

# PROPOSED Training Programme for New Zealand Certificate in Infrastructure Works (Pipeline Construction and Maintenance)

with strands in Drinking-Water, Stormwater and Wastewater, and Trenchless Technologies

**Level 4 (160 Credits) v2 of NZQA 3858**

**Duration: 25 Months**

## How to review this proposed programme:

1. Note: unit standards have been grouped into concepts which assist in forming the programme.
2. All unit standards in a group must be completed to be awarded the unit standards associated. For example: The group titled 'Notifiable works' in GPO 1. requires the completion of 3-unit standards. These being US 20869, 6451 and 30596.
3. Review the compulsory groups that covers \*GPO 1-4 which all trainees would complete.
4. Review the strands that cover GPO 5-7, compulsory and elective groupings that are relevant to your trainees.
5. Note any omissions or skill gaps to be considered.
6. Please complete the survey with your feedback.

\*GPO- Graduate Profile Outcomes, noted in the grey headings below

UNIT STANDARD		LEVEL	CREDIT	COMPULSORY /ELECTIVE
<b>GPO 1: Meet health, safety, environment, and quality assurance requirements for pipeline construction and maintenance (indicative 35 credits)</b>				
<b>Group Title - Compliance</b>				
31470	Demonstrate knowledge of and implement environmental controls for an infrastructure worksite	4	6	Compulsory
31942	Demonstrate knowledge of the impact of erosion and sedimentation on an infrastructure worksite	4	6	Compulsory
<b>Group Title - Notifiable works</b>				
20869	Demonstrate knowledge of notifiable works and work permits typical of infrastructure worksites	3	3	Compulsory
6451	Carry out notifiable work and permit requirements on an infrastructure worksite	4	5	Compulsory
30596	Demonstrate knowledge of asbestos and safety measures for asbestos-related work	3	2	Compulsory
<b>Group Title - Quality Assurance Procedures</b>				
27329	Demonstrate knowledge of and apply quality assurance practices to own work area in an infrastructure works operation	3	5	Compulsory
32770	Carry out health and safety procedures on an infrastructure worksite	4	5	Compulsory
32769	Describe health and safety procedures and explain risk assessment for an infrastructure worksite	3	5	Compulsory

Total = 37 credits (2 credits above GPO 1 indicative credits)

**GPO 2: Plan and apply appropriate methodology when constructing and maintaining pipelines (Indicative 30 credits)**

UNIT STANDARD		LEVEL	CREDIT	COMPULSORY /ELECTIVE
<b>Group Title - Planning</b>				
28711	Interpret civil infrastructure plans	4	6	Compulsory
6476	Use plans to locate features on an infrastructure worksite	3	5	Compulsory
<b>Group Title - Onsite Resources/Methods and Systems</b>				
31518	Demonstrate knowledge of and select methods for pipeline construction and maintenance	4	10	Compulsory
31517	Demonstrate knowledge of and select pipes and fittings for pipeline construction and maintenance	4	5	Compulsory
<b>Group Title - Location &amp; Servicing</b>				
27501	Demonstrate knowledge of protection and support systems for excavation on an infrastructure works site	3	2	Compulsory
31515	Carry out pipeline construction or maintenance preparation and service location	4	5	Compulsory

Total = 33 credits (3 credits above GPO 2 indicative credits)

### **GPO3: Coordinate plant, equipment, and materials to complete pipeline construction and maintenance operations. (Indicative 20 Credits)**

<b>Group Title - Management of Resources</b>				
26780	Describe, issue, and monitor resources for daily activities on an infrastructure worksite	4	10	Compulsory
<b>Group Title - Excavate &amp; Post Excavation</b>				
31516	Carry out excavation and post-excavation reinstatement work for pipeline construction or maintenance	4	10	Compulsory

