
ARBORICULTURE
Demonstrate knowledge of the New Zealand arboriculture industry

level:	2
credit:	3
final date for comment:	xxx xxx
expiry date:	xxx xxx
sub-field:	Horticulture
purpose:	<p>This unit standard is for people beginning a career or training in the arboriculture industry in New Zealand. People credited with this unit standard are able to: describe the history and development of the arboriculture industry; describe the structure and governance of organisations important to arborists and the New Zealand arboriculture industry; and describe importance issues that effect arborists and the arboriculture industry in New Zealand.</p>
entry information:	Open.
accreditation option:	Evaluation of documentation and visit by NZQA and industry.
moderation option:	A centrally established and directed national moderation system has been set up by the New Zealand Horticulture Industry Training Organisation.
special notes:	<p>1 Relevant reference material</p> <p>The Codes of Practice are: Code of Practice for Safety and Health in Tree Work, Part One: Arboriculture; Part Two: Maintenance of trees around power lines; Approved Code of Practice for power-operated elevating work platforms; and Guide for Safety with Underground Services - are available from regional offices of the Department of Labour, Occupational Safety and Health Service or website: www.dol.govt.nz.</p> <p>The <i>Standards</i> are: British Standard for Treeworks: BS 3998:1989 – available from British Standards Institute, or website: www.standardsUK.com; ANSI A300 - American National Standards for Tree Care Operations; and ANSI Z133.1-2006 - American National Standard for Arboriculture Operations – Pruning, Trimming, Repairing, Maintaining, and Removing Trees, and</p>

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Cutting Brush – Safety Requirements; both are available from website: <http://www.isa-arbor.com>

The *Code of Conduct* is that of the New Zealand Arboriculture Association (NZAA) and is available from NZAA, PO Box 5596, Wellesley Street, Auckland.

Working on the Road – A Handbook for Temporary Traffic Control and Safety at Roadworks sites is available from any office of Transit New Zealand.

- 2 Legislation relevant to this unit standard includes the Health and Safety in Employment Act 1992, Health and Safety in Employment Regulations 1995, Resource Management Act 1991, Biosecurity Act 1993, Hazardous Substances and New Organisms Act 1996, Reserves Act 1977, Local Government Act 2002, and their subsequent amendments.

Elements and Performance Criteria

element 1

Describe the history and development of the arboriculture industry.

performance criteria

- 1.1 The history of arboriculture is described in terms of the relationship between the industry in New Zealand and the rest of the world.
- 1.2 Common types of work undertaken by arborists are described

Range: may include but are not limited to – felling, pruning, growing trees, identification, inspections, pest and disease control, planting, tree surveys and reports, risk management, protection and/or retention during development, transplanting and veteran tree management.
- 1.3 Trees are described in terms of their importance and uses.

Range: may include but not limited to – arboretums and/or botanical collections, beautification, landscaping, conservation,

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environmental modification, education, recreation, shelter and tree crops.

- 1.4 Organisations in New Zealand interested in trees or associated with arboriculture are described in terms of their functions with respect to trees.

Range: may include but are not limited to – Department of Conservation, SCION (formally the New Zealand Forest Research Institute), Farm Forestry Association, NZAA 32nd Chapter ISA, The RNZIH Notable Tree Trust, Local Government Authorities, Ministry of Forestry, Nursery and Garden Industry Association, transmission (power) companies, regional tree protection groups.

element 2

Describe the structure and governance of organisations important to arborists and the New Zealand arboriculture industry.

performance criteria

- 2.1 National organisations involved in arboriculture in New Zealand and Australia are identified and their structure and functions are described in terms of their importance to practising arborists.

Range: may include but not limited to – New Zealand Arboricultural Association, ISAAC (International Society of Arboriculture Australian Chapter)

- 2.2 The functions of other organisations involved in arboriculture are described in terms of their importance to the New Zealand industry.

Range: may include but not limited to – International Society of Arboriculture, Arboricultural Association (United Kingdom), TCIA – Tree Care Industry Association (United States of America),

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2.3 Sources of arboricultural information are described in terms accessing where to help or assistance on technical matters.

Range: may include but not limited to – Arboriculture Advisory Service, consultants, SCION, International Society of Arborists, local authorities, Ministry of Forestry, private and industry contacts, National and International Standards bodies, polytechnics and universities.

element 3

Describe importance issues that effect arborists and the arboriculture industry in New Zealand.

performance criteria

3.1 Job and educational opportunities are described in terms of career pathways.

3.2 Safety codes and codes of practice are described in terms of how they apply to the work of arborists.

3.3 Issues affecting the industry are described in terms of their effects and relative importance.

Range: may include but not limited to – biosecurity and quarantine measures, business conditions and demand for arboricultural services, environmental degradation, reforestation policies, tree and forest protection, tree work near power lines.

Comments on this unit standard

Please contact New Zealand Horticulture Industry Training Organisation
<http://www.hortito.org.nz> if you wish to suggest changes to the content of this unit standard.

