



Australian Government

RIICRC301E Maintain drainage systems

Release: 1

RIICRC301E Maintain drainage systems

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 maintain drainage systems in civil construction, including maintaining drainage components and open drains, excavating and repairing drainage systems and inspecting and repairing culverts.

It applies to those working in operational roles. They generally work under minimal supervision to undertake a broad range of tasks in varied work contexts, using some discretion and judgement in selecting equipment, services or contingency measures.

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. Plan and prepare to maintain drainage systems	1.1 Obtain, interpret, clarify and confirm work requirements 1.2 Access, interpret and apply documentation required to maintain drainage systems and confirm work activity is compliant 1.3 Identify and address potential risks, hazards and environmental issues, and implement control measures 1.4 Select and wear personal protective equipment according to site requirements 1.5 Obtain and interpret drainage maintenance schedule and records of maintenance history 1.6 Determine temporary stormwater diversion requirements according

ELEMENT	PERFORMANCE CRITERIA
	to existing drainage outlets, site requirements and planned construction schedule
2. Maintain drainage components	2.1 Inspect and maintain drainage components and rectify or report faults as required 2.2 Repair drainage components according to initial design specifications and/or engineer's redesign 2.3 Flush out drainage system and confirm clear flows of fluid
3. Excavate and repair drainage systems	3.1 Determine location of repairs according to work order and survey site 3.2 Carry out excavation according to job requirements 3.3 Prepare pipes and accessories according to design method of repair 3.4 Replace pipe sections and join and align to line and specified fall according to job requirements 3.5 Install packing and confirm alignment of pipeline 3.6 Make joints to pipe section junctions according to job requirements 3.7 Backfill section according to job requirements 3.8 Inspect and test repaired drainage system and confirm effectiveness of repairs against job requirements
4. Maintain open drains	4.1 Maintain open drains to line and fall specifications according to job requirements 4.2 Finish surfaces adjoining open drains and confirm ease of run off 4.3 Undertake erosion control methods according to site requirements
5. Inspect, clear and repair culverts	5.1 Identify faults in culverts and determine appropriate repair requirements and specifications 5.2 Repair or replace sections and joint according to levels and design specifications 5.3 Repair or maintain inlets and outlets according to culvert design and specifications 5.4 Compact backfill
6. Conduct clean-up activities	6.1 Clear work area and dispose of or recycle materials according to site requirements 6.2 Seal and store or pack unused materials according to site requirements 6.3 Clean, check, maintain and store plant, tools and equipment according to manufacturer specifications and site 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
Numeracy	Calculates basic measurements including mass and dimensions
Self-management	Monitors and minimises own exposure to worksite risks and hazards during work activities

Unit Mapping Information

Supersedes and is equivalent to RIICRC301D Maintain drainage systems.

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 RIICRC301E Maintain drainage systems

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:

- maintain drainage systems on at least two occasions, including:
 - maintaining drainage components to design specifications and functional requirements
 - applying techniques for locating faults in drainage systems
 - excavating and repairing drainage systems
 - inspecting and testing repaired drainage systems
 - maintaining open drains to specified line and fall
 - finishing surfaces adjoining open drains and confirming ease of run off
 - undertaking erosion control methods according to site requirements
 - inspecting, clearing and repairing culverts
 - clearing work area and disposing of, recycling or storing materials
 - sealing and storing or packing unused materials.

During the above, the candidate must:

- locate and apply required documentation, policies and procedures and confirm work activity is compliant
- implement the requirements, procedures and techniques for drainage system maintenance, including:
 - identifying and applying relevant drawings and job specifications to all work activities
 - identifying, addressing and reporting potential hazards and risks
 - identifying, obtaining, confirming and implementing signage requirements
 - selecting and checking for faults all plant, tools and equipment required to carry out tasks
 - identifying, addressing and reporting environmental issues and ground conditions
 - determining temporary stormwater diversion requirements

- work with others to undertake and complete the maintenance of drainage systems that meets required outcomes, including:
 - preparing for and organising work activities to meet task requirements
 - communicating with others to receive and clarify work instructions
 - using communication techniques and aids to advise others of work activity and exclusion zones
 - monitoring hazards and identifying and communicating changes to work environment.

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 maintain drainage systems
- policies, procedures and documentation required to maintain drainage systems, including those relating to:
 - site requirements
 - manufacturer specifications for required plant and equipment
 - relevant drawings and job specifications
 - hazard and risk management
 - environmental protection and ground conditions
 - work activity set up procedures
 - communication techniques and aids
 - site isolation and traffic control responsibilities
 - work health and safety
 - waste management
 - workplace recording and reporting
- types, characteristics, technical capabilities and limitations of equipment required to maintain drainage systems
- principles and techniques for effective drainage system maintenance, including:
 - techniques for maintaining drainage components and open drains
 - drainage system excavation and repair techniques
 - techniques for inspecting and repairing culverts
 - erosion control methods.

Assessment Conditions

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

- include access to:
 - personal protective equipment
 - equipment required to maintain drainage systems
- 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 personal safety or environmental damage are limiting factors, 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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