geotechnical data
- Site hydrological data
- Site meteorological data

- Site engineering survey data
- Known and potential site hazards, constraints and conditions
- Site cultural and heritage information
- Task specifications
- Task drawings
- Sources of materials
- Other organisations and contractors involved in the task or related tasks
- Coordination, timing and budgeting requirements

Job plan may include:

- Human resource requirements
- Plant and machinery requirements
- Construction materials requirements
- Sub-contractor support requirements
- Waste disposal requirements
- Coordination requirements
- Activity scheduling
- Materials delivery scheduling
- Risk assessment and management requirements
- Occupational Health and Safety requirements
- Quality management requirements, including testing scheduling requirements
- Traffic management requirements
- Environmental requirements
- Task monitoring requirements
- Task performance monitoring requirements
- Communication requirements
- Reporting requirements

Teams members may include:

- Other members of the organisation's management team
- Members of the team directly involved in the task
- Suppliers representatives
- Sub-contractors representatives
- Supervisors or managers of other organisations who are involved in related tasks

- Resources** may include:
- Labour
 - Plant, equipment and tools
 - Highway haulage vehicles
 - Construction materials
 - Sub-contractor services
- Instructions** may include:
- Briefings
 - Handovers
 - Work orders
 - Toolbox meetings
 - Site meetings
- Monitor** may include:
- Ongoing risk assessment
 - Engineering survey
 - Sampling and testing
 - Observation and recording
 - General supervision
- Required outcomes** may include:
- Task specifications requirements
 - Coordination requirements
 - Activity scheduling requirements
 - Unit cost requirements
 - Overall task cost requirements
 - Waste management requirements
- Initiate** may include:
- Written communication
 - Oral communication
- Pavement condition inspection practice** may include:
- Site preparation, including:
 - Traffic control
 - Safety measures
 - Inspection methods, including:
 - Engineering survey
 - Sampling and testing
 - Observation
 - Pavement marking procedures
 - Pavement condition recording methods

EVIDENCE GUIDE

The Evidence Guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for this Training Package.

Overview of assessment

- To demonstrate competence in this unit a person must be able to provide evidence that they can successfully inspect and report on pavement condition:
- Assessment may be contextualised for the circumstances where a person is:
 - Acting as a technical specialist in pavement condition inspection and reporting
 - Acting as a principal's supervisor of pavement condition inspections
 - Acting as a contractor's supervisor of sub-contractors carrying out of pavement condition inspections.
 - Directly supervising a team or teams carrying out pavement condition inspections.

Critical aspects of assessment and evidence required to demonstrate competency in this unit

- The evidence required to demonstrate competency in this unit must be relevant to worksite operations and satisfy all of the requirements of the Performance Criteria, Required Skills and Knowledge and the Range Statement of this unit and include evidence of the following:
 - Knowledge of the requirements, procedures and instructions that are to apply in undertaking pavement condition inspections.
 - Implementation of appropriate procedures and techniques for the safe, effective and efficient achievement of the required outcomes of pavement condition inspections
 - Working with others to plan, prepare and execute pavement condition inspections.
 - Job plans which reflect the requirements of these pavement condition inspection and are capable of achieving all of their required outcomes
 - Resource plans which have made available adequate resources for the safe, effective and efficient execution of pavement condition inspections
 - Provision of clear and timely instruction and supervision by the individual of those involved in the undertaking of these pavement condition inspection

Context of and specific resources for assessment

- Evidence of the consistent successful completion of pavement condition inspections and reporting
- This unit should be assessed in the context of the work environment wherever possible. Where this is not possible, assessment may occur in a simulated environment. Evidence for assessment is best gathered using the outcomes of products and processes of the workplace context.
- The assessment environment should not disadvantage the participant. For example, language, literacy and numeracy demands of assessment should not be greater than those required on the job.
- Assessment of this competency requires typical resources normally used in a civil works environment. Selection and use of resources for particular work sites may differ due to site circumstances.
- Where applicable, physical resources should include equipment modified for people with disabilities.
- Access must be provided to appropriate learning and/or assessment support when required.

Methods of assessment

- This unit maybe assessed in a holistic way with other units of competency
- The suggested strategies for the assessment of this unit are:
 - Written and/or oral assessment of the candidate's required knowledge
 - Observed, documented and/or first hand testimonial evidence of the candidate's:
 - implementation of appropriate procedures and techniques for the safe, effective and efficient achievement of the required outcomes of pavement condition inspections
 - Job plans which reflect the requirements of pavement condition inspections and are capable of achieving all of their required outcomes
 - Resource plans which have made available adequate resources for the safe, effective and efficient execution of pavement condition inspections
 - Consistent successful completion of pavement condition inspections and reporting

- First hand testimonial evidence of the candidate
 - working with others to plan, prepare and execute pavement condition inspections.
 - providing clear and timely instructions to those involved in the undertaking pavement condition inspections
- Meaningful contribution to the review and improvement of civil works schedule of rates processes
- Where practical assessment is used it will be combined with targeted questioning to assess the required knowledge
- Questioning should be appropriate to the oracy, language and literacy levels of the applicant being assessed and should reflect the requirements of the competency and the work being performed. Assessors should be aware of any cultural issues that may affect responses to the questions
- Where performance is not directly observed and/or is required to be demonstrated over a period of time and/or in a number of locations, any evidence should be authenticated by colleagues, supervisors, clients or other appropriate persons
- Assessment should also reinforce the integration of the Employability Skills

RIICC419A Carry out pavement condition measurement

Unit Descriptor This unit covers the carrying out of pavement condition measurement. It includes the requirements for planning, preparing, initiating, monitoring, adjusting and reporting of pavement condition measurement.

Employability Skills The required outcomes described in this Unit of Competency contain applicable facets of employability skills. The Employability Skills Qualification Summary for the qualification in which this Unit of Competency is packaged will assist in identifying employability skill requirements.

ELEMENT

Elements describe the essential outcomes of a Unit of Competency

1. Plan and prepare for pavement condition measurement

2. Initiate and undertake the measurement of pavement condition

PERFORMANCE CRITERIA

Performance Criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the Required Skills and Knowledge and/or the Range Statement. Assessment of performance is to be consistent with the Evidence Guide.

1.1 Access and share with team members the ***legislative, organisational and manufacturers' requirements and procedures*** relevant to undertaking pavement condition measurement.

1.2 Access and share with team members the ***specific task information and requirements*** relevant to undertaking pavement condition measurement.

1.3 Ensure that the pavement condition measurement equipment is prepared for the task in accordance with ***relevant legislative, organisational and manufacturers' requirements***.

1.4 Prepare a ***job plan***, in conjunction with ***relevant team members***, which makes best use of the available resources and meets pavement condition measurement task requirements.

2.1 Acquire and make available the necessary ***resources*** for the safe, effective and efficient conduct of the task, in accordance with the relevant ***legislative, organisational, client and manufacturers' requirements and procedures*** and the ***specific task information and requirements***

- 2.2 Issue clear and timely *instructions* to team members and others involved, for the safe, effective and efficient conduct of the task, to meet the *specific task requirements* and the relevant *legislative, organisational, client and manufacturers' requirements and procedures*.
 - 2.3 Complete the *measurement of pavement condition* in a safe, effective and efficient manner, meets the required project outcomes and the relevant *legislative, organisational, client and manufacturers' requirements and procedures*.
 3. Complete pavement condition measurement post-operational requirements
 - 3.1 Validate reading recorded by the pavement condition measurement equipment in accordance with *relevant legislative, organisational and manufacturers' requirements*.
 - 3.2 Ensure plant equipment and tools maintenance requirements are carried out and recorded in accordance with *relevant legislative, organisational and manufacturers' requirements*.
 - 3.3 Complete and submit reports as required by *relevant legislative, organisational and task requirements*.
 - 3.4 Recommend changes to improve the safety, efficiency and effectiveness of *pavement condition measurement*.

REQUIRED SKILLS AND KNOWLEDGE

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

Required Skills

Specific skills are required to achieve the Performance Criteria of this unit, particularly for their application in the variety of circumstances in which this unit may be applied.

This includes the ability to carry out the following, as required for the safe, effective and efficient execution of pavement condition measurement:

- Interpreting legislative requirements and procedures
- Interpreting organisational requirements and procedures
- Interpreting client requirements and procedures
- Interpreting manufacturers' requirements and procedures
- Interpreting project engineering survey information
- Interpreting project specifications

- Choosing appropriate operational techniques for the execution of pavement condition measurement
- Choosing and assigning appropriate plant and equipment for the execution of pavement condition measurement
- Calculating quantities for the execution of pavement condition measurement
- Calibration of pavement condition measurement equipment
- Validating of pavement condition measuring equipment readings
- Determining task resource requirements
- Scheduling activities and materials delivery
- Drafting and administering job plans
- Implementing work zone traffic management plans
- Preparing for and conducting of briefings, toolbox and site meeting
- Preparing short messages
- Preparing and presenting job reports
- Preparing and maintaining log books and diaries
- Providing team leadership
- Assessment of individuals performances
- Interpreting pavement condition measurement test results
- Providing recommendations for the improvement of the safe, effective and efficient execution of pavement condition measurement task

Required Knowledge

Specific knowledge is required to achieve the Performance Criteria of this unit, particularly for their application in the variety of circumstances in which this unit may be applied.

This includes knowledge of the following, as required for the safe, effective and efficient execution of pavement condition measurement:

- Risk assessment and management requirement and procedures
- Statutory compliance requirements and procedures
- Occupational Health and Safety requirements and procedures
- Environmental management requirements and procedures
- Quality management requirements and procedures
- Work zone traffic management requirements and procedures
- Contract management requirements and procedures
- Communication requirements and procedures

- Administrative requirements and procedures
- Procurement requirements and procedures
- Plant, equipment and tools maintenance requirements and procedures
- Reporting requirements and procedures
- Employment requirements and procedures
- Workplace relationship requirements and procedures
- Organisational and site operational requirements
- Relationship between various areas of civil works
- Operational techniques required for the execution of pavement condition measurement construction tasks
- Pavement condition measurement plant and equipment capabilities
- Team leadership techniques
- Works planning techniques
- Pavement condition measurement monitoring methods

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. Bold italicised wording in the Performance Criteria is detailed below.

Pavement condition measurement may include:

- Roads
- Busways

Legislative requirements may include:

- Requirements included in both legislation and regulations
- Federal, State and Local Government legislation and regulations

Legislative, organisational, client and manufacturers requirements and procedures may include:

- Risk assessment and management requirements and procedures
- Statutory compliance requirements and procedures, including:
 - Equal Employment Opportunity
 - Disability Discrimination
 - Planning and development
- Occupational Health and Safety requirements and procedures, including:
 - Workplace safety
 - Dangerous goods

- Occupational licensing
- Material Safety Data Sheets
- Traffic management requirements and procedures
- Environmental management requirements and procedures
- Cultural and heritage requirements and procedures
- Quality requirements and procedures
- Australian and other relevant standards
- Current industry best practice
- Communication requirements and procedures
- Procurement requirements and procedures
- Employment requirements and procedures
- Workplace relations requirements and procedures
- Contract management requirements and procedures
- Administration requirements and procedures, including records and reporting
- Maintenance, servicing, and housekeeping requirements and procedures

Specific task information and requirements may include:

- Site meteorological data
- Known and potential site hazards, constraints and conditions
- Site cultural and heritage information
- Task specifications
- Task drawings
- Other company and contractors involved in the task or related tasks
- Coordination, timing and budgeting requirements

Job plan may include:

- Human resource requirements
- Plant and machinery requirements
- Construction materials requirements
- Sub-contractor support requirements
- Waste disposal requirements
- Coordination requirements
- Activity scheduling

- Materials delivery scheduling
- Risk assessment and management requirements
- Occupational Health and Safety requirements
- Quality management requirements
- Traffic management requirements
- Environmental requirements
- Task monitoring requirements
- Task performance monitoring requirements
- Communication requirements
- Reporting requirements

Relevant teams members
may include:

- Other members of the organisation's management team
- Suppliers representatives
- Sub-contractors representatives
- Supervisors or managers of other organisations who are involved in related tasks
- Experienced members of the team directly involved in the task

Resources may include:

- Labour
- Plant, equipment and tools
- Highway vehicles
- Sub-contractor services

Instructions may include:

- Briefings
- Handovers
- Work orders
- Toolbox meetings
- Site meetings

Required outcomes
may include:

- Task specifications requirements
- Task drawings requirements
- Coordination requirements
- Activity scheduling requirements
- Unit cost requirements
- Overall task cost requirements
- Waste management requirements

EVIDENCE GUIDE

The Evidence Guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for this Training Package.

Critical aspects of assessment and evidence required to demonstrate competency in this unit

- The evidence required to demonstrate competency in this unit must be relevant to worksite operations and satisfy all of the requirements of the Performance Criteria, Required Skills and Knowledge and the Range Statement of this unit and include evidence of the following:
 - Knowledge of the requirements, procedures and instructions that are to apply in undertaking pavement condition measurement.
 - Implementation of appropriate procedures and techniques for the safe, effective and efficient achievement of the required outcomes of pavement condition measurement
 - Working with others to plan, prepare and execute pavement condition measurement.
 - Job plans which reflect the requirements of these tasks and are capable of achieving all of their required outcomes
 - Resource plans which have made available adequate resources for the safe, effective and efficient execution of pavement condition measurement
 - Provision of clear and timely instruction and supervision by the individual of those involved in the undertaking of these task
 - Evidence of the consistent successful completion of pavement condition measurement

Context of and specific resources for assessment

- This unit should be assessed in the context of the work environment wherever possible. Where this is not possible, assessment may occur in a simulated environment. Evidence for assessment is best gathered using the outcomes of products and processes of the workplace context.
- The assessment environment should not disadvantage the participant. For example, language, literacy and numeracy demands of assessment should not be greater than those required on the job.
- Assessment of this competency requires typical resources normally used in a civil works environment. Selection and

use of resources for particular work sites may differ due to site circumstances.

- Where applicable, physical resources should include equipment modified for people with disabilities.
- Access must be provided to appropriate learning and/or assessment support when required.

Methods of assessment

- This unit maybe assessed in a holistic way with other units of competency
- The suggested strategies for the assessment of this unit are:
 - Written and/or oral assessment of the candidate's required knowledge
 - Observed, documented and/or first hand testimonial evidence of the candidate's:
 - implementation of appropriate procedures and techniques for the safe, effective and efficient achievement of the required outcomes of pavement condition measurement
 - Job plans which reflect the requirements of pavement condition measurement and are capable of achieving all of their required outcomes
 - Resource plans which have made available adequate resources for the safe, effective and efficient execution of pavement condition measurement
 - Consistent successful completion of pavement condition measurement
 - First hand testimonial evidence of the candidate
 - working with others to plan, prepare and execute pavement condition measurement
 - providing clear and timely instructions to and supervision of those involved in the undertaking pavement condition measurement
- Meaningful contribution to the review and improvement of civil works schedule of rates processes
- Where practical assessment is used it will be combined with targeted questioning to assess the required knowledge
- Questioning should be appropriate to the oracy, language and literacy levels of the applicant being assessed and should reflect the requirements of the competency and the work being performed. Assessors should be aware of any cultural issues that may affect responses to the questions

- Where performance is not directly observed and/or is required to be demonstrated over a period of time and/or in a number of locations, any evidence should be authenticated by colleagues, supervisors, clients or other appropriate persons
- Assessment should also reinforce the integration of the Employability Skills

RIICC420A Apply the principles of pavement maintenance

Unit Descriptor	This unit covers the supervision of pavement maintenance tasks. It includes the requirements for ensuring that the planning, preparing, initiating, monitoring, adjusting and reporting of pavement maintenance tasks are carried out in accordance with the accepted industry principles.
Employability Skills	The required outcomes described in this Unit of Competency contain applicable facets of employability skills. The Employability Skills Qualification Summary for the qualification in which this Unit of Competency is packaged will assist in identifying employability skill requirements.
Application of the unit	<p>This unit is applicable for those who perform the duties of:</p> <ul style="list-style-type: none"> • Acting as a technical specialist in pavement maintenance • Acting as a principal's supervisor of pavement maintenance tasks • Acting as a contractor's supervisor of sub-contractors carrying out of pavement maintenance tasks. • Directly supervising a team or teams carrying out pavement maintenance tasks.

ELEMENT

Elements describe the essential outcomes of a Unit of Competency

1. Ensure appropriate planning and preparation is carried out for pavement maintenance tasks

PERFORMANCE CRITERIA

Performance Criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the Required Skills and Knowledge and/or the Range Statement. Assessment of performance is to be consistent with the Evidence Guide.

- 1.1 Access, interpret and clarify the ***legislative, organisational and manufacturers' requirements and procedures*** relevant to undertaking pavement maintenance tasks.
- 1.2 Access, interpret and clarify the ***specific task information and requirements*** relevant to undertaking the pavement maintenance task.
- 1.3 Ensure a ***job plan***, is available which makes best use of the available resources and meets the pavement maintenance task requirements.

- | | | | |
|----|--|-----|---|
| 2. | Ensure appropriate initiation of pavement maintenance tasks is carried out | 2.1 | Confirm that the necessary <i>resources</i> are available for the safe, effective and efficient conduct of the pavement maintenance task, in accordance with the relevant <i>legislative, organisational, client and manufacturers' requirements and procedures</i> and the <i>specific task information and requirements</i> . |
| | | 2.2 | Ensure clear and timely <i>instructions</i> are communicated to <i>team members</i> and others involved, for the safe, effective and efficient conduct of the pavement maintenance task, to meet the <i>specific task requirements</i> and the relevant <i>legislative, organisational, client and manufacturers' requirements and procedures</i> . |
| 3. | Monitor, adjust, communicate and report on the execution of pavement maintenance tasks | 3.1 | Ensure relevant <i>legislative, organisational, client and manufacturers' requirements and procedures</i> are applied for the safe, effective and efficient execution of the pavement maintenance tasks, in accordance with the specific <i>task requirements</i> . |
| | | 3.2 | <i>Monitor</i> pavement maintenance task performance to ensure it achieves the <i>required outcomes</i> . |
| | | 3.3 | <i>Initiate</i> adjustments to <i>pavement maintenance practice</i> or <i>job plan</i> to ensure safe execution of work and achievement of <i>required outcomes</i> . |
| | | 3.4 | Ensure plant equipment and tools maintenance requirements are carried out and recorded in accordance with <i>relevant legislative, organisational, client and manufacturers' requirements</i> . |
| | | 3.5 | Complete and submit reports as required by <i>relevant legislative, organisational, client and task requirements</i> . |
| | | 3.6 | Recommend changes to improve the safety, efficiency and effectiveness of the execution of <i>pavement maintenance tasks</i> . |

REQUIRED SKILLS AND KNOWLEDGE

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

Required Skills

Specific skills are required to achieve the performance criteria of this unit, particularly for their application in the variety of circumstances in which this unit may be applied.

This includes the ability to carry out the following, as required for the safe, effective and efficient execution of pavement maintenance:

- Interpreting legislative requirements and procedures
- Interpreting organisational requirements and procedures
- Interpreting client requirements and procedures
- Interpreting manufacturers' requirements and procedures
- Interpreting pavement maintenance project site geological data
- Interpreting pavement maintenance project site geotechnical data
- Interpreting pavement maintenance project site hydrological data
- Interpreting pavement maintenance site meteorological data
- Interpreting pavement maintenance project engineering survey information
- Interpreting pavement maintenance project plans and drawings
- Interpreting pavement maintenance project specifications
- Preparing for and conducting of briefings, toolbox and site meeting
- Preparing of short messages
- Preparing and presenting of job reports
- Preparing and maintaining of log books and diaries
- Providing leadership
- Applying pavement maintenance performance monitoring skills
- Calculating quantities for the execution of pavement maintenance tasks, including:
 - Volumes
 - Grades
 - Percentages
 - Areas
 - Resource consumption figures
- Interpreting pavement maintenance materials properties and test results, including:
 - Soil density/moisture relationship
 - Plasticity index
 - Particle size distribution
- Providing recommendations for the improvement of the safe, effective and efficient execution of pavement maintenance tasks

Required Knowledge

Specific knowledge is required to achieve the performance criteria of this unit, particularly for their application in the variety of circumstances in which this unit may be applied.

This includes knowledge of the following, as required for the safe, effective and efficient execution of pavement maintenance tasks:

- Risk assessment and management requirement and procedures
- Statutory compliance requirements and procedures
- Occupational Health and Safety requirements and procedures
- Environmental management requirements and procedures
- Quality management requirements and procedures
- Work zone traffic management requirements and procedures
- Contract management requirements and procedures
- Communication requirements and procedures
- Administrative requirements and procedures
- **Pavement management systems and maintenance management systems**
- Pavement maintenance plant and equipment capabilities and application
- Plant, equipment and tools maintenance requirements and procedures
- Operational techniques for the execution of pavement maintenance tasks, including:
 - Granular patching (bound and unbound)
 - Asphalt patching (small, large, thick and thin)
 - Skin patching (with binder and aggregate)
 - Pavement crack sealing
 - Cold run patching
- Pavement maintenance task resource requirements and procedures
- Activities scheduling requirements and procedures
- Pavement maintenance materials delivery requirements and procedures
- Job plan drafting of and administration requirements and procedures
- Reporting requirements and procedures
- Workplace relationship requirements and procedures
- Organisational, client and site operational requirements
- Relationship between various areas of civil works
- Team leadership techniques
- Works planning techniques
- Pavement maintenance monitoring methods
- Engineering survey principles

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. Bold italicised wording in the Performance Criteria is detailed below.

Pavement maintenance may include:

- Flexible pavement maintenance, including
 - Natural pavement materials
 - Manufactured pavement materials
 - Asphalt surfaced
 - Spray seal surfaced
 - Slurry surfaced
- Rigid pavement maintenance, with and without asphalt surfacing

Legislative requirements may include:

- Requirements included in both legislation and regulations
- Federal, State and Local Government legislation and regulations

Legislative, organisational, client and manufacturers requirements and procedures may include:

- Risk assessment and management requirements and procedures
- Statutory compliance requirements and procedures, including:
 - Equal Employment Opportunity
 - Disability Discrimination
 - Planning and development
- Occupational Health and Safety requirements and procedures, including:
 - Workplace safety
 - Dangerous goods
 - Occupational licensing
 - Material Safety Data Sheets
- Traffic management requirements and procedures
- Environmental management requirements and procedures
- Cultural and heritage requirements and procedures
- Quality requirements and procedures
- Australian and other relevant standards
- Current industry best practice
- Communication requirements and procedures

- Procurement requirements and procedures
- Employment requirements and procedures
- Workplace relations requirements and procedures
- Contract management requirements and procedures
- Administration requirements and procedures, including records and reporting
- Maintenance, servicing, and housekeeping requirements and procedures

Specific task information and requirements may include:

- Site geological data
- Site geotechnical data
- Site hydrological data
- Site meteorological data
- Site engineering survey data
- Known and potential site hazards, constraints and conditions
- Site cultural and heritage information
- Task specifications
- Task drawings
- Sources of materials
- Other organisations and contractors involved in the task or related tasks
- Coordination, timing and budgeting requirements

Job plan may include:

- Human resource requirements
- Plant and machinery requirements
- Construction materials requirements
- Sub-contractor support requirements
- Waste disposal requirements
- Coordination requirements
- Activity scheduling
- Materials delivery scheduling
- Risk assessment and management requirements
- Occupational Health and Safety requirements
- Quality management requirements, including testing scheduling requirements

- Traffic management requirements
- Environmental requirements
- Task monitoring requirements
- Task performance monitoring requirements
- Communication requirements
- Reporting requirements

Teams members
may include:

- Other members of the organisation's management team
- Members of the team directly involved in the task
- Suppliers representatives
- Sub-contractors representatives
- Supervisors or managers of other organisations who are involved in related tasks

Resources may include:

- Labour
- Plant, equipment and tools
- Highway haulage vehicles
- Construction materials
- Sub-contractor services

Instructions may include:

- Briefings
- Handovers
- Work orders
- Toolbox meetings
- Site meetings

Monitor may include:

- Ongoing risk assessment
- Engineering survey
- Sampling and testing
- Observation and recording
- General supervision

Required outcomes
may include:

- Task specifications requirements
- Task drawings requirements
- Coordination requirements
- Activity scheduling requirements
- Unit cost requirements

- Overall task cost requirements
 - Waste management requirements
- Initiate* may include:
- Written communication
 - Oral communication
- Pavement maintenance practice* may include:
- Site preparation methods
 - Extraction methods
 - Load and haulage methods
 - Placement methods
 - Distribution methods
 - Application of prime seal and pre-seal
 - Application of bituminous emulsion and aggregates
 - Placement and compaction of Asphalt
 - Placement and compaction of cold mix
 - Placement and compaction of stabilisation
 - Surface and wear course finishing methods
 - Line, grade and level control methods
 - Compaction and water application methods
 - Sediment control methods

EVIDENCE GUIDE

The Evidence Guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for this Training Package.