Please Note

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Industry Training Organisations must be accredited by the Qualifications Authority before they can register credits from assessment against unit standards.

Accredited providers and Industry Training Organisations assessing against unit standards must engage with the moderation system that applies to those standards.

Accreditation requirements and an outline of the moderation system that applies to this standard are outlined in the Accreditation and Moderation Action Plan (AMAP). The AMAP also includes useful information about special requirements for providers wishing to develop education and training programmes, such as minimum qualifications for tutors and assessors, and special resource requirements.

This unit standard is covered by AMAP 0032 which can be accessed at <http://www.nzqa.govt.nz/site/framework/search.html>.

ARBORICULTURE
Climb a well branched tree

level:	4
credit:	10
final date for comment:	xxx xxx
expiry date:	xxx xxx
sub-field:	Horticulture
purpose:	This unit standard is for experienced arborists wanting to extend their skills in climbing and aerial rescues. People credited with this unit standard are able to: identify and check the equipment required and the suitability of conditions; inspect tree and site for hazards; climb tree using a ladder; climb tree using climbing lines and harness; and undertake a one person aerial rescue.
entry information:	Prerequisites: Unit 6400, <i>Manage first aid in emergency situations</i> ; Unit 6401, <i>Provide first aid</i> ; Unit 6402 <i>Provide resuscitation level 2</i> ; or demonstrate equivalent knowledge and skills.
accreditation option:	Evaluation of documentation and visit by NZQA, industry and teaching professional in the same field from another provider.
moderation option:	A centrally established and directed national moderation system has been set up by the New Zealand Horticulture Industry Training Organisation.
special notes:	1 Relevant reference material The <i>Codes of Practice</i> are Code of Practice for Safety and Health in Tree Work, Part One: Arboriculture; and Part Two: Maintenance of trees around power lines; and are available from regional offices of the Department of Labour, Occupational Safety and Health Service, or website: www.dol.govt.nz .

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Climb a well branched tree

The *Standards* are British Standard for Treeworks: BS 3998:1989 – available from British Standards Institute, or website: www.standardsUK.com; and ANSI Z133.1-2006 - American National Standard for Arboriculture Operations – Pruning, Trimming, Repairing, Maintaining, and Removing Trees, and Cutting Brush – Safety Requirements – available from website: <http://www.isa-arbor.com>.

- 2 Legislation relevant to this unit standard includes the Health and Safety in Employment Act 1992, the Health and Safety in Employment Regulations 1995, and their subsequent amendments.
- 3 *Workplace procedures* refer to oral or written instructions to staff on procedures for the worksite and equipment.

Elements and Performance Criteria

element 1

Identify and check the equipment required and the suitability of conditions.

performance criteria

- 1.1 Equipment needed for climbing is identified in accordance with the Codes of Practice and workplace procedures.

Range: must include but is not limited to – ascending/descending equipment, climbing lines, prussic loop, safety clothing, safety harness, non-catch clothing;
may also include – ladders, snaps, strops, helmets, ear muffs, visors, tool strops, throwing balls, micro pulley.

- 1.2 All equipment is checked for safe working order in accordance with the Codes of Practice and workplace procedures.

- 1.3 Alternative tree climbing methods are assessed so that the one selected is the most appropriate to the situation.

element 2

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Climb a well branched tree

Inspect tree and site for hazards.

performance criteria

2.1 Inspection of the tree and site is according to workplace procedures and reveals any potential hazards.

Range: root area, trunk, tree crown, road and pedestrian access, utilities, other surrounding hazards.

2.2 Where a hazard is found to exist action is taken in accordance with workplace procedures.

Range: actions are to either – eliminate, isolate, or minimise significant hazards.

element 3

Climb tree using a ladder.

Range: tree is branched within 8 metres of ground, branches are strongly attached and well spaced (1 – 3 metres apart);
ladder may be one of the following types – extension, forestry, tripod, insulated, standard.

performance criteria

3.1 Ladder is set up in accordance with the Codes of Practice and workplace procedures.

3.2 Ladder is ascended and descended in accordance with the Codes of Practice and workplace procedures.

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Climb a well branched tree

element 4

Climb tree using climbing lines and harness.

Range: deciduous, evergreen and conifers, tree is branched within 8 metres of ground, branches are strongly attached and well spaced (1 – 3 metres apart), up to 15 metres high.

performance criteria

4.1 Climbing line is fixed into tree in accordance with the Codes of Practice and workplace procedures.

Range: knots to be demonstrated may include but are not limited to – fisherman's, prussic, figure eight, sheet bend.

4.2 Tree is climbed and descended in accordance with the Codes of Practice and workplace procedures.

element 5

Undertake a one person aerial rescue.

performance criteria

5.1 Aerial rescue system is prepared so someone can be safely rescued from a tree according to workplace procedures.

5.2 Aerial rescue system is operated so someone can be safely lowered from the tree to the ground in accordance with workplace procedures and the Codes of Practice.

Range: full rescue system unassisted by patient.

5.3 Rescue scenarios are identified and described in accordance with the Codes of Practice and workplace procedures.

Range: electrical, fall, conscious or unconscious victim, bleeding or non-bleeding victim.

