

Title	Demonstrate knowledge of aspects of theory related to drainage systems		
Level	3	Credits	8

Purpose	<p>This unit standard covers aspects of the theory of trade practice. It is intended for use in the training of licensed drainlayers.</p> <p>People credited with this unit standard are able to demonstrate knowledge of trade science related to drainlaying; and demonstrate knowledge of materials used in drainlaying systems that are consistent with <i>Drainlaying Essential Skills</i>.</p>
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Classification	Plumbing, Gasfitting and Drainlaying > Drainlaying
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Available grade	Achieved
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Entry information	
Critical health and safety prerequisites	Candidates who are working within the jurisdiction of the Plumbers, Gasfitters and Drainlayers Board must hold a current drainlaying limited certificate or exemption for drainlaying under supervision as issued under the Plumbers, Gasfitters and Drainlayers Act 2006.

Explanatory notes

- Compliance documents (standards, codes and approving authority guidelines) relevant to this unit standard include but are not limited to:
 - AS/NZS 3500.2:2003 *Plumbing and drainage – Sanitary plumbing and drainage* (available at <http://www.standards.co.nz>)
 - Approved Code of Practice for 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 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>)
 - Schedule 1 of the New Zealand Building Code
 - Approving authority guidelines (e.g. Technical Publications)

Any compliance document superseding any of the above will apply, pending review of this unit standard.

- 2 The scope and depth of this unit standard is 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

Demonstrate knowledge of trade science related to drainlaying.

Evidence requirements

- 1.1 Answers are presented in response to questions regarding trade science that are consistent with *Drainlaying Essential Skills*.

Range states of matter (including adhesion and cohesion), mass and density; elementary hydrostatics (head, pressure, force, buoyancy); elementary hydraulics/fluid flow (pressure, flow, resistance); expansion and contraction; siphonage and atmospheric pressure; materials and corrosion; simple machines (levers, pulleys and ropes); water quality (black, grey, recycled, potable).

Outcome 2

Demonstrate knowledge of materials used in drainage systems that are consistent with *Drainlaying Essential Skills*.

Evidence requirements

- 2.1 Answers are presented in response to questions requiring knowledge of materials that are consistent with *Drainlaying Essential Skills*.

Range physical characteristics (porosity, solidity, flexibility, durability, tensile strength, resistance to abrasion, resistance to trade wastes), pipe materials, concrete and constituent products, bedding and backfill materials.

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.