- Overview of assessment**
- To demonstrate competence in this unit a person must be able to provide evidence that they can successfully apply the principles of pavement maintenance:
 - Assessment may be contextualised for the circumstances where a person is:
 - Acting as a technical specialist in pavement maintenance
 - Acting as a principal's supervisor of pavement maintenance tasks
 - Acting as a contractor's supervisor of sub-contractors carrying out of pavement maintenance tasks.
 - Directly supervising a team or teams carrying out pavement maintenance tasks.

Critical aspects of assessment and evidence required to demonstrate competency in this unit

- The evidence required to demonstrate competency in this unit must be relevant to worksite operations and satisfy all of the requirements of the Performance Criteria, Required Skills and Knowledge and the Range Statement of this unit and include evidence of the following:
 - Knowledge of the requirements, procedures and instructions that are to apply in undertaking pavement maintenance tasks.
 - Implementation of appropriate procedures and techniques for the safe, effective and efficient achievement of the required outcomes of pavement maintenance tasks
 - Working with others to plan, prepare and execute pavement maintenance tasks.
 - Job plans which reflect the requirements of these pavement maintenance task and are capable of achieving all of their required outcomes.
 - Resource plans which have made available adequate resources for the safe, effective and efficient execution of pavement maintenance tasks
 - Provision of clear and timely instruction and supervision by the individual of those involved in the undertaking of these pavement maintenance task
 - Evidence of the consistent successful completion of pavement maintenance tasks

Context of and specific resources for assessment

- This unit should be assessed in the context of the work environment wherever possible. Where this is not possible, assessment may occur in a simulated environment. Evidence for assessment is best gathered using the outcomes of products and processes of the workplace context.
- The assessment environment should not disadvantage the participant. For example, language, literacy and numeracy demands of assessment should not be greater than those required on the job.
- Assessment of this competency requires typical resources normally used in a civil works environment. Selection and use of resources for particular work sites may differ due to site circumstances.
- Where applicable, physical resources should include equipment modified for people with disabilities.

Methods of assessment

- Access must be provided to appropriate learning and/or assessment support when required.
- This unit may be assessed in a holistic way with other units of competency
- The suggested strategies for the assessment of this unit are:
 - Written and/or oral assessment of the candidate's required knowledge.
 - Observed, documented and/or first hand testimonial evidence of the candidate's:
 - implementation of appropriate procedures and techniques for the safe, effective and efficient achievement of the required outcomes of pavement maintenance tasks
 - job plans which reflect the requirements of pavement maintenance tasks and are capable of achieving all of their required outcomes
 - resource plans which have made available adequate resources for the safe, effective and efficient execution of pavement maintenance tasks
 - consistent successful completion of pavement maintenance tasks
 - First hand testimonial evidence of the candidate
 - working with others to plan, prepare and execute pavement maintenance tasks
 - providing clear and timely instructions to those involved in the undertaking pavement maintenance tasks
- Meaningful contribution to the review and improvement of civil works schedule of rates processes
- Where practical assessment is used it will be combined with targeted questioning to assess the required knowledge
- Questioning should be appropriate to the oracy, language and literacy levels of the applicant being assessed and should reflect the requirements of the competency and the work being performed. Assessors should be aware of any cultural issues that may affect responses to the questions
- Where performance is not directly observed and/or is required to be demonstrated over a period of time and/or in a number of locations, any evidence should be authenticated by colleagues, supervisors, clients or other appropriate persons

- Assessment should also reinforce the integration of the Employability Skills

RIICC421A Apply the principles for the installation of underground service using open excavation

Unit Descriptor This unit covers the supervision for the installation of underground service using open excavation tasks. It includes the requirements for ensuring that the planning, preparing, initiating, monitoring, adjusting and reporting for the installation of underground service using open excavation tasks are carried out in accordance with the accepted industry principles.

Employability Skills The required outcomes described in this Unit of Competency contain applicable facets of employability skills. The Employability Skills Qualification Summary for the qualification in which this Unit of Competency is packaged will assist in identifying employability skill requirements.

Application of the unit This unit is applicable for those who perform the duties of:

- Acting as a technical specialist in the installation of underground service using open excavation
- Acting as a principal's supervisor for the installation of underground service using open excavation tasks
- Acting as a contractor's supervisor of sub-contractors carrying out the installation of underground service using open excavation tasks
- Directly supervising a team or teams carrying out the installation of underground service using open excavation tasks.

ELEMENT

Elements describe the essential outcomes of a Unit of Competency

1. Ensure appropriate planning and preparation is carried out for the installation of underground service using open excavation tasks

PERFORMANCE CRITERIA

Performance Criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the Required Skills and Knowledge and/or the Range Statement. Assessment of performance is to be consistent with the Evidence Guide.

1.1 Access, interpret and clarify the ***legislative, organisational and manufacturers' requirements and procedures*** relevant to undertaking the installation of underground service using open excavation tasks.

1.2 Access, interpret and clarify the ***specific task information and requirements*** relevant to undertaking the installation of underground service using open excavation task.

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|---|--|
| 1.3 | Ensure a job plan , is available which makes best use of the available resources and meets the installation of underground service using open excavation task requirements. |
| 2. Ensure appropriate initiation for the installation of underground service using open excavation tasks is carried out | <p>2.1 Confirm that the necessary resources are available for the safe, effective and efficient conduct of the installation of underground service using open excavation task, in accordance with the relevant legislative, organisational, client and manufacturers' requirements and procedures and the specific task information and requirements.</p> <p>2.2 Ensure clear and timely instructions are communicated to team members and others involved, for the safe, effective and efficient conduct of the installation of underground service using open excavation task, to meet the specific task requirements and the relevant legislative, organisational, client and manufacturers' requirements and procedures.</p> |
| 3. Monitor, adjust, communicate and report on the execution for the installation of underground service using open excavation tasks | <p>3.1 Ensure relevant legislative, organisational, client and manufacturers' requirements and procedures are applied for the safe, effective and efficient execution of the installation of underground service using open excavation tasks, in accordance with the specific task requirements.</p> <p>3.2 Monitor the installation of underground service using open excavation task performance to ensure it achieves the required outcomes.</p> <p>3.3 Initiate adjustments to the installation of underground service using open excavation practice or job plan to ensure safe execution of work and achievement of required outcomes.</p> <p>3.4 Ensure plant equipment and tools maintenance requirements are carried out and recorded in accordance with relevant legislative, organisational, client and manufacturers' requirements.</p> <p>3.5 Complete and submit reports as required by relevant legislative, organisational, client and task requirements.</p> <p>3.6 Recommend changes to improve the safety, efficiency and effectiveness of the execution for the installation of underground service using open excavation tasks.</p> |

REQUIRED SKILLS AND KNOWLEDGE

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

Required Skills

Specific skills are required to achieve the Performance Criteria of this unit, particularly for their application in the variety of circumstances in which this unit may be applied.

This includes the ability to carry out the following, as required for the safe, effective and efficient execution for the installation of underground service using open excavation:

- Interpreting legislative requirements and procedures
- Interpreting organisational requirements and procedures
- Interpreting client requirements and procedures
- Interpreting manufacturers' requirements and procedures
- Interpreting underground service project site geological data
- Interpreting underground service project site geotechnical data
- Interpreting underground service project site hydrological data
- Interpreting underground service project site meteorological data
- Interpreting underground service project engineering survey information
- Interpreting underground service project plans and drawings
- Interpreting underground service project specifications
- Preparing for and conducting of briefings, toolbox and site meeting
- Preparing short messages
- Preparing and presenting job reports
- Preparing and maintaining log books and diaries
- Providing leadership
- Applying underground service installation performance monitoring skills
- Calculating quantities for the execution for the installation of underground service using open excavation tasks, including:
 - Volumes
 - Grades
 - Percentages
 - Areas
 - Resource consumption figures
- Interpreting underground service materials properties and test results

- Providing recommendations for the improvement of the safe, effective and efficient execution for the installation of underground service using open excavation tasks

Required Knowledge

Specific knowledge is required to achieve the Performance Criteria of this unit, particularly for their application in the variety of circumstances in which this unit may be applied.

This includes knowledge of the following, as required for the safe, effective and efficient execution for the installation of underground service using open excavation tasks:

- Risk assessment and management requirement and procedures
- Statutory compliance requirements and procedures
- Occupational Health and Safety requirements and procedures
- Shoring requirements and procedures
- Slope management requirements and procedures
- Environmental management requirements and procedures
- Quality management requirements and procedures
- Work zone traffic management requirements and procedures
- Contract management requirements and procedures
- Communication requirements and procedures
- Administrative requirements and procedures
- Open excavation underground service installation plant and equipment capabilities and application
- Plant, equipment and tools maintenance requirements and procedures
- Operational techniques for the execution for the installation of underground service using open excavation tasks
- Open excavation underground service installation resource requirements and procedures
- Activities scheduling requirements and procedures
- Open excavation underground service installation materials delivery requirements and procedures
- Job plan drafting of and administration requirements and procedures
- Reporting requirements and procedures
- Workplace relationship requirements and procedures
- Organisational, client and site operational requirements
- Relationship between various areas of civil works
- Team leadership techniques

- Works planning techniques
- Open excavation underground service installation monitoring methods
- Engineering survey principles

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. Bold italicised wording in the Performance Criteria is detailed below.

The installation of underground service using open excavation may include:

- Water mains pipelines
- Stormwater systems, including:
 - Pipes
 - Box culverts
 - Pre-cast gully pits
- Sewage pipelines
- Gas pipelines
- Other conduits for services such as:
 - Telecommunication cables
 - Data cables
- Power cables

Open excavation may include:

- Shored trenches
- Open trenches
- Excavation by trenching machine or other earthmoving equipment
- Vacuum excavation

Legislative requirements may include:

- Requirements included in both legislation and regulations
- Federal, State and Local Government legislation and regulations

Legislative, organisational, client and manufacturers requirements and procedures may include:

- Risk assessment and management requirements and procedures
- Statutory compliance requirements and procedures, including:
 - Equal Employment Opportunity
 - Disability Discrimination
 - Planning and development

- Occupational Health and Safety requirements and procedures, including:
 - Workplace safety
 - Dangerous goods
 - Occupational licensing
 - Material Safety Data Sheets
- Traffic management requirements and procedures
- Environmental management requirements and procedures
- Cultural and heritage requirements and procedures
- Quality requirements and procedures
- Australian and other relevant standards
- Current industry best practice
- Communication requirements and procedures
- Procurement requirements and procedures
- Employment requirements and procedures
- Workplace relations requirements and procedures
- Contract management requirements and procedures
- Administration requirements and procedures, including records and reporting
- Maintenance, servicing, and housekeeping requirements and procedures

Specific task information and requirements may include:

- Site geological data
- Site geotechnical data
- Site hydrological data
- Site meteorological data
- Site engineering survey data
- Known and potential site hazards, constraints and conditions
- Site cultural and heritage information
- Task specifications
- Task drawings
- Sources of materials
- Other organisations and contractors involved in the task or related tasks
- Coordination, timing and budgeting requirements

Job plan may include:

- Human resource requirements
- Plant and machinery requirements
- Construction materials requirements
- Waste disposal requirements
- Coordination requirements
- Activity scheduling
- Materials delivery scheduling
- Risk assessment and management requirements
- Occupational Health and Safety requirements
- Shoring and slope management requirements
- Sub-contractor support requirements
- Quality management requirements, including testing scheduling requirements
- Traffic management requirements
- Environmental requirements
- Task monitoring requirements
- Task performance monitoring requirements
- Communication requirements
- Reporting requirements

Teams members may include:

- Other members of the organisation's management team
- Members of the team directly involved in the task
- Suppliers representatives
- Sub-contractors representatives
- Supervisors or managers of other organisations who are involved in related tasks

Resources may include:

- Labour
- Plant, equipment and tools
- Highway haulage vehicles
- Construction materials
- Shoring materials
- Sub-contractor services

Instructions may include:

- Briefings
- Handovers
- Work orders

- Monitor** may include:
- Toolbox meetings
 - Site meetings
 - Ongoing risk assessment
 - Engineering survey
 - Sampling and testing
 - Observation and recording
 - General supervision
- Required outcomes** may include:
- Task specifications requirements
 - Task drawings requirements
 - Coordination requirements
 - Activity scheduling requirements
 - Unit cost requirements
 - Overall task cost requirements
 - Waste management requirements
- Initiate** may include:
- Written communication
 - Oral communication

- The installation of underground service using open excavation practice** includes:
- Site preparation methods
 - Extraction methods
 - Shoring methods
 - Slope management methods
 - Load and haulage methods
 - Placement methods
 - Distribution methods
 - Surface finishing methods
 - Line, grade and level control methods
 - Compaction and water application methods
 - Sediment control methods

EVIDENCE GUIDE

The Evidence Guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for this Training Package.

- Overview of assessment**
- To demonstrate competence in this unit a person must be able to provide evidence that they can successfully apply

the principles for the installation of underground service using open excavation:

- Assessment may be contextualised for the circumstances where a person is:
 - Acting as a technical specialist in the installation of underground service using open excavation
 - Acting as a principal's supervisor of the installation of underground service using open excavation tasks
 - Acting as a contractor's supervisor of sub-contractors carrying out for the installation of underground service using open excavation tasks
 - Directly supervising a team or teams carrying out the installation of underground service using open excavation tasks.

Critical aspects of assessment and evidence required to demonstrate competency in this unit

- The evidence required to demonstrate competency in this unit must be relevant to worksite operations and satisfy all of the requirements of the Performance Criteria, Required Skills and Knowledge and the Range Statement of this unit and include evidence of the following:
 - Knowledge of the requirements, procedures and instructions that are to apply in undertaking the installation of underground service using open excavation tasks
 - Implementation of appropriate procedures and techniques for the safe, effective and efficient achievement of the required outcomes for the installation of underground service using open excavation tasks
 - Working with others to plan, prepare and execute the installation of underground service using open excavation tasks
 - Job plans which reflect the requirements of the installation of underground service using open excavation task and are capable of achieving all of their required outcomes
 - Resource plans which have made available adequate resources for the safe, effective and efficient execution for the installation of underground service using open excavation tasks
 - Provision of clear and timely instruction and supervision by the individual of those involved in the undertaking of these the installation of underground service using open excavation task

- Evidence of the consistent successful completion for the installation of underground service using open excavation tasks

Context of and specific resources for assessment

- This unit should be assessed in the context of the work environment wherever possible. Where this is not possible, assessment may occur in a simulated environment. Evidence for assessment is best gathered using the outcomes of products and processes of the workplace context
- The assessment environment should not disadvantage the participant. For example, language, literacy and numeracy demands of assessment should not be greater than those required on the job
- Assessment of this competency requires typical resources normally used in a civil works environment. Selection and use of resources for particular work sites may differ due to site circumstances
- Where applicable, physical resources should include equipment modified for people with disabilities
- Access must be provided to appropriate learning and/or assessment support when required

Methods of assessment

- This unit maybe assessed in a holistic way with other units of competency
- The suggested strategies for the assessment of this unit are:
 - Written and/or oral assessment of the candidate's required knowledge
 - Observed, documented and/or first hand testimonial evidence of the candidate's:
 - implementation of appropriate procedures and techniques for the safe, effective and efficient achievement of the required outcomes for the installation of underground service using open excavation tasks
 - Job plans which reflect the requirements for the installation of underground service using open excavation tasks and are capable of achieving all of their required outcomes
 - Resource plans which have made available adequate resources for the safe, effective and efficient execution for the installation of underground service using open excavation tasks

- Consistent successful completion for the installation of underground service using open excavation tasks
- First hand testimonial evidence of the candidate
 - working with others to plan, prepare and execute the installation of underground service using open excavation tasks
 - providing clear and timely instructions to those involved in the undertaking the installation of underground service using open excavation tasks
- Meaningful contribution to the review and improvement of civil works schedule of rates processes
- Where practical assessment is used it will be combined with targeted questioning to assess the required knowledge
- Questioning should be appropriate to the oracy, language and literacy levels of the applicant being assessed and should reflect the requirements of the competency and the work being performed. Assessors should be aware of any cultural issues that may affect responses to the questions
- Where performance is not directly observed and/or is required to be demonstrated over a period of time and/or in a number of locations, any evidence should be authenticated by colleagues, supervisors, clients or other appropriate persons
- Assessment should also reinforce the integration of the Employability Skills

RIICC422A Apply the principles for the installation of underground service using trenchless technology

Unit Descriptor	This unit covers the supervision for the installation of underground service using trenchless technology tasks. It includes the requirements for ensuring that the planning, preparing, initiating, monitoring, adjusting and reporting for the installation of underground service using trenchless technology tasks are carried out in accordance with the accepted industry principles.
Employability Skills	The required outcomes described in this Unit of Competency contain applicable facets of employability skills. The Employability Skills Qualification Summary for the qualification in which this Unit of Competency is packaged will assist in identifying employability skill requirements.
Application of the unit	<p>This unit is applicable for those who perform the duties of:</p> <ul style="list-style-type: none"> • Acting as a technical specialist in the installation of underground service using trenchless technology • Acting as a principal's supervisor for the installation of underground service using trenchless technology tasks • Acting as a contractor's supervisor of sub-contractors carrying out for the installation of underground service using trenchless technology tasks • Directly supervising a team or teams carrying out the installation of underground service using trenchless technology tasks.

ELEMENT

Elements describe the essential outcomes of a Unit of Competency

1. Ensure appropriate planning and preparation is carried out for the installation of underground service using trenchless technology tasks

PERFORMANCE CRITERIA

Performance Criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the Required Skills and Knowledge and/or the Range Statement. Assessment of performance is to be consistent with the Evidence Guide.

- 1.1 Access, interpret and clarify the ***legislative, organisational and manufacturers' requirements and procedures*** relevant to undertaking the installation of underground service using trenchless technology tasks.
- 1.2 Access, interpret and clarify the ***specific task information and requirements*** relevant to undertaking the installation of underground service using trenchless technology task.

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| 1.3 | Ensure a job plan , is available which makes best use of the available resources and meets the installation of underground service using trenchless technology task requirements. |
| 2. | Ensure appropriate initiation for the installation of underground service using trenchless technology tasks is carried out |
| 2.1 | Confirm that the necessary resources are available for the safe, effective and efficient conduct of the installation of underground service using trenchless technology task, in accordance with the relevant legislative, organisational, client and manufacturers' requirements and procedures and the specific task information and requirements . |
| 2.2 | Ensure clear and timely instructions are communicated to team members and others involved, for the safe, effective and efficient conduct of the installation of underground service using trenchless technology task, to meet the specific task requirements and the relevant legislative, organisational, client and manufacturers' requirements and procedures . |
| 3. | Monitor, adjust, communicate and report on the execution for the installation of underground service using trenchless technology tasks |
| 3.1 | Ensure relevant legislative, organisational, client and manufacturers' requirements and procedures are applied for the safe, effective and efficient execution of the installation of underground service using trenchless technology tasks, in accordance with the specific task requirements . |
| 3.2 | Monitor the installation of underground service using trenchless technology task performance to ensure it achieves the required outcomes . |
| 3.3 | Initiate adjustments to the installation of underground service using trenchless technology practice or job plan to ensure safe execution of work and achievement of required outcomes . |
| 3.4 | Ensure plant equipment and tools maintenance requirements are carried out and recorded in accordance with relevant legislative, organisational, client and manufacturers' requirements . |
| 3.5 | Complete and submit reports as required by relevant legislative, organisational, client and task requirements . |
| 3.6 | Recommend changes to improve the safety, efficiency and effectiveness of the execution for the installation of underground service using trenchless technology tasks . |

REQUIRED SKILLS AND KNOWLEDGE

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

Required Skills

Specific skills are required to achieve the Performance Criteria of this unit, particularly for their application in the variety of circumstances in which this unit may be applied.

This includes the ability to carry out the following, as required for the safe, effective and efficient execution for the installation of underground service using trenchless technology:

- Interpreting legislative requirements and procedures
- Interpreting organisational requirements and procedures
- Interpreting client requirements and procedures
- Interpreting manufacturers' requirements and procedures
- Interpreting underground service project site geological data
- Interpreting underground service project site geotechnical data
- Interpreting underground service project site hydrological data
- Interpreting underground service project site meteorological data
- Interpreting underground service project engineering survey information
- Interpreting underground service project plans and drawings
- Interpreting underground service project specifications
- Preparing for and conducting of briefings, toolbox and site meeting
- Preparing short messages
- Preparing and presenting job reports
- Preparing and maintaining log books and diaries
- Providing leadership
- Applying trenchless technology underground service installation performance monitoring skills
- Calculating quantities for the execution for the installation of underground service using trenchless technology tasks, including:
 - Volumes
 - Grades
 - Percentages
 - Areas
 - Resource consumption figures
- Interpreting the installation of underground service using trenchless technology materials properties and test results

- Providing recommendations for the improvement of the safe, effective and efficient execution for the installation of underground service using trenchless technology tasks

Required Knowledge

Specific knowledge is required to achieve the Performance Criteria of this unit, particularly for their application in the variety of circumstances in which this unit may be applied.

This includes knowledge of the following, as required for the safe, effective and efficient execution for the installation of underground service using trenchless technology tasks:

- Risk assessment and management requirement and procedures
- Statutory compliance requirements and procedures
- Occupational Health and Safety requirements and procedures
- Environmental management requirements and procedures
- Quality management requirements and procedures
- Work zone traffic management requirements and procedures
- Contract management requirements and procedures
- Communication requirements and procedures
- Administrative requirements and procedures
- Trenchless technology underground service installation plant and equipment capabilities and application
- Plant, equipment and tools maintenance requirements and procedures
- Operational techniques for the execution for the installation of underground service using trenchless technology tasks, including at least one of the following methods:
 - Impact moling
 - Ramming
 - Augering
 - Fluid assisted directional boring
 - Micro tunnelling
 - Pipe jacking
- The installation of underground service using trenchless technology task resource requirements and procedures
- Activities scheduling requirements and procedures
- The installation of underground service using trenchless technology materials delivery requirements and procedures
- Job plan drafting of and administration requirements and procedures
- Reporting requirements and procedures

- Workplace relationship requirements and procedures
- Organisational, client and site operational requirements
- Relationship between various areas of civil works
- Team leadership techniques
- Works planning techniques
- Trenchless technology underground service installation monitoring methods
- Engineering survey principles

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. Bold italicised wording in the Performance Criteria is detailed below.

The installation of underground service using trenchless technology may include:

- Water mains pipelines
- Stormwater systems, including:
 - Pipes
 - Box culverts
 - Pre-cast gully pits
- Irrigation lines
- Sewage pipelines
- Pre-cast access chambers
- Gas pipelines
- Oil pipelines
- Other conduits for services such as:
 - Telecommunication cables
 - Data cables
 - Power cables
- Subway and underpasses
- Service tunnels

Legislative requirements may include:

- Requirements included in both legislation and regulations
- Federal, State and Local Government legislation and regulations

Legislative, organisational, client and manufacturers requirements and procedures may include:

- Risk assessment and management requirements and procedures
- Statutory compliance requirements and procedures, including:

- Equal Employment Opportunity
- Disability Discrimination
- Planning and development
- Occupational Health and Safety requirements and procedures, including:
 - Workplace safety
 - Dangerous goods
 - Occupational licensing
 - Material Safety Data Sheets
- Traffic management requirements and procedures
- Environmental management requirements and procedures
- Cultural and heritage requirements and procedures
- Quality requirements and procedures
- Australian and other relevant standards
- Current industry best practice
- Communication requirements and procedures
- Procurement requirements and procedures
- Employment requirements and procedures
- Workplace relations requirements and procedures
- Contract management requirements and procedures
- Administration requirements and procedures, including records and reporting
- Maintenance, servicing, and housekeeping requirements and procedures

Specific task information and requirements

may include:

- Site geological data
- Site geotechnical data
- Site hydrological data
- Site meteorological data
- Site engineering survey data
- Known and potential site hazards, constraints and conditions
- Site cultural and heritage information
- Task specifications
- Task drawings
- Sources of materials

- Other organisations and contractors involved in the task or related tasks
- Coordination, timing and budgeting requirements

Job plan may include:

- Human resource requirements
- Plant and machinery requirements
- Construction materials requirements
- Sub-contractor support requirements
- Waste disposal requirements
- Coordination requirements
- Activity scheduling
- Materials delivery scheduling
- Risk assessment and management requirements
- Occupational Health and Safety requirements
- Shoring requirements
- Slope management requirements
- Quality management requirements, including testing scheduling requirements
- Traffic management requirements
- Environmental requirements
- Task monitoring requirements
- Task performance monitoring requirements
- Communication requirements
- Reporting requirements

Teams members may include:

- Other members of the organisation's management team
- Members of the team directly involved in the task
- Suppliers representatives
- Sub-contractors representatives
- Supervisors or managers of other organisations who are involved in related tasks

Resources may include:

- Labour
- Plant, equipment and tools
- Highway haulage vehicles
- Construction materials

- Shoring materials
- Sub-contractor services

Instructions may include:

- Briefings
- Handovers
- Work orders
- Toolbox meetings
- Site meetings

Monitor may include:

- Ongoing risk assessment
- Engineering survey
- Laser tracking
- CCTV
- Sampling and testing
- Observation and recording
- General supervision

Required outcomes may include:

- Task specifications requirements
- Task drawings requirements
- Coordination requirements
- Activity scheduling requirements
- Unit cost requirements
- Overall task cost requirements
- Waste management requirements

Initiate may include:

- Written communication
- Oral communication

The installation of underground service using trenchless technology practice may include:

- Site preparation methods
- Methods for location of existing underground services
- Launching and reception pit excavation methods
- Shoring methods
- Slope management methods
- Impact moling methods
- Ramming methods
- Augering methods
- Fluid assisted directional boring methods

- Pullback methods
- Micro tunnelling methods
- Pipe jacking methods
- Use of guidance systems
- Site cleanup
- Sediment control methods

EVIDENCE GUIDE

The Evidence Guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for this Training Package.