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Climb a well branched tree

Comments on this unit standard

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This unit standard is covered by AMAP 0032 which can be accessed at
<http://www.nzqa.govt.nz/site/framework/search.html>.

ARBORICULTURE
Demonstrate knowledge of the
application of law to arboriculture in
New Zealand

level:	4
credit:	5
final date for comment:	xxx xxx
expiry date:	xxx xxx
sub-field:	Horticulture
purpose:	This unit standard is for people undertaking a career or training in the arboriculture industry in New Zealand. People credited with this unit standard are able to: describe the purpose of the Resource Management Act 1991; describe employment law relating to employment in New Zealand; describe the purpose of the Accident Compensation Corporation (ACC); describe the purpose of Occupational Safety and Health Service (OSH); describe how trees are protected by law in New Zealand; describe the application of law and by-laws to working with trees; and describe the requirements of contract law in New Zealand.
entry information:	Open.
accreditation option:	Evaluation of documentation and visit by NZQA, industry and teaching professional in the same field from another provider.
moderation option:	A centrally established and directed national moderation system has been set up by the New Zealand Horticulture Industry Training Organisation.

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Demonstrate knowledge of the
application of law to arboriculture in
New Zealand

special notes:

Legislation relevant to this unit standard includes the Accident Insurance Act 1998, Biosecurity Act 1993, Consumer Guarantees Act 1993, Employment Relations Act 2000, Fencing Act 1978, Forests Act 1949, Forest and Rural Fires Act 1977, Hazardous Substances and New Organisms Act 1996, Health and Safety in Employment Act 1992, Health and Safety in Employment Regulations 1995, Historic Places Act 1993, Native Plant Protection Act 1934, Noxious Plants Act 1978, Parental Leave and Employment Protection Act 1987, Privacy Act 1993, Property Law Act 1952, Reserves Act 1977, Resource Management Act 1991, Transport Act 1962, Treaty of Waitangi Act 1975, Trespass Act 1980, West Coast Accord 1986, local bylaws; and their subsequent amendments.

Elements and Performance Criteria

element 1

Describe the purpose of the Resource Management Act 1991 (RMA).

performance criteria

1.1 The objectives and content of the RMA are described in terms of how they affect arboriculture.

1.2 The provisions of the RMA are described in terms of how they affect arborists.

Range: provisions may include but not limited to – district plans, heritage orders, reserves, resource consents, riparian zones, subdivision of land, sustainable land management, tree protection, local authority planning functions.

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Demonstrate knowledge of the
application of law to arboriculture in
New Zealand

element 2

Describe employment law relating to employment in New Zealand.

performance criteria

2.1 The main objectives and provisions of the Employment Relations Act 2000 are described in terms of how they affect arborists.

Range: objectives may include but not limited to – build productive employment relationships, good faith;
provisions may include but not limited to – freedom of association, bargaining, personal grievances (discrimination, sexual harassment, duress, procedures, remedies), disputes (procedures, penalties), strikes and lockouts.

2.2 The requirements of the Health and Safety legislation are described as they affect employers and employees.

element 3

Describe the purpose of the Accident Compensation Corporation (ACC).

performance criteria

3.1 The purpose of the Accident Compensation Corporation (ACC) is described.

Range: may include but not limited to – injury prevention, leves and claims rehabilitation and compensation.

element 4

Describe the purpose of Occupational Safety and Health Service (OSH).

performance criteria

4.1 The purpose of Occupational Safety and Health Service (OSH) is described.

Range: may include but not limited to – health and safety in the workplace, advice and assistance, enforcement and application.

element 5

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Demonstrate knowledge of the
application of law to arboriculture in
New Zealand

Describe how trees are protected by law in New Zealand.

performance criteria

5.1 Groups with an interest in tree protection are identified in terms of their roles.

Range: may include but not limited to – Department of Conservation, local authorities, Ministry of Agriculture and Forestry, Royal New Zealand Institute of Horticulture (Inc), lobby groups such as Maruia Society and Royal Forest and Bird Protection Society, and regional tree organisations.

5.2 Provisions of the Forests Act 1949, Historic Places Act 1993, Native Plant Protection Act 1934 and RMA are described in terms of the protection they afford to trees.

5.3 Powers of local authorities under District and Regional Plans are listed where they relate to tree protection.

element 6

Describe the application of law and by-laws to working with trees.

performance criteria

6.1 Relevant statutes are described in terms of their application to arboricultural work.

Range: may include but not limited to – Fencing Act 1978, Forest and Rural Fires Act 1977, Noxious Plants Act 1978, Reserves Act 1977, Transport Act 1962, Treaty of Waitangi Act 1975, Trespass Act 1980, Property Law Act 1952, Biosecurity Act 1993.

