



Australian Government

Department of Education, Employment and Workplace Relations

RTE2603A Lay irrigation and/or drainage pipes

Release: 1

RTE2603A Lay irrigation and/or drainage pipes

Modification History

Not applicable.

Unit Descriptor

This competency standard covers the process of setting out and excavating trenches using manual equipment and a machine operator, laying bedding materials, and positioning irrigation and/or drainage of varying types and sizes under routine supervision. Laying pipes requires the ability to read and interpret scale drawings, measure trench width, depth, grade and location, use power tools and hand tools, and work safely to instructions. This unit requires knowledge of irrigation and/or drainage pipes, types and sizes, hand and power tools and equipment, bedding and backfill materials and handling methods, hand signals for communication, and relevant OHS issues and procedures.

NB: This unit does not include operating excavation machinery such as trench diggers or ditch witches, but does include the use of mechanical equipment for lowering irrigation and/or drainage pipes.

Application of the Unit

Not applicable.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Not applicable.

Elements and Performance Criteria Pre-Content

Not applicable.

Elements and Performance Criteria

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Element	Performance Criteria
1 Plan and prepare job	<p>1.1 Materials required for the job are transported to the location and stacked in a safe position.</p> <p>1.2 Tools, equipment and machinery are selected consistent with the requirements of the job.</p> <p>1.3 Quality Assurance requirements are recognised and adhered to.</p> <p>1.4 Personal protective equipment is selected, correctly fitted and used.</p> <p>1.5 OHS requirements are adhered to.</p>
2 Set out and excavate trenches	<p>2.1 Location and depths of trenches is determined from job drawings.</p> <p>2.2 Trench location is set out with pegs and string line and clearly marked with appropriate marking material.</p> <p>2.3 Manual support is provided to machine operator with excavation of trenches, shoring or battering in accordance with OHS requirements.</p> <p>2.4 Trenches are cleaned out by hand and corners left square.</p> <p>2.5 Trench depths and grades are checked for conformity to job requirements.</p>
3 Install bedding materials	<p>3.1 Bedding materials are laid and consolidated to specified depths and grades.</p>
4 Lower and position pipes	<p>4.1 Pipes are installed/lowered into position with appropriate mechanical equipment according to specifications.</p> <p>4.2 Pipe joints and fittings are installed to job specification.</p> <p>4.3 Pipes are back filled to specifications and cover left level with surrounding ground.</p>

- 5 Clean up
 - 5.1 Site is cleared and excess soil, debris and unwanted materials removed in accordance with organisational procedures and **environmental requirements**.
 - 5.2 Tools and equipment are cleaned, maintained and stored.

Required Skills and Knowledge

Not applicable.

Evidence Guide

What evidence is required to demonstrate competence for this standard as a whole ?

Competence in laying irrigation and/or drainage pipes requires evidence that a person can set out and excavate trenches, check trench depth and grade, lay bedding materials, and position pipes to job specifications and supervisor instructions. The skills and knowledge required to lay pipes must be **transferable** to a different work environment. For example, this could include different pipes types and sizes, soil types and enterprises.

What specific knowledge is needed to achieve the performance criteria?

Knowledge and understanding are essential to apply this standard in the workplace, to transfer the skills to other contexts, and to deal with unplanned events. The knowledge requirements for this competency standard are listed below:

workplace and equipment safety requirements for excavating, filling trenches and laying pipes, including relevant legislation regulations and codes

irrigation and/or drainage pipes, types and sizes

hand and power tools and equipment

bedding and backfill materials and handling methods

scale drawings for laying irrigation and/or drainage pipes

hand signals for communication

OHS issues and procedures related to trenching and pipe laying

Quality Assurance procedures for excavating, filling trenches and laying pipes.

What specific skills are needed to achieve the performance criteria?

To achieve the performance criteria, appropriate literacy and numeracy levels as well as some complementary skills are required. These include the ability to:

- read and interpret scale drawings and specifications
- use hand signals for communicating with machine operator
- measure trench width, depth, grade and location
- level cover with existing ground
- use power tools and hand tools
- handle materials safely
- work safely to instructions.

What processes should be applied to this competency standard?

There are a number of processes that are learnt throughout work and life, which are required in all jobs. They are fundamental processes and generally transferable to other work functions. Some of these are covered by the **key competencies**, although others may be added. The questions below highlight how these processes are applied in this competency standard. Following each question a number in brackets indicates the level to which the key competency needs to be demonstrated where 0 = not required, 1 = perform the process, 2 = perform and administer the process and 3 = perform, administer and design the process.

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| 1. How can communication of ideas and information (1) be applied? | Using hand signals to machine operator. |
| 2. How can information be collected, analysed and organised (1)? | Checking depth and grade of trenches and meeting design specifications. |
| 3. How are activities planned and organised (1)? | Selecting equipment, tools, materials and personal protective equipment. |
| 4. How can team work (1) be applied? | Providing manual support to machine operator. |
| 5. How can the use of mathematical ideas and techniques (1) be applied? | Pegging out trench locations. |
| 6. How can problem-solving skills (1) be applied? | Lowering and positioning pipes. |
| 7. How can the use of technology (1) be applied? | Using laser equipment to design grades. |

Are there other competency standards that could be assessed with this one?

This competency standard **could** be assessed on its own or in combination with other competencies relevant to the job function.

There is essential information about **assessing this competency standard for consistent performance** and **where and how it may be assessed**, in the Assessment Guidelines for this Training Package. All users of these competency standards must have **access** to the **Assessment Guidelines**. Further advice may also be sought from the relevant **sector booklet**.

Range Statement

Range of Variables

The Range of Variables explains the contexts within which the performance and knowledge requirements of this standard may be assessed. The scope of variables chosen in training and assessment requirements may depend on the work situations available

What **tools, equipment and machinery** might be relevant to this competency standard?

These may include string lines, hammers, measuring tapes, automatic or manual levels, staves, optical squares, rakes, shovels, spades, rollers, trench digger, backhoe, polythene pipe layer, and fitting and welding tools.

What **OHS requirements** might be relevant to this standard?

OHS requirements include safe systems and procedures for the operation of machinery such as trench diggers and backhoes and other equipment, manual handling, selection and use of hand tools, selection and use of relevant personal protective clothing and equipment, and for working outdoors including protection from solar radiation, dust and noise.

What factors might affect **trench location** and **trench depth**?

Factors affecting the location and depth of trenching may include existing services such as power, water, and telephone, depth of cultivation for pasture improvement, existing plant and facilities such as roads and tracks, the susceptibility of soil to erosion or slipping during excavation or construction, and relevant legislation and/or regulations.

How might the **grade** be designed?

This may include manual and laser equipment.

What type of irrigation and/or drainage **pipes** might be used?

These may include concrete, metal, polythene or polyvinylchloride (PVC). The type and size of pipe will vary with the terrain, soil type and traffic load.

What **fittings** may be relevant to this standard?

Fittings may include valves, outlets, thrust blocks and connecting surfaces such as O-rings.

What **environmental requirements** might there be in the clean up phase of laying pipes?

Environmental requirements may include recycling or environmentally safe disposal of excess soil, debris and unwanted materials.

For more information on contexts, environment and variables for training and assessment, refer to the Sector Booklet.

Unit Sector(s)

Not applicable.