



Australian Government

RIICWD601E Manage civil works design processes

Release: 1

RIICWD601E Manage civil works design processes

Modification History

Release	Comments
Release 1	This version first released with RII Resources and Infrastructure Industry Training Package Version 6.0.

Application

This unit describes the skills and knowledge required to manage civil works design processes, including interpreting and scoping design requirements, monitoring and supporting design processes and reviewing designs.

It applies to those working in management or technical specialist roles. They generally apply a broad range technical and managerial skills and are responsible for the delivery of complex outputs that meet site requirements.

Licensing, legislative and certification requirements that apply to this unit can vary between states, territories, and industry sectors. Users must check requirements with relevant body before applying the unit.

Unit Sector

Civil construction

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Interpret and scope design requirements of civil works	1.1 Obtain, interpret, clarify and confirm work requirements 1.2 Access, interpret and apply documentation required for civil works design and confirm work activity is compliant 1.3 Analyse client design criteria requirements for civil works to confirm required specifications are included 1.4 Advise client on potential environmental impact of proposed works and provide design options that meet environmental requirements 1.5 Confirm required development and implementation factors are addressed in civil works design criteria 1.6 Prepare functional specifications according to engineering standards

ELEMENT	PERFORMANCE CRITERIA
	and design specifications 1.7 Obtain and document and client agreement on civil works design criteria
2. Identify project design options for civil works and determine preferred design option	2.1 Identify innovative procedures for developing the design concept according to design requirements 2.2 Investigate and analyse potential design concepts that meet design requirements 2.3 Collaborate with client to improve outcomes and resolve issues associated with design concept 2.4 Advise client of potential impacts of proposed works on local communities
3. Initiate, monitor and support design of civil works	3.1 Analyse and select resources, processes and systems required to develop the design 3.2 Coordinate design tasks to meet required outcomes and cost structure 3.3 Develop and check design solution against engineering specifications
4. Prepare and maintain documentation	4.1 Establish documentation management process according to workplace requirements 4.2 Check and confirm supporting documentation required to implement the design meets workplace requirements 4.3 Check and confirm design is identified by design documentation and records specified by client 4.4 Apply documentation control process specified by client when making changes to design 4.5 Check and confirm design documentation for currency and accuracy
5. Review design of civil works	5.1 Review design and confirm it meets client requirements 5.2 Incorporate amendments advised by client and confirm design meets legislative requirements 5.3 Review design with client and obtain documented approval
6. Support design implementation of civil works	6.1 Prepare and implement plans that verify completed physical work meets client requirements 6.2 Develop periodic test schedules for monitoring performance and permit involved personnel to implement corrective action as required 6.3 Seek feedback from commissioning process to facilitate corrective actions and design improvements 6.4 Evaluate design outcome performance according to workplace requirements 6.5 Evaluate community response to design outcome and document according to workplace requirements

Foundation Skills

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

Skill	Description
Oral communication	• Presents information and provides assistance using sector-specific vocabulary • Uses listening and questioning to clarify and confirm understanding
Reading	• Identifies and interprets information from workplace procedures, documentation, legislation and regulations
Writing	• Prepares and completes workplace reports using sector-specific vocabulary, grammatical structures and conventions

Unit Mapping Information

Supersedes and is equivalent to RIICWD601D Manage the civil works design process.

Links

Companion Volume Implementation Guide is found on VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=88a61002-9a21-4386-aaf8-69c76e675272>

Assessment Requirements for RIICWD601E Manage civil works design processes

Modification History

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Performance Evidence

The candidate must demonstrate the ability to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including evidence of the ability to:

- manage civil works design processes on at least two occasions, including:
 - communicating and collaborating with clients to resolve problems and meet job requirements
 - seeking advice from required personnel where proposed design includes non-standard engineering requirements or new technology
 - monitoring and supporting design processes
 - creating a demonstrating model of the design
 - confirming documentation requirements are met
 - reviewing designs, including interpreting and confirming the following project documentation:
 - plans and drawings
 - specifications
 - design briefs
 - engineering survey information
 - hydrological, meteorological data geotechnical data
 - cultural and heritage data
 - supporting design implementation.