6.2 The application of bylaws to arboricultural work is described using examples of bylaws promulgated by specific local authorities.

element 7

Describe the requirements of contract law in New Zealand.

performance criteria

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Demonstrate knowledge of the
application of law to arboriculture in
New Zealand

- 7.1 A valid contract is described in terms of its requirements.
- Range: may include but not limited to – offer and acceptance, competent parties, lawful subject, proper consideration, genuine consent.
- 7.2 Standard clauses in arboricultural contracts are described in terms of how they affect the parties involved.
- Range: may include but not limited to – insurance (public liability and private indemnity), health and safety, competent personnel, professional standards.

Comments on this unit standard

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<http://www.nzqa.govt.nz/site/framework/search.html>.

ARBORICULTURE
Climb and branch walk difficult trees

level:	4
credit:	10
final date for comment:	xxx xxx
expiry date:	xxx xxx
sub-field:	Horticulture
purpose:	This unit standard is for experienced arborists wanting to extend their skills in climbing and aerial rescues. People credited with this unit standard are able to: use a throw ball and line to set climbing lines above 10 meters; use climbing lines and harness to ascend and descend clear stemmed trees; climb difficult trunks; set climbing lines for branch walking; branch walk; and undertake an aerial rescue.
entry information:	Prerequisite: Unit 2767, <i>Climb a well branched tree</i> or demonstrate equivalent knowledge and skills.
accreditation option:	Evaluation of documentation and visit by NZQA, industry and teaching professional in the same field from another provider.
moderation option:	A centrally established and directed national moderation system has been set up by the New Zealand Horticulture Industry Training Organisation.
special notes:	<p>1 Relevant reference material</p> <p>The <i>Codes of Practice</i> are Code of Practice for Safety and Health in Tree Work, Part One: Arboriculture; and Part Two: Maintenance of trees around power lines; and are available from regional offices of the Department of Labour, Occupational Safety and Health Service.</p> <p>The <i>Standards</i> are British Standard for Treeworks: BS 3998:1989 – available from British Standards Institute, or website: www.standardsUK.com; and ANSI Z133.1-2006 - American National Standard for Arboriculture Operations – Pruning, Trimming, Repairing, Maintaining, and Removing Trees, and Cutting Brush – Safety Requirements – are available from website: http://www.isa-arbor.com.</p>

ARBORICULTURE
Climb and branch walk difficult trees

- 2 Legislation relevant to this unit standard includes the Health and Safety in Employment Act 1992, Health and Safety in Employment Regulations 1995, and their subsequent amendments.
- 3 *Workplace procedures* refer to oral or written instructions to staff on procedures for the worksite and equipment.

Elements and Performance Criteria

element 1

Use a throw ball and line to set climbing lines above 10 meters.

performance criteria

- 1.1 Throw ball equipment is selected in accordance with workplace procedures, connecting knots are identified and tied.
- 1.2 Suitable roping points above 10 meters are identified.
- 1.3 Throw ball equipment is used in accordance with workplace procedures to set climbing lines over identified roping points.

element 2

Use climbing lines and harness to ascend and descend clear stemmed trees.

performance criteria

- 2.1 The path chosen is the safest and most suitable for a single line ascent.
- 2.2 Climbing lines are set into clear bole trees and over a suitable branch ready to commence the climb.
- 2.3 Climbing lines, lanyard, and harness are used to ascend clear boled trees in accordance with Codes of Practice and workplace procedures.
- 2.4 A secure anchor point is selected and used to descend in accordance with Codes of Practice and workplace procedures.

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Climb and branch walk difficult trees

element 3

Climb difficult trunks.

Range: to include – heavily branched, leaning and irregular trunks.

performance criteria

- 3.1 The path chosen is the safest and most suitable.
- 3.2 Difficult stems or trunks over 10 metres are climbed in accordance with Codes of Practice and workplace procedures.
- 3.3 Communication is maintained with the ground person at all times in accordance with Codes of Practice and workplace procedures.

element 4

Set climbing lines for branch walking.

performance criteria

- 4.1 Roping points are selected which provide safe, unobstructed rope movement in accordance with Codes of Practice and workplace procedures.
- 4.2 Climbing lines are set into selected roping points in accordance with Codes of Practice and workplace procedures.

Range: single roping point, re-directs points, double tie in system.

element 5

Branch walk.

performance criteria

- 5.1 Branches with obstacles and over 10 metres above ground are branch walked in accordance with Codes of Practice and workplace procedures.
- 5.2 Secondary roping or re-direction points are identified and used so that suitable anchors can be created within the tree for safe working positions in accordance with Codes of Practice and workplace procedures.

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Climb and branch walk difficult trees

element 6

Undertake an aerial rescue.

Range: two and three person rescue systems at above 15 metres.

performance criteria

- 6.1 Aerial rescue system is prepared so someone can be safely rescued from a tree according to workplace procedures.
- 6.2 Aerial rescue system is operated so someone can be safely lowered from the tree to the ground in accordance with workplace procedures and the Codes of Practice.
- 6.3 Rescue scenarios are identified and described in accordance with the Codes of Practice and workplace procedures.

Range: may include but not limited to – electrical, partial fall, conscious or unconscious victim, bleeding or non-bleeding victim.

