



Australian Government

RIICWD506D Prepare detailed design of canals

Release: 2

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Modification History

Release	Comment
1	This unit replaces RIICWD506A Prepare detailed design of canals
2	Required frequency and volume of evidence amended in Performance evidence. Substantial amendments made in Assessment Conditions field, including: references to Industry Sectors, assessor and subject matter expert experience requirements, how assessment should be conducted and what it should confirm.

Application

This unit describes a participant's skills and knowledge required to prepare detailed designs of canals in Civil construction.

This unit is appropriate for those working in management roles.

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

Unit Sector

Civil construction

Elements and Performance Criteria

1. Plan for the detailed design of canals	1.1 Access, interpret and apply canal design documentation and ensure the work activity is compliant 1.2 Obtain, read, interpret, clarify and confirm work requirements 1.3 Identify and confirm the canal's project requirements and information 1.4 Prepare a design plan which makes best use of the available resources and meets the design requirements
2. Undertake the detailed design of canals	2.1 Interpret and analyse data and identify options 2.2 Interpret and analyse relevant data and recommend the preferred option that best meets the required project outcomes 2.3 Complete the detailed design of the canals 2.4 Prepare a cost estimate of executing the designed canals

	2.5 Participate in the review of the canal designs with peers and stakeholders 2.6 Complete documentation for the canal designs 2.7 Monitor and coordinate the progress of other team members involved in the design process 2.8 Gain design approval
3. Finalise design processes of canals	3.1 Ensure filing of design records is completed 3.2 Complete and submit design cost and other reporting 3.3 Participate in performance review of the design process 3.4 Seek client feedback and contribute to the verification of the design 3.5 Close out all systems
4. Support and review the application of the design of canals	4.1 Provide clarification and advice to those applying the design 4.2 Review the application of the design and recommend changes for continuous improvement 4.3 Contribute to the validation of the design

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit. Further information is available in the Resources and Infrastructure Industry Training Package Companion Volume.

Unit Mapping Information

RIICWD506A Prepare detailed design of canals

Links

Companion Volume implementation guides are found in VETNet - <https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=88a61002-9a21-4386-aaf8-69c76e675272>

Assessment Requirements for RIICWD506D Prepare detailed design of canals

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Performance Evidence

Evidence is required to be collected that demonstrates a candidate's competency in this unit. Evidence must be relevant to the roles within this sector's work operations and satisfy all of the requirements of the performance criteria of this unit and include evidence that the candidate:

- locates and applies relevant legislation, documentation, policies and procedures
- implements the requirements, procedures and techniques for the safe, effective and efficient completion of the detailed design of canals including:
 - accessing and interpreting plans, drawings, specifications and design briefs
 - accessing and interpreting engineering survey and geotechnical information
 - accessing and interpreting hydrological, meteorological, cultural and heritage data
 - accessing and interpreting environmental controls test results
 - applying computer based design technology
 - applying engineering graphical presentation techniques
- works effectively with others to undertake and complete the detailed design of canals that meets all the required outcomes including:
 - complying with written and verbal reporting requirements and procedures
 - communicating clearly and concisely with others to receive and clarify work instructions
 - communicating clearly and concisely with others to coordinate work activities
 - participating in the review of canal designs
- demonstrates completion of detailed designs of canals that safely, effectively and efficiently meets all of the required outcomes on more than one (1) occasion including:
 - calculate areas, volumes, flow rates, capacities, densities, mass, percentages and grades

- maintain design and cost records
- determining canal design loadings or capacity requirements
- select canal design options
- size canal design components
- identify and selecting appropriate construction techniques
- develop and applying design plans
- carry out risk assessments
- interpret and analyse data
- prepare a design plan
- prepare a cost estimate
- obtain design approval
- complete and submitting design cost
- participate in performance review of the design process
- provide clarification and advice to those applying the design
- perform a validation of the design

Knowledge Evidence

The candidate must demonstrate knowledge in preparing detailed designs of canals through:

- accessing, interpreting and applying legislative, organisation and site requirements and procedures for:
 - risk assessment and management
 - statutory compliance
 - work health and safety
 - environmental management
 - cultural and heritage
 - quality management
 - Australian and other relevant standards
 - industry and organisational design
 - current industry best practice
 - canal design options
 - canal bank protection options
 - canal geometrics
 - reporting and documentation
 - design approvals and records filing
 - performance reviews
 - systems close-out
- identifying and addressing potential hazards, constraints and conditions
- applying techniques for choosing preferred options
- applying team leadership techniques

- applying operational techniques
- identifying canal construction plant and equipment capabilities
- applying cost estimation techniques
- applying design review principles

Assessment Conditions

- An assessor of this unit must satisfy the requirements of the NVR/AQTF or their successors; and Industry regulations for certification and licensing; and,
- this unit is best assessed in the context of this sector's work environment; and,
- outcomes of this unit that occur in an office-based setting may be assessed in a simulated environment provided it is realistic and sufficiently rigorous to cover all aspects of this sector's workplace performance, including environment, task skills, task management skills, contingency management skills and job role environment skills; and,
- this unit must be assessed in compliance with relevant legislation/regulation and using policies, procedures, processes and operational manuals directly related to the industry sector for which it is being assessed; and,
- assessment may be conducted in conjunction with the assessment of other Units of Competency; and,
- assessment must confirm consistent performance can be applied in a range of relevant workplace circumstances; and,
- assessors must demonstrate the performance evidence, and knowledge evidence as outlined in this Unit of Competency, and through the minimum years of current* work experience specified below in an Industry sector relevant to the outcomes of the unit; or,
- where the assessor does not meet experience requirements a co-assessment or partnership arrangement must exist between the qualified assessor and an Industry subject matter expert. The Industry subject matter expert should hold the unit being assessed (or an equivalent unit) and/or demonstrate equivalence of skills and knowledge at the unit level. An Industry technical expert must also demonstrate skills and knowledge from the minimum years of current work experience specified below in the Industry sector, including time spent in roles related to the unit being assessed; and,
- assessor and Industry subject matter expert requirements differ depending on the Australian Qualifications Framework Level (AQF) of the qualification being assessed and/or Industry Sector as follows:

Industry sector	AQF** Level	Required assessor or Industry subject matter expert experience
Drilling, Metalliferous Mining, Coal Mining, Extractive (Quarrying) and Civil Construction	1	1 Year
	2	2 Years
Drilling, Coal Mining and Extractive (Quarrying)	3-6	3 Years
Metalliferous Mining and Civil	3-6	5 Years

Construction		
Other sectors	Where this Unit is being assessed outside of the Resources and Infrastructure Sectors assessor and/or Industry subject matter expert experience should be in-line with industry standards for the sector in which it is being assessed and where no Industry standard is specified should comply with any relevant regulation.	

*Assessors can demonstrate current work experience through employment within Industry in a role relevant to the outcomes of the Unit; or, for external assessors this can be demonstrated through exposure to Industry by conducting frequent site assessments across various locations.

**Where a unit is being delivered outside of a Qualification the first numeric character in the Unit code should be considered to indicate the AQF level

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