

<b>Title</b>	<b>Install pipe culverts and structures on road construction works</b>		
<b>Level</b>	<b>3</b>	<b>Credits</b>	<b>15</b>

<b>Purpose</b>	People credited with this unit standard are able to: prepare for culvert works; prepare sites for works; prepare bedding for culverts; lay and joint pipes and carry out initial inspection; install inlet and outlet structures; backfill trench and apply surfacing; and inspect and clean up sites.
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<b>Classification</b>	Infrastructure Works > Road Construction
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<b>Available grade</b>	Achieved
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### Guidance Information

- 1 Evidence presented for assessment against this unit standard must be consistent with safe working practices and be in accordance with relevant legislative and industry requirements.
- 2 Legislation relevant to this unit standard includes: Health and Safety at Work Act 2015; and all subsequent amendments and replacements.
- 3 Definitions  
*As-built* refers to what is actually constructed as opposed to that which was planned.  
*Benchmark* is the starting set-out position from which control marks are derived.  
*Industry requirements* refer to relevant policies, processes, methodologies, industry codes of practice, site specific health and safety plans, standard operating procedures, site safety plans, quality plans, work plans, traffic management plans, contract work programmes, job safety analysis, safe work method statements, job instructions, manufacturer's requirements, contract specifications, manuals, procedural documents.  
*Set-out* means to set out a site by survey method using pegs.

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### Outcomes and performance criteria

#### Outcome 1

Prepare for culvert works.

#### Performance criteria

- 1.1 Location of culvert is confirmed from plans.
- 1.2 Pipe type, class, and diameter are confirmed from plans.

- 1.3 Bedding material and backfill are confirmed from plans.
- 1.4 Culvert details such as inlets, outlets, aprons, and reinforcing are confirmed from plans.
- 1.5 Existing services are verified.
- 1.6 Responsibilities to adjoining landowners during culvert works are described.
- 1.7 Plant and labour requirements are confirmed

## Outcome 2

Prepare sites for works.

### Performance criteria

- 2.1 Sites are set out in accordance with plans, specifications, and on-site survey marks.  
  
Range levels, benchmarks, alignment, gradients, offsets, measuring equipment, pegs, stakes.
- 2.2 Underground services are marked and located in accordance with service authority requirements.
- 2.3 Trench is excavated.

## Outcome 3

Prepare bedding for culverts.

### Performance criteria

- 3.1 Water is removed from the area through which the culvert is to be installed in accordance with site conditions.  
  
Range temporary diversion, temporary sump, submersible pump, well pointing, sediment trap.
- 3.2 Alignment and invert levels of trench are checked.  
  
Range benchmarks, levels, alignment, gradient, offsets, pegs, stakes, pipe laser.
- 3.3 Trench bed is trimmed and shaped.
- 3.4 Pipe bedding material is placed in trench.

## Outcome 4

Lay and joint pipes and carry out initial inspection.

**Performance criteria**

- 4.1 Methods of lifting pipes for laying are described.
- 4.2 Pipes are orientated and laid ensuring continuous contact and support of collars and barrels.
- 4.3 Pipes are firmly bedded in accordance with contract specifications for compaction.
- 4.4 Pipes are jointed.
- Range joint may include but is not limited to – rubber ring, solvent cement, butt, thermo butt, bevel joint, steel weld, thermo weld, solvent weld;  
evidence of at least one joint is required.
- 4.5 Culvert and joints are visually inspected on completion of bedding to ensure they meet contract specifications.

**Outcome 5**

Install inlet and outlet structures.

**Performance criteria**

- 5.1 Area for structure is excavated in accordance site conditions.
- 5.2 Pipe ends are prepared for fitting to structure.
- Range preparation may include but is not limited to – removal of collar, scabbling, sawcutting;  
evidence of one preparation for fitting is required.
- 5.3 Structures are installed.
- Range installation may include but is not limited to – precast, in-situ structure, gabion basket, rockwork, geotextile bag, flume;  
evidence of one structure installation is required.
- 5.4 Area around structure is backfilled, compacted, and shaped.

**Outcome 6**

Backfill trench and apply surfacing.

**Performance criteria**

6.1 Trench is backfilled.

Range specifications include – material type, layer depth, compaction, suitable compaction equipment, testing requirements.

6.2 Trench is surfaced.

**Outcome 7**

Inspect and clean up sites.

**Performance criteria**

7.1 Culvert and structures are inspected to ensure they meet contract specifications.

7.2 Quality assurance records are completed in accordance with as-built records.

7.3 Surplus materials and debris are removed from site.

<b>Planned review date</b>	31 December 2026
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**Status information and last date for assessment for superseded versions**

Process	Version	Date	Last Date for Assessment
Registration	1	30 July 1996	31 December 2014
Revision	2	9 March 1999	31 December 2014
Review	3	30 May 2000	31 December 2014
Review	4	25 September 2006	31 December 2016
Review	5	19 February 2015	31 December 2023
Review	6	30 September 2021	N/A

<b>Consent and Moderation Requirements (CMR) reference</b>	0101
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This CMR can be accessed at <http://www.nzqa.govt.nz/framework/search/index.do>.

**Comments on this unit standard**

Please contact Connexis - Infrastructure Industry Training Organisation [qualifications@connexis.org.nz](mailto:qualifications@connexis.org.nz) if you wish to suggest changes to the content of this unit standard.