Comments on this unit standard

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This unit standard is covered by AMAP 0032 which can be accessed at <http://www.nzqa.govt.nz/site/framework/search.html>.

ARBORICULTURE
Prune mature amenity trees

level:	4
credit:	10
final date for comment:	xxx xxx
expiry date:	xxx xxx
sub-field:	Horticulture
purpose:	People credited with this unit standard are able to: identify the tree structures and features to be emphasised; use a chainsaw off the ground; and prune mature amenity trees.
entry information:	Prerequisites: Unit 2768, <i>Prune young amenity trees and shrubs</i> ; Unit 6916, <i>Demonstrate knowledge of the Code of Practice relating to chainsaw use</i> ; Unit 6917, <i>Operate a chainsaw</i> ; Unit 2774 <i>Climb and branch walk difficult trees</i> <u>or</u> Unit 17259 <i>Operate an elevated platform vehicle for arboriculture</i> or demonstrate equivalent knowledge and skills.
accreditation option:	Evaluation of documentation and visit by NZQA, industry and teaching professional in the same field from another provider.
moderation option:	A centrally established and directed national moderation system has been set up by the New Zealand Horticulture Industry Training Organisation.
special notes:	1 Relevant reference material The <i>Codes of Practice</i> are Code of Practice for Safety and Health in Tree Work, Part One: Arboriculture; Part Two: Maintenance of trees around power lines; Approved Code of Practice for power-operated elevating work platforms; and Guide for Safety with Underground Services; and are available from regional offices of the Department of Labour, Occupational Safety and Health Service or website: www.dol.govt.nz .

ARBORICULTURE

Prune mature amenity trees

The *Standards* are British Standard for Treeworks: BS 3998:1989 – available from British Standards Institute, or website: www.standardsUK.com; ANSI A300 - American National Standards for Tree Care Operations; and ANSI Z133.1-2006 - American National Standard for Arboriculture Operations – Pruning, Trimming, Repairing, Maintaining, and Removing Trees, and Cutting Brush – Safety Requirements – both available from website: <http://www.isa-arbor.com>.

- 2 Legislation relevant to this unit standard includes the Health and Safety in Employment Act 1992, Health and Safety in Employment Regulations 1995, and their subsequent amendments.
- 3 Definitions
A mature tree is approaching its full growth potential and is mature in form.
Workplace procedures refer to oral or written instructions to staff on procedures for the worksite and equipment.

Elements and Performance Criteria

element 1

Identify the tree structure and features to be emphasised.

performance criteria

- 1.1 The tree form to be produced is identified in terms of pruning objectives.

Range: form – columnar, conical, decurrent, diffuse, excurrent, fastigate, horizontal, irregular, weeping;
objectives – crown reduction, crown lifting, crown thinning, dead and diseased wood removal, form pruning.

ARBORICULTURE

Prune mature amenity trees

- 1.2 How trees can be enhanced by pruning is explained in terms of their features and client requirements.
- Range: features may include but are not limited to – arrangement of limbs, bole or trunk, features of the species, flowering, fruiting, future safety, health, shape, silhouette, site specific requirements or characteristics, timber.
- 1.3 Three step cuts are described in terms order, placement and function in reducing branch end weight.
- 1.4 Target pruning is described in terms of the location of the final pruning cut.
- 1.5 Hazards involved in the work are identified and hazard control procedures and plans enable work to be completed in accordance with the requirements of Health and Safety legislation and workplace procedures.

element 2

Prune mature amenity trees with hand tools while above ground.

Range: pruning may include but are not limited to - crown reduction, crown lifting, crown thinning, dead wooding, formative or restoration pruning, removal of damaged branches and stems;
hand tools may include but are not limited to – handsaw, pole pruner, loppers, secateurs, pole saw.

performance criteria

- 2.1 Working techniques and progression are discussed with ground staff in accordance with the Codes of Practice and workplace procedures.
- 2.2 Tree is accessed in accordance with the Codes of Practice and workplace procedures.
- 2.3 Pruning is carried out in accordance with the Standards and workplace procedures.
- Range: may include but not limited to – pests, dead, dying or diseased wood, the proportion of shoots removed suits the tree species and situation and is in accordance with the standard, the branches retained promote flowering, flower size and aesthetic value of the tree and its continued development.

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Prune mature amenity trees

element 3

Use a chainsaw to carry out above ground pruning operations.

Range: may include but not limited to – crown reduction, crown lifting, crown thinning, dead wooding, formative or restoration pruning, removal of damaged branches and stems.

performance criteria

- 3.1 Chainsaw is selected in accordance with workplace procedures.
- 3.2 Chainsaw is prepared for use in with workplace procedures and industry guidelines.
- 3.3 Chainsaw is started and used above ground in accordance with workplace procedures and industry guidelines.

Comments on this unit standard

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ARBORICULTURE
Prune mature amenity trees

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This unit standard is covered by AMAP 0032 which can be accessed at <http://www.nzqa.govt.nz/site/framework/search.html>.

