Title	**Demonstrate knowledge of and select methods for pipeline construction and maintenance**		
Level	**4**	**Credits**	**10**

Purpose	People credited with this unit standard are able to demonstrate knowledge of: trenched and trenchless methodologies and dewatering and sediment control for pipeline construction and maintenance; monitoring of asset condition for pipeline maintenance; and, select pipeline construction or maintenance methods.

Classification	Infrastructure Works > Infrastructure Works Utilities

Available grade	Achieved

Guidance Information

1 Legislation and references relevant to this unit standard include:
Health and Safety at Work Act 2015 and Resource Management Act 1991;
National Code of Practice for Utilities' Access to the Transport Corridors available from http://www.nzuag.org.nz/national-code/;
SNZ HB 2002:2003 *Code of Practice for Working in the Road*, and NZS 4404:2010 *Land development and subdivision infrastructure*, both available from http://www.standards.govt.nz;
Excavation Safety – Good Practice Guidelines 2016, available from http://www.worksafe.govt.nz;
Code of Practice for Temporary Traffic Management, available from http://www.nzta.govt.nz/resources/code-temp-traffic-management;
Local authority hygiene codes.

2 Assessment against this unit standard must take place in a workplace environment. Assessment parameters will depend on site-specific equipment, procedures, and practices. Practices must reflect industry best practice and comply with legislative requirements.

3 Definitions
Company requirements include the policy, procedures, and methodologies of the company. They include legislative and regulatory requirements applicable to the company or a specific site. Requirements are documented in the company's health and safety plans, traffic management plans, contract work programmes, quality assurance programmes, policies, and procedural documents.
Contract specifications include plans, diagrams, and special technical conditions. They do not include special administrative conditions.

Outcomes and performance criteria

Outcome 1

Demonstrate knowledge of trenched methodologies for pipeline construction and maintenance.

Performance criteria

1.1 Methods and equipment used for setting depth and gradient of trenching are described.

1.2 Methods and equipment used for setting horizontal alignment are described.

1.3 Trench shoring requirements are identified and described for specified conditions in accordance with company requirements.

Range trench depth, trench alignment, ground condition, material type.

1.4 Materials used for bed preparation and trench backfill are described in terms of their properties**,** and suitability for specified situations and specified pipe materials.

Range materials – hard fill, graded or bound, re-use of existing material; properties – grading, moisture content, compaction.

1.5 Bed preparation, backfilling, and compaction are described in terms of the equipment and procedures, and consequences of not following good practice.

1.6 Trench surface reinstatement procedures and requirements are described in accordance with company requirements.

Outcome 2

Demonstrate knowledge of trenchless methodologies for pipeline construction and maintenance.

Range evidence is required for two types of trenchless pipe installation or rehabilitation.

Performance criteria

2.1 Reasons for using specific trenchless methodologies are described in terms of pipeline material and end use, logistical considerations, and company requirements.

2.2 Equipment used for trenchless pipe installation or rehabilitation is described in terms of its purpose and function.

2.3 Sequence of tasks required to ensure pipe alignment when installing or rehabilitating pipes is described in accordance with company requirements.

2.4 The safety requirements of trenchless pipe installation or rehabilitation are described in terms of company requirements and manufacturer's instructions.

Outcome 3

Demonstrate knowledge of dewatering and sediment control for pipeline construction and maintenance.

Performance criteria

3.1 Reasons for dewatering and sediment control are described in terms of legislative and operational requirements.

3.2 Methods and equipment used for dewatering and sediment control are described in accordance with company requirements.

3.3 Implications of dewatering and sediment control are described in terms of the changes that occur in the surrounding environment.

Range physical characteristics of the ground, building foundations, water table.

Outcome 4

Demonstrate knowledge of asset condition monitoring for pipeline maintenance.

Performance criteria

4.1 Asset inspection programmes are described in terms of their role in determining asset condition, and associated risk assessment.

4.2 Asset condition monitoring methods are described in accordance with company requirements.

Outcome 5

Select pipeline construction or maintenance methods.

Performance criteria

5.1 Selection criteria to be considered before selecting a method are described in terms of importance and applicability for specified situations.

Range three selection criteria.

5.2 Methods for construction or maintenance are selected and justified for specified situations in accordance with selection criteria and company procedures.

Replacement information	This unit standard replaced unit standard 22103 and unit standard 24918.

Planned review date	31 December 2023

Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	29 November 2018	N/A

Consent and Moderation Requirements (CMR) reference	0101

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

Comments on this unit standard

Please contact Connexis Infrastructure ITO qualifications@connexis.org.nz if you wish to suggest changes to the content of this unit standard.