



Australian Government

AHCIRG439 Interpret and apply irrigation designs

Release: 1

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Modification History

Release	Comments
Release 1	This version released with AHC Agriculture, Horticulture, Conservation and Land Management Training Package Version 4.0.

Application

This unit of competency describes the skills and knowledge required to identify irrigation design key features, define the placement and function of irrigation system, mark out structures and component locations, estimate earth moving requirements, select pumps and system components, and develop staff instructions for interpretation and application of an irrigation design for an installation site.

The unit applies to individuals who apply specialised skills and knowledge to the interpretation and application of irrigation designs and have responsibility for the output of others. This includes applying and communicating non-routine technical solutions to predictable and unpredictable problems.

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

Pre-requisite Unit

Nil

Unit Sector

Irrigation (IRG)

Elements and Performance Criteria

Elements	Performance Criteria
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Identify the key features on an irrigation design	1.1 Identify and apply commonly used symbols and abbreviations on plans 1.2 Identify and apply common irrigation terms used on plans 1.3 Identify key features of irrigation plans, elevations and sections

Elements	Performance Criteria
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
	1.4 Identify scale, elevations and sections from drawings
2. Define the placement and function of the irrigation system	2.1 Interpret the plans, drawings and specifications for the irrigation design 2.2 Identify the proposed purpose and capacity of the irrigation system 2.3 Position the designed system in relation to the landscape of the site 2.4 Identify environmental impacts of the irrigation system, and its installation 2.5 Prepare as constructed drawings
3. Mark out structures	3.1 Mark the boundaries of the site 3.2 Identify existing irrigation infrastructure on the site 3.3 Identify electricity and communications infrastructure on the site plan and develop safety procedures 3.4 Mark out on site electricity and communications infrastructure 3.5 Mark out on site remnant vegetation to be retained 3.6 Identify and peg out on site proposed pipelines 3.7 Identify and peg out on site proposed irrigation structures
4. Estimate earth moving requirements for construction	4.1 Interpret earthworks drawings and take site levels 4.2 Estimate the amount of earth to be relocated or removed from the site 4.3 Confirm the sequence of earthworks and communicate to relevant staff 4.4 List and quantify materials required for irrigation structures 4.5 Verify construction requirements with designer
5. Select pumps and system components	5.1 Interpret design specifications for water volume, pressure and delivery pattern required 5.2 Select pumping system based on design specifications 5.3 Select irrigation system components based on design specifications 5.4 Verify component selection with designer
6. Mark out locations of all components	6.1 Define the sequence of operations for installation

Elements	Performance Criteria
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
	6.2 Identify the delivery and storage area for components 6.3 Identify the placement of all components
7. Develop instructions for staff	7.1 Identify potential environmental hazards and strategies to minimise risks in instructions 7.2 Document the sequence of activities and work duties 7.3 Discuss workplace health and safety hazards and risks and safe working practices to manage risks with staff 7.4 Provide a construction schedule to staff

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential for performance in this unit of competency but are not explicit in the performance criteria.

Skill	Description
Reading	Identify and interpret information regarding design requirements for irrigation system
Oral communication	- Initiate discussions with staff, using clear language to communicate production schedule, design requirements and safety procedures - Use clear communications with designer to verify construction requirements and component selection
Navigate the world of work	Identify and describe own workplace requirements, including safety requirements, associated with own role and area of responsibility

Unit Mapping Information

Code and title current version	Code and title previous version	Comments	Equivalence status
AHCIRG439 Interpret and	AHCIRG415 Interpret and apply	Performance criteria clarified Foundation skills added	Equivalent unit

Code and title current version	Code and title previous version	Comments	Equivalence status
apply irrigation designs	irrigation designs	Assessment requirements updated	

Links

Companion Volumes, including Implementation Guides, are available at VETNet: -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=c6399549-9c62-4a5e-bf1a-524b2322cf72>

Assessment Requirements for AHCIRG439 Interpret and apply irrigation designs

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Performance Evidence

An individual demonstrating competency must satisfy all of the elements and performance criteria in this unit. There must be evidence that the individual has interpreted and applied an irrigation design on at least one occasion and has:

- read contour maps and interpreted elevations and distances
- interpreted technical drawings and site plans
- documented and communicated as constructed drawings, safety procedures and material requirements
- marked out procedures
- interpreted pressures, flows, velocities and friction losses
- determined efficiency of the system with varying system components
- documented and communicated installation sequence of operations, activities, work duties and construction schedule.

Knowledge Evidence

An individual must be able to demonstrate the knowledge required to perform the tasks outlined in the elements and performance criteria of this unit. This includes knowledge of:

- erosion control and design principles
- principles and practices of irrigation design interpretation
- how to interpret plans, and general and technical specifications
- hydraulic calculations
- principles of native topsoil conservation and protection
- relevant work health and safety and environmental requirements
- levels and levelling
- pumps and pumping system components
- selection of water pumping and distribution components delivery based on specifications and requirements.

Assessment Conditions

Assessment of skills must take place under the following conditions:

- physical conditions:
 - a workplace setting or an environment that accurately represents workplace conditions
- resources, equipment and materials:
 - irrigation system site
 - site measuring, mark out and pegging tools and equipment
- specifications:
 - irrigation design, drawings, plans and specifications
- relationships:
 - designer, staff
- timeframes:
 - according to the job requirements.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

Links

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