ARBORICULTURE
Use amenity tree evaluation methods

level:	4
credit:	6
final date for comment:	xxx xxx
expiry date:	xxx xxx
sub-field:	Horticulture
purpose:	People credited with this unit standard are able to: describe the uses and importance of trees in the landscape; demonstrate knowledge of STEM used in New Zealand; and describe timber in New Zealand in terms of markets and distribution.
entry information:	Open. However, it is recommended that the following be completed before or along with this unit standard: Unit 2773, <i>Diagnose amenity tree health problems</i> , or demonstrate equivalent knowledge and skills.
accreditation option:	Evaluation of documentation and visit by NZQA, industry and teaching professional in the same field from another provider.
moderation option:	A centrally established and directed national moderation system has been set up by the New Zealand Horticulture Industry Training Organisation.
special notes:	<ol style="list-style-type: none">1 <i>Tree Evaluation Method for New Zealand</i>, 1988, ISBN 0-473-00680-4 and revised 1994 edition are available from The Royal New Zealand Institute of Horticulture (RNZIH), PO Box 12, Lincoln University, Canterbury, or Touchwood Books.2 <i>Standard Tree Evaluation Method (STEM)</i> is available from Touchwood Books or RNZIH.

ARBORICULTURE
Use amenity tree evaluation methods

Elements and Performance Criteria

element 1

Describe the uses and importance of trees in the landscape.

performance criteria

- 1.1 Uses and importance of trees are described and ranked in accordance with the *Tree Evaluation Method for New Zealand* and the Standard Tree Evaluation Method (STEM).
- 1.2 Tree evaluation system criteria are described in terms of their different valuation methods.

element 2

Demonstrate knowledge of STEM used in New Zealand.

performance criteria

- 2.1 STEM is described and compared with at least one other internationally recognised tree evaluation method.
- 2.2 STEM is broken down into its three components and discussed.
- 2.3 STEM is used to carry out tree valuations.

Range: Evidence is required of at least five valuations using STEM.

element 3

Describe timber in New Zealand in terms of markets and distribution.

performance criteria

- 3.1 Production timber in New Zealand is described in terms of markets and distribution.

Range: export logs, furniture, turning, veneers, chipping, sawn timber, firewood, mulch.
- 3.2 Individual logs are described in terms of potential markets and distribution.

ARBORICULTURE
Use amenity tree evaluation methods

Range: Drying, storing and preparation, markets and end uses

Comments on this unit standard

Please contact New Zealand Horticulture Industry Training Organisation
<http://www.hortito.org.nz> if you wish to suggest changes to the content of this unit standard.

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This unit standard is covered by AMAP 0032 which can be accessed at
<http://www.nzqa.govt.nz/site/framework/search.html>.

ARBORICULTURE
Demonstrate knowledge of
transplanting large trees using
specialist equipment

level:	3
credit:	5
final date for comment:	xxx xxx
expiry date:	xxx xxx
sub-field:	Horticulture
purpose:	People credited with this unit standard are able to: demonstrate knowledge of procedures required to manage transplanting; describe the process of tree transplanting using specialist equipment; and describe post-transplant care.
entry information:	Prerequisite: Unit 2772, <i>Transplant amenity trees and shrubs manually</i> or demonstrate equivalent knowledge and skills.
accreditation option:	Evaluation of documentation and visit by NZQA, industry and teaching professional in the same field from another provider.
moderation option:	A centrally established and directed national moderation system has been set up by the New Zealand Horticulture Industry Training Organisation.
special notes:	<p>1 Relevant reference material</p> <p>The <i>Codes of Practice</i> are Code of Practice for Safety and Health in Tree Work, Part One: Arboriculture; Part Two: Maintenance of trees around power lines; and Guide for Safety with Underground Services; and are available from regional offices of the Department of Labour, Occupational Safety and Health Service or website: www.dol.govt.nz.</p> <p>The <i>Standards</i> are British Standard for Treeworks: BS 3998:1989 – available from British Standards Institute, or website: www.standardsUK.com; ANSI A300 - American National Standards for Tree Care Operations; and ANSI Z133.1-2006 - American National Standard for Arboriculture Operations – Pruning, Trimming, Repairing, Maintaining, and Removing Trees, and</p>

ARBORICULTURE
Demonstrate knowledge of
transplanting large trees using
specialist equipment

Cutting Brush – Safety Requirements – both available from website: <http://www.isa-arbor.com>.

- 2 Legislation relevant to this unit standard includes the Health and Safety in Employment Act 1992, Health and Safety in Employment Regulations 1995, the Transport Act 1962, and their subsequent amendments.
- 3 Definitions
Specialist equipment means such specialist lifting equipment as lifting frames, cranes, and tree spades.
Workplace procedures refer to oral or written instructions to staff on procedures for the worksite and equipment. Workplace procedures may also include the written Health and Safety Plans of contractors providing the specialist equipment.

