

Title	Plan and install an open drain system for rural land drainage		
Level	4	Credits	10

Purpose	People credited with this unit standard are able to: plan the open drain system for rural land; select and prepare equipment and machinery for open drain system; install an open drain rural land drain system; and carry out post-operational procedures.
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Classification	Rural Contracting > Agricultural Contracting
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Available grade	Achieved
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Prerequisites	Driver licence and any driver licence endorsement appropriate to the machine or vehicle being used.
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Guidance Information

- 1 The following legislation and requirements apply to this unit standard:
 - Health and Safety in Employment Act 1992;
 - Resource Management Act 1991;
 - Territorial authority and/or regional council (TA/RC) requirements;
 - Guidelines for the Provision of Safety, Health and Accommodation in Agriculture* (Wellington: Department of Labour, 1996); and
 - Approved Code of Practice for Safety in Excavation and Shafts for Foundations* (Wellington: Department of Labour, 1995); both available from <http://www.osh.govt.nz/order/catalogue>;
 - Operator Safety Manual for Earthmoving Machinery*, 2006, Connexis Infrastructure ITO;
 - Manufacturer's instructions.

Any legislation or other requirement superseding any of the above will apply, pending review of this unit standard.
- 2 Assessment against this unit standard must be based on evidence from a workplace context.
- 3 This unit standard does not enable the holder to undertake explosive work. Any explosive work involved in excavation must be undertaken only by a certificated construction blaster.
- 4 Assessment against this unit standard must be based on evidence from a workplace context.

- 5 Personal protective equipment, appropriate to job requirements, is to be selected and used in accordance with company requirements and manufacturer's instructions.
- 6 Definitions
Company requirements refer to all policies, procedures, and methodologies the candidate's organisation has in place including but not limited to those relating to health, safety, environment, quality, and operations.
Manufacturer's instructions may include specifications, installation, handling, use, and maintenance instructions and safety data sheets.

Outcomes and performance criteria

Outcome 1

Plan the open drain system for rural land.

Performance criteria

- 1.1 Objectives and requirements of the open drain system are established with the client.
- 1.2 System layout is developed in accordance with client requirements.
- 1.3 Grade is calculated and set to ensure sufficient fall for drainage.
- 1.4 Hazards are identified in terms of underground services, in-ground services, overhead objects, surface obstacles, and contours.
- 1.5 Excavation work pattern is developed that minimises empty running, and takes account of the terrain and identified hazards.
- 1.6 Ground conditions are checked for suitability for trenching.
Range soil type, soil conditions, terrain.
- 1.7 Planning is in accordance with TA/RC requirements.

Outcome 2

Select and prepare equipment and machinery for open drain system.

Performance criteria

- 2.1 Equipment and machinery chosen are appropriate for the work to be carried out.
Range may include but is not limited to – excavator, tractor, rotary ditcher.

2.2 Equipment and machinery are checked for condition, damage, wear, and faults; problems are identified; and corrective action is taken in accordance with company requirements.

Range may include but is not limited to – tracks, track tension, nuts and bolts, bearings, hydraulics, couplings, alignments, oil leaks.

2.3 Checks are made and any necessary actions are taken or adjustments made to ensure the mobile machinery complies with legal and company requirements for operator health and safety.

Range may include but is not limited to – fire extinguisher, first aid equipment, seat, safety belt, mirrors, controls, climate control, sound equipment, communications equipment.

Outcome 3

Install an open drain rural land drain system.

Performance criteria

3.1 Drains are excavated to predetermined line and grade in accordance with system planned.

3.2 Drains are profiled in accordance with system planned.

3.3 As required, erosion and other water control devices are installed in accordance with system planned and TA/RC requirements.

3.4 Equipment and machinery are monitored during use, and required adjustments are made to ensure required line and grade.

3.5 Installation checks are made in accordance with company requirements.

3.6 Excavated material is spread or removed and the site is reinstated, in accordance with system planned, client and TA/RC requirements, and company requirements.

Outcome 4

Carry out post-operational procedures.

Performance criteria

4.1 Shut-down procedures are carried out in accordance with manufacturer's instructions.

4.2 Equipment is cleaned and, as required, treated in accordance with manufacturer's instructions and/or company requirements.

4.3 Lubrication is carried out in accordance with manufacturer's instructions.

- 4.4 Any damage or faults including any missing, bent, broken, or loose parts are identified and are repaired, replaced, or reported in accordance with manufacturer's instructions and/or company requirements.
- 4.5 Equipment and machinery are stored in accordance with company requirements.
- 4.6 Documentation for the operation is completed in accordance with company and client requirements, and is stored in accordance with company requirements.

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	23 July 1996	31 December 2021
Revision	2	5 January 1999	31 December 2021
Revision	3	18 January 2000	31 December 2021
Review	4	31 October 2002	31 December 2021
Review	5	25 June 2007	31 December 2021
Review	6	26 March 2020	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>.