Overview of assessment

- To demonstrate competence in this unit a person must be able to provide evidence that they can successfully apply the principles for the installation of underground service using trenchless technology:
- Assessment may be contextualised for the circumstances where a person is:
 - Acting as a technical specialist in the installation of underground service using trenchless technology
 - Acting as a principal's supervisor for the installation of underground service using trenchless technology tasks
 - Acting as a contractor's supervisor of sub-contractors carrying out for the installation of underground service using trenchless technology tasks
 - Directly supervising a team or teams carrying out the installation of underground service using trenchless technology tasks.

Critical aspects of assessment and evidence required to demonstrate competency in this unit

- The evidence required to demonstrate competency in this unit must be relevant to worksite operations and satisfy all of the requirements of the Performance Criteria, Required Skills and Knowledge and the Range Statement of this unit and include evidence of the following:
 - Knowledge of the requirements, procedures and instructions that are to apply in undertaking the installation of underground service using trenchless technology tasks
 - Implementation of appropriate procedures and techniques for the safe, effective and efficient achievement of the required outcomes for the

installation of underground service using trenchless technology tasks

- Working with others to plan, prepare and execute the installation of underground service using trenchless technology tasks
- Job plans which reflect the requirements of the installation of underground service using trenchless technology task and are capable of achieving all of their required outcomes
- Resource plans which have made available adequate resources for the safe, effective and efficient execution for the installation of underground service using trenchless technology tasks
- Provision of clear and timely instruction and supervision by the individual of those involved in the undertaking of these the installation of underground service using trenchless technology task
- Evidence of the consistent successful completion for the installation of underground service using trenchless technology tasks

Context of and specific resources for assessment

- This unit should be assessed in the context of the work environment wherever possible. Where this is not possible, assessment may occur in a simulated environment. Evidence for assessment is best gathered using the outcomes of products and processes of the workplace context.
- The assessment environment should not disadvantage the participant. For example, language, literacy and numeracy demands of assessment should not be greater than those required on the job.
- Assessment of this competency requires typical resources normally used in a civil works environment. Selection and use of resources for particular work sites may differ due to site circumstances.
- Where applicable, physical resources should include equipment modified for people with disabilities.
- Access must be provided to appropriate learning and/or assessment support when required.

Methods of assessment

- This unit maybe assessed in a holistic way with other units of competency
- The suggested strategies for the assessment of this unit are:
 - Written and/or oral assessment of the candidate's required knowledge
 - Observed, documented and/or first hand testimonial evidence of the candidate's:
 - implementation of appropriate procedures and techniques for the safe, effective and efficient achievement of the required outcomes for the installation of underground service using trenchless technology tasks
 - Job plans which reflect the requirements for the installation of underground service using trenchless technology tasks and are capable of achieving all of their required outcomes
 - Resource plans which have made available adequate resources for the safe, effective and efficient execution for the installation of underground service using trenchless technology tasks
 - Consistent successful completion for the installation of underground service using trenchless technology tasks
 - First hand testimonial evidence of the candidate
 - working with others to plan, prepare and execute the installation of underground service using trenchless technology tasks
 - providing clear and timely instructions to those involved in the undertaking the installation of underground service using trenchless technology tasks
- Meaningful contribution to the review and improvement of civil works schedule of rates processes
- Where practical assessment is used it will be combined with targeted questioning to assess the required knowledge
- Questioning should be appropriate to the oracy, language and literacy levels of the applicant being assessed and should reflect the requirements of the competency and the work being performed. Assessors should be aware of any cultural issues that may affect responses to the questions

- Where performance is not directly observed and/or is required to be demonstrated over a period of time and/or in a number of locations, any evidence should be authenticated by colleagues, supervisors, clients or other appropriate persons
- Assessment should also reinforce the integration of the Employability Skills

RIICC423A Apply the principles for the repair and rehabilitation of underground service using trenchless technology

Unit Descriptor This unit covers the supervision for the repair and rehabilitation of underground service using trenchless technology tasks. It includes the requirements for ensuring that the planning, preparing, initiating, monitoring, adjusting and reporting for the repair and rehabilitation of underground service using trenchless technology tasks are carried out in accordance with the accepted industry principles.

Employability Skills The required outcomes described in this Unit of Competency contain applicable facets of employability skills. The Employability Skills Qualification Summary for the qualification in which this Unit of Competency is packaged will assist in identifying employability skill requirements.

Application of the unit This unit is applicable for those who perform the duties of:

- Acting as a technical specialist in the repair and rehabilitation of underground service using trenchless technology
- Acting as a principal’s supervisor for the repair and rehabilitation of underground service using trenchless technology tasks
- Acting as a contractor’s supervisor of sub-contractors carrying out for the repair and rehabilitation of underground service using trenchless technology tasks
- Directly supervising a team or teams carrying out the repair and rehabilitation of underground service using trenchless technology tasks.

ELEMENT

Elements describe the essential outcomes of a Unit of Competency

1. Ensure appropriate planning and preparation is carried out for the repair and rehabilitation of

PERFORMANCE CRITERIA

Performance Criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the Required Skills and Knowledge and/or the Range Statement. Assessment of performance is to be consistent with the Evidence Guide.

- 1.1 Access, interpret and clarify the ***legislative, organisational and manufacturers’ requirements and procedures*** relevant to undertaking the repair and rehabilitation of underground service using trenchless technology tasks.

- | | |
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| underground service using trenchless technology tasks | <ul style="list-style-type: none"> 1.2 Access, interpret and clarify the <i>specific task information and requirements</i> relevant to undertaking the repair and rehabilitation of underground service using trenchless technology task. 1.3 Ensure a <i>job plan</i>, is available which makes best use of the available resources and meets the repair and rehabilitation of underground service using trenchless technology task requirements. |
| 2. Ensure appropriate initiation for the repair rehabilitation of underground service using trenchless technology tasks is carried out | <ul style="list-style-type: none"> 2.1 Confirm that the necessary <i>resources</i> are available for the safe, effective and efficient conduct of the repair and rehabilitation of underground service using trenchless technology task, in accordance with the relevant <i>legislative, organisational, client and manufacturers' requirements and procedures</i> and the <i>specific task information and requirements</i>. 2.2 Ensure clear and timely <i>instructions</i> are communicated to <i>team members</i> and others involved, for the safe, effective and efficient conduct of the repair and rehabilitation of underground service using trenchless technology task, to meet the <i>specific task requirements</i> and the relevant <i>legislative, organisational, client and manufacturers' requirements and procedures</i>. |
| 3. Monitor, adjust, communicate and report on the execution for the repair and rehabilitation of underground service using trenchless technology tasks | <ul style="list-style-type: none"> 3.1 Ensure relevant <i>legislative, organisational, client and manufacturers' requirements and procedures</i> are applied for the safe, effective and efficient execution of the repair and rehabilitation of underground service using trenchless technology tasks, in accordance with the specific <i>task requirements</i>. 3.2 <i>Monitor</i> the repair and rehabilitation of underground service using trenchless technology task performance to ensure it achieves the <i>required outcomes</i>. 3.3 <i>Initiate</i> adjustments to <i>the repair and rehabilitation of underground service using trenchless technology practice or job plan</i> to ensure safe execution of work and achievement of <i>required outcomes</i>. 3.4 Ensure plant equipment and tools maintenance requirements are carried out and recorded in accordance with <i>relevant legislative, organisational, client and manufacturers' requirements</i>. 3.5 Complete and submit reports as required by <i>relevant legislative, organisational, client and task requirements</i>. |

- 3.6 Recommend changes to improve the safety, efficiency and effectiveness of the execution for the repair and rehabilitation of underground service using trenchless technology *tasks*.

REQUIRED SKILLS AND KNOWLEDGE

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

Required Skills

Specific skills are required to achieve the Performance Criteria of this unit, particularly for their application in the variety of circumstances in which this unit may be applied.

This includes the ability to carry out the following, as required for the safe, effective and efficient execution for the repair and rehabilitation of underground service using trenchless technology:

- Interpreting legislative requirements and procedures
- Interpreting organisational requirements and procedures
- Interpreting client requirements and procedures
- Interpreting manufacturers' requirements and procedures
- Interpreting underground service project site geological data
- Interpreting underground service project site geotechnical data
- Interpreting underground service project site hydrological data
- Interpreting underground service project site meteorological data
- Interpreting underground service project engineering survey information
- Interpreting underground service repair and rehabilitation project plans and drawings
- Interpreting underground service repair and rehabilitation project specifications
- Preparing for and conducting of briefings, toolbox and site meeting
- Preparing short messages
- Preparing and presenting job reports
- Preparing and maintaining log books and diaries
- Providing leadership
- Applying trenchless technology underground service repair and rehabilitation performance monitoring skills
- Calculating quantities for the execution for the repair and rehabilitation of underground service using trenchless technology tasks, including:
 - Volumes
 - Grades
 - Percentages
 - Areas

- Resource consumption figures
- Interpreting trenchless technology underground service repair and rehabilitation materials properties and test results
- Providing recommendations for the improvement of the safe, effective and efficient execution for the repair and rehabilitation of underground service using trenchless technology tasks

Required Knowledge

Specific knowledge is required to achieve the Performance Criteria of this unit, particularly for their application in the variety of circumstances in which this unit may be applied. This includes knowledge of the following, as required for the safe, effective and efficient execution for the repair and rehabilitation of underground service using trenchless technology tasks:

- Risk assessment and management requirement and procedures
- Statutory compliance requirements and procedures
- Occupational Health and Safety requirements and procedures
- Shoring requirements and procedures
- Slope management requirements and procedures
- Environmental management requirements and procedures
- Quality management requirements and procedures
- Work zone traffic management requirements and procedures
- Contract management requirements and procedures
- Communication requirements and procedures
- Administrative requirements and procedures
- Trenchless technology underground service repair and rehabilitation plant and equipment capabilities and application, including at least one of the following methods:
 - On-line replacement
 - Localised repair and sealing
 - Cure in-place lining
 - Spray lining
 - Slip lining
 - Renovation of large diameter pipes and chambers
- Plant, equipment and tools maintenance requirements and procedures
- Operational techniques for the execution for the repair and rehabilitation of underground service using trenchless technology tasks
- Trenchless technology underground service repair and rehabilitation resource requirements and procedures
- Activities scheduling requirements and procedures

- The repair and rehabilitation of underground service using trenchless technology materials delivery requirements and procedures
- Job plan drafting of and administration requirements and procedures
- Reporting requirements and procedures
- Workplace relationship requirements and procedures
- Organisational, client and site operational requirements
- Works planning techniques
- Engineering survey principles

- Relationship between various areas of civil works
- Team leadership techniques
- Trenchless technology underground service repair and rehabilitation monitoring methods

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. Bold italicised wording in the Performance Criteria is detailed below.

The repair and rehabilitation of underground service using trenchless technology may include:

- Water mains pipelines
- Stormwater systems, including:
 - Pipes
 - Box culverts
 - Pre-cast gully pits
- Sewage pipelines
- Pre-cast access chambers
- Gas pipelines
- Other conduits for services such as:
 - Telecommunication cables
 - Data cables
 - Power cables

Trenchless technology repair and rehabilitation may include:

- On-line replacement
- Localised repair and sealing
- Cure in-place lining
- Spray lining
- Close-fit lining

- Slip lining
 - Renovation of large diameter pipes and chambers
- Legislative requirements* may include:
- Requirements included in both legislation and regulations
 - Federal, State and Local Government legislation and regulations
- Legislative, organisational, client and manufacturers requirements and procedures* may include:
- Risk assessment and management requirements and procedures
 - Statutory compliance requirements and procedures, including:
 - Equal Employment Opportunity
 - Disability Discrimination
 - Planning and development
 - Occupational Health and Safety requirements and procedures, including:
 - Workplace safety
 - Dangerous goods
 - Occupational licensing
 - Material Safety Data Sheets
 - Traffic management requirements and procedures
 - Environmental management requirements and procedures
 - Cultural and heritage requirements and procedures
 - Quality requirements and procedures
 - Australian and other relevant standards
 - Current industry best practice
 - Communication requirements and procedures
 - Procurement requirements and procedures
 - Employment requirements and procedures
 - Workplace relations requirements and procedures
 - Contract management requirements and procedures
 - Administration requirements and procedures, including records and reporting
 - Maintenance, servicing, and housekeeping requirements and procedures

Specific task information and requirements may include:

- Site geological data
- Site geotechnical data
- Site hydrological data
- Site meteorological data
- Site engineering survey data
- Known and potential site hazards, constraints and conditions
- Site cultural and heritage information
- Task specifications
- Task drawings
- Sources of materials
- Other organisations and contractors involved in the task or related tasks
- Coordination, timing and budgeting requirements

Job plan may include:

- Human resource requirements
- Plant and machinery requirements
- Construction materials requirements
- Sub-contractor support requirements
- Waste disposal requirements
- Coordination requirements
- Activity scheduling
- Materials delivery scheduling
- Risk assessment and management requirements
- Occupational Health and Safety requirements
- Shoring requirements
- Slope management requirements
- Requirements for the location of existing underground services
- Quality management requirements, including testing scheduling requirements
- Traffic management requirements
- Environmental requirements
- Task monitoring requirements
- Task performance monitoring requirements
- Communication requirements

- Reporting requirements
- Teams members** may include:
- Other members of the organisation’s management team
 - Members of the team directly involved in the task
 - Suppliers representatives
 - Sub-contractors representatives
 - Supervisors or managers of other organisations who are involved in related tasks
- Resources** may include:
- Labour
 - Plant, equipment and tools
 - Highway haulage vehicles
 - Construction materials
 - Shoring materials
 - Sub-contractor services
- Instructions** may include:
- Briefings
 - Handovers
 - Work orders
 - Toolbox meetings
 - Site meetings
- Monitor** may include:
- Ongoing risk assessment
 - Engineering survey
 - Laser tracking
 - CCTV
 - Sampling and testing
 - Observation and recording
 - General supervision
- Required outcomes** may include:
- Task specifications requirements
 - Task drawings requirements
 - Coordination requirements
 - Activity scheduling requirements
 - Unit cost requirements
 - Overall task cost requirements
 - Waste management requirements

Initiate may include:

- Written communication
- Oral communication

The repair and rehabilitation of underground service using trenchless technology practice may include:

- Site preparation methods
- Methods for location of existing underground services
- Launch and reception pit excavation methods
- Shoring methods
- Slope management methods
- Pipe and chamber cleaning
- CCTV inspection
- On-line replacement procedures
- Localised repair and sealing procedures
- Cure in-place lining procedures
- Spray lining procedures
- Close-fit lining procedures
- Slip lining procedures
- Large diameter pipes and chambers renovation procedures
- Site cleanup
- Sediment control methods

EVIDENCE GUIDE

The Evidence Guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for this Training Package.

Overview of assessment

- To demonstrate competence in this unit a person must be able to provide evidence that they can successfully apply the principles for the repair and rehabilitation of underground service using trenchless technology:
- Assessment may be contextualised for the circumstances where a person is:
 - Acting as a technical specialist in the repair and rehabilitation of underground service using trenchless technology
 - Acting as a principal's supervisor for the repair and rehabilitation of underground service using trenchless technology tasks
 - Acting as a contractor's supervisor of sub-contractors carrying out for the repair and rehabilitation of underground service using trenchless technology tasks

Critical aspects of assessment and evidence required to demonstrate competency in this unit

- Directly supervising a team or teams carrying out the repair and rehabilitation of underground service using trenchless technology tasks
- The evidence required to demonstrate competency in this unit must be relevant to worksite operations and satisfy all of the requirements of the Performance Criteria, Required Skills and Knowledge and the Range Statement of this unit and include evidence of the following:
 - Knowledge of the requirements, procedures and instructions that are to apply in undertaking the repair and rehabilitation of underground service using trenchless technology tasks
 - Implementation of appropriate procedures and techniques for the safe, effective and efficient achievement of the required outcomes for the repair and rehabilitation of underground service using trenchless technology tasks
 - Working with others to plan, prepare and execute the repair and rehabilitation of underground service using trenchless technology tasks
 - Job plans which reflect the requirements of the repair and rehabilitation of underground service using trenchless technology task and are capable of achieving all of their required outcomes
 - Resource plans which have made available adequate resources for the safe, effective and efficient execution for the repair and rehabilitation of underground service using trenchless technology tasks
 - Provision of clear and timely instruction and supervision by the individual of those involved in the undertaking of these the repair and rehabilitation of underground service using trenchless technology task
 - Evidence of the consistent successful completion for the repair and rehabilitation of underground service using trenchless technology tasks

Context of and specific resources for assessment

- This unit should be assessed in the context of the work environment wherever possible. Where this is not possible, assessment may occur in a simulated environment. Evidence for assessment is best gathered using the outcomes of products and processes of the workplace context.
- The assessment environment should not disadvantage the participant. For example, language, literacy and numeracy demands of assessment should not be greater than those required on the job.

- Assessment of this competency requires typical resources normally used in a civil works environment. Selection and use of resources for particular work sites may differ due to site circumstances.
- Where applicable, physical resources should include equipment modified for people with disabilities.
- Access must be provided to appropriate learning and/or assessment support when required.

Methods of assessment

- This unit maybe assessed in a holistic way with other units of competency
- The suggested strategies for the assessment of this unit are:
 - Written and/or oral assessment of the candidate's required knowledge
 - Observed, documented and/or first hand testimonial evidence of the candidate's:
 - implementation of appropriate procedures and techniques for the safe, effective and efficient achievement of the required outcomes for the repair and rehabilitation of underground service using trenchless technology tasks
 - job plans which reflect the requirements for the repair and rehabilitation of underground service using trenchless technology tasks and are capable of achieving all of their required outcomes
 - resource plans which have made available adequate resources for the safe, effective and efficient execution for the repair and rehabilitation of underground service using trenchless technology tasks
 - consistent successful completion for the repair and rehabilitation of underground service using trenchless technology tasks
 - First hand testimonial evidence of the candidate
 - working with others to plan, prepare and execute the repair and rehabilitation of underground service using trenchless technology tasks
 - providing clear and timely instructions to those involved in the undertaking the repair and rehabilitation of underground service using trenchless technology tasks
- Meaningful contribution to the review and improvement of civil works schedule of rates processes

- Where practical assessment is used it will be combined with targeted questioning to assess the required knowledge
- Questioning should be appropriate to the oracy, language and literacy levels of the applicant being assessed and should reflect the requirements of the competency and the work being performed. Assessors should be aware of any cultural issues that may affect responses to the questions
- Where performance is not directly observed and/or is required to be demonstrated over a period of time and/or in a number of locations, any evidence should be authenticated by colleagues, supervisors, clients or other appropriate persons
- Assessment should also reinforce the integration of the Employability Skills

RIICC424A Apply the principles of tunnel construction

Unit Descriptor This unit covers the supervision of tunnel construction tasks. It includes the requirements for ensuring that the planning, preparing, initiating, monitoring, adjusting and reporting of tunnel construction tasks are carried out in accordance with the accepted industry principles.

Employability Skills The required outcomes described in this Unit of Competency contain applicable facets of employability skills. The Employability Skills Qualification Summary for the qualification in which this Unit of Competency is packaged will assist in identifying employability skill requirements.

Application of the unit This unit is applicable for those who perform the duties of:

- Acting as a technical specialist in tunnel construction
- Acting as a principal's supervisor of tunnel construction tasks
- Acting as a contractor's supervisor of sub-contractors carrying out of tunnel construction tasks
- Directly supervising a team or teams carrying out tunnel construction tasks.

ELEMENT

Elements describe the essential outcomes of a Unit of Competency

1. Ensure appropriate planning and preparation is carried out for tunnel construction tasks

PERFORMANCE CRITERIA

Performance Criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the Required Skills and Knowledge and/or the Range Statement. Assessment of performance is to be consistent with the Evidence Guide.

- 1.1 Access, interpret and clarify the ***legislative, organisational and manufacturers' requirements and procedures*** relevant to undertaking tunnel construction tasks.
- 1.2 Access, interpret and clarify the ***specific task information and requirements*** relevant to undertaking the tunnel construction task.
- 1.3 Ensure a ***job plan***, is available which makes best use of the available resources and meets the tunnel construction task requirements.

2. Ensure appropriate initiation of tunnel construction tasks is carried out
 - 2.1 Confirm that the necessary *resources* are available for the safe, effective and efficient conduct of the tunnel construction task, in accordance with the relevant *legislative, organisational, client and manufacturers' requirements and procedures* and the *specific task information and requirements*.
 - 2.2 Ensure clear and timely *instructions* are communicated to *team members* and others involved, for the safe, effective and efficient conduct of the tunnel construction task, to meet the *specific task requirements* and the relevant *legislative, organisational, client and manufacturers' requirements and procedures*.
3. Monitor, adjust, communicate and report on the execution of tunnel construction tasks
 - 3.1 Ensure relevant *legislative, organisational, client and manufacturers' requirements and procedures* are applied for the safe, effective and efficient execution of the tunnel construction tasks, in accordance with the *specific task requirements*.
 - 3.2 *Monitor* tunnel construction task performance to ensure it achieves the *required outcomes*.
 - 3.3 *Initiate* adjustments to *tunnel construction practice* or *job plan* to ensure safe execution of work and achievement of *required outcomes*.
 - 3.4 Ensure plant equipment and tools maintenance requirements are carried out and recorded in accordance with *relevant legislative, organisational, client and manufacturers' requirements*.
 - 3.5 Complete and submit reports as required by *relevant legislative, organisational, client and task requirements*.
 - 3.6 Recommend changes to improve the safety, efficiency and effectiveness of the execution of *tunnel construction tasks*.

REQUIRED SKILLS AND KNOWLEDGE

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

Required Skills

Specific skills are required to achieve the Performance Criteria of this unit, particularly for their application in the variety of circumstances in which this unit may be applied.

This includes the ability to carry out the following, as required for the safe, effective and efficient execution of tunnel construction:

- Interpreting legislative requirements and procedures
- Interpreting organisational requirements and procedures
- Interpreting client requirements and procedures
- Interpreting manufacturers' requirements and procedures
- Interpreting tunnel construction project site geological data
- Interpreting tunnel construction project site geotechnical data
- Interpreting tunnel construction project site hydrological data
- Interpreting tunnel construction site meteorological data
- Interpreting tunnel construction project engineering survey information
- Interpreting tunnel construction project plans and drawings
- Interpreting tunnel construction project specifications
- Preparing for and conducting of briefings, toolbox and site meeting
- Preparing short messages
- Preparing and presenting job reports
- Preparing and maintaining log books and diaries
- Providing leadership
- Applying tunnel construction performance monitoring skills
- Calculating quantities for the execution of tunnel construction tasks, including:
 - Volumes
 - Grades
 - Percentages
 - Areas
 - Resource consumption figures
- Interpreting tunnel construction materials properties and test results
- Providing recommendations for the improvement of the safe, effective and efficient execution of tunnel construction tasks

Required Knowledge

Specific knowledge is required to achieve the Performance Criteria of this unit, particularly for their application in the variety of circumstances in which this unit may be applied.