Elements and Performance Criteria

element 1

Demonstrate knowledge of procedures required to manage transplanting.

performance criteria

- 1.1 Permits and resource consents are described in terms of the requirements to transport trees legally.
- 1.2 Access and preparation requirements are describe for the new site area before transportation begins.
- 1.3 Arrangements for obstacle clearance are described for a specified route prior to start of transportation to ensure that delays are minimised.

Range: services, vegetation, structures, traffic.
- 1.4 Weight estimation techniques are described for tree transplanting in accordance with workplace procedures and specifications.

Range: lifting, excavation, transport equipment, arranging escort services.

ARBORICULTURE
Demonstrate knowledge of
transplanting large trees using
specialist equipment

- 1.5 Labour and equipment schedules are discussed that would allow work to be completed according to workplace procedures, to specification, and within the time prescribed for the contract.

element 2

Describe the process of tree transplanting using specialist equipment.

performance criteria

- 2.1 New site preparation is described in terms of meeting tree requirements.
- Range: may include but is not limited to – excavation, drainage, aeration, provision of anchor and guying facilities, provision of irrigation if required.
- 2.2 Tree preparation is described for safe and damage free lifting.
- Range: may include but is not limited to – lifting points established, root ball excavated and undercut, root ball protection applied, temporary stabilisation, pruning.
- 2.3 Methods used to lift and secure trees on the transporter are described in accordance with Codes of Practice and workplace procedures.
- 2.4 Transport permit and regulation requirements are identified for tree transportation.
- 2.5 Tree lifting and placement in new location is described in accordance with specifications, Codes of Practice, and workplace procedures.
- Range: may include but is not limited to – orientation, planting media, drainage, root ball preparation, plant depth, stabilisation, backfilling, canopy checked for damage.

ARBORICULTURE
Demonstrate knowledge of
transplanting large trees using
specialist equipment

element 3

Describe post-transplant care.

performance criteria

3.1 Soil environment enhancements are described in accordance with tree and client requirements.

Range: may include but is not limited to – nutrients, irrigation, air filtration, mulch.

3.2 Transplanted trees responses to formative and remedial pruning are described.

Comments on this unit standard

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This unit standard is covered by AMAP 0032 which can be accessed at <http://www.nzqa.govt.nz/site/framework/search.html>.

ARBORICULTURE
Undertake sectional felling in tree work

level:	4
credit:	15
final date for comment:	xxx xxx
expiry date:	xxx xxx
sub-field:	Horticulture
purpose:	People credited with this unit standard are able to select equipment for sectional felling, use climbing equipment to ascend and descend clear trucked trees, use sectional felling techniques that do not require the use of rigging equipment, use sectional felling techniques that require the use of rigging equipment, leave the site clean and tidy in accordance with workplace procedures, and undertake a pole rescue above 10 meters.
entry information:	Prerequisite: Unit 2775, <i>Prune mature amenity trees</i> or demonstrate equivalent skills and knowledge.
accreditation option:	Evaluation of documentation and visit by NZQA, industry and teaching professional in the same field from another provider.
moderation option:	A centrally established and directed national moderation system has been set up by the New Zealand Horticulture Industry Training Organisation.
special notes:	<p>1 Relevant reference material The <i>Codes of Practice</i> are Code of Practice for Safety and Health in Tree Work, Part One: Arboriculture; Part Two: Maintenance of trees around power lines; Approved Code of Practice for power-operated elevating work platforms; and are available from regional offices of the Department of Labour, Occupational Safety and Health Service or website: www.dol.govt.nz.</p> <p>The <i>Standards</i> are British Standard for Treeworks: BS 3998:1989 – available from British Standards Institute, or website: www.standardsUK.com; ANSI A300 - American National Standards for Tree Care Operations; and ANSI Z133.1-2006 - American National Standard for Arboriculture Operations – Pruning, Trimming, Repairing, Maintaining, and Removing Trees, and</p>

ARBORICULTURE

Undertake sectional felling in tree work

Cutting Brush – Safety Requirements – both available from website: <http://www.isa-arbor.com>

- 2 Legislation relevant to this unit standard includes the Health and Safety in Employment Act 1992, Health and Safety in Employment Regulations 1995, and their subsequent amendments.
- 3 *Workplace procedures* refer to oral or written instructions to staff on procedures for the worksite and equipment.

Elements and Performance Criteria

element 1

Select equipment for sectional felling.

performance criteria

- 1.1 Identify and select suitable equipment and techniques required to complete sectional felling work in accordance with workplace procedures.

Range: may include but are not limited to – lowering lines, frictional devices, false crotches, whoopie slings, snatch blocks.
- 1.2 Hazards involved in the work and the site are identified and managed in accordance with workplace procedures.

element 2

Use climbing equipment to ascend and descend clear trunked trees.

Range: climbing equipment must include but is not limited to – climbing spikes and lanyard, harness, climbing line.

performance criteria

- 2.1 Assess the tree to determine suitability for climbing with spikes, possible hazards are identified.
- 2.2 Climbing equipment including spikes are selected, maintained and used in accordance with Codes of Practice and manufacturer's recommendations.