Total = 20 credits

### **GPO4: Communicate effectively while constructing and maintaining pipelines. (indicative 15 Credits)**

<b>Group Title - Site communications</b>				
22992	Prepare and maintain records for civil construction works	4	6	Compulsory
31475	Interpret and communicate daily operational requirements on a civil infrastructure worksite	4	5	Compulsory
26781	Identify and liaise with people affected by activities at an infrastructure works site	4	3	Compulsory

Total = 14 credits (1 credit below GPO 4 indicative credits)

**TOTAL CORE COMPULSORY CREDITS now 104 credits. The GPO 5 STRAND credit value is now adjusted to a minimum of 56 credits.**

### **GPO5 – DRINKING WATER STRAND: Maintain drinking-water reticulation assets, including planned and reactive works. (Indicative 56 Credits)**

<b>Group Title - Water Quality Management</b>				
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UNIT STANDARD		LEVEL	CREDIT	COMPULSORY /ELECTIVE
31521	Demonstrate knowledge of and maintain water quality in drinking-water supply networks	4	6	Compulsory
32821	Demonstrate knowledge of water quality and water sampling in drinking-water supply networks	4	3	Compulsory
<b>Group Title - Complex Water Reticulation System</b>				
32816	Demonstrate knowledge of complex water reticulation assets, their components and fittings, and procedures used for them	4	8	Compulsory
<b>Group Title - Jointing</b>				
22104	Demonstrate knowledge of pipe jointing systems for water reticulation	4	6	Compulsory

Total = 23 compulsory credits

**Elective Group options - trainees must ensure that a minimum of 33 elective credits are selected from the groups below**

<b>Group 1 - Pipeline structures</b>				
27328	Install structures for infrastructure pipelaying structures	4	10	Elective
<b>Group 2 - Pipelaying &amp; Structures</b>				
31523	Install pipes for infrastructure pipelaying	4	11	Elective
28722	Confirm alignment and reinstate pipes and structures to correct line and level	4	4	Elective
<b>Group 3 - Bypasses</b>				
32809	Demonstrate knowledge of bypasses for pipeline construction and maintenance	4	2	Elective
32810	Install, commission, and decommission bypasses for pipeline construction or maintenance	4	4	Elective
<b>Group 4 - Maintenance of Complex Reticulation</b>				
31452	Carry out maintenance operations on complex water reticulation assets	4	12	Elective
<b>Group 5 - Fusion Jointing</b>				
31532	Demonstrate knowledge of fusion jointing of polyethylene pipes for water networks	4	5	Elective
31525	Carry out electrofusion jointing on polyethylene pipes for water networks	4	10	Elective
31524	Carry out butt fusion jointing on polyethylene pipes for water networks	4	10	Elective
<b>Group 6 - Water Controls</b>				
32823	Explain single point groundwater control, pump systems and disposal methods for an infrastructure works excavation	4	5	Elective



UNIT STANDARD	LEVEL	CREDIT	COMPULSORY /ELECTIVE
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Suggested Group combinations to meet minimum credit requirements include:

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|------------------------------------|-----------------------------------|
| 1. Groups 1, 3, 4 & 6 = 33 credits | 3. Groups 1,2, 3 & 6 = 36 credits |
| 2. Groups 1, 2, 3 & 6 = 36 credits | 4. Groups 1, 2 & 4 = 37 credits   |

**GPO 6 – STORMWATER/WASTEWATER STRAND:**  
**Maintain stormwater and wastewater reticulation assets, including planned and reactive works.**  
**(Indicative 56 Credits)**

**Group Title - Complex Water Reticulation System**

32816	Demonstrate knowledge of complex water reticulation assets, their components and fittings, and procedures used for them	4	8	Compulsory
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**Group Title - Wastewater and Stormwater Networks and Risk Management**

31527	Demonstrate knowledge of wastewater and stormwater networks for pipeline construction and maintenance	4	5	Compulsory
32822	Demonstrate knowledge of risks and risk management in wastewater and stormwater networks	4	5	Compulsory

**Group Title - Jointing**

22104	Demonstrate knowledge of pipe jointing systems for water reticulation	4	6	Compulsory
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**Total = 24 compulsory credits**

