

Title	Demonstrate knowledge of pumps and alternative systems for drainage control and discharge		
Level	5	Credits	5

Purpose	<p>This unit standard covers pumps and systems for discharging drainage. It is intended for use in the training of certifying drainlayers.</p> <p>People credited with this unit standard are able to: describe aspects of pumping and alternative systems for drainage discharge; demonstrate knowledge of pumps for foul water drainage systems; demonstrate knowledge of pumps for effluent disposal systems; demonstrate knowledge of pumps for surface water drainage systems; and demonstrate knowledge of pumps for irrigation systems.</p>
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Classification	Plumbing, Gasfitting and Drainlaying > Drainlaying
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Available grade	Achieved
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Explanatory notes

- Legislation, standards, codes, and guides applicable to this unit standard include but are not limited to:

 - Plumbers, Gasfitters, and Drainlayers Act 2006
 - Health and Safety in Employment Act 1992
 - Building Act 2004
 - Health Act 1956
 - Resource Management Act 1991
 - Plumbers, Gasfitters, and Drainlayers Regulations 2010
 - AS/NZS 1547:2000 *On-site domestic wastewater management* (available at <http://www.standards.co.nz>)
 - AS/NZS 1546.1:2008 *On-site domestic wastewater treatment units – Septic tanks* (available at <http://www.standards.co.nz>)
 - AS/NZS 3500.2:2003 *Plumbing and drainage – Sanitary plumbing and drainage* (available at <http://www.standards.co.nz>)
 - Approved Code of Practice for Safety in Excavation and Shafts for Foundations* (Wellington: Department of Labour, 1995) (available at <http://www.osh.govt.nz/order/catalogue>)
 - Guide for Safety with Underground Services* (Wellington: Department of Labour 2002) (available at <http://www.osh.govt.nz/order/catalogue>)
 - New Zealand Building Code Clause B2 Durability and any related compliance documents (available at <http://www.dbh.govt.nz>)
 - New Zealand Building Code Clause E1 Surface Water and any related compliance documents (available at <http://www.dbh.govt.nz>)

New Zealand Building Code Clause G13 Foul Water and any related compliance documents (available at <http://www.dbh.govt.nz>)

New Zealand Building Code Clause G14 Industrial Liquid Waste and any related compliance documents (available at <http://www.dbh.govt.nz>).

Any legislation, standard, code, or guide superseding any of the above will apply pending review of this unit standard.

- 2 The scope and depth of this unit standard are as contained in *Drainlaying Essential Skills* (Wellington: Plumbing, Gasfitting, Drainlaying and Roofing Industry Training Organisation Ltd, 2011 available at <http://www.skills.org.nz>).

Outcomes and evidence requirements

Outcome 1

Describe aspects of pumping and alternative systems for drainage discharge.

Range suction head, pressure/head, resistance, volume, gravity flow (tip bucket, siphon, flushing valve).

Evidence requirements

- 1.1 Answers are presented in response to questions regarding principles of pumping consistent with *Drainlaying Essential Skills*.
- 1.2 Answers are presented to questions regarding fault diagnosis and repair of pumps consistent with *Drainlaying Essential Skills*.

Outcome 2

Demonstrate knowledge of pumps for foul water drainage systems.

Range includes but is not limited to – centrifugal, macerating pumps, vortex pumps.

Evidence requirements

- 2.1 Answers are presented in response to questions regarding components and operation of pumps consistent with *Drainlaying Essential Skills*.
- 2.2 Pumps are selected for given scenarios, and reason(s) for the selections are given consistent with *Drainlaying Essential Skills*.

Outcome 3

Demonstrate knowledge of pumps for effluent disposal systems.

Evidence requirements

- 3.1 Answers are presented in response to questions regarding components and operation of pumps consistent with *Drainlaying Essential Skills*.

- 3.2 Pumps are selected for given scenarios, and reason(s) for the selections are given consistent with *Drainlaying Essential Skills*.

Outcome 4

Demonstrate knowledge of pumps for surface water drainage systems.

Range includes but is not limited to – dewatering pumps, permanent pumps.

Evidence requirements

- 4.1 Answers are presented in response to questions regarding components and operation of pumps consistent with *Drainlaying Essential Skills*.
- 4.2 Pumps are selected for given scenarios, and reason(s) for the selections are given consistent with *Drainlaying Essential Skills*.

Outcome 5

Demonstrate knowledge of pumps for irrigation systems.

Evidence requirements

- 5.1 Answers are presented in response to questions regarding components and operation of pumps consistent with *Drainlaying Essential Skills*.
- 5.2 Pumps are selected for given scenarios, and reason(s) for the selections are given consistent with *Drainlaying Essential Skills*.
- 5.3 Aspects of irrigation systems are described consistent with *Drainlaying Essential Skills*.

Range flow rates, spray patterns, drip lines.

Planned review date	31 December 2017
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Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	15 March 2012	N/A

Consent and Moderation Requirements (CMR) reference	0008
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This CMR can be accessed at <http://www.nzqa.govt.nz/framework/search/index.do>.

Please note

Providers must be granted consent to assess against standards (accredited) by NZQA, before they can report credits from assessment against unit standards or deliver courses of study leading to that assessment.

Industry Training Organisations must be granted consent to assess against standards by NZQA before they can register credits from assessment against unit standards.

Providers and Industry Training Organisations, which have been granted consent and which are assessing against unit standards must engage with the moderation system that applies to those standards.

Requirements for consent to assess and an outline of the moderation system that applies to this standard are outlined in the Consent and Moderation Requirements (CMR). The CMR also includes useful information about special requirements for organisations wishing to develop education and training programmes, such as minimum qualifications for tutors and assessors, and special resource requirements.

Comments on this unit standard

Please contact The Skills Organisation info@skills.org.nz if you wish to suggest changes to the content of this unit standard.