This includes knowledge of the following, as required for the safe, effective and efficient execution of tunnel construction tasks:

- Risk assessment and management requirement and procedures
- Statutory compliance requirements and procedures
- Occupational Health and Safety requirements and procedures
- Shoring requirements and procedures
- Slope management requirements and procedures
- Environmental management requirements and procedures
- Quality management requirements and procedures
- Work zone traffic management requirements and procedures
- Contract management requirements and procedures
- Communication requirements and procedures
- Administrative requirements and procedures
- Tunnel construction plant and equipment capabilities and application
- Plant, equipment and tools maintenance requirements and procedures
- Operational techniques for the execution of tunnel construction tasks
- Tunnel construction task resource requirements and procedures
- Activities scheduling requirements and procedures
- Tunnel construction materials delivery requirements and procedures
- Job plan drafting of and administration requirements and procedures
- Reporting requirements and procedures
- Workplace relationship requirements and procedures
- Organisational, client and site operational requirements
- Relationship between various areas of civil works
- Team leadership techniques
- Works planning techniques
- Tunnel construction monitoring methods
- Engineering survey principles

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. Bold italicised wording in the Performance Criteria is detailed below.

Tunnel construction
may include:

- Road tunnels
- Rail tunnels
- Pedestrian tunnels

Legislative requirements
may include:

- Underground services tunnels
- Requirements included in both legislation and regulations
- Federal, State and Local Government legislation and regulations

Legislative, organisational, client and manufacturers requirements and procedures may include:

- Risk assessment and management requirements and procedures
- Statutory compliance requirements and procedures, including:
 - Equal Employment Opportunity
 - Disability Discrimination
 - Planning and development
- Occupational Health and Safety requirements and procedures, including:
 - Workplace safety
 - Dangerous goods
 - Occupational licensing
 - Material Safety Data Sheets
- Traffic management requirements and procedures
- Environmental management requirements and procedures
- Cultural and heritage requirements and procedures
- Quality requirements and procedures
- Australian and other relevant standards
- Current industry best practice
- Communication requirements and procedures
- Procurement requirements and procedures
- Employment requirements and procedures
- Workplace relations requirements and procedures
- Contract management requirements and procedures
- Administration requirements and procedures, including records and reporting
- Maintenance, servicing, and housekeeping requirements and procedures

Specific task information and requirements
may include:

- Site geological data
- Site geotechnical data
- Site hydrological data

- Site meteorological data
- Site engineering survey data
- Known and potential site hazards, constraints and conditions
- Site cultural and heritage information
- Task specifications
- Task drawings
- Sources of materials
- Other organisations and contractors involved in the task or related tasks
- Coordination, timing and budgeting requirements

Job plan may include:

- Human resource requirements
- Plant and machinery requirements
- Construction materials requirements
- Sub-contractor support requirements
- Waste disposal requirements
- Coordination requirements
- Activity scheduling
- Materials delivery scheduling
- Risk assessment and management requirements
- Occupational Health and Safety requirements
- Shoring requirements
- Slope management requirements
- Quality management requirements, including testing scheduling requirements
- Traffic management requirements
- Environmental requirements
- Task monitoring requirements
- Task performance monitoring requirements
- Communication requirements
- Reporting requirements

Teams members may include:

- Other members of the organisation's management team
- Members of the team directly involved in the task
- Suppliers representatives

- Sub-contractors representatives
- Supervisors or managers of other organisations who are involved in related tasks

Resources may include:

- Labour
- Plant, equipment and tools
- Highway haulage vehicles
- Construction materials
- Shoring materials
- Sub-contractor services

Instructions may include:

- Briefings
- Handovers
- Work orders
- Toolbox meetings
- Site meetings

Monitor may include:

- Ongoing risk assessment
- Engineering survey
- Sampling and testing
- Observation and recording
- General supervision

Required outcomes may include:

- Task specifications requirements
- Task drawings requirements
- Coordination requirements
- Activity scheduling requirements
- Unit cost requirements
- Overall task cost requirements
- Waste management requirements

Initiate may include:

- Written communication
- Oral communication

Tunnel construction practice may include:

- Site preparation methods
- Extraction methods
- Shoring methods

- Slope management methods
- Load and haulage methods
- Placement methods
- Distribution methods
- Surface finishing methods
- Line, grade and level control methods
- Compaction and water application methods
- Sediment control methods

EVIDENCE GUIDE

The Evidence Guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for this Training Package.

Overview of assessment

- To demonstrate competence in this unit a person must be able to provide evidence that they can successfully apply the principles of tunnel construction:
- Assessment may be contextualised for the circumstances where a person is:
 - Acting as a technical specialist in tunnel construction
 - Acting as a principal's supervisor of tunnel construction tasks
 - Acting as a contractor's supervisor of sub-contractors carrying out of tunnel construction tasks
 - Directly supervising a team or teams carrying out tunnel construction tasks.

Critical aspects of assessment and evidence required to demonstrate competency in this unit

- The evidence required to demonstrate competency in this unit must be relevant to worksite operations and satisfy all of the requirements of the Performance Criteria, Required Skills and Knowledge and the Range Statement of this unit and include evidence of the following:
 - Knowledge of the requirements, procedures and instructions that are to apply in undertaking tunnel construction tasks
 - Implementation of appropriate procedures and techniques for the safe, effective and efficient achievement of the required outcomes of tunnel construction tasks
 - Working with others to plan, prepare and execute tunnel construction tasks

- Job plans which reflect the requirements of these tunnel construction tasks and are capable of achieving all of their required outcomes
- Resource plans which have made available adequate resources for the safe, effective and efficient execution of tunnel construction tasks
- Provision of clear and timely instruction and supervision by the individual of those involved in the undertaking of these tunnel construction task
- Evidence of the consistent successful completion of tunnel construction tasks

Context of and specific resources for assessment

- This unit should be assessed in the context of the work environment wherever possible. Where this is not possible, assessment may occur in a simulated environment. Evidence for assessment is best gathered using the outcomes of products and processes of the workplace context.
- The assessment environment should not disadvantage the participant. For example, language, literacy and numeracy demands of assessment should not be greater than those required on the job.
- Assessment of this competency requires typical resources normally used in a civil works environment. Selection and use of resources for particular work sites may differ due to site circumstances.
- Where applicable, physical resources should include equipment modified for people with disabilities.
- Access must be provided to appropriate learning and/or assessment support when required.

Methods of assessment

- This unit maybe assessed in a holistic way with other units of competency
- The suggested strategies for the assessment of this unit are:
 - Written and/or oral assessment of the candidate's required knowledge
 - Observed, documented and/or first hand testimonial evidence of the candidate's:
 - implementation of appropriate procedures and techniques for the safe, effective and efficient achievement of the required outcomes of tunnel construction tasks
 - job plans which reflect the requirements of tunnel construction tasks and are capable of achieving all of their required outcomes

- resource plans which have made available adequate resources for the safe, effective and efficient execution of tunnel construction tasks
- consistent successful completion of tunnel construction tasks
- First hand testimonial evidence of the candidate
 - working with others to plan, prepare and execute tunnel construction tasks
 - providing clear and timely instructions to those involved in the undertaking tunnel construction tasks
- Meaningful contribution to the review and improvement of civil works schedule of rates processes
- Where practical assessment is used it will be combined with targeted questioning to assess the required knowledge
- Questioning should be appropriate to the oracy, language and literacy levels of the applicant being assessed and should reflect the requirements of the competency and the work being performed. Assessors should be aware of any cultural issues that may affect responses to the questions
- Where performance is not directly observed and/or is required to be demonstrated over a period of time and/or in a number of locations, any evidence should be authenticated by colleagues, supervisors, clients or other appropriate persons
- Assessment should also reinforce the integration of the Employability Skills

RIICC425A Apply the principles of civil concrete structures construction

Unit Descriptor	This unit covers the supervision of civil concrete structures construction tasks. It includes the requirements for ensuring that the planning, preparing, initiating, monitoring, adjusting and reporting of civil concrete structures construction tasks are carried out in accordance with the accepted industry principles.
Employability Skills	The required outcomes described in this Unit of Competency contain applicable facets of employability skills. The Employability Skills Qualification Summary for the qualification in which this Unit of Competency is packaged will assist in identifying employability skill requirements.
Application of the unit	<p>This unit is applicable for those who perform the duties of:</p> <ul style="list-style-type: none"> • Acting as a technical specialist in civil concrete structures construction • Acting as a principal's supervisor of civil concrete structures construction tasks • Acting as a contractor's supervisor of sub-contractors carrying out of civil concrete structures construction tasks • Directly supervising a team or teams carrying out civil concrete structures construction tasks.

ELEMENT

Elements describe the essential outcomes of a Unit of Competency

1. Ensure appropriate planning and preparation is carried out for civil concrete structures construction tasks

PERFORMANCE CRITERIA

Performance Criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the Required Skills and Knowledge and/or the Range Statement. Assessment of performance is to be consistent with the Evidence Guide.

- 1.1 Access, interpret and clarify the ***legislative, organisational and manufacturers' requirements and procedures*** relevant to undertaking civil concrete structures construction tasks.
- 1.2 Access, interpret and clarify the ***specific task information and requirements*** relevant to undertaking the civil concrete structures construction task.
- 1.3 Ensure a ***job plan***, is available which makes best use of the available resources and meets the civil concrete structures construction task requirements.

- | | | | |
|----|--|-----|---|
| 2. | Ensure appropriate initiation of civil concrete structures construction tasks is carried out | 2.1 | Confirm that the necessary <i>resources</i> are available for the safe, effective and efficient conduct of the civil concrete structures construction task, in accordance with the relevant <i>legislative, organisational, client and manufacturers' requirements and procedures</i> and the <i>specific task information and requirements</i> . |
| | | 2.2 | Ensure clear and timely <i>instructions</i> are communicated to <i>team members</i> and others involved, for the safe, effective and efficient conduct of the civil concrete structures construction task, to meet the <i>specific task requirements</i> and the relevant <i>legislative, organisational, client and manufacturers' requirements and procedures</i> . |
| 3. | Monitor, adjust, communicate and report on the execution of civil concrete structures construction tasks | 3.1 | Ensure relevant <i>legislative, organisational, client and manufacturers' requirements and procedures</i> are applied for the safe, effective and efficient execution of the civil concrete structures construction tasks, in accordance with the specific <i>task requirements</i> . |
| | | 3.2 | <i>Monitor</i> civil concrete structures construction task performance to ensure it achieves the <i>required outcomes</i> . |
| | | 3.3 | <i>Initiate</i> adjustments to <i>civil concrete structures construction practice</i> or <i>job plan</i> to ensure safe execution of work and achievement of <i>required outcomes</i> . |
| | | 3.4 | Ensure plant equipment and tools maintenance requirements are carried out and recorded in accordance with <i>relevant legislative, organisational, client and manufacturers' requirements</i> . |
| | | 3.5 | Complete and submit reports as required by <i>relevant legislative, organisational, client and task requirements</i> . |
| | | 3.6 | Recommend changes to improve the safety, efficiency and effectiveness of the execution of <i>civil concrete structures construction tasks</i> . |

REQUIRED SKILLS AND KNOWLEDGE

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

Required Skills

Specific skills are required to achieve the Performance Criteria of this unit, particularly for their application in the variety of circumstances in which this unit may be applied.

This includes the ability to carry out the following, as required for the safe, effective and efficient execution of civil concrete structures construction:

- Interpreting legislative requirements and procedures
- Interpreting organisational requirements and procedures
- Interpreting client requirements and procedures
- Interpreting manufacturers' requirements and procedures
- Interpreting civil concrete structures construction project site geological data
- Interpreting civil concrete structures construction project site geotechnical data
- Interpreting civil concrete structures construction site meteorological data
- Interpreting civil concrete structures construction project engineering survey information
- Interpreting civil concrete structures construction project plans and drawings
- Interpreting civil concrete structures construction project specifications
- Preparing for and conducting of briefings, toolbox and site meeting
- Preparing short messages
- Preparing and presenting job reports
- Preparing and maintaining log books and diaries
- Providing leadership
- Applying civil concrete structures construction performance monitoring skills
- Calculating quantities for the execution of civil concrete structures construction tasks, including:
 - Volumes
 - Grades
 - Percentages
 - Areas
 - Resource consumption figures
- Interpreting civil concrete structures construction materials properties and test results, including:
 - Concrete slump tests
 - Concrete cylinder tests
- Providing recommendations for the improvement of the safe, effective and efficient execution of civil concrete structures construction tasks

Required Knowledge

Specific knowledge is required to achieve the Performance Criteria of this unit, particularly for their application in the variety of circumstances in which this unit may be applied.

This includes knowledge of the following, as required for the safe, effective and efficient execution of civil concrete structures construction tasks:

- Risk assessment and management requirement and procedures
- Statutory compliance requirements and procedures
- Occupational Health and Safety requirements and procedures
- Excavation shoring requirements and procedures
- Slope management requirements and procedures
- Formwork requirements and procedures
- Environmental management requirements and procedures
- Quality management requirements and procedures
- Work zone traffic management requirements and procedures
- Contract management requirements and procedures
- Communication requirements and procedures
- Administrative requirements and procedures
- Civil concrete structures construction plant and equipment capabilities and application
- Plant, equipment and tools maintenance requirements and procedures
- Operational techniques for the execution of civil concrete structures construction tasks
- Civil concrete structures construction task resource requirements and procedures
- Activities scheduling requirements and procedures
- Civil concrete structures construction materials delivery requirements and procedures
- Job plan drafting of and administration requirements and procedures
- Reporting requirements and procedures
- Workplace relationship requirements and procedures
- Organisational, client and site operational requirements
- Relationship between various areas of civil works
- Team leadership techniques
- Works planning techniques
- Civil concrete structures construction monitoring methods
- Engineering survey principles

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. Bold italicised wording in the Performance Criteria is detailed below.

Civil concrete structures construction may include:

- Bridges
- Jetties and wharves
- Retaining walls
- Water storage tanks and small dams
- Noise barriers
- Culverts
- Safety barriers
- Foundations

Legislative requirements may include:

- Requirements included in both legislation and regulations
- Federal, State and Local Government legislation and regulations

Legislative, organisational, client and manufacturers requirements and procedures may include:

- Risk assessment and management requirements and procedures
- Statutory compliance requirements and procedures, including:
 - Equal Employment Opportunity
 - Disability Discrimination
 - Planning and development
- Occupational Health and Safety requirements and procedures, including:
 - Workplace safety
 - Dangerous goods
 - Occupational licensing
 - Material Safety Data Sheets
- Traffic management requirements and procedures
- Environmental management requirements and procedures
- Cultural and heritage requirements and procedures
- Quality requirements and procedures
- Australian and other relevant standards
- Current industry best practice
- Communication requirements and procedures

- Procurement requirements and procedures
- Employment requirements and procedures
- Workplace relations requirements and procedures
- Contract management requirements and procedures
- Administration requirements and procedures, including records and reporting
- Maintenance, servicing, and housekeeping requirements and procedures

Specific task information and requirements may include:

- Site geological data
- Site geotechnical data
- Site meteorological data
- Site engineering survey data
- Known and potential site hazards, constraints and conditions
- Site cultural and heritage information
- Task specifications
- Task drawings
- Sources of materials
- Other organisations and contractors involved in the task or related tasks
- Coordination, timing and budgeting requirements

Job plan may include:

- Human resource requirements
- Plant and machinery requirements
- Construction materials requirements
- Sub-contractor support requirements
- Waste disposal requirements
- Coordination requirements
- Activity scheduling
- Materials delivery scheduling
- Risk assessment and management requirements
- Occupational Health and Safety requirements
- Excavation shoring requirements
- Slope management requirements
- Formwork requirements

- Quality management requirements, including testing scheduling requirements
- Traffic management requirements
- Environmental requirements
- Task monitoring requirements
- Task performance monitoring requirements
- Communication requirements
- Reporting requirements

Teams members may include:

- Other members of the organisation’s management team
- Members of the team directly involved in the task
- Suppliers representatives
- Sub-contractors representatives
- Supervisors or managers of other organisations who are involved in related tasks

Resources may include:

- Labour
- Plant, equipment and tools
- Highway haulage vehicles
- Construction materials
- Shoring materials
- Formwork materials
- Sub-contractor services

Instructions may include:

- Briefings
- Handovers
- Work orders
- Toolbox meetings
- Site meetings

Monitor may include:

- Ongoing risk assessment
- Engineering survey
- Sampling and testing
- Observation and recording
- General supervision

Required outcomes may include:

- Task specifications requirements

- Task drawings requirements
- Coordination requirements
- Activity scheduling requirements
- Unit cost requirements
- Overall task cost requirements
- Waste management requirements

Initiate may include:

- Written communication
- Oral communication

Civil concrete structures construction practice may include:

- Site preparation methods
- Site set out methods
- Excavation methods
- Shoring methods
- Slope management methods
- Formwork installation methods
- Reinforcement placement methods
- Concrete transport, placement, compaction and finishing methods
- Concrete curing methods
- Formwork stripping methods

EVIDENCE GUIDE

The Evidence Guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for this Training Package.

Overview of assessment

- To demonstrate competence in this unit a person must be able to provide evidence that they can successfully apply the principles of civil concrete structures construction:
- Assessment may be contextualised for the circumstances where a person is:
 - Acting as a technical specialist in civil concrete structures construction
 - Acting as a principal's supervisor of civil concrete structures construction tasks
 - Acting as a contractor's supervisor of sub-contractors carrying out of civil concrete structures construction tasks

- Directly supervising a team or teams carrying out civil concrete structures construction tasks

Critical aspects of assessment and evidence required to demonstrate competency in this unit

- The evidence required to demonstrate competency in this unit must be relevant to worksite operations and satisfy all of the requirements of the Performance Criteria, Required Skills and Knowledge and the Range Statement of this unit and include evidence of the following:
 - Knowledge of the requirements, procedures and instructions that are to apply in undertaking civil concrete structures construction tasks
 - Implementation of appropriate procedures and techniques for the safe, effective and efficient achievement of the required outcomes of civil concrete structures construction tasks
 - Working with others to plan, prepare and execute civil concrete structures construction tasks
 - Job plans which reflect the requirements of these civil concrete structures construction task and are capable of achieving all of their required outcomes
 - Resource plans which have made available adequate resources for the safe, effective and efficient execution of civil concrete structures construction tasks
 - Provision of clear and timely instruction and supervision by the individual of those involved in the undertaking of these civil concrete structures construction task
 - Evidence of the consistent successful completion of civil concrete structures construction tasks

Context of and specific resources for assessment

- This unit should be assessed in the context of the work environment wherever possible. Where this is not possible, assessment may occur in a simulated environment. Evidence for assessment is best gathered using the outcomes of products and processes of the workplace context.
- The assessment environment should not disadvantage the participant. For example, language, literacy and numeracy demands of assessment should not be greater than those required on the job.
- Assessment of this competency requires typical resources normally used in a civil works environment. Selection and use of resources for particular work sites may differ due to site circumstances.

- Where applicable, physical resources should include equipment modified for people with disabilities.
- Access must be provided to appropriate learning and/or assessment support when required.

Methods of assessment

- This unit may be assessed in a holistic way with other units of competency
- The suggested strategies for the assessment of this unit are:
 - Written and/or oral assessment of the candidate's required knowledge
 - Observed, documented and/or first hand testimonial evidence of the candidate's:
 - implementation of appropriate procedures and techniques for the safe, effective and efficient achievement of the required outcomes of civil concrete structures construction tasks
 - job plans which reflect the requirements of civil concrete structures construction tasks and are capable of achieving all of their required outcomes
 - resource plans which have made available adequate resources for the safe, effective and efficient execution of civil concrete structures construction tasks
 - consistent successful completion of civil concrete structures construction tasks
 - First hand testimonial evidence of the candidate
 - working with others to plan, prepare and execute civil concrete structures construction tasks
 - providing clear and timely instructions to those involved in the undertaking civil concrete structures construction tasks.
- Meaningful contribution to the review and improvement of civil works schedule of rates processes
- Where practical assessment is used it will be combined with targeted questioning to assess the required knowledge
- Questioning should be appropriate to the oracy, language and literacy levels of the applicant being assessed and should reflect the requirements of the competency and the work being performed. Assessors should be aware of any cultural issues that may affect responses to the questions
- Where performance is not directly observed and/or is required to be demonstrated over a period of time and/or

in a number of locations, any evidence should be authenticated by colleagues, supervisors, clients or other appropriate persons

- Assessment should also reinforce the integration of the Employability Skills

RIICC426A Apply the principles of civil steel structures construction

Unit Descriptor	This unit covers the supervision of civil steel structures construction tasks. It includes the requirements for ensuring that the planning, preparing, initiating, monitoring, adjusting and reporting of civil steel structures construction tasks are carried out in accordance with the accepted industry principles.
Employability Skills	The required outcomes described in this Unit of Competency contain applicable facets of employability skills. The Employability Skills Qualification Summary for the qualification in which this Unit of Competency is packaged will assist in identifying employability skill requirements.
Application of the unit	<p>This unit is applicable for those who perform the duties of:</p> <ul style="list-style-type: none"> • Acting as a technical specialist in civil steel structures construction • Acting as a principal's supervisor of civil steel structures construction tasks • Acting as a contractor's supervisor of sub-contractors carrying out of civil steel structures construction tasks • Directly supervising a team or teams carrying out civil steel structures construction tasks.

ELEMENT

Elements describe the essential outcomes of a Unit of Competency

1. Ensure appropriate planning and preparation is carried out for civil steel structures construction tasks

PERFORMANCE CRITERIA

Performance Criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the Required Skills and Knowledge and/or the Range Statement. Assessment of performance is to be consistent with the Evidence Guide.

- 1.1 Access, interpret and clarify the ***legislative, organisational and manufacturers' requirements and procedures*** relevant to undertaking civil steel structures construction tasks.
- 1.2 Access, interpret and clarify the ***specific task information and requirements*** relevant to undertaking the civil steel structures construction task.
- 1.3 Ensure a ***job plan***, is available which makes best use of the available resources and meets the civil steel structures construction task requirements.

- | | | | |
|----|---|-----|--|
| 2. | Ensure appropriate initiation of civil steel structures construction tasks is carried out | 2.1 | Confirm that the necessary <i>resources</i> are available for the safe, effective and efficient conduct of the civil steel structures construction task, in accordance with the relevant <i>legislative, organisational, client and manufacturers' requirements and procedures</i> and the <i>specific task information and requirements</i> . |
| | | 2.2 | Ensure clear and timely <i>instructions</i> are communicated to <i>team members</i> and others involved, for the safe, effective and efficient conduct of the civil steel structures construction task, to meet the <i>specific task requirements</i> and the relevant <i>legislative, organisational, client and manufacturers' requirements and procedures</i> . |
| 3. | Monitor, adjust, communicate and report on the execution of civil steel structures construction tasks | 3.1 | Ensure relevant <i>legislative, organisational, client and manufacturers' requirements and procedures</i> are applied for the safe, effective and efficient execution of the civil steel structures construction tasks, in accordance with the specific <i>task requirements</i> . |
| | | 3.2 | <i>Monitor</i> civil steel structures construction task performance to ensure it achieves the <i>required outcomes</i> . |
| | | 3.3 | <i>Initiate</i> adjustments to <i>civil steel structures construction practice</i> or <i>job plan</i> to ensure safe execution of work and achievement of <i>required outcomes</i> . |
| | | 3.4 | Ensure plant equipment and tools maintenance requirements are carried out and recorded in accordance with <i>relevant legislative, organisational, client and manufacturers' requirements</i> . |
| | | 3.5 | Complete and submit reports as required by <i>relevant legislative, organisational, client and task requirements</i> . |
| | | 3.6 | Recommend changes to improve the safety, efficiency and effectiveness of the execution of <i>civil steel structures construction tasks</i> . |

REQUIRED SKILLS AND KNOWLEDGE

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

Required Skills

Specific skills are required to achieve the Performance Criteria of this unit, particularly for their application in the variety of circumstances in which this unit may be applied.

This includes the ability to carry out the following, as required for the safe, effective and efficient execution of civil steel structures construction:

- Interpreting legislative requirements and procedures
- Interpreting organisational requirements and procedures
- Interpreting client requirements and procedures
- Interpreting manufacturers' requirements and procedures
- Interpreting civil steel structures construction project site geological data
- Interpreting civil steel structures construction site meteorological data
- Interpreting civil steel structures construction project engineering survey information
- Interpreting civil steel structures construction project plans and drawings
- Interpreting civil steel structures construction project specifications
- Preparing for and conducting of briefings, toolbox and site meeting
- Preparing short messages
- Preparing and presenting job reports
- Preparing and maintaining log books and diaries
- Providing leadership
- Applying civil steel structures construction performance monitoring skills
- Calculating quantities for the execution of civil steel structures construction tasks, including:
 - Volumes
 - Grades
 - Percentages
 - Areas
 - Resource consumption figures
- Interpreting civil steel structures construction materials properties and test results
- Providing recommendations for the improvement of the safe, effective and efficient execution of civil steel structures construction tasks

Required Knowledge

Specific knowledge is required to achieve the Performance Criteria of this unit, particularly for their application in the variety of circumstances in which this unit may be applied.