ARBORICULTURE
Undertake sectional felling in tree work

- 2.3 Climbing equipment is used to ascend and descend a clear stem of at least 10 metres in accordance with Codes of Practice, manufacturer's recommendations, and workplace procedures.

element 3

Use sectional felling techniques that do not require the use of rigging equipment

performance criteria

- 3.1 Strategies and procedures are discussed for the work that conform with standards, Codes of Practice, workplace procedures, contract, and the site specification.
- Range: may include but not limited to – holding cuts, side scarfing, topping cuts, felling adjacent limbs, felling sections of limb climber is on
- 3.2 Sections of the tree are safely removed using felling cuts according to standards, Codes of Practice and workplace procedures,
- Range: may include but not limited to – holding cuts, blocking (or chogging) side scarfing, topping cuts, felling adjacent limbs, felling sections of limb climber is on.

element 4

Use sectional felling techniques that require the use of rigging equipment

performance criteria

- 4.1 Strategies and procedures selected for the work conform with standards, Codes of Practice, workplace procedures, contract, and the site specification.
- Range: may include but not limited to – positioning and securing of false crotches, positioning and securing of friction devices, tip tying, butt tying, cradling, single and multiple roping, pulling lines, freeing of felled material, hand winches and pulley systems
- 4.2 Sections of the tree are safely removed using rigging equipment and techniques according to standards, Codes of Practice and workplace procedures.
- Range: may include but not limited to – the use of false crotches, the use of friction devices, tip tying, butt tying, cradling, single and multiple roping, pulling lines, hand winches and pulley systems.

ARBORICULTURE
Undertake sectional felling in tree work

- 4.4 Methods used to remedy damage to ground surfaces during felling are discussed that conform with standards, workplace procedures and in accordance with requirements of the site specification.

element 5

Site is left clean and tidy in accordance with workplace procedures.

performance criteria

- 5.1 Removal from site and disposal of material felled meet requirements of the controlling authorities.
- 5.2 Methods used to remedy damage to ground surfaces during felling are discussed that conform with standards, workplace procedures and in accordance with requirements of the site specification.

element 6

Undertake a pole rescue above 10 meters.

performance criteria

- 6.1 Strategies and procedures are described for carrying out a pole rescue according to Codes of Practice and workplace procedures.
- Range: may include but not limited to – if the victim in concuss, unconscious, bleeding or has suspected back injury.
- 6.2 A pole rescue is carried out according to Codes of Practice and workplace procedures.
- Range: may include but not limited to – using the victim's climbing equipment, using additional climbing equipment.

Comments on this unit standard

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Please Note

ARBORICULTURE
Undertake sectional felling in tree work

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ARBORICULTURE
Identify trees

level:	3
credit:	10
final date for comment:	xxx xxx
expiry date:	xxx xxx
sub-field:	Horticulture
replacement information:	This unit standard replaces unit standard 2764.
purpose:	People credited with this unit standard are able to describe the characteristics, site adaptations and uses of trees; identify, collect, label and present a range of trees used in arboriculture; and identify, either in situ or ex situ, a range of common trees, excluding previously collected or uniquely photographed specimens.
entry information:	Open.
accreditation option:	Evaluation of documentation and visit by NZQA, industry and teaching professional in the same field from another provider.
moderation option:	A centrally established and directed national moderation system has been set up by the New Zealand Horticulture Industry Training Organisation.
special notes:	<ol style="list-style-type: none">1 NZHITO holds a list of trees considered common in most areas or that are well known. However, other species may be common in localised areas and should not be excluded.2 International Code of Botanical Nomenclature by W. Greuter, 1988 is available through the library system.3 Definitions <i>Unique identifier</i> refers to a personal identifying object in the photograph that is used to determine that individual actually took the photograph themselves. <i>In situ</i> refers to in its original place. <i>Ex situ</i> refers to away from its original place.

ARBORICULTURE

Identify trees

Elements and Performance Criteria

Element 1

Describe the characteristics, site adaptations and uses of trees.

Range: trees from NZHITO list.

Performance criteria

1.1 Trees are described in terms of their identifying features.

Range: size, growth rate, colour, foliage, deciduous or evergreen, significant flowers, fruiting characteristics, special features, habit, form.

1.2 Any poisonous, irritant and nuisance properties are identified in terms of their effects.

Range: may include – flower, leaf, bark, fruit, weed potential.

1.3 Trees are described in terms of their soil tolerances and climatic requirements.

1.4 Trees are described in terms of their uses.

Range: may include but not limited to – street trees, small garden, shelter belts, woodlot, erosion control, parkland, production, climate control.

Element 2

Identify, collect, label and present a range of trees used in arboriculture.

Range: trees from current industry list during all seasons.

Performance criteria

2.1 Ten common tree specimens are identified, collected, pressed, dried, and mounted neatly or photographed with a unique identifier.

Range: specimens or photographs are to show bark, stem, leaves, and flowers.

2.2 Each plant specimens and/or photograph is labelled and presented.

ARBORICULTURE

Identify trees

Range: label includes – botanical, family and common name; identifying features; plant type; plant use; cultural requirements; and location