

<b>Title</b>	<b>Describe tree support systems, and their installation and maintenance in arboriculture situations</b>		
<b>Level</b>	<b>5</b>	<b>Credits</b>	<b>5</b>

<b>Purpose</b>	People credited with this unit standard are able to describe: tree support systems, hardware, and support materials and their application in arboriculture situations; the process of installing a cable support system for trees and its application in arboriculture situations; the use and placement of rod bracing and propping systems and their application in arboriculture situations; and inspection and maintenance cycles for tree support systems in arboriculture situations.
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<b>Classification</b>	Horticulture > Arboriculture
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<b>Available grade</b>	Achieved
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## Guidance Information

- 1 Legislation and references relevant to this standard include but are not limited to:
  - Health and Safety at Work Act 2015;
  - Resource Management Act 1991;
  - BS 3998:2010, *Tree work. Recommendations*, available from [www.britishstandard.org.uk](http://www.britishstandard.org.uk);
  - ANSI A300, *Standards for Tree Care Operations* (Parts 1 – 7) and their subsequent amendments, available from [www.isa-arbor.com](http://www.isa-arbor.com);
  - WorkSafe New Zealand, *Approved Code of Practice Safety and Health in Arboriculture* (2012), available from [www.worksafe.govt.nz/worksafe](http://www.worksafe.govt.nz/worksafe);
  - WorkSafe New Zealand, *Approved Code of Practice for Safety and Health in Tree Work Part 2: Maintenance of trees around power lines* (2017), available from [www.worksafe.govt.nz/worksafe](http://www.worksafe.govt.nz/worksafe);
  - New Zealand Transport Agency (NZTA), *Code of Practice for Temporary Traffic Management (COPTTM): Part 8 of the Traffic Control Devices Manual (TCD Manual)* (2012), available from [www.nzta.govt.nz](http://www.nzta.govt.nz);
  - New Zealand Arboricultural Association Inc. (NZ Arb), *Best Practice Guide (BPG) for Safety Requirements in New Zealand Arboricultural Operations* (2017), available from [www.nzarb.org.nz](http://www.nzarb.org.nz); and any subsequent amendments.
  
- 2 Definition
 

*Workplace procedures* refer to the policies and procedures on safety and operation set down by the employer or organisation. Workplace procedures should reflect industry best practice, the BPG, equipment manufacturers' requirements, and current legislation.

- 3 For the purposes of assessment evidence must be presented in accordance with workplace procedures.

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## Outcomes and performance criteria

### Outcome 1

Describe tree support systems, hardware, and support materials and their application in arboriculture situations.

#### Performance criteria

- 1.1 Describe types of support systems in terms of their uses in an arboriculture situation.
- Range one static and one dynamic type of support system.
- 1.2 Describe types of hardware and support materials in terms of their uses in an arboriculture situation.
- Range includes but is not limited to – threaded rod, cable pullers, wire rope grips, swages, drill bits, thimbles, washers, ground anchor, tree props.
- 1.3 Describe types of anchors in terms of their uses in an arboriculture situation.
- Range includes but is not limited to – eye nuts, eye bolts, anti-friction hose, webbing sling.
- 1.4 Describe types of in-line shock absorbers in terms of their uses in an arboriculture situation.
- Range evidence of two is required.

### Outcome 2

Describe the process of installing a cable support system for trees and its application in arboriculture situations.

#### Performance criteria

- 2.1 Describe tree factors in terms of their suitability to accept support cables.
- Range includes but is not limited to – tree species, growth rate, age of the tree, condition of tree, importance of tree, type, area of weakness, amount and location of sound wood.
- 2.2 Describe tree branches in terms of their suitability for being supported by a cable bracing system.
- Range includes but is not limited to – size of branch, attachment points, angle of cable, location within tree.

- 2.3 Describe pre-installation pruning in terms of its role in assisting the cable support system.
- Range includes but is not limited to – branch end reduction, thinning.
- 2.4 Describe the process of determining placement of cables in the tree.
- Range includes but is not limited to – distance from branch/trunk union, distance from point of weakness, distance to anchor attachment point, number of cables, proximity of other branches.
- 2.5 Describe support system installation in terms of its effect on a tree.
- Range includes but is not limited to – additional loading of trunks and stems, formation of reaction wood, reduction of natural movement, tightness of the cable.

### Outcome 3

Describe the use and placement of rod bracing and propping systems and their application in arboriculture situations.

#### Performance criteria

- 3.1 Describe rod bracing systems in terms of their application.
- Range includes but is not limited to – included stems, crossing branches, cavities.
- 3.2 Describe rod bracing systems in terms of their position and type.
- Range includes but is not limited to – through bracing, dead-end bracing, distance below the crotch, distance above the crotch, distance between rods, multi stemmed trees.
- 3.3 Describe propping systems in terms of their use and placement to support branch loading.

### Outcome 4

Describe inspection and maintenance cycles for tree support systems in arboriculture situations.

#### Performance criteria

- 4.1 Describe tree support systems in terms of their inspection and maintenance cycles.
- Range includes but is not limited to – synthetic versus non-synthetic materials, dynamic versus rigid systems, tree growth rate, location of support.

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<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	11 December 2009	31 December 2023
Review	2	24 June 2021	N/A

<b>Consent and Moderation Requirements (CMR) reference</b>	0032
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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 the Primary ITO [standards@primaryito.ac.nz](mailto:standards@primaryito.ac.nz) if you wish to suggest changes to the content of this unit standard.