This includes knowledge of the following, as required for the safe, effective and efficient execution of civil steel structures construction tasks:

- Risk assessment and management requirement and procedures

- Statutory compliance requirements and procedures
- Occupational Health and Safety requirements and procedures
- Environmental management requirements and procedures
- Quality management requirements and procedures
- Work zone traffic management requirements and procedures
- Contract management requirements and procedures
- Communication requirements and procedures
- Administrative requirements and procedures
- Civil steel structures construction plant and equipment capabilities and application
- Plant, equipment and tools maintenance requirements and procedures
- Operational techniques for the execution of civil steel structures construction tasks
- Civil steel structures construction task resource requirements and procedures
- Activities scheduling requirements and procedures
- Civil steel structures construction materials delivery requirements and procedures
- Job plan drafting of and administration requirements and procedures
- Reporting requirements and procedures
- Workplace relationship requirements and procedures
- Organisational, client and site operational requirements
- Relationship between various areas of civil works
- Team leadership techniques
- Works planning techniques
- Civil steel structures construction monitoring methods
- Engineering survey principles

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. Bold italicised wording in the Performance Criteria is detailed below.

- Civil steel structures construction*** may include:
- Bridges
 - Jetties
 - Sign gantries
 - Vertical sign supports
 - Noise barrier supports

Legislative requirements may include:

- Requirements included in both legislation and regulations
- Federal, State and Local Government legislation and regulations

Legislative, organisational, client and manufacturers requirements and procedures may include:

- Risk assessment and management requirements and procedures
- Statutory compliance requirements and procedures, including:
 - Equal Employment Opportunity
 - Disability Discrimination
 - Planning and development
- Occupational Health and Safety requirements and procedures, including:
 - Workplace safety
 - Dangerous goods
 - Occupational licensing
 - Material Safety Data Sheets
- Traffic management requirements and procedures
- Environmental management requirements and procedures
- Cultural and heritage requirements and procedures
- Quality requirements and procedures
- Australian and other relevant standards
- Current industry best practice
- Communication requirements and procedures
- Procurement requirements and procedures
- Employment requirements and procedures
- Workplace relations requirements and procedures
- Contract management requirements and procedures
- Administration requirements and procedures, including records and reporting
- Maintenance, servicing, and housekeeping requirements and procedures

Specific task information and requirements may include:

- Site geological data
- Site meteorological data
- Site engineering survey data

- Known and potential site hazards, constraints and conditions
- Site cultural and heritage information
- Task specifications
- Task drawings
- Sources of materials

- Other organisations and contractors involved in the task or related tasks
- Coordination, timing and budgeting requirements

Job plan may include:

- Human resource requirements
- Plant and machinery requirements
- Construction materials requirements
- Sub-contractor support requirements
- Waste disposal requirements
- Coordination requirements
- Activity scheduling
- Materials delivery scheduling
- Risk assessment and management requirements
- Occupational Health and Safety requirements
- Quality management requirements, including testing scheduling requirements
- Traffic management requirements
- Environmental requirements
- Task monitoring requirements
- Task performance monitoring requirements
- Communication requirements
- Reporting requirements

Teams members may include:

- Other members of the organisation's management team
- Members of the team directly involved in the task
- Suppliers representatives
- Sub-contractors representatives
- Supervisors or managers of other organisations who are involved in related tasks

- Resources** may include:
- Labour
 - Plant, equipment and tools
 - Highway haulage vehicles
 - Construction materials
 - Sub-contractor services

- Instructions** may include:
- Briefings
 - Handovers
 - Work orders
 - Toolbox meetings
 - Site meetings

- Monitor** may include:
- Ongoing risk assessment
 - Engineering survey
 - Observation and recording
 - General supervision

- Required outcomes** may include:
- Task specifications requirements
 - Task drawings requirements
 - Coordination requirements
 - Activity scheduling requirements
 - Unit cost requirements
 - Overall task cost requirements
 - Waste management requirements

- Initiate** may include:
- Written communication
 - Oral communication

- Civil steel structures construction practice** may include:
- Site preparation methods
 - Site set out methods
 - Steel transport, placement, support, fixing methods

EVIDENCE GUIDE

The Evidence Guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for this Training Package.

Overview of assessment To demonstrate competence in this unit a person must be able to provide evidence that they can successfully apply the principles of civil steel structures construction.

- Assessment may be contextualised for the circumstances where a person is:
 - Acting as a technical specialist in civil steel structures construction
 - Acting as a principal's supervisor of civil steel structures construction tasks
 - Acting as a contractor's supervisor of sub-contractors carrying out of civil steel structures construction tasks
 - Directly supervising a team or teams carrying out civil steel structures construction tasks.

Critical aspects of assessment and evidence required to demonstrate competency in this unit

- The evidence required to demonstrate competency in this unit must be relevant to worksite operations and satisfy all of the requirements of the Performance Criteria, Required Skills and Knowledge and the Range Statement of this unit and include evidence of the following:
 - Knowledge of the requirements, procedures and instructions that are to apply in undertaking civil steel structures construction tasks
 - Implementation of appropriate procedures and techniques for the safe, effective and efficient achievement of the required outcomes of civil steel structures construction tasks
 - Working with others to plan, prepare and execute civil steel structures construction tasks
 - Job plans which reflect the requirements of these civil steel structures construction tasks and are capable of achieving all of their required outcomes
 - Resource plans which have made available adequate resources for the safe, effective and efficient execution of civil steel structures construction tasks
 - Provision of clear and timely instruction and supervision by the individual of those involved in the undertaking of these civil steel structures construction task
 - Evidence of the consistent successful completion of civil steel structures construction tasks

Context of and specific resources for assessment

- This unit should be assessed in the context of the work environment wherever possible. Where this is not possible, assessment may occur in a simulated environment. Evidence for assessment is best gathered using the outcomes of products and processes of the workplace context.

- The assessment environment should not disadvantage the participant. For example, language, literacy and numeracy demands of assessment should not be greater than those required on the job.
- Assessment of this competency requires typical resources normally used in a civil works environment. Selection and use of resources for particular work sites may differ due to site circumstances.
- Where applicable, physical resources should include equipment modified for people with disabilities.
- Access must be provided to appropriate learning and/or assessment support when required.

Methods of assessment

- This unit maybe assessed in a holistic way with other units of competency
- The suggested strategies for the assessment of this unit are:
 - Written and/or oral assessment of the candidate's required knowledge
 - Observed, documented and/or first hand testimonial evidence of the candidate's:
 - implementation of appropriate procedures and techniques for the safe, effective and efficient achievement of the required outcomes of civil steel structures construction tasks
 - Job plans which reflect the requirements of civil steel structures construction tasks and are capable of achieving all of their required outcomes
 - Resource plans which have made available adequate resources for the safe, effective and efficient execution of civil steel structures construction tasks
 - Consistent successful completion of civil steel structures construction tasks
 - First hand testimonial evidence of the candidate
 - working with others to plan, prepare and execute civil steel structures construction tasks
 - providing clear and timely instructions to those involved in the undertaking civil steel structures construction tasks
- Meaningful contribution to the review and improvement of civil works schedule of rates processes

- Where practical assessment is used it will be combined with targeted questioning to assess the required knowledge
- Questioning should be appropriate to the oracy, language and literacy levels of the applicant being assessed and should reflect the requirements of the competency and the work being performed. Assessors should be aware of any cultural issues that may affect responses to the questions
- Where performance is not directly observed and/or is required to be demonstrated over a period of time and/or in a number of locations, any evidence should be authenticated by colleagues, supervisors, clients or other appropriate persons
- Assessment should also reinforce the integration of the Employability Skills

RIICC427A Apply the principles of civil timber structures construction

Unit Descriptor	This unit covers the supervision of civil timber structures construction tasks. It includes the requirements for ensuring that the planning, preparing, initiating, monitoring, adjusting and reporting of civil timber structures construction tasks are carried out in accordance with the accepted industry principles.
Employability Skills	The required outcomes described in this Unit of Competency contain applicable facets of employability skills. The Employability Skills Qualification Summary for the qualification in which this Unit of Competency is packaged will assist in identifying employability skill requirements.
Application of the unit	<p>This unit is applicable for those who perform the duties of:</p> <ul style="list-style-type: none"> • Acting as a technical specialist in civil timber structures construction • Acting as a principal's supervisor of civil timber structures construction tasks • Acting as a contractor's supervisor of sub-contractors carrying out of civil timber structures construction tasks • Directly supervising a team or teams carrying out civil timber structures construction tasks.

ELEMENT

Elements describe the essential outcomes of a Unit of Competency

1. Ensure appropriate planning and preparation is carried out for civil timber structures construction tasks

PERFORMANCE CRITERIA

Performance Criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the Required Skills and Knowledge and/or the Range Statement. Assessment of performance is to be consistent with the Evidence Guide.

- 1.1 Access, interpret and clarify the ***legislative, organisational and manufacturers' requirements and procedures*** relevant to undertaking civil timber structures construction tasks.
- 1.2 Access, interpret and clarify the ***specific task information and requirements*** relevant to undertaking the civil timber structures construction task.
- 1.3 Ensure a ***job plan***, is available which makes best use of the available resources and meets the civil timber structures construction task requirements.

- | | | | |
|----|--|-----|---|
| 2. | Ensure appropriate initiation of civil timber structures construction tasks is carried out | 2.1 | Confirm that the necessary <i>resources</i> are available for the safe, effective and efficient conduct of the civil timber structures construction task, in accordance with the relevant <i>legislative, organisational, client and manufacturers' requirements and procedures</i> and the <i>specific task information and requirements</i> . |
| | | 2.2 | Ensure clear and timely <i>instructions</i> are communicated to <i>team members</i> and others involved, for the safe, effective and efficient conduct of the civil timber structures construction task, to meet the <i>specific task requirements</i> and the relevant <i>legislative, organisational, client and manufacturers' requirements and procedures</i> . |
| 3. | Monitor, adjust, communicate and report on the execution of civil timber structures construction tasks | 3.1 | Ensure relevant <i>legislative, organisational, client and manufacturers' requirements and procedures</i> are applied for the safe, effective and efficient execution of the civil timber structures construction tasks, in accordance with the specific <i>task requirements</i> . |
| | | 3.2 | <i>Monitor</i> civil timber structures construction task performance to ensure it achieves the <i>required outcomes</i> . |
| | | 3.3 | <i>Initiate</i> adjustments to <i>civil timber structures construction practice</i> or <i>job plan</i> to ensure safe execution of work and achievement of <i>required outcomes</i> . |
| | | 3.4 | Ensure plant equipment and tools maintenance requirements are carried out and recorded in accordance with <i>relevant legislative, organisational, client and manufacturers' requirements</i> . |
| | | 3.5 | Complete and submit reports as required by <i>relevant legislative, organisational, client and task requirements</i> . |
| | | 3.6 | Recommend changes to improve the safety, efficiency and effectiveness of the execution of <i>civil timber structures construction tasks</i> . |

REQUIRED SKILLS AND KNOWLEDGE

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

Required Skills

Specific skills are required to achieve the Performance Criteria of this unit, particularly for

their application in the variety of circumstances in which this unit may be applied.

This includes the ability to carry out the following, as required for the safe, effective and efficient execution of civil timber structures construction:

- Interpreting legislative requirements and procedures
- Interpreting organisational requirements and procedures
- Interpreting client requirements and procedures
- Interpreting manufacturers' requirements and procedures
- Interpreting civil timber structures construction project site geological data
- Interpreting civil timber structures construction project site geotechnical data
- Interpreting civil timber structures construction project site hydrological data
- Interpreting civil timber structures construction site meteorological data
- Interpreting civil timber structures construction project engineering survey information
- Interpreting civil timber structures construction project plans and drawings
- Interpreting civil timber structures construction project specifications
- Preparing for and conducting of briefings, toolbox and site meeting
- Preparing short messages
- Preparing and presenting job reports
- Preparing and maintaining log books and diaries
- Providing leadership
- Applying civil timber structures construction performance monitoring skills
- Calculating quantities for the execution of civil timber structures construction tasks, including:
 - Volumes
 - Grades
 - Percentages
 - Areas
 - Resource consumption figures
- Interpreting civil timber structures construction materials properties and test results
- Providing recommendations for the improvement of the safe, effective and efficient execution of civil timber structures construction tasks

Required Knowledge

Specific knowledge is required to achieve the Performance Criteria of this unit, particularly for their application in the variety of circumstances in which this unit may be applied.

This includes knowledge of the following, as required for the safe, effective and efficient execution of civil timber structures construction tasks:

- Risk assessment and management requirement and procedures
- Statutory compliance requirements and procedures
- Occupational Health and Safety requirements and procedures
- Environmental management requirements and procedures
- Quality management requirements and procedures
- Work zone traffic management requirements and procedures
- Contract management requirements and procedures
- Communication requirements and procedures
- Administrative requirements and procedures
- Civil timber structures construction plant and equipment capabilities and application
- Plant, equipment and tools maintenance requirements and procedures
- Operational techniques for the execution of civil timber structures construction tasks
- Civil timber structures construction task resource requirements and procedures
- Activities scheduling requirements and procedures
- Civil timber structures construction materials delivery requirements and procedures
- Job plan drafting of and administration requirements and procedures
- Reporting requirements and procedures
- Workplace relationship requirements and procedures
- Organisational, client and site operational requirements
- Relationship between various areas of civil works
- Team leadership techniques
- Works planning techniques
- Civil timber structures construction monitoring methods
- Engineering survey principles

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. Bold italicised wording in the Performance Criteria is detailed below.

- Civil timber structures construction*** may include:
- Bridges
 - Jetties and wharves

- Retaining walls
 - Noise barriers
- Legislative requirements* may include:
- Requirements included in both legislation and regulations
 - Federal, State and Local Government legislation and regulations
- Legislative, organisational, client and manufacturers requirements and procedures* may include:
- Risk assessment and management requirements and procedures
 - Statutory compliance requirements and procedures, including:
 - Equal Employment Opportunity
 - Disability Discrimination
 - Planning and development
 - Occupational Health and Safety requirements and procedures, including:
 - Workplace safety
 - Dangerous goods
 - Occupational licensing
 - Material Safety Data Sheets
 - Traffic management requirements and procedures
 - Environmental management requirements and procedures
 - Cultural and heritage requirements and procedures
 - Quality requirements and procedures
 - Australian and other relevant standards
 - Current industry best practice
 - Communication requirements and procedures
 - Procurement requirements and procedures
 - Employment requirements and procedures
 - Workplace relations requirements and procedures
 - Contract management requirements and procedures
 - Administration requirements and procedures, including records and reporting
 - Maintenance, servicing, and housekeeping requirements and procedures

Specific task information and requirements may include:

- Site geological data
- Site geotechnical data
- Site hydrological data
- Site meteorological data
- Site engineering survey data
- Known and potential site hazards, constraints and conditions
- Site cultural and heritage information
- Task specifications
- Task drawings
- Sources of materials
- Other organisations and contractors involved in the task or related tasks
- Coordination, timing and budgeting requirements

Job plan may include:

- Human resource requirements
- Plant and machinery requirements
- Construction materials requirements
- Sub-contractor support requirements
- Waste disposal requirements
- Coordination requirements
- Activity scheduling
- Materials delivery scheduling
- Risk assessment and management requirements
- Occupational Health and Safety requirements
- Quality management requirements, including testing scheduling requirements
- Traffic management requirements
- Environmental requirements
- Task monitoring requirements
- Task performance monitoring requirements
- Communication requirements
- Reporting requirements

Teams members may include:

- Other members of the organisation's management team

- Members of the team directly involved in the task
- Suppliers representatives
- Sub-contractors representatives
- Supervisors or managers of other organisations who are involved in related tasks

Resources may include:

- Labour
- Plant, equipment and tools
- Highway haulage vehicles
- Construction materials
- Sub-contractor services

Instructions may include:

- Briefings
- Handovers
- Work orders
- Toolbox meetings
- Site meetings

Monitor may include:

- Ongoing risk assessment
- Engineering survey
- Sampling and testing
- Observation and recording
- General supervision

Required outcomes may include:

- Task specifications requirements
- Task drawings requirements
- Coordination requirements
- Activity scheduling requirements
- Unit cost requirements
- Overall task cost requirements
- Waste management requirements

Initiate may include:

- Written communication
- Oral communication

Civil timber structures construction practice may include:

- Site preparation methods
- Site set up methods
- Timber erection methods

- Temporary bracing methods
- Shimming methods
- Fastening methods

EVIDENCE GUIDE

The Evidence Guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for this Training Package.

Overview of assessment

- To demonstrate competence in this unit a person must be able to provide evidence that they can successfully apply the principles of civil timber structures construction:
- Assessment may be contextualised for the circumstances where a person is:
 - Acting as a technical specialist in civil timber structures construction
 - Acting as a principal's supervisor of civil timber structures construction tasks
 - Acting as a contractor's supervisor of sub-contractors carrying out of civil timber structures construction tasks
 - Directly supervising a team or teams carrying out civil timber structures construction tasks

Critical aspects of assessment and evidence required to demonstrate competency in this unit

- The evidence required to demonstrate competency in this unit must be relevant to worksite operations and satisfy all of the requirements of the Performance Criteria, Required Skills and Knowledge and the Range Statement of this unit and include evidence of the following:
 - Knowledge of the requirements, procedures and instructions that are to apply in undertaking civil timber structures construction tasks
 - Implementation of appropriate procedures and techniques for the safe, effective and efficient achievement of the required outcomes of civil timber structures construction tasks
 - Working with others to plan, prepare and execute civil timber structures construction tasks
 - Job plans which reflect the requirements of these civil timber structures construction tasks and are capable of achieving all of their required outcomes

- Resource plans which have made available adequate resources for the safe, effective and efficient execution of civil timber structures construction tasks
- Provision of clear and timely instruction and supervision by the individual of those involved in the undertaking of these civil timber structures construction task
- Evidence of the consistent successful completion of civil timber structures construction tasks

Context of and specific resources for assessment

- This unit should be assessed in the context of the work environment wherever possible. Where this is not possible, assessment may occur in a simulated environment. Evidence for assessment is best gathered using the outcomes of products and processes of the workplace context.
- The assessment environment should not disadvantage the participant. For example, language, literacy and numeracy demands of assessment should not be greater than those required on the job.
- Assessment of this competency requires typical resources normally used in a civil works environment. Selection and use of resources for particular work sites may differ due to site circumstances.
- Where applicable, physical resources should include equipment modified for people with disabilities.
- Access must be provided to appropriate learning and/or assessment support when required.

Methods of assessment

- This unit maybe assessed in a holistic way with other units of competency
- The suggested strategies for the assessment of this unit are:
 - Written and/or oral assessment of the candidate’s required knowledge
 - Observed, documented and/or first hand testimonial evidence of the candidate’s:
 - implementation of appropriate procedures and techniques for the safe, effective and efficient achievement of the required outcomes of civil timber structures construction tasks
 - Job plans which reflect the requirements of civil timber structures construction tasks and are capable of achieving all of their required outcomes

- Resource plans which have made available adequate resources for the safe, effective and efficient execution of civil timber structures construction tasks
- Consistent successful completion of civil timber structures construction tasks
- First hand testimonial evidence of the candidate
 - working with others to plan, prepare and execute civil timber structures construction tasks
 - providing clear and timely instructions to those involved in the undertaking civil timber structures construction tasks
- Meaningful contribution to the review and improvement of civil works schedule of rates processes
- Where practical assessment is used it will be combined with targeted questioning to assess the required knowledge
- Questioning should be appropriate to the oracy, language and literacy levels of the applicant being assessed and should reflect the requirements of the competency and the work being performed. Assessors should be aware of any cultural issues that may affect responses to the questions
- Where performance is not directly observed and/or is required to be demonstrated over a period of time and/or in a number of locations, any evidence should be authenticated by colleagues, supervisors, clients or other appropriate persons
- Assessment should also reinforce the integration of the Employability Skills

RIICC428A Apply the principles of civil masonry, crib and gabion structure construction

Unit Descriptor	This unit covers the supervision of civil masonry, crib and gabion structure construction tasks. It includes the requirements for ensuring that the planning, preparing, initiating, monitoring, adjusting and reporting of civil masonry, crib and gabion structure construction tasks are carried out in accordance with the accepted industry principles.
Employability Skills	The required outcomes described in this Unit of Competency contain applicable facets of employability skills. The Employability Skills Qualification Summary for the qualification in which this Unit of Competency is packaged will assist in identifying employability skill requirements.
Application of the unit	<p>This unit is applicable for those who perform the duties of:</p> <ul style="list-style-type: none"> • Acting as a technical specialist in civil masonry, crib and gabion structure construction • Acting as a principal's supervisor of civil masonry, crib and gabion structure construction tasks • Acting as a contractor's supervisor of sub-contractors carrying out of civil masonry, crib and gabion structure construction tasks • Directly supervising a team or teams carrying out civil masonry, crib and gabion structure construction tasks.

ELEMENT

Elements describe the essential outcomes of a Unit of Competency

1. Ensure appropriate planning and preparation is carried out for civil masonry, crib and gabion structure construction tasks

PERFORMANCE CRITERIA

Performance Criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the Required Skills and Knowledge and/or the Range Statement. Assessment of performance is to be consistent with the Evidence Guide.

- 1.1 Access, interpret and clarify the ***legislative, organisational and manufacturers' requirements and procedures*** relevant to undertaking civil masonry, crib and gabion structure construction tasks.
- 1.2 Access, interpret and clarify the ***specific task information and requirements*** relevant to undertaking the civil masonry, crib and gabion structure construction task.

- 1.3 Ensure a **job plan**, is available which makes best use of the available resources and meets the civil masonry, crib and gabion structure construction task requirements.
2. Ensure appropriate initiation of civil masonry, crib and gabion structure construction tasks is carried out
- 2.1 Confirm that the necessary **resources** are available for the safe, effective and efficient conduct of the civil masonry, crib and gabion structure construction task, in accordance with the relevant **legislative, organisational, client and manufacturers' requirements and procedures** and the **specific task information and requirements**.
- 2.2 Ensure clear and timely **instructions** are communicated to **team members** and others involved, for the safe, effective and efficient conduct of the civil masonry, crib and gabion structure construction task, to meet the **specific task requirements** and the relevant **legislative, organisational, client and manufacturers' requirements and procedures**.
3. Monitor, adjust, communicate and report on the execution of civil masonry, crib and gabion structure construction tasks
- 3.1 Ensure relevant **legislative, organisational, client and manufacturers' requirements and procedures** are applied for the safe, effective and efficient execution of the civil masonry, crib and gabion structure construction tasks, in accordance with the specific **task requirements**.
- 3.2 **Monitor** civil masonry, crib and gabion structure construction task performance to ensure it achieves the **required outcomes**.
- 3.3 **Initiate** adjustments to **civil masonry, crib and gabion structure construction practice** or **job plan** to ensure safe execution of work and achievement of **required outcomes**.
- 3.4 Ensure plant equipment and tools maintenance requirements are carried out and recorded in accordance with **relevant legislative, organisational, client and manufacturers' requirements**.
- 3.5 Complete and submit reports as required by **relevant legislative, organisational, client and task requirements**.
- 3.6 Recommend changes to improve the safety, efficiency and effectiveness of the execution of **civil masonry, crib and gabion structure construction tasks**.

REQUIRED SKILLS AND KNOWLEDGE

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

Required Skills

Specific skills are required to achieve the Performance Criteria of this unit, particularly for their application in the variety of circumstances in which this unit may be applied.

This includes the ability to carry out the following, as required for the safe, effective and efficient execution of civil masonry, crib and gabion structure construction:

- Interpreting legislative requirements and procedures
- Interpreting organisational requirements and procedures
- Interpreting client requirements and procedures
- Interpreting manufacturers' requirements and procedures
- Interpreting masonry, crib and gabion structure project site geological data
- Interpreting masonry, crib and gabion structure project site geotechnical data
- Interpreting masonry, crib and gabion structure project site hydrological data
- Interpreting masonry, crib and gabion structure site meteorological data
- Interpreting masonry, crib and gabion structure project engineering survey information
- Interpreting masonry, crib and gabion structure project plans and drawings
- Interpreting masonry, crib and gabion structure project specifications
- Preparing for and conducting of briefings, toolbox and site meeting
- Preparing short messages
- Preparing and presenting job reports
- Preparing and maintaining log books and diaries
- Providing leadership
- Applying civil masonry, crib and gabion structure construction performance monitoring skills
- Calculating quantities for the execution of civil masonry, crib and gabion structure construction tasks, including:
 - Volumes
 - Grades
 - Percentages
 - Areas
 - Resource consumption figures

- Interpreting civil masonry, crib and gabion structure construction materials properties and test results
- Providing recommendations for the improvement of the safe, effective and efficient execution of civil masonry, crib and gabion structure construction tasks

Required Knowledge

Specific knowledge is required to achieve the Performance Criteria of this unit, particularly for their application in the variety of circumstances in which this unit may be applied.