During the above, the candidate must:

- locate and apply required legislation, documentation, policies and procedures
- implement the requirements, procedures and techniques to manage civil works design processes, including those relating to:
 - risk assessments and management
 - statutory compliance
 - work health and safety

- environmental management
- cultural and heritage management
- quality management
- work with others to manage civil works design processes, including:
 - using a range of communication techniques and equipment
 - checking and confirming design documentation and reporting requirements
 - organising work activities to meet task requirements
 - communicating with others to receive and clarify work instructions
 - communicating with others to coordinate work activities.

Knowledge Evidence

The candidate must be able to demonstrate knowledge to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including knowledge of:

- legislation required to manage civil works design processes
- policies, procedures and documentation required to manage civil works design processes, including those relating to:
 - risk assessment and management
 - statutory compliance
 - work health and safety
 - environmental management
 - cultural and heritage management
 - community relations and consultation
 - quality management
 - Australian and other relevant Standards
 - workplace recording and reporting
 - design approvals and review
 - performance reviews
 - system close outs
 - geotechnical management
 - hydrological and meteorological management
- types, characteristics, technical capabilities and limitations of materials, plant and equipment required for civil design and construction
- principles and techniques for managing civil works design processes, including:
 - techniques for evaluating potential site hazards, constraints and conditions
 - techniques for preparing civil works functional specifications
 - techniques for identifying and evaluating design options
 - innovative design procedures
 - techniques for developing and implementing design plans, including those requiring use of new technology
 - design cost calculation techniques

- computer aided drafting design (CADD) and drafting technology procedures
- engineering graphical presentation techniques
- communication techniques and equipment
- design review and validation techniques
- performance review techniques
- techniques for advising on design implementation
- principles and techniques for collaborating and negotiating with clients and key external stakeholders
- principles and techniques for leading and coordinating teams.

Assessment Conditions

Mandatory conditions for assessment of this unit are stipulated below. The assessment must:

- include access to:
 - design criteria for civil works
- be conducted in a safe environment; and,
- be assessed in the context of this sector's work environment; and,
- be assessed in compliance with relevant legislation/regulation and using policies, procedures and processes directly related to the industry sector for which it is being assessed; and,
- confirm consistent performance can be applied in a range of relevant workplace circumstances.

Where outcomes of this unit occur in an office-based setting, assessment may occur in a simulated work 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.

• Assessor requirements

Assessors must be able to clearly demonstrate current and relevant industry knowledge and experience to satisfy the mandatory regulatory standards as set out in the Standards for Registered Training Organisations (RTOs) 2015/Australian Quality Training Framework mandatory requirements for assessors current at the time of assessment and any relevant licensing and certification requirements. This includes:

- vocational competencies at least to the level being delivered and assessed
- current industry skills directly relevant to the training and assessment being provided
- current knowledge and skills in vocational training and learning that informs their training and assessment
- formal relevant qualifications in training and assessment
- having knowledge of and/or experience using the latest techniques and processes
- possessing the required level of RII training product knowledge
- having an understanding and knowledge of legislation and regulations relevant to the industry and to employment and workplaces

- demonstrating the performance evidence, and knowledge evidence outlined in this unit of competency, and
- the minimum years of current** work experience after competency has been obtained as specified below in an industry sector relevant to the outcomes of the unit.

It is also acceptable for the appropriately qualified assessor to work with an industry expert to conduct assessment together and for the industry expert to be involved in the assessment judgement. The industry expert must have current industry skills directly relevant to the training and assessment being provided. This means the industry subject matter expert must demonstrate skills and knowledge from the minimum years of current work experience after competency has been obtained as specified below, including time spent in roles related to the unit being assessed:

Industry sector	AQF indicator level***	Required assessor or industry subject matter expert experience
Drilling, Metalliferous Mining, Coal Mining, Extractive (Quarrying) and Civil Infrastructure	1	1 year
	2	2 years
Drilling, Coal Mining, Extractive (Quarrying), Metalliferous Mining and Civil Infrastructure	3-6	3 years
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.	

*Guidance on simulated environments has been stipulated in the Companion Volume Implementation Guide located on VETNet.

**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 a minimum number of site assessments as determined by the relevant industry sector, across various locations.

*** While a unit of competency does not have an AQF level, where a unit is being delivered outside of a qualification the first numeric character in the unit code should be considered as the AQF indicator level for assessment purposes.

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