**Elective Group options - trainees must ensure that a minimum of 32 elective credits are selected from the groups below**

**Group 1 - Pipelaying & Structures**

31523	Install pipes for infrastructure pipelaying	4	11	Elective
28722	Confirm alignment and reinstate pipes and structures to correct line and level	4	4	Elective

**Group 2 - Fusion Jointing**

31532	Demonstrate knowledge of fusion jointing of polyethylene pipes for water networks	4	5	Elective
31525	Carry out electrofusion jointing on polyethylene pipes for water networks	4	10	Elective
31524	Carry out butt fusion jointing on polyethylene pipes for water networks	4	10	Elective

UNIT STANDARD		LEVEL	CREDIT	COMPULSORY /ELECTIVE
<b>Group 3 - Bypasses</b>				
32809	Demonstrate knowledge of bypasses for pipeline construction and maintenance	4	2	Elective
32810	Install, commission, and decommission bypasses for pipeline construction or maintenance	4	4	Elective
<b>Group 4 - Maintenance of Complex Reticulation</b>				
31452	Carry out maintenance operations on complex water reticulation asset	4	12	Elective
<b>Group 5 - Live networks management</b>				
31528	Perform work on live wastewater and stormwater networks	4	10	Elective
<b>Group 6 - Pressure Rising Main</b>				
31529	Construct a pressure rising main	4	5	Elective
<b>Group 7 - Water Controls</b>				
32823	Explain single point groundwater control, pump systems and disposal methods for an infrastructure works excavation	4	5	Elective
<b>Group 8 – Pump Station Operations</b>				
32825	Clean and maintain a pump station	4	5	Elective
<b>Group 9 - Water Jet Operations</b>				
28726	Operate a water-jet unit on infrastructure work sites	3	10	Elective

Suggested Group combinations to meet minimum credit requirements include:

1. Groups 4, 5, 6 & 7 = 32 credits
2. Groups 1, 3 & 4 = 33 credits
3. Groups 2, 6, 8 & 9 = 34 credits
4. Groups 2,6 & 7 = 35 credits
5. Groups 2 & 4 = 37 credits

#### **GPO 7– TRENCHLESS TECHNOLOGY STRAND:**

**Install or rehabilitate infrastructure assets using appropriate trenchless installation methodology and technology (indicative 56 Credits)**

#### **Group Title - Handling, Preparation and Assembly**

31571	Manage pipe handling, preparation, and assembly for trenchless installation	4	10	Compulsory
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#### **Group Title - On-site environment management**

31572	Demonstrate knowledge of the effects of soil types and ground conditions on trenchless operations	4	6	Compulsory
25396	Demonstrate knowledge of damage avoidance, consequences of damage, and damage response for trenchless installations	4	4	Compulsory

#### **Group Title - Install and Rehabilitation (for Trenchless)**



UNIT STANDARD		LEVEL	CREDIT	COMPULSORY /ELECTIVE
31573	Set up a site and equipment for trenchless pipe installation or rehabilitation and disestablish the site afterwards	4	10	Compulsory
32819	Use trenchless methodology to install or rehabilitate pipes	4	12	Compulsory

Total = 42 compulsory credits.

**Elective Group options - trainees must ensure that a minimum of 14 elective credits are selected from the groups below**

#### Group 1 - Networks

32814	Demonstrate knowledge of wastewater and stormwater networks, their materials and fittings, and techniques used for them	3	8	Elective
32811	Demonstrate knowledge of drinking-water networks, and materials, fittings, and techniques used for them	3	8	Elective

#### Group 2 - Water Controls

32823	Explain single point groundwater control, pump systems and disposal methods for an infrastructure works excavation	4	5	Elective
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#### Group 3 – Plan for Install

31570	Plan trenchless pipe installation or rehabilitation operations	4	10	Elective
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Suggested Group combinations to meet minimum credit requirements include:

1. Group 1 = 16 credits
2. Group 2 & 3 = 15 credits