This includes knowledge of the following, as required for the safe, effective and efficient execution of civil masonry, crib and gabion structure construction tasks:

- Risk assessment and management requirement and procedures
- Statutory compliance requirements and procedures
- Occupational Health and Safety requirements and procedures
- Excavation shoring requirements and procedures
- Slope management requirements and procedures
- Environmental management requirements and procedures
- Quality management requirements and procedures
- Work zone traffic management requirements and procedures
- Contract management requirements and procedures
- Communication requirements and procedures
- Administrative requirements and procedures
- Civil masonry, crib and gabion structure construction plant and equipment capabilities and application
- Plant, equipment and tools maintenance requirements and procedures
- Operational techniques for the execution of civil masonry, crib and gabion structure construction tasks
- Civil masonry, crib and gabion structure construction task resource requirements and procedures
- Activities scheduling requirements and procedures
- Civil masonry, crib and gabion structure construction materials delivery requirements and procedures
- Job plan drafting of and administration requirements and procedures
- Reporting requirements and procedures
- Workplace relationship requirements and procedures
- Organisational, client and site operational requirements
- Relationship between various areas of civil works

- Team leadership techniques
- Works planning techniques
- Civil masonry, crib and gabion structure construction monitoring methods
- Engineering survey principles

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. Bold italicised wording in the Performance Criteria is detailed below.

- | | |
|---|--|
| <p><i>Civil masonry, crib and gabion structure construction</i> may include:</p> | <ul style="list-style-type: none"> • Masonry walls and terraces • Crib walls and terraces • Gabion walls and terraces • Causeways and fords |
| <p><i>Legislative requirements</i> may include:</p> | <ul style="list-style-type: none"> • Requirements included in both legislation and regulations • Federal, State and Local Government legislation and regulations |
| <p><i>Legislative, organisational, client and manufacturers requirements and procedures</i> may include:</p> | <ul style="list-style-type: none"> • Risk assessment and management requirements and procedures • Statutory compliance requirements and procedures, including: <ul style="list-style-type: none"> ○ Equal Employment Opportunity ○ Disability Discrimination ○ Planning and development • Occupational Health and Safety requirements and procedures, including: <ul style="list-style-type: none"> ○ Workplace safety ○ Dangerous goods ○ Occupational licensing ○ Material Safety Data Sheets • Traffic management requirements and procedures • Environmental management requirements and procedures • Cultural and heritage requirements and procedures • Quality requirements and procedures • Australian and other relevant standards |

- Current industry best practice
- Communication requirements and procedures
- Procurement requirements and procedures
- Employment requirements and procedures
- Workplace relations requirements and procedures
- Contract management requirements and procedures
- Administration requirements and procedures, including records and reporting
- Maintenance, servicing, and housekeeping requirements and procedures

Specific task information and requirements may include:

- Site geological data
- Site geotechnical data
- Site hydrological data
- Site meteorological data
- Site engineering survey data
- Known and potential site hazards, constraints and conditions
- Site cultural and heritage information
- Task specifications
- Task drawings
- Sources of materials
- Other organisations and contractors involved in the task or related tasks
- Coordination, timing and budgeting requirements

Job plan may include:

- Human resource requirements
- Plant and machinery requirements
- Construction materials requirements
- Sub-contractor support requirements
- Waste disposal requirements
- Coordination requirements
- Activity scheduling
- Materials delivery scheduling
- Risk assessment and management requirements
- Occupational Health and Safety requirements

- Excavation shoring requirements
- Slope management requirements
- Quality management requirements, including testing scheduling requirements
- Traffic management requirements
- Environmental requirements
- Task monitoring requirements
- Task performance monitoring requirements
- Communication requirements
- Reporting requirements

Teams members may include:

- Other members of the organisation's management team
- Members of the team directly involved in the task
- Suppliers representatives
- Sub-contractors representatives
- Supervisors or managers of other organisations who are involved in related tasks

Resources may include:

- Labour
- Plant, equipment and tools
- Highway haulage vehicles
- Construction materials
- Sub-contractor services

Instructions may include:

- Briefings
- Handovers
- Work orders
- Toolbox meetings
- Site meetings

Monitor may include:

- Ongoing risk assessment
- Engineering survey
- Sampling and testing
- Observation and recording
- General supervision

Required outcomes may include:

- Task specifications requirements
- Task drawings requirements
- Coordination requirements
- Activity scheduling requirements
- Unit cost requirements
- Overall task cost requirements
- Waste management requirements

Initiate may include:

- Written communication
- Oral communication

Civil masonry, crib and gabion structure construction practice may include:

- Site preparation methods
- Site set out methods
- Extraction methods
- Load and haulage methods
- Excavation shoring methods
- Slope management methods
- Masonry, crib and gabion erection methods
- Temporary bracing methods
- Backfill methods
- Compaction and water application methods
- Surface finishing methods
- Line, grade and level control methods
- Sediment control methods

EVIDENCE GUIDE

The Evidence Guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for this Training Package.

Overview of assessment

- To demonstrate competence in this unit a person must be able to provide evidence that they can successfully apply the principles of civil masonry, crib and gabion structure construction:
- Assessment may be contextualised for the circumstances where a person is:
 - Acting as a technical specialist in civil masonry, crib and gabion structure construction

- Acting as a principal’s supervisor of civil masonry, crib and gabion structure construction tasks
- Acting as a contractor’s supervisor of sub-contractors carrying out of civil masonry, crib and gabion structure construction tasks
- Directly supervising a team or teams carrying out civil masonry, crib and gabion structure construction tasks.

Critical aspects of assessment and evidence required to demonstrate competency in this unit

- The evidence required to demonstrate competency in this unit must be relevant to worksite operations and satisfy all of the requirements of the Performance Criteria, Required Skills and Knowledge and the Range Statement of this unit and include evidence of the following:
 - Knowledge of the requirements, procedures and instructions that are to apply in undertaking civil masonry, crib and gabion structure construction tasks
 - Implementation of appropriate procedures and techniques for the safe, effective and efficient achievement of the required outcomes of civil masonry, crib and gabion structure construction tasks
 - Working with others to plan, prepare and execute civil masonry, crib and gabion structure construction tasks
 - Job plans which reflect the requirements of these civil masonry, crib and gabion structure construction tasks and are capable of achieving all of their required outcomes
 - Resource plans which have made available adequate resources for the safe, effective and efficient execution of civil masonry, crib and gabion structure construction tasks
 - Provision of clear and timely instruction and supervision by the individual of those involved in the undertaking of these civil masonry, crib and gabion structure construction task
 - Evidence of the consistent successful completion of civil masonry, crib and gabion structure construction tasks

Context of and specific resources for assessment

- This unit should be assessed in the context of the work environment wherever possible. Where this is not possible, assessment may occur in a simulated

environment. Evidence for assessment is best gathered using the outcomes of products and processes of the workplace context.

- The assessment environment should not disadvantage the participant. For example, language, literacy and numeracy demands of assessment should not be greater than those required on the job.
- Assessment of this competency requires typical resources normally used in a civil works environment. Selection and use of resources for particular work sites may differ due to site circumstances.
- Where applicable, physical resources should include equipment modified for people with disabilities.
- Access must be provided to appropriate learning and/or assessment support when required.

Methods of assessment

- This unit maybe assessed in a holistic way with other units of competency
- The suggested strategies for the assessment of this unit are:
 - Written and/or oral assessment of the candidate’s required knowledge
 - Observed, documented and/or first hand testimonial evidence of the candidate’s:
 - implementation of appropriate procedures and techniques for the safe, effective and efficient achievement of the required outcomes of civil masonry, crib and gabion structure construction tasks
 - job plans which reflect the requirements of civil masonry, crib and gabion structure construction tasks and are capable of achieving all of their required outcomes
 - resource plans which have made available adequate resources for the safe, effective and efficient execution of civil masonry, crib and gabion structure construction tasks
 - consistent successful completion of civil masonry, crib and gabion structure construction tasks
 - First hand testimonial evidence of the candidate

- working with others to plan, prepare and execute civil masonry, crib and gabion structure construction tasks
- providing clear and timely instructions to those involved in the undertaking civil masonry, crib and gabion structure construction tasks
- Meaningful contribution to the review and improvement of civil works schedule of rates processes
- Where practical assessment is used it will be combined with targeted questioning to assess the required knowledge
- Questioning should be appropriate to the oracy, language and literacy levels of the applicant being assessed and should reflect the requirements of the competency and the work being performed. Assessors should be aware of any cultural issues that may affect responses to the questions
- Where performance is not directly observed and/or is required to be demonstrated over a period of time and/or in a number of locations, any evidence should be authenticated by colleagues, supervisors, clients or other appropriate persons
- Assessment should also reinforce the integration of the Employability Skills

RIICC429A Carry out inspections of civil structures

Unit Descriptor	This unit covers the carrying out of inspections of civil structures. It includes the requirements for ensuring that the planning, preparing, initiating, monitoring, adjusting and reporting of inspections of civil structures are carried out in accordance with the accepted industry principles.
Employability Skills	The required outcomes described in this Unit of Competency contain applicable facets of employability skills. The Employability Skills Qualification Summary for the qualification in which this Unit of Competency is packaged will assist in identifying employability skill requirements.
Application of the unit	This unit is applicable for those who perform the duties of: <ul style="list-style-type: none"> • Acting as a technical specialist in the inspection of civil structures • Acting as a principal's supervisor of inspections of civil structures • Acting as a contractor's supervisor of sub-contractors carrying out of inspections of civil structures • Directly supervising a team or teams carrying out inspections of civil structures

ELEMENT

Elements describe the essential outcomes of a Unit of Competency

1. Ensure appropriate planning and preparation is carried out for inspections of civil structures

PERFORMANCE CRITERIA

Performance Criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the Required Skills and Knowledge and/or the Range Statement. Assessment of performance is to be consistent with the Evidence Guide.

- 1.1 Access, interpret and clarify the ***legislative, organisational and manufacturers' requirements and procedures*** relevant to undertaking inspections of civil structures.
- 1.2 Access, interpret and clarify the ***specific task information and requirements*** relevant to undertaking the inspections of civil structures.
- 1.3 Ensure a ***job plan***, is available which makes best use of the available resources and meets the civil structures inspection task requirements.

- | | | | |
|----|---|-----|---|
| 2. | Ensure appropriate initiation of inspections of civil structures is carried out | 2.1 | Confirm that the necessary <i>resources</i> are available for the safe, effective and efficient conduct of the civil structures inspections task, in accordance with the relevant <i>legislative, organisational, client and manufacturers' requirements and procedures</i> and the <i>specific task information and requirements</i> . |
| | | 2.2 | Ensure clear and timely <i>instructions</i> are communicated to <i>team members</i> and others involved, for the safe, effective and efficient conduct of the inspections of civil structures, to meet the <i>specific task requirements</i> and the relevant <i>legislative, organisational, client and manufacturers' requirements and procedures</i> . |
| 3. | Monitor, adjust, communicate and report on the execution of inspections of civil structures | 3.1 | Ensure relevant <i>legislative, organisational, client and manufacturers' requirements and procedures</i> are applied for the safe, effective and efficient execution of the inspections of civil structures, in accordance with the specific <i>task requirements</i> . |
| | | 3.2 | Monitor civil structures inspection task performance to ensure it achieves the <i>required outcomes</i> . |
| | | 3.3 | Initiate adjustments to <i>civil structure inspection practice</i> or <i>job plan</i> to ensure safe execution of work and achievement of <i>required outcomes</i> . |
| | | 3.4 | Ensure plant equipment and tools maintenance requirements are carried out and recorded in accordance with <i>relevant legislative, organisational, client and manufacturers' requirements</i> . |
| | | 3.5 | Complete and submit reports as required by <i>relevant legislative, organisational, client and task requirements</i> . |
| | | 3.6 | Recommend changes to improve the safety, efficiency and effectiveness of the execution of <i>inspections of civil structures</i> . |

REQUIRED SKILLS AND KNOWLEDGE

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

Required Skills

Specific skills are required to achieve the Performance Criteria of this unit, particularly for their application in the variety of circumstances in which this unit may be applied. This includes the ability to carry out the following, as required for the safe, effective and efficient execution of civil structures:

- Interpreting legislative requirements and procedures
- Interpreting organisational requirements and procedures
- Interpreting client requirements and procedures
- Interpreting manufacturers' requirements and procedures
- Interpreting civil structures site geological data
- Interpreting civil structures site geotechnical data
- Interpreting civil structures site hydrological data
- Interpreting civil structures site meteorological data
- Interpreting civil structures site engineering survey information
- Interpreting civil structures plans and drawings
- Interpreting civil structures inspection project specifications
- Preparing for and conducting of briefings, toolbox and site meeting
- Preparing short messages
- Preparing and presenting job reports
- Preparing and maintaining log books and diaries
- Providing leadership
- Applying civil structures inspection performance monitoring skills
- Calculating quantities for the execution of inspections of civil structures, including:
 - Volumes
 - Grades
 - Percentages
 - Areas
 - Resource consumption figures
- Interpreting civil structures materials properties and test results
- Providing recommendations for the improvement of the safe, effective and efficient execution of inspections of civil structures

Required Knowledge

Specific knowledge is required to achieve the Performance Criteria of this unit, particularly for their application in the variety of circumstances in which this unit may be applied.

This includes knowledge of the following, as required for the safe, effective and efficient execution of inspections of civil structures:

- Risk assessment and management requirement and procedures
- Statutory compliance requirements and procedures

- Occupational Health and Safety requirements and procedures
- Environmental management requirements and procedures
- Quality management requirements and procedures
- Work zone traffic management requirements and procedures
- Contract management requirements and procedures
- Communication requirements and procedures
- Administrative requirements and procedures
- Civil structures inspection plant and equipment capabilities and application
- Plant, equipment and tools maintenance requirements and procedures
- Operational techniques for the execution of inspections of civil structures
- Civil structures inspection resource requirements and procedures
- Activities scheduling requirements and procedures
- Civil structures inspection materials delivery requirements and procedures
- Job plan drafting of and administration requirements and procedures
- Reporting requirements and procedures
- Workplace relationship requirements and procedures
- Organisational, client and site operational requirements
- Relationship between various areas of civil works
- Team leadership techniques
- Works planning techniques
- Civil structures inspection monitoring methods
- Engineering survey principles

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. Bold italicised wording in the Performance Criteria is detailed below.

Civil structures
may include:

- Concrete structures and elements
- Steel structures and elements
- Timber structures and elements
- Masonry, crib and gabion structures and elements

Legislative requirements
may include:

- Requirements included in both legislation and regulations
- Federal, State and Local Government legislation and regulations

Legislative, organisational, client and manufacturers requirements and procedures may include:

- Risk assessment and management requirements and procedures
- Statutory compliance requirements and procedures, including:
 - Equal Employment Opportunity
 - Disability Discrimination
 - Planning and development
- Occupational Health and Safety requirements and procedures, including:
 - Workplace safety
 - Dangerous goods
 - Occupational licensing
 - Material Safety Data Sheets
- Traffic management requirements and procedures
- Environmental management requirements and procedures
- Cultural and heritage requirements and procedures
- Quality requirements and procedures
- Australian and other relevant standards
- Current industry best practice
- Communication requirements and procedures
- Procurement requirements and procedures
- Employment requirements and procedures
- Workplace relations requirements and procedures
- Contract management requirements and procedures
- Administration requirements and procedures, including records and reporting
- Maintenance, servicing, and housekeeping requirements and procedures

Specific task information and requirements may include:

- Site geological data
- Site geotechnical data
- Site hydrological data
- Site meteorological data
- Site engineering survey data
- Known and potential site hazards, constraints and conditions
- Site cultural and heritage information

- Task specifications
- Task drawings
- Sources of materials
- Other organisations and contractors involved in the task or related tasks
- Coordination, timing and budgeting requirements

Job plan may include:

- Human resource requirements
- Plant and machinery requirements
- Construction materials requirements
- Sub-contractor support requirements
- Waste disposal requirements
- Coordination requirements
- Activity scheduling
- Materials delivery scheduling
- Risk assessment and management requirements
- Occupational Health and Safety requirements
- Quality management requirements, including testing scheduling requirements
- Traffic management requirements
- Environmental requirements
- Task monitoring requirements
- Task performance monitoring requirements
- Communication requirements
- Reporting requirements

Teams members may include:

- Other members of the organisation's management team
- Members of the team directly involved in the task
- Suppliers representatives
- Sub-contractors representatives
- Supervisors or managers of other organisations who are involved in related tasks

Resources may include:

- Labour
- Plant, equipment and tools
- Highway haulage vehicles

- Construction materials
 - Sub-contractor services
- Instructions** may include:
- Briefings
 - Handovers
 - Work orders
 - Toolbox meetings
 - Site meetings
- Monitor** may include:
- Ongoing risk assessment
 - Engineering survey
 - Sampling and testing
 - Observation and recording
 - General supervision
- Required outcomes** may include:
- Civil structures report requirements
 - Inspection cost requirements
 - Identification of concrete structures and elements problems, such as:
 - Cracks
 - Delamination
 - Displacement
 - Water where it should not be
 - Rust stains and
 - Lime leaching
 - Identification of steel structures and elements problems, such as:
 - Deflection
 - Corrosion
 - Cracking
 - Damaged protective coating
 - Missing, damaged or loose fastenings
 - Identification of timber structures and elements problems, such as:
 - Deflection
 - Cracking
 - Rotting

- Lamination
- Moisture
- Pest attack
- Missing, damaged or loose fastenings
- Identification of masonry, crib or gabion structures and elements problems, such as:
 - Settling
 - Cracking
 - Missing mortar
 - Efflorescence
- Weephole condition

Initiate may include:

- Written communication
- Oral communication

Civil structures practice may include:

- Site preparation methods
- Traffic control
- Safety measures
- Inspection methods
- Defect marking procedures
- Civil structure inspection recording methods

EVIDENCE GUIDE

The Evidence Guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for this Training Package.

Overview of assessment

- To demonstrate competence in this unit a person must be able to provide evidence that they can successfully apply the principles of carrying out civil structures inspections:
- Assessment may be contextualised for the circumstances where a person is:
 - Acting as a technical specialist in carrying out civil structures inspections
 - Acting as a principal's supervisor of the carrying out of civil structures inspections
 - Acting as a contractor's supervisor of sub-contractors carrying out of inspections of civil structures
 - Directly supervising a team or teams carrying out inspections of civil structures.

Critical aspects of assessment and evidence required to demonstrate competency in this unit

- The evidence required to demonstrate competency in this unit must be relevant to worksite operations and satisfy all of the requirements of the Performance Criteria, Required Skills and Knowledge and the Range Statement of this unit and include evidence of the following:
 - Knowledge of the requirements, procedures and instructions that are to apply in undertaking inspections of civil structures
 - Implementation of appropriate procedures and techniques for the safe, effective and efficient achievement of the required outcomes of inspections of civil structures
 - Working with others to plan, prepare and execute inspections of civil structures
 - Job plans which reflect the requirements of these civil structures inspection tasks and are capable of achieving all of their required outcomes
 - Resource plans which have made available adequate resources for the safe, effective and efficient execution of the inspections of civil structures
 - Provision of clear and timely instruction and supervision by the individual of those involved in the undertaking of these civil structures inspection tasks
 - Evidence of the consistent successful completion of inspections of civil structures

Context of and specific resources for assessment

- This unit should be assessed in the context of the work environment wherever possible. Where this is not possible, assessment may occur in a simulated environment. Evidence for assessment is best gathered using the outcomes of products and processes of the workplace context.
- The assessment environment should not disadvantage the participant. For example, language, literacy and numeracy demands of assessment should not be greater than those required on the job.
- Assessment of this competency requires typical resources normally used in a civil works environment. Selection and use of resources for particular work sites may differ due to site circumstances.
- Where applicable, physical resources should include equipment modified for people with disabilities.
- Access must be provided to appropriate learning and/or assessment support when required.

Methods of assessment

- This unit may be assessed in a holistic way with other units of competency
- The suggested strategies for the assessment of this unit are:
 - Written and/or oral assessment of the candidate's required knowledge
 - Observed, documented and/or first hand testimonial evidence of the candidate's:
 - implementation of appropriate procedures and techniques for the safe, effective and efficient achievement of the required outcomes of inspections of civil structures
 - job plans which reflect the requirements of inspections of civil structures and are capable of achieving all of their required outcomes
 - resource plans which have made available adequate resources for the safe, effective and efficient execution of inspections of civil structures
 - consistent successful completion of inspections of civil structures
 - First hand testimonial evidence of the candidate
 - working with others to plan, prepare and execute inspections of civil structures
 - providing clear and timely instructions to those involved in the undertaking inspections of civil structures
- Meaningful contribution to the review and improvement of civil works schedule of rates processes
- Where practical assessment is used it will be combined with targeted questioning to assess the required knowledge
- Questioning should be appropriate to the oracy, language and literacy levels of the applicant being assessed and should reflect the requirements of the competency and the work being performed. Assessors should be aware of any cultural issues that may affect responses to the questions
- Where performance is not directly observed and/or is required to be demonstrated over a period of time and/or in a number of locations, any evidence should be authenticated by colleagues, supervisors, clients or other appropriate persons
- Assessment should also reinforce the integration of the Employability Skills

RIICC430A Apply the principles of maintenance of civil structures

Unit Descriptor	This unit covers the supervision of civil structures maintenance tasks. It includes the requirements for ensuring that the planning, preparing, initiating, monitoring, adjusting and reporting of civil structures maintenance tasks are carried out in accordance with the accepted industry principles.
Employability Skills	The required outcomes described in this Unit of Competency contain applicable facets of employability skills. The Employability Skills Qualification Summary for the qualification in which this Unit of Competency is packaged will assist in identifying employability skill requirements.
Application of the unit	This unit is applicable for those who perform the duties of: <ul style="list-style-type: none"> • Acting as a technical specialist in civil structures maintenance • Acting as a principal's supervisor of civil structures maintenance tasks • Acting as a contractor's supervisor of sub-contractors carrying out of civil structures maintenance tasks • Directly supervising a team or teams carrying out civil structures maintenance tasks.

ELEMENT

Elements describe the essential outcomes of a Unit of Competency

1. Ensure appropriate planning and preparation is carried out for civil structures maintenance tasks

PERFORMANCE CRITERIA

Performance Criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the Required Skills and Knowledge and/or the Range Statement. Assessment of performance is to be consistent with the Evidence Guide.

- 1.1 Access, interpret and clarify the ***legislative, organisational and manufacturers' requirements and procedures*** relevant to undertaking civil structures maintenance tasks.
- 1.2 Access, interpret and clarify the ***specific task information and requirements*** relevant to undertaking the civil structures maintenance tasks.
- 1.3 Ensure a ***job plan***, is available which makes best use of the available resources and meets the civil structures maintenance task requirements.

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|---|-----|---|
| 2. Ensure appropriate initiation of civil structures maintenance tasks is carried out | 2.1 | Confirm that the necessary <i>resources</i> are available for the safe, effective and efficient conduct of the civil structures maintenance task, in accordance with the relevant <i>legislative, organisational, client and manufacturers' requirements and procedures</i> and the <i>specific task information and requirements</i> . |
| | 2.2 | Ensure clear and timely <i>instructions</i> are communicated to <i>team members</i> and others involved, for the safe, effective and efficient conduct of the civil structures maintenance task, to meet the <i>specific task requirements</i> and the relevant <i>legislative, organisational, client and manufacturers' requirements and procedures</i> . |
| 3. Monitor, adjust, communicate and report on the execution of civil structures maintenance tasks | 3.1 | Ensure relevant <i>legislative, organisational, client and manufacturers' requirements and procedures</i> are applied for the safe, effective and efficient execution of the civil structures maintenance tasks, in accordance with the specific <i>task requirements</i> . |
| | 3.2 | <i>Monitor</i> civil structures maintenance task performance to ensure it achieves the <i>required outcomes</i> . |
| | 3.3 | <i>Initiate</i> adjustments to <i>civil structures maintenance practice</i> or <i>job plan</i> to ensure safe execution of work and achievement of <i>required outcomes</i> . |
| | 3.4 | Ensure plant equipment and tools maintenance requirements are carried out and recorded in accordance with <i>relevant legislative, organisational, client and manufacturers' requirements</i> . |
| | 3.5 | Complete and submit reports as required by <i>relevant legislative, organisational, client and task requirements</i> . |
| | 3.6 | Recommend changes to improve the safety, efficiency and effectiveness of the execution of <i>civil structures maintenance tasks</i> . |

REQUIRED SKILLS AND KNOWLEDGE

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

Required Skills

Specific skills are required to achieve the Performance Criteria of this unit, particularly for their application in the variety of circumstances in which this unit may be applied.

