



Australian Government

Department of Education, Employment and Workplace Relations

NWP231B Maintain and repair drainage assets

Revision Number: 2

NWP231B Maintain and repair drainage assets

Modification History

NWP231B Release 2: Layout adjusted. No changes to content.
NWP231B Release 1: Primary release.

Unit Descriptor

This unit of competency describes the outcomes required to conduct maintenance and repair activities on drainage assets.

Application of the Unit

This unit supports the attainment of skills and knowledge required for field and operational staff with specific responsibility for ensuring that drainage asset maintenance and repair are completed in a safe and timely manner.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit of competency contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the required performance needed to demonstrate achievement of the element. Where <i>bold italicised</i> text is used, further information is detailed in the range statement. Assessment of performance is to be consistent with the evidence guide.
---	---

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1 Plan and prepare for work.	1.1 Determine work requirements from plans, drawings, specifications or instructions. 1.2 Check site and identify hazards according to legislative and organisational requirements. 1.3 Make appropriate drainage and inflow diversion arrangements without damage to environment. 1.4 Select and check equipment and excavation methods to meet safety requirements of task and site. 1.5 Select, fit and use personal protective equipment.
2 Maintain drainage assets.	2.1 Conduct routine inspections to determine asset condition and operational capacity according to organisational requirements. 2.2 Conduct preventative maintenance according to organisational maintenance programs. 2.3 Repair damaged components according to specification, location and organisational requirements. 2.4 Remove debris, silt and obstructions according to legislative and organisational requirements. 2.5 Select, place and join prefabricated drain sections according to manufacturer specifications and legislative and organisational requirements. 2.6 Construct cast in situ components according to specifications and legislative and organisational requirements. 2.7 Check repaired and replaced components to ensure that specifications have been met.
3 Finalise work.	3.1 Backfill, compact and restore work site to meet environmental and organisational requirements. 3.2 Check, maintain and store equipment, tools and materials according to manufacturer guidelines and organisational procedures. 3.3 Complete workplace records and process as required.

Required Skills and Knowledge

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

Required skills:

- identify and respond to operational problems
- complete records and logs
- use safety equipment and personal protective equipment
- use tools and machinery
- lay concrete
- insert water stop or seal
- work effectively as part of a team
- perform work-related calculations
- interpret plans, charts and instructions
- use literacy skills in regard to verbal and written communication in the workplace
- apply procedures and standards

Required knowledge:

- system layout
- environmental aspects of maintenance
- construction processes
- concrete placement techniques, including compaction
- water to cement ratio of concrete
- relevant utilities and service bodies
- communication systems
- hazardous materials handling
- landscape and ground structure of work area
- risk factors and potential hazards of construction processes
- equipment operation, capacity and limitations
- work-related calculations
- effects of weather and conditions on construction site or plant
- control systems
- pre-cast components
- pipes and fittings

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 the Training Package.

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

The candidate should demonstrate the ability to perform maintenance and repair work on drainage assets by:

- planning and preparing work site
- performing maintenance and repair tasks according to manufacturer specifications and organisational requirements
- checking work, restoring work site, storing equipment and completing documentation

Context of and specific resources for assessment

Access to the workplace and resources including:

- documentation that should normally be available in a water industry organisation
- relevant codes, standards and government regulations

Where applicable, physical resources should include equipment modified for people with disabilities.

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

Assessment processes and techniques must be culturally appropriate, and appropriate to the language and literacy capacity of the candidate and the work being performed.

Validity and sufficiency of evidence requires that:

- competency will need to be demonstrated over a period of time reflecting the scope of the role and the practical requirements of the workplace
- where the assessment is part of a structured learning experience the evidence collected must relate to a number of performances assessed at different points in time and separated by further learning and practice
- a decision of competence should only be made when the assessor has complete confidence in the person's competence over time and in various contexts
- all assessment that is part of a structured learning experience must include a combination of direct, indirect and supplementary evidence
- where assessment is for the purpose of recognition (RCC/RPL), the evidence provided will need to be authenticated and show that it represents competency demonstrated over a period of time
- assessment can be through simulated project-based

activity and must include evidence relating to each of the elements in this unit

In all cases where practical assessment is used it will be combined with targeted questioning to assess the underpinning knowledge. Questioning will be undertaken in a manner appropriate to the skill levels of the operator and cultural issues that may affect responses to the questions, and will reflect the requirements of the competency and the work being performed.

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, if used in the performance criteria, is detailed below. Add any essential operating conditions that may be present with training and assessment depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts.

Work requirements may include:

- site boundaries
- boundary protection
- extent of work
- utilities location
- safe work methods
- damage to other utilities

Hazards may include:

Legislative and organisational requirements may include:

- relevant federal and state or territory legislation and regulations
- codes of practice, associated standards and guidance material
- documented organisational policies, manuals and induction programs
- relevant community planning and development agreements, such as land care agreements

Equipment used may include:

- personal protective equipment
- hand and power tools
- on- and off-road vehicles
- lifting and winching equipment
- mechanical excavation equipment
- compressors
- pneumatic spaders and attachments
- motorised cutting equipment
- chemical spraying apparatus
- small marine craft
- trenching systems
- portable pumps
- communication equipment
- breathing apparatus
- gas detection equipment
- rescue equipment

Assets may include:

- controlling equipment
- channels
- drains
- meter pits
- access chambers

- collection chambers
- drop structures
- erosion barriers
- anti-pollution devices
- grates
- head walls
- pipes
- outlets
- regulators
- pipes, including:
 - vitrified clay
 - polyvinyl chloride (PVC)
 - polyethylene
 - reinforced concrete
 - glass reinforced piping
 - ductile iron cement lined
 - cast iron cement lined
- fittings, including:
 - jointing systems for pipe types and prefabricated sections, e.g. gibault and tension bands
 - solvent cement joints
 - compression rings
 - bolted flanges
 - malleable jointing materials
 - electrofusion
 - butt welding
- prefabricated sections, including:
 - drainage sections
 - drainage pits
 - culverts
 - under road crossovers
 - person access pits
 - siphons
 - meter outlets

Unit Sector(s)

Not applicable.

Competency field

Collection and distribution.