

<b>Title</b>	<b>Describe wastewater systems and materials, and causes and prevention of pipe failure</b>		
<b>Level</b>	<b>3</b>	<b>Credits</b>	<b>6</b>

<b>Purpose</b>	People credited with this unit standard are able to describe: the features, handling, performance, and use of wastewater pipes; the access components and features of wastewater systems; the features of property service connections to a wastewater drainage system; and causes, and methods for prevention, of failure of wastewater pipes.
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<b>Classification</b>	Water Industry > Water Reticulation
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<b>Available grade</b>	Achieved
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### Guidance Information

- 1 Legislation and references relevant to this unit standard include: Health and Safety at Work Act 2015 and Health and Safety at Work (Asbestos) Regulations 2016, and subsequent amendments;  
 NZS 4404:2010 *Land Development and Subdivision Infrastructure*, available from <http://www.standards.govt.nz>;  
*Approved Code of Practice for the Management and Removal of Asbestos*, available from Worksafe NZ <http://construction.worksafe.govt.nz/guides/acop-management-and-removal-of-asbestos/>.
- 2 Definition  
*Wastewater* includes stormwater and sewage systems.

### Outcomes and performance criteria

#### Outcome 1

Describe the features, handling, performance, and use of wastewater pipes.

#### Performance criteria

- 1.1 Brick wastewater pipes are described in terms of their features, handling vulnerability, performance in the ground, and applications and limitations of use.  
 Range features – circular sections, oval sections, connecting structures.

- 1.2 Concrete wastewater pipes are described in terms of their features, handling vulnerability, performance in the ground, and pressure rating.
- Range features – circular sections, oval sections, connecting structures, rubber ring joints, pipe classes and specification.
- 1.3 Cast iron wastewater pipes are described in terms of their features, handling vulnerability, performance in the ground, and pressure rating.
- Range features – lead joints, rubber ring joints, connecting fittings.
- 1.4 Asbestos cement wastewater pipes are described in terms of their features, handling vulnerability, performance in the ground, and pressure rating.
- Range features – fittings, pipe classes and specification, ‘supertite’ joints, rubber ring joints, compression joints.
- 1.5 PVC wastewater pipes are described in terms of their features, materials, handling vulnerability, performance in the ground, and pressure rating.
- Range features – rubber ring joints, compression fittings, pipe classes and specification, gravity mains, pressure rising mains.
- 1.6 Polyethylene wastewater pipes are described in terms of their features, materials, handling vulnerability, performance in the ground, and pressure rating.
- Range features – electrofusion, restrained compression joints, butt welding.
- 1.7 Ceramic wastewater pipes are described in terms of their features, handling vulnerability, and performance in the ground.
- 1.8 Concrete lined steel wastewater pipes are described in terms of their features, handling vulnerability, performance in the ground, and pressure rating.
- Range features – outside diameters, mechanical joints, welded joints, flexible couplings.
- 1.9 Glass reinforced plastic wastewater pipes are described in terms of their features, materials, handling vulnerability, performance in the ground, and pressure rating.

## Outcome 2

Describe the access components and features of wastewater systems.

**Performance criteria**

- 2.1 Access chambers are described in terms of the components and their features.  
  
Range access chamber types include but are not limited to – in-line, ‘Y’, ‘T’, drop.
- 2.2 Lamp holes or rodding eyes are described in terms of their components and features.
- 2.3 Sewer ventilation fittings are described in terms of the components and their features.

**Outcome 3**

Describe the features of property service connections to a wastewater drainage system.

**Performance criteria**

- 3.1 Earthenware service connections are described in terms of their features.
- 3.2 PVC service connections are described in terms of their features.
- 3.3 Pumped service connections are described in terms of their features.

**Outcome 4**

Describe causes, and methods for prevention, of failure of wastewater pipes.

**Performance criteria**

- 4.1 Wastewater pipes are described in terms of the external and internal factors, and pipe features, which cause failure.
- 4.2 Wastewater pipes are described in terms of the factors which prevent failure.

<b>Replacement information</b>	This unit standard, unit standard 19213, unit standard 19214, unit standard 22098, and unit standard 22111 were replaced by unit standard 31450.
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**This unit standard is expiring. Assessment against the standard must take place by the last date for assessment set out below.**

**Status information and last date for assessment for superseded versions**

Process	Version	Date	Last Date for Assessment
Registration	1	27 May 2002	31 December 2018
Review	2	26 April 2005	31 December 2018
Review	3	19 September 2008	31 December 2018
Review	4	16 March 2017	31 December 2021
Review	5	27 September 2018	31 December 2021

**Consent and Moderation Requirements (CMR) reference**

0101

This CMR can be accessed at <http://www.nzqa.govt.nz/framework/search/index.do>.