This includes the ability to carry out the following, as required for the safe, effective and efficient execution of civil structures maintenance:

- Interpreting legislative requirements and procedures
- Interpreting organisational requirements and procedures
- Interpreting client requirements and procedures
- Interpreting manufacturers' requirements and procedures
- Interpreting civil structures maintenance project site geological data
- Interpreting civil structures maintenance project site geotechnical data
- Interpreting civil structures maintenance project site hydrological data
- Interpreting civil structures maintenance site meteorological data
- Interpreting civil structures maintenance project engineering survey information
- Interpreting civil structures maintenance project plans and drawings
- Interpreting civil structures maintenance project specifications
- Preparing for and conducting of briefings, toolbox and site meeting
- Preparing short messages
- Preparing and presenting job reports
- Preparing and maintaining log books and diaries
- Providing leadership
- Applying civil structures maintenance performance monitoring skills
- Calculating quantities for the execution of civil structures maintenance tasks, including:
 - Volumes
 - Grades
 - Percentages
 - Areas
 - Resource consumption figures
- Interpreting civil structures maintenance materials properties and test results
- Providing recommendations for the improvement of the safe, effective and efficient execution of civil structures maintenance tasks

Required Knowledge

Specific knowledge is required to achieve the Performance Criteria of this unit, particularly for their application in the variety of circumstances in which this unit may be applied.

This includes knowledge of the following, as required for the safe, effective and efficient execution of civil structures maintenance tasks:

- Risk assessment and management requirement and procedures
- Statutory compliance requirements and procedures
- Occupational Health and Safety requirements and procedures
- Excavation shoring requirements and procedures
- Slope management requirements and procedures
- Environmental management requirements and procedures
- Quality management requirements and procedures
- Work zone traffic management requirements and procedures
- Contract management requirements and procedures
- Communication requirements and procedures
- Administrative requirements and procedures
- Civil structures maintenance plant and equipment capabilities and application
- Plant, equipment and tools maintenance requirements and procedures
- Operational techniques for the execution of civil structures maintenance tasks
- Civil structures maintenance task resource requirements and procedures
- Activities scheduling requirements and procedures
- Civil structures maintenance materials delivery requirements and procedures
- Job plan drafting of and administration requirements and procedures
- Reporting requirements and procedures
- Workplace relationship requirements and procedures
- Organisational, client and site operational requirements
- Relationship between various areas of civil works
- Team leadership techniques
- Works planning techniques
- Civil structures maintenance monitoring methods
- Engineering survey principles

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. Bold italicised wording in the Performance Criteria is detailed below.

Civil structures may include:

- The following concrete structures:
 - Bridges
 - Jetties and wharves
 - Retaining walls
 - Water storage tanks and small dams
 - Noise barriers
 - Culverts
 - Safety barriers
 - Foundations
- The following steel structures:
 - Bridges
 - Jetties and wharves
 - Sign gantries
 - Vertical sign supports
 - Noise barrier supports
 - Guardrails
- The following timber structures:
 - Bridges
 - Jetties and wharves
 - Retaining walls
 - Noise barrier
- The following masonry, crib and gabion structures;
 - Masonry walls
 - Crib walls
- Gabion walls

Civil structures maintenance may include:

- Confirmation of the condition of the structure through inspection and testing
- Work should include, where applicable:
 - Cleaning
 - Refurbishing
 - Replacement
 - Painting
- Work does not include specialist repairs

Legislative requirements may include:

- Requirements included in both legislation and regulations
- Federal, State and Local Government legislation and regulations

Legislative, organisational, client and manufacturers requirements and procedures may include:

- Risk assessment and management requirements and procedures
- Statutory compliance requirements and procedures, including:
 - Equal Employment Opportunity
 - Disability Discrimination
 - Planning and development
- Occupational Health and Safety requirements and procedures, including:
 - Workplace safety
 - Dangerous goods
 - Occupational licensing
 - Material Safety Data Sheets
- Traffic management requirements and procedures
- Environmental management requirements and procedures
- Cultural and heritage requirements and procedures
- Quality requirements and procedures
- Australian and other relevant standards
- Current industry best practice
- Communication requirements and procedures
- Procurement requirements and procedures
- Employment requirements and procedures
- Workplace relations requirements and procedures
- Contract management requirements and procedures
- Administration requirements and procedures, including records and reporting
- Maintenance, servicing, and housekeeping requirements and procedures

Specific task information and requirements may include:

- Site geological data
- Site geotechnical data
- Site hydrological data
- Site meteorological data

- Site engineering survey data
- Known and potential site hazards, constraints and conditions
- Site cultural and heritage information
- Task specifications
- Task drawings
- Sources of materials
- Other organisations and contractors involved in the task or related tasks
- Coordination, timing and budgeting requirements

Job plan may include:

- Human resource requirements
- Plant and machinery requirements
- Construction materials requirements
- Sub-contractor support requirements
- Waste disposal requirements
- Coordination requirements
- Activity scheduling
- Materials delivery scheduling
- Risk assessment and management requirements
- Occupational Health and Safety requirements
- Excavation shoring requirements
- Slope management requirements
- Quality management requirements, including testing scheduling requirements
- Traffic management requirements
- Environmental requirements
- Task monitoring requirements
- Task performance monitoring requirements
- Communication requirements
- Reporting requirements

Teams members may include:

- Other members of the organisation's management team
- Members of the team directly involved in the task
- Suppliers representatives
- Sub-contractors representatives

- Supervisors or managers of other organisations who are involved in related tasks

Resources may include:

- Labour
- Plant, equipment and tools
- Highway haulage vehicles
- Construction materials
- Sub-contractor services

Instructions may include:

- Briefings
- Handovers
- Work orders
- Toolbox meetings
- Site meetings

Monitor may include:

- Ongoing risk assessment
- Engineering survey
- Sampling and testing
- Observation and recording
- General supervision

Required outcomes may include:

- Task specifications requirements
- Task drawings requirements
- Coordination requirements
- Activity scheduling requirements
- Unit cost requirements
- Overall task cost requirements
- Waste management requirements

Initiate may include:

- Written communication
- Oral communication

Civil structures maintenance practice may include:

- Site preparation methods
- Site set up methods
- Excavation shoring methods
- Slope management methods
- Access platform installation methods
- Cleaning methods

- Refurbishment methods
- Replacement methods
- Painting methods
- Site cleanup methods
- Waste management methods
- Traffic management methods
- Sediment control methods

EVIDENCE GUIDE

The Evidence Guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for this Training Package.

Overview of assessment

- To demonstrate competence in this unit a person must be able to provide evidence that they can successfully apply the principles of civil structures maintenance:
- Assessment may be contextualised for the circumstances where a person is:
 - Acting as a technical specialist in civil structures maintenance
 - Acting as a principal's supervisor of civil structures maintenance tasks
 - Acting as a contractor's supervisor of sub-contractors carrying out of civil structures maintenance tasks
 - Directly supervising a team or teams carrying out civil structures maintenance tasks.

Critical aspects of assessment and evidence required to demonstrate competency in this unit

- The evidence required to demonstrate competency in this unit must be relevant to worksite operations and satisfy all of the requirements of the Performance Criteria, Required Skills and Knowledge and the Range Statement of this unit and include evidence of the following:
 - Knowledge of the requirements, procedures and instructions that are to apply in undertaking civil structures maintenance tasks
 - Implementation of appropriate procedures and techniques for the safe, effective and efficient achievement of the required outcomes of civil structures maintenance tasks
 - Working with others to plan, prepare and execute civil structures maintenance tasks
 - Job plans which reflect the requirements of these civil

structures maintenance tasks and are capable of achieving all of their required outcomes

- Resource plans which have made available adequate resources for the safe, effective and efficient execution of civil structures maintenance tasks
- Provision of clear and timely instruction and supervision by the individual of those involved in the undertaking of these civil structures maintenance tasks
- Evidence of the consistent successful completion of civil structures maintenance tasks

Context of and specific resources for assessment

- This unit should be assessed in the context of the work environment wherever possible. Where this is not possible, assessment may occur in a simulated environment. Evidence for assessment is best gathered using the outcomes of products and processes of the workplace context.
- The assessment environment should not disadvantage the participant. For example, language, literacy and numeracy demands of assessment should not be greater than those required on the job.
- Assessment of this competency requires typical resources normally used in a civil works environment. Selection and use of resources for particular work sites may differ due to site circumstances.
- Where applicable, physical resources should include equipment modified for people with disabilities.
- Access must be provided to appropriate learning and/or assessment support when required.

Methods of assessment

- This unit may be assessed in a holistic way with other units of competency
- The suggested strategies for the assessment of this unit are:
 - Written and/or oral assessment of the candidate's required knowledge
 - Observed, documented and/or first hand testimonial evidence of the candidate's:
 - implementation of appropriate procedures and techniques for the safe, effective and efficient achievement of the required outcomes of civil structures maintenance tasks

- Job plans which reflect the requirements of civil structures maintenance tasks and are capable of achieving all of their required outcomes
- Resource plans which have made available adequate resources for the safe, effective and efficient execution of civil structures maintenance tasks
- Consistent successful completion of civil structures maintenance tasks
- First hand testimonial evidence of the candidate
 - working with others to plan, prepare and execute civil structures maintenance tasks
 - providing clear and timely instructions to those involved in the undertaking civil structures maintenance tasks
- Meaningful contribution to the review and improvement of civil works schedule of rates processes
- Where practical assessment is used it will be combined with targeted questioning to assess the required knowledge
- Questioning should be appropriate to the oracy, language and literacy levels of the applicant being assessed and should reflect the requirements of the competency and the work being performed. Assessors should be aware of any cultural issues that may affect responses to the questions
- Where performance is not directly observed and/or is required to be demonstrated over a period of time and/or in a number of locations, any evidence should be authenticated by colleagues, supervisors, clients or other appropriate persons
- Assessment should also reinforce the integration of the Employability Skills

RIICC431A Apply the principles of canal construction

Unit Descriptor	This unit covers the supervision of canal construction tasks. It includes the requirements for ensuring that the planning, preparing, initiating, monitoring, adjusting and reporting of canal construction tasks are carried out in accordance with the accepted industry principles.
Employability Skills	The required outcomes described in this Unit of Competency contain applicable facets of employability skills. The Employability Skills Qualification Summary for the qualification in which this Unit of Competency is packaged will assist in identifying employability skill requirements.
Application of the unit	This unit is applicable for those who perform the duties of: <ul style="list-style-type: none"> • Acting as a technical specialist in canal construction • Acting as a principal's supervisor of canal construction tasks • Acting as a contractor's supervisor of sub-contractors carrying out of canal construction tasks • Directly supervising a team or teams carrying out canal construction tasks.

ELEMENT

Elements describe the essential outcomes of a Unit of Competency

1. Ensure appropriate planning and preparation is carried out for canal construction tasks

PERFORMANCE CRITERIA

Performance Criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the Required Skills and Knowledge and/or the Range Statement. Assessment of performance is to be consistent with the Evidence Guide.

- 1.1 Access, interpret and clarify the ***legislative, organisational and manufacturers' requirements and procedures*** relevant to undertaking canal construction tasks.
- 1.2 Access, interpret and clarify the ***specific task information and requirements*** relevant to undertaking the canal construction task.
- 1.3 Ensure a ***job plan***, is available which makes best use of the available resources and meets the canal construction task requirements.

- | | | | |
|----|--|-----|---|
| 2. | Ensure appropriate initiation of canal construction tasks is carried out | 2.1 | Confirm that the necessary <i>resources</i> are available for the safe, effective and efficient conduct of the canal construction task, in accordance with the relevant <i>legislative, organisational, client and manufacturers' requirements and procedures</i> and the <i>specific task information and requirements</i> . |
| | | 2.2 | Ensure clear and timely <i>instructions</i> are communicated to <i>team members</i> and others involved, for the safe, effective and efficient conduct of the canal construction task, to meet the <i>specific task requirements</i> and the relevant <i>legislative, organisational, client and manufacturers' requirements and procedures</i> . |
| 3. | Monitor, adjust, communicate and report on the execution of canal construction tasks | 3.1 | Ensure relevant <i>legislative, organisational, client and manufacturers' requirements and procedures</i> are applied for the safe, effective and efficient execution of the canal construction tasks, in accordance with the specific <i>task requirements</i> . |
| | | 3.2 | <i>Monitor</i> canal construction task performance to ensure it achieves the <i>required outcomes</i> . |
| | | 3.3 | <i>Initiate</i> adjustments to <i>canal construction practice</i> or <i>job plan</i> to ensure safe execution of work and achievement of <i>required outcomes</i> . |
| | | 3.4 | Ensure plant equipment and tools maintenance requirements are carried out and recorded in accordance with <i>relevant legislative, organisational, client and manufacturers' requirements</i> . |
| | | 3.5 | Complete and submit reports as required by <i>relevant legislative, organisational, client and task requirements</i> . |
| | | 3.6 | Recommend changes to improve the safety, efficiency and effectiveness of the execution of <i>canal construction tasks</i> . |

REQUIRED SKILLS AND KNOWLEDGE

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

Required Skills

Specific skills are required to achieve the Performance Criteria of this unit, particularly for their application in the variety of circumstances in which this unit may be applied.

This includes the ability to carry out the following, as required for the safe, effective and efficient execution of canal construction:

- Interpreting legislative requirements and procedures
- Interpreting organisational requirements and procedures
- Interpreting client requirements and procedures
- Interpreting manufacturers' requirements and procedures
- Interpreting canal construction project site geological data
- Interpreting canal construction project site geotechnical data
- Interpreting canal construction project site hydrological data
- Interpreting canal construction site meteorological data
- Interpreting canal construction project engineering survey information
- Interpreting canal construction project plans and drawings
- Interpreting canal construction project specifications
- Preparing for and conducting of briefings, toolbox and site meeting
- Preparing short messages
- Preparing and presenting job reports
- Preparing and maintaining log books and diaries
- Providing leadership
- Applying canal construction performance monitoring skills
- Calculating quantities for the execution of canal construction tasks, including:
 - Volumes
 - Grades
 - Percentages
 - Areas
 - Resource consumption figures
- Interpreting canal construction materials properties and test results
- Providing recommendations for the improvement of the safe, effective and efficient execution of canal construction tasks

Required Knowledge

Specific knowledge is required to achieve the Performance Criteria of this unit, particularly for their application in the variety of circumstances in which this unit may be applied.

This includes knowledge of the following, as required for the safe, effective and efficient execution of canal construction tasks:

- Risk assessment and management requirement and procedures
- Statutory compliance requirements and procedures

- Occupational Health and Safety requirements and procedures
- Excavation shoring requirements and procedures
- Slope management requirements and procedures
- Environmental management requirements and procedures
- Quality management requirements and procedures
- Work zone traffic management requirements and procedures
- Contract management requirements and procedures
- Communication requirements and procedures
- Administrative requirements and procedures
- Canal construction plant and equipment capabilities and application
- Plant, equipment and tools maintenance requirements and procedures
- Operational techniques for the execution of canal construction tasks
- Canal construction task resource requirements and procedures
- Activities scheduling requirements and procedures
- Canal construction materials delivery requirements and procedures
- Job plan drafting of and administration requirements and procedures
- Reporting requirements and procedures
- Workplace relationship requirements and procedures
- Organisational, client and site operational requirements
- Relationship between various areas of civil works
- Team leadership techniques
- Works planning techniques
- Canal construction monitoring methods
- Engineering survey principles

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. Bold italicised wording in the Performance Criteria is detailed below.

Canal construction
may include:

- Dredging
- Extraction by earthmoving equipment

Legislative requirements
may include:

- Requirements included in both legislation and regulations
- Federal, State and Local Government legislation and regulations

Legislative, organisational, client and manufacturers requirements and procedures may include:

- Risk assessment and management requirements and procedures
- Statutory compliance requirements and procedures, including:
 - Equal Employment Opportunity
 - Disability Discrimination
 - Planning and development
- Occupational Health and Safety requirements and procedures, including:
 - Workplace safety
 - Dangerous goods
 - Occupational licensing
 - Material Safety Data Sheets
- Traffic management requirements and procedures
- Environmental management requirements and procedures
- Cultural and heritage requirements and procedures
- Quality requirements and procedures
- Australian and other relevant standards
- Current industry best practice
- Communication requirements and procedures
- Procurement requirements and procedures
- Employment requirements and procedures
- Workplace relations requirements and procedures
- Contract management requirements and procedures
- Administration requirements and procedures, including records and reporting
- Maintenance, servicing, and housekeeping requirements and procedures

Specific task information and requirements may include:

- Site geological data
- Site geotechnical data
- Site hydrological data
- Site meteorological data
- Site engineering survey data
- Known and potential site hazards, constraints and conditions

- Site cultural and heritage information
- Task specifications
- Task drawings
- Sources of materials
- Other organisations and contractors involved in the task or related tasks
- Coordination, timing and budgeting requirements

Job plan may include:

- Human resource requirements
- Plant and machinery requirements
- Construction materials requirements
- Sub-contractor support requirements
- Waste disposal requirements
- Coordination requirements
- Activity scheduling
- Materials delivery scheduling
- Risk assessment and management requirements
- Occupational Health and Safety requirements
- Excavation shoring requirements
- Slope management requirements
- Quality management requirements, including testing scheduling requirements
- Traffic management requirements
- Environmental requirements
- Task monitoring requirements
- Task performance monitoring requirements
- Communication requirements
- Reporting requirements

Teams members may include:

- Other members of the organisation's management team
- Members of the team directly involved in the task
- Suppliers representatives
- Sub-contractors representatives
- Supervisors or managers of other organisations who are involved in related tasks

- Resources** may include:
- Labour
 - Plant, equipment and tools
 - Highway haulage vehicles
 - Barges
 - Construction materials
 - Sub-contractor services
- Instructions** may include:
- Briefings
 - Handovers
 - Work orders
 - Toolbox meetings
 - Site meetings
- Monitor** may include:
- Ongoing risk assessment
 - Engineering survey
 - Sampling and testing
 - Observation and recording
 - General supervision
- Required outcomes** may include:
- Task specifications requirements
 - Task drawings requirements
 - Coordination requirements
 - Activity scheduling requirements
 - Unit cost requirements
 - Overall task cost requirements
 - Waste management requirements
- Initiate** may include:
- Written communication
 - Oral communication
- Canal construction practice** may include:
- Site preparation methods
 - Site set out
 - Excavation methods
 - Load and haulage methods
 - Bank stabilisation methods
 - Sediment control methods

EVIDENCE GUIDE

The Evidence Guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for this Training Package.

Overview of assessment

- To demonstrate competence in this unit a person must be able to provide evidence that they can successfully apply the principles of canal construction:
- Assessment may be contextualised for the circumstances where a person is:
 - Acting as a technical specialist in canal construction
 - Acting as a principal's supervisor of canal construction tasks
 - Acting as a contractor's supervisor of sub-contractors carrying out of canal construction tasks
 - Directly supervising a team or teams carrying out canal construction tasks.

Critical aspects of assessment and evidence required to demonstrate competency in this unit

- The evidence required to demonstrate competency in this unit must be relevant to worksite operations and satisfy all of the requirements of the Performance Criteria, Required Skills and Knowledge and the Range Statement of this unit and include evidence of the following:
 - Knowledge of the requirements, procedures and instructions that are to apply in undertaking canal construction tasks
 - Implementation of appropriate procedures and techniques for the safe, effective and efficient achievement of the required outcomes of canal construction tasks
 - Working with others to plan, prepare and execute canal construction tasks
 - Job plans which reflect the requirements of these canal construction tasks and are capable of achieving all of their required outcomes
 - Resource plans which have made available adequate resources for the safe, effective and efficient execution of canal construction tasks
 - Provision of clear and timely instruction and supervision by the individual of those involved in the undertaking of these canal construction tasks
 - Evidence of the consistent successful completion of canal construction tasks

Context of and specific resources for assessment

- This unit should be assessed in the context of the work environment wherever possible. Where this is not possible, assessment may occur in a simulated environment. Evidence for assessment is best gathered using the outcomes of products and processes of the workplace context.
- The assessment environment should not disadvantage the participant. For example, language, literacy and numeracy demands of assessment should not be greater than those required on the job.
- Assessment of this competency requires typical resources normally used in a civil works environment. Selection and use of resources for particular work sites may differ due to site circumstances.
- Where applicable, physical resources should include equipment modified for people with disabilities.
- Access must be provided to appropriate learning and/or assessment support when required.

Methods of assessment

- This unit maybe assessed in a holistic way with other units of competency
- The suggested strategies for the assessment of this unit are:
 - Written and/or oral assessment of the candidate's required knowledge
 - Observed, documented and/or first hand testimonial evidence of the candidate's:
 - implementation of appropriate procedures and techniques for the safe, effective and efficient achievement of the required outcomes of canal construction tasks
 - Job plans which reflect the requirements of canal construction tasks and are capable of achieving all of their required outcomes
 - Resource plans which have made available adequate resources for the safe, effective and efficient execution of canal construction tasks
 - Consistent successful completion of canal construction tasks
 - First hand testimonial evidence of the candidate
 - working with others to plan, prepare and execute canal construction tasks

- providing clear and timely instructions to those involved in the undertaking canal construction tasks
- Meaningful contribution to the review and improvement of civil works schedule of rates processes
- Where practical assessment is used it will be combined with targeted questioning to assess the required knowledge
- Questioning should be appropriate to the oracy, language and literacy levels of the applicant being assessed and should reflect the requirements of the competency and the work being performed. Assessors should be aware of any cultural issues that may affect responses to the questions
- Where performance is not directly observed and/or is required to be demonstrated over a period of time and/or in a number of locations, any evidence should be authenticated by colleagues, supervisors, clients or other appropriate persons
- Assessment should also reinforce the integration of the Employability Skills

RIICC432A Apply the principles of demolitions

Unit Descriptor	This unit covers the supervision of demolitions tasks. It includes the requirements for ensuring that the planning, preparing, initiating, monitoring, adjusting and reporting of demolitions tasks are carried out in accordance with the accepted industry principles.
Employability Skills	The required outcomes described in this Unit of Competency contain applicable facets of employability skills. The Employability Skills Qualification Summary for the qualification in which this Unit of Competency is packaged will assist in identifying employability skill requirements.
Application of the unit	This unit is applicable for those who perform the duties of: <ul style="list-style-type: none"> • Acting as a technical specialist in demolitions • Acting as a principal's supervisor of demolitions tasks • Acting as a contractor's supervisor of sub-contractors carrying out of demolitions tasks • Directly supervising a team or teams carrying out demolitions tasks.

ELEMENT

Elements describe the essential outcomes of a Unit of Competency

1. Ensure appropriate planning and preparation is carried out for demolitions tasks

PERFORMANCE CRITERIA

Performance Criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the Required Skills and Knowledge and/or the Range Statement. Assessment of performance is to be consistent with the Evidence Guide.

- 1.1 Access, interpret and clarify the ***legislative, organisational and manufacturers' requirements and procedures*** relevant to undertaking demolitions tasks.
- 1.2 Access, interpret and clarify the ***specific task information and requirements*** relevant to undertaking the demolitions task.
- 1.3 Ensure a ***job plan***, is available which makes best use of the available resources and meets the demolitions task requirements.

- | | | | |
|----|---|-----|--|
| 2. | Ensure appropriate initiation of demolitions tasks is carried out | 2.1 | Confirm that the necessary <i>resources</i> are available for the safe, effective and efficient conduct of the demolitions task, in accordance with the relevant <i>legislative, organisational, client and manufacturers' requirements and procedures</i> and the <i>specific task information and requirements</i> . |
| | | 2.2 | Ensure clear and timely <i>instructions</i> are communicated to <i>team members</i> and others involved, for the safe, effective and efficient conduct of the demolitions task, to meet the <i>specific task requirements</i> and the relevant <i>legislative, organisational, client and manufacturers' requirements and procedures</i> . |
| 3. | Monitor, adjust, communicate and report on the execution of demolitions tasks | 3.1 | Ensure relevant <i>legislative, organisational, client and manufacturers' requirements and procedures</i> are applied for the safe, effective and efficient execution of the demolitions tasks, in accordance with the <i>specific task requirements</i> . |
| | | 3.2 | <i>Monitor</i> demolitions task performance to ensure it achieves the <i>required outcomes</i> . |
| | | 3.3 | <i>Initiate</i> adjustments to <i>demolitions practice</i> or <i>job plan</i> to ensure safe execution of work and achievement of <i>required outcomes</i> . |
| | | 3.4 | Ensure plant equipment and tools maintenance requirements are carried out and recorded in accordance with <i>relevant legislative, organisational, client and manufacturers' requirements</i> . |
| | | 3.5 | Complete and submit reports as required by <i>relevant legislative, organisational, client and task requirements</i> . |
| | | 3.6 | Recommend changes to improve the safety, efficiency and effectiveness of the execution of <i>demolitions tasks</i> . |

REQUIRED SKILLS AND KNOWLEDGE

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

Required Skills

Specific skills are required to achieve the Performance Criteria of this unit, particularly for their application in the variety of circumstances in which this unit may be applied.

This includes the ability to carry out the following, as required for the safe, effective and efficient execution of demolitions:

- Interpreting legislative requirements and procedures
- Interpreting organisational requirements and procedures
- Interpreting client requirements and procedures
- Interpreting manufacturers' requirements and procedures
- Interpreting demolitions project site geological data
- Interpreting demolitions project site geotechnical data
- Interpreting demolitions project site hydrological data
- Interpreting demolitions site meteorological data
- Interpreting demolitions project engineering survey information
- Interpreting demolitions project plans and drawings
- Interpreting demolitions project specifications
- Preparing for and conducting of briefings, toolbox and site meeting
- Preparing short messages
- Preparing and presenting job reports
- Preparing and maintaining log books and diaries
- Providing leadership
- Applying demolitions performance monitoring skills
- Calculating quantities for the execution of demolitions tasks, including:
 - Volumes
 - Grades
 - Percentages
 - Areas
 - Resource consumption figures
- Interpreting demolitions materials properties and test results
- Providing recommendations for the improvement of the safe, effective and efficient execution of demolitions tasks

Required Knowledge

Specific knowledge is required to achieve the Performance Criteria of this unit, particularly for their application in the variety of circumstances in which this unit may be applied.

This includes knowledge of the following, as required for the safe, effective and efficient execution of demolitions tasks:

- Risk assessment and management requirement and procedures
- Statutory compliance requirements and procedures

- Occupational Health and Safety requirements and procedures
- Excavation shoring requirements and procedures
- Slope management requirements and procedures
- Environmental management requirements and procedures
- Quality management requirements and procedures
- Work zone traffic management requirements and procedures
- Contract management requirements and procedures
- Communication requirements and procedures
- Administrative requirements and procedures
- Demolitions plant and equipment capabilities and application
- Plant, equipment and tools maintenance requirements and procedures
- Operational techniques for the execution of demolitions tasks
- Demolitions task resource requirements and procedures
- Activities scheduling requirements and procedures
- Demolitions materials delivery requirements and procedures
- Job plan drafting of and administration requirements and procedures
- Reporting requirements and procedures
- Workplace relationship requirements and procedures
- Organisational, client and site operational requirements
- Relationship between various areas of civil works
- Team leadership techniques
- Works planning techniques
- Demolitions monitoring methods
- Engineering survey principles

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. Bold italicised wording in the Performance Criteria is detailed below.

Demolitions may include:

- Buildings
- Civil works

Legislative requirements may include:

- Requirements included in both legislation and regulations
- Federal, State and Local Government legislation and regulations

Legislative, organisational, client and manufacturers requirements and procedures may include:

- Risk assessment and management requirements and procedures
- Statutory compliance requirements and procedures, including:
 - Equal Employment Opportunity
 - Disability Discrimination
 - Planning and development
- Occupational Health and Safety requirements and procedures, including:
 - Workplace safety
 - Dangerous goods
 - Occupational licensing
 - Material Safety Data Sheets
- Traffic management requirements and procedures
- Environmental management requirements and procedures
- Cultural and heritage requirements and procedures
- Quality requirements and procedures
- Australian and other relevant standards
- Current industry best practice
- Communication requirements and procedures
- Procurement requirements and procedures
- Employment requirements and procedures
- Workplace relations requirements and procedures
- Contract management requirements and procedures
- Administration requirements and procedures, including records and reporting
- Maintenance, servicing, and housekeeping requirements and procedures

Specific task information and requirements may include:

- Site geological data
- Site geotechnical data
- Site hydrological data
- Site meteorological data
- Site engineering survey data
- Known and potential site hazards, constraints and conditions

- Site cultural and heritage information
- Task specifications
- Task drawings
- Sources of materials
- Other organisations and contractors involved in the task or related tasks
- Coordination, timing and budgeting requirements

Job plan may include:

- Human resource requirements
- Plant and machinery requirements
- Construction materials requirements
- Sub-contractor support requirements
- Waste disposal requirements
- Coordination requirements
- Activity scheduling
- Materials delivery scheduling
- Risk assessment and management requirements
- Occupational Health and Safety requirements
- Quality management requirements, including testing scheduling requirements
- Traffic management requirements
- Environmental requirements
- Task monitoring requirements
- Task performance monitoring requirements
- Communication requirements
- Reporting requirements

Teams members may include:

- Other members of the organisation's management team
- Members of the team directly involved in the task
- Suppliers representatives
- Sub-contractors representatives
- Supervisors or managers of other organisations who are involved in related tasks

Resources may include:

- Labour
- Plant, equipment and tools

- Highway haulage vehicles
 - Construction materials
 - Sub-contractor services
- Instructions*** may include:
- Briefings
 - Handovers
 - Work orders
 - Toolbox meetings
 - Site meetings
- Monitor*** may include:
- Ongoing risk assessment
 - Engineering survey
 - Sampling and testing
 - Observation and recording
 - General supervision
- Required outcomes*** may include:
- Task specifications requirements
 - Task drawings requirements
 - Coordination requirements
 - Activity scheduling requirements
 - Unit cost requirements
 - Overall task cost requirements
 - Waste management requirements
- Initiate*** may include:
- Written communication
 - Oral communication
- Demolitions practice*** may include:
- Site preparation methods
 - Site set out methods
 - Scaffolding erection methods
 - Excavation shoring methods
 - Bulk demolitions methods
 - Detailed demolitions methods
 - Haulage vehicle access methods
 - Demolition materials conveyancing methods
 - Structure propping methods
 - Sediment control methods

EVIDENCE GUIDE

The Evidence Guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for this Training Package.

Overview of assessment

- To demonstrate competence in this unit a person must be able to provide evidence that they can successfully apply the principles of demolitions:
- Assessment may be contextualised for the circumstances where a person is:
 - Acting as a technical specialist in demolitions
 - Acting as a principal's supervisor of demolitions tasks
 - Acting as a contractor's supervisor of sub-contractors carrying out of demolitions tasks
 - Directly supervising a team or teams carrying out demolitions tasks.

Critical aspects of assessment and evidence required to demonstrate competency in this unit

- The evidence required to demonstrate competency in this unit must be relevant to worksite operations and satisfy all of the requirements of the Performance Criteria, Required Skills and Knowledge and the Range Statement of this unit and include evidence of the following:
 - Knowledge of the requirements, procedures and instructions that are to apply in undertaking demolitions tasks
 - Implementation of appropriate procedures and techniques for the safe, effective and efficient achievement of the required outcomes of demolitions tasks
 - Working with others to plan, prepare and execute demolitions tasks
 - Job plans which reflect the requirements of these demolitions tasks and are capable of achieving all of their required outcomes
 - Resource plans which have made available adequate resources for the safe, effective and efficient execution of demolitions tasks
 - Provision of clear and timely instruction and supervision by the individual of those involved in the undertaking of these demolitions tasks
 - Evidence of the consistent successful completion of demolitions tasks

Context of and specific resources for assessment

- This unit should be assessed in the context of the work environment wherever possible. Where this is not possible, assessment may occur in a simulated environment. Evidence for assessment is best gathered using the outcomes of products and processes of the workplace context.
- The assessment environment should not disadvantage the participant. For example, language, literacy and numeracy demands of assessment should not be greater than those required on the job.
- Assessment of this competency requires typical resources normally used in a civil works environment. Selection and use of resources for particular work sites may differ due to site circumstances.
- Where applicable, physical resources should include equipment modified for people with disabilities.
- Access must be provided to appropriate learning and/or assessment support when required.

Methods of assessment

- This unit maybe assessed in a holistic way with other units of competency
- The suggested strategies for the assessment of this unit are:
 - Written and/or oral assessment of the candidate's required knowledge
 - Observed, documented and/or first hand testimonial evidence of the candidate's:
 - implementation of appropriate procedures and techniques for the safe, effective and efficient achievement of the required outcomes of demolitions tasks
 - Job plans which reflect the requirements of demolitions tasks and are capable of achieving all of their required outcomes
 - Resource plans which have made available adequate resources for the safe, effective and efficient execution of demolitions tasks
 - Consistent successful completion of demolitions tasks
 - First hand testimonial evidence of the candidate
 - working with others to plan, prepare and execute demolitions tasks
 - providing clear and timely instructions to those involved in the undertaking demolitions tasks.

- Meaningful contribution to the review and improvement of civil works schedule of rates processes
- Where practical assessment is used it will be combined with targeted questioning to assess the required knowledge
- Questioning should be appropriate to the oracy, language and literacy levels of the applicant being assessed and should reflect the requirements of the competency and the work being performed. Assessors should be aware of any cultural issues that may affect responses to the questions
- Where performance is not directly observed and/or is required to be demonstrated over a period of time and/or in a number of locations, any evidence should be authenticated by colleagues, supervisors, clients or other appropriate persons
- Assessment should also reinforce the integration of the Employability Skills

APPENDIX 1 Mapping of Units of Competency to Qualifications

RII06 Units of Competency in Certificate IV, Diploma and Advanced Diploma Qualifications

The following table maps the units in the RII06 AQF level 4, 5 and 6 qualifications.

RII06 Units of Competency in Certificate IV, Diploma and Advanced Diploma Qualifications		Cert IV			Dip		Adv Dip	
		Operations	Supervision	Design	Management	Design	Management	Design
BCCCM3003B	Implement traffic management plan		√					
BSBCMN402A	Develop work priorities		√	√				
BSBCMN404A	Develop teams and individuals		√					
BSBCMN408A	Report on financial activities		√					
BSBCMN410A	Coordinate implementation of customer service strategies		√					
BSBCMN411A	Monitor a safe workplace	M	M					
BSBCMN412A	Promote innovation and change		√	√				
BSBCMN413A	Implement and monitor environmental policies	M	√					
BSBCMN419A	Manage projects		√					
BSBFLM403B	Implement effective workplace relationships		√	√				
BSBFLM405B	Implement operational plan	√	M					
BSBFLM406B	Implement workplace information system		√	√				
BSBFLM409B	Implement continuous improvement	√	√	√				
BSBFLM412A	Promote team effectiveness		M	√				
BSBFLM501B	Manage personal work priorities and professional development				√	√		
BSBFLM503B	Manage effective workplace relationships				√	√		
BSBFLM505B	Manage operational plan				√			
BSBFLM506B	Manage workplace information system				√	√		
BSBFLM507B	Manage quality customer service				√	√		
BSBFLM509B	Facilitate continuous improvement				√	√		

RHI06 Units of Competency in Certificate IV, Diploma and Advanced Diploma Qualifications		Cert IV			Dip		Adv Dip	
		Operations	Supervision	Design	Management	Design	Management	Design
BSBFLM510B	Facilitate and capitalise on change and innovation				√			
BSBFLM511B	Develop a workplace learning environment				√			
BSBFLM512A	Ensure team effectiveness				M			M
BSBFLM513A	Manage budgets and financial plans within the work team				√			
BSBHR504A	Manage industrial relations policies and procedures				√			
BSBHR506A	Manage recruitment selection and induction processes				√			
BSBMGT503A	Prepare budgets and financial plans				√			
BSBMGT504A	Manage budgets and financial plans				√			
BSBMGT505A	Ensure a safe workplace				M			
BSBMGT506A	Select, recruit and induct staff				√			
BSBMGT603A	Review and develop business plans						√	√
BSBMGT604A	Manage business operations						√	√
BSBMGT605A	Provide leadership across the organisation						M	
BSBMGT606A	Manage customer focus						√	
BSBMGT608A	Manage innovation and continuous improvement						√	√
BSBOHS607A	Advise on application of safe design principles to control OHS risk							M
BSBPM405A	Apply human resource management approaches		√					
BSBPM408A	Apply contract and procurement techniques	√	√					
BSBPM501A	Manage application of project				√			

RII06 Units of Competency in Certificate IV, Diploma and Advanced Diploma Qualifications		Cert IV			Dip		Adv Dip	
		Operations	Supervision	Design	Management	Design	Management	Design
	integrative processes							
BSBPM502A	Manage project scope				√			
BSBPM503A	Manage project time				√	√		
BSBPM504A	Manage project costs				√			
BSBPM505A	Manage project quality				√	√		
BSBPM506A	Manage project human resources				√			
BSBPM507A	Manage project communications				√			
BSBPM508A	Manage project risk				√	√		
BSBPM509A	Manage project procurement				√			
BSBPM601A	Direct the integration of multiple projects/programs						√	√
BSBPM602A	Direct the scope of multiple projects/programs						√	√
BSBPM603A	Direct time management of multiple projects/programs						√	√
BSBPM604A	Direct cost management of multiple projects/programs						√	√
BSBPM605A	Direct quality management of multiple projects/programs						√	√
BSBPM606A	Direct human resource management of multiple projects/programs						√	√
BSBPM607A	Direct communications management of multiple projects/programs						√	√
BSBPM608A	Direct risk management of multiple projects/programs						√	M
BSBPM609A	Direct procurement and contracts of multiple projects/ programs						√	
BSBSBM402A	Undertake financial planning		√					
BSBSBM403A	Promote the business		√					
BSBSBM404A	Undertake business planning		√					

RII06 Units of Competency in Certificate IV, Diploma and Advanced Diploma Qualifications		Cert IV			Dip		Adv Dip	
		Operations	Supervision	Design	Management	Design	Management	Design
BSBSBM406A	Manage finances		√					
LGACOM401A	Administer contracts	√	√		E			
LGACOM402A	Arrange contracts	√	√					
LGACOM409A	Prepare tender documentation	√	√					
LGACOM410A	Prepare response to tenders	√	√					
LGADMIN417A	Conduct community consultation		√					
LGAWORK401A	Develop works maintenance schedule	√	√					
LGAWORK402A	Prepare for operational works	√	√					
LGAWORK403A	Manage civil plant and resources	√	√					
LGAWORK501A	Prepare preliminary design for operational works				√			
LGAWORK502A	Prepare detailed works project documentation				√			
LGAWORK503A	Undertake project investigation				√			
MEM30.1A	Use computer aided drafting systems to produce basic engineering drawings			√				
MEM30.2A	Produce basic engineering graphics			√				
MEM30.3A	Produce detailed engineering drawings			√				
MEM30.4A	Use CAD to create and display 3D models			√				
MEM9.11B	Apply basic engineering design concepts			√				
MNMMSU411A	Supervise work in confined spaces		√					
MNQGEN300A	Apply risk management processes	M	√					
MNQGEN340A	Communicate information	√	√					
MNQGEN400A	Apply site risk management system		M					
MNQGEN401A	Apply site statutory compliance	√	√					

RII06 Units of Competency in Certificate IV, Diploma and Advanced Diploma Qualifications		Cert IV			Dip		Adv Dip	
		Operations	Supervision	Design	Management	Design	Management	Design
	management plan							
MNQGEN403A	Foster positive community relations	√	√					
MNQGEN404A	Supervise dust and noise control		√					
MNQGEN430A	Apply site quality plan	M	√					
MNQGEN500A	Implement and maintain management plans to control risk				M			
MNQGEN600A	Establish and maintain the risk management systems						M	
MNQGEN601A	Establish and maintain the statutory compliance management system						√	
MNQGEN602A	Manage major incidents and emergencies						√	
MNQGEN610A	Establish and maintain the Occupational Health and Safety management system						M	
MNQGEN620A	Establish and maintain the environmental management system						M	
MNQGEN630A	Establish and maintain the quality system						M	M
MNQGEN661A	Conduct feasibility study						√	√
MNQGEN662A	Establish operational performance management system						√	
MNQGEN663A	Initiate, monitor and supervise contracts						√	√
MNQGEN664A	Conduct business negotiations						√	√
MNQOPS403A	Apply site plant and resources management plan		√					
MNQOPS413A	Conduct shot firing	√	√					
MNQOPS450A	Apply site plant, equipment and infrastructure maintenance plan		√					
MNQOPS503A	Implement site plant and resources management plan				√			

RHI06 Units of Competency in Certificate IV, Diploma and Advanced Diploma Qualifications		Cert IV			Dip		Adv Dip	
		Operations	Supervision	Design	Management	Design	Management	Design
MNQOPS511A	Design surface blasts				√			
MNQOPS512A	Manage blast hole drilling operations				√			
MNQOPS513A	Manage blasting operations				√			
MNQOPS550A	Implement and maintain the site plant, equipment and infrastructure maintenance plan				√			
MNQOPS650A	Establish plant, equipment and infrastructure maintenance system						√	
PMLDATA400A	Process and interpret data	√	√	√				
PMLDATA500B	Analyse data and report results				√	√		
PMLSAMP302A	Receive and prepare samples for testing	√	√					
PMLSAMP400B	Obtain representative samples in accordance with sampling plan	√	√	√				
PMLTEST300B	Perform basic tests	√	√					
PMLTEST303B	Prepare working solutions	√	√					
PMLTEST307B	Prepare trial batches for evaluation	√	√					
PMLTEST402B	Prepare, standardise and use solutions	√	√					
PMLTEST403B	Assist with geological site investigation	√	√	√				
PMLTEST404A	Perform chemical tests and procedures	√	√	√				
PMLTEST406A	Perform physical tests	√	√	√				
PMLTEST411A	Perform mechanical tests	√	√	√				
PMLTEST511B	Supervise earthworks inspection, sampling and testing operations			√	√	√		
PMLTEST520A	Perform complex tests to measure engineering properties of materials			√	√	√		
PRDSIS07A	Capture new data			√		√		
PRDSIS08A	Obtain and validate existing data			√		√		
PRDSIS14A	Integrate spatial data sets			√		√		
PRDSIS29A	Collect basic data			√				

RII06 Units of Competency in Certificate IV, Diploma and Advanced Diploma Qualifications		Cert IV			Dip		Adv Dip	
		Operations	Supervision	Design	Management	Design	Management	Design
RIICC401A	Supervise civil works		M					
RIICC402A	Supervise civil works contractors	√						
RIICC403A	Apply the principles of earthworks construction	√	√	√		√		
RIICC404A	Apply the principles of flexible pavement construction	√	√	√		√		
RIICC405A	Apply the principles of rigid pavement construction	√	√	√		√		
RIICC406A	Apply the principles of the stabilisation of materials	√	√	√		√		
RIICC407A	Apply the principles for asphalt paving and compaction	√	√	√		√		
RIICC408A	Apply the principles for the application of bituminous sprayed treatment	√	√	√		√		
RIICC409A	Apply the principles for the selection and use of polymer modified binder	√	√	√		√		
RIICC410A	Apply the principles for the selection and use of bituminous emulsion	√	√	√		√		
RIICC411A	Apply the principles for the application of slurry surfacing	√	√	√		√		
RIICC412A	Apply the principles of pavement profiling using a profiler	√	√	√		√		
RIICC413A	Apply the principles for the manufacture and delivery of hot mix asphalt	√	√					
RIICC414A	Apply the principles for the manufacture of cold mix	√	√					
RIICC415A	Apply the principles for the manufacture of polymer modified binder	√				√		
RIICC416A	Apply the principles for the manufacture of bituminous emulsion	√				√		

RII06 Units of Competency in Certificate IV, Diploma and Advanced Diploma Qualifications		Cert IV			Dip		Adv Dip	
		Operations	Supervision	Design	Management	Design	Management	Design
RIICC417A	Apply the principles of the manufacture of slurry surfacing	√				√		
RIICC418A	Inspect and report on pavement condition	√	√					
RIICC419A	Carry out pavement condition measurement	√	√					
RIICC420A	Apply the principles of pavement maintenance	√	√					
RIICC421A	Apply the principles for the installation of underground service using open excavation	√	√	√		√		
RIICC422A	Apply the principles for the installation of underground service using trenchless technology	√	√	√		√		
RIICC423A	Apply the principles for the repair and rehabilitation of underground service using trenchless technology	√	√	√		√		
RIICC424A	Apply the principles of tunnel construction	√	√	√		√		
RIICC425A	Apply the principles of civil concrete structures construction	√	√	√		√		
RIICC426A	Apply the principles of civil steel structures construction	√	√	√		√		
RIICC427A	Apply the principles of civil timber structures construction	√	√	√		√		
RIICC428A	Apply the principles of civil masonry, crib and gabion structure construction	√	√	√		√		
RIICC429A	Carry out inspections of civil structures	√	√					
RIICC430A	Apply principles of maintenance of civil structures	√	√					
RIICC431A	Apply the principles of canal construction	√	√	√		√		
RIICC432A	Apply the principles of demolitions	√	√					

RII06 Units of Competency in Certificate IV, Diploma and Advanced Diploma Qualifications		Cert IV			Dip		Adv Dip	
		Operations	Supervision	Design	Management	Design	Management	Design
RIICC501A	Implement civil construction plans				M			
RIICC502A	Implement civil works maintenance programs				M			
RIICC503A	Prepare work zone traffic management plans		√		√			
RIICC504A	Prepare civil works bills of quantities	√			√		√	
RIICC505A	Prepare civil works schedule of rates	√			√		√	
RIICC506A	Prepare civil works cost estimates	√			√		√	
RIICC507A	Prepare detailed geotechnical design			√		√		√
RIICC508A	Prepare detailed design of rural roads			√		√		
RIICC509A	Prepare detailed design of urban roads					√		√
RIICC510A	Prepare detailed design of bus ways					√		√
RIICC511A	Prepare detailed design of sub-divisions			√		√		
RIICC512A	Prepare detailed design of motorways and interchanges					√		√
RIICC513A	Prepare detailed design of rail civil infrastructure			√		√		√
RIICC514A	Prepare detailed design of dams			√		√		
RIICC515A	Prepare detailed design of airfields civil works			√		√		
RIICC516A	Prepare detailed design of bicycle ways			√		√		
RIICC517A	Prepare detailed design of industrial hardstands			√		√		
RIICC518A	Prepare detailed design of open car parks			√		√		
RIICC519A	Prepare detailed design of intermodal facilities civil works			√		√		

RII06 Units of Competency in Certificate IV, Diploma and Advanced Diploma Qualifications		Cert IV			Dip		Adv Dip	
		Operations	Supervision	Design	Management	Design	Management	Design
RIICC520A	Prepare detailed design of rigid pavements					√		√
RIICC521A	Prepare detailed design of flexible pavements			√		√		√
RIICC522A	Prepare stabilised material mix design			√		√		
RIICC523A	Prepare asphalt mix design			√		√		
RIICC524A	Prepare design of sprayed seal surfacing			√		√		
RIICC525A	Select pavement surfacing			√		√		
RIICC526A	Prepare detailed traffic analysis					√		
RIICC527A	Prepare detailed design of traffic signals			√		√		
RIICC528A	Prepare detailed design of traffic management systems					√		√
RIICC529A	Prepare detailed design of underground services			√		√		
RIICC530A	Prepare detailed design of surface drainage			√		√		
RIICC531A	Prepare detailed design of subsurface drainage			√		√		
RIICC532A	Prepare detailed design of tunnels					√		√
RIICC533A	Prepare detailed design of civil concrete structures					√		√
RIICC534A	Prepare detailed design of civil steel structures					√		√
RIICC535A	Prepare detailed design of civil timber structures					√		√
RIICC536A	Prepare the detailed design of civil masonry, crib and gabion structures					√		√
RIICC537A	Prepare detailed design of marine structures civil works			√		√		
RIICC538A	Prepare detailed design of foundations			√		√		

RII06 Units of Competency in Certificate IV, Diploma and Advanced Diploma Qualifications		Cert IV			Dip		Adv Dip	
		Operations	Supervision	Design	Management	Design	Management	Design
RIICC539A	Prepare detailed design of lighting			√		√		
RIICC540A	Prepare detailed design of environmental controls			√		√		
RIICC541A	Prepare detailed design of landscaping			√		√		
RIICC542A	Prepare detailed design of canals			√		√		
RIICC543A	Implement and maintain environmental management plans				M			
RIICC544A	Implement and maintain quality management plans				M			
RIICC601A	Manage the civil works design process						√	M
RIICC602A	Establish civil construction plans						M	
RIICC603A	Establish civil works maintenance programs						M	

NOTE:

In the table 'M' indicates the mandatory units and the tick '√' shows elective units suitable for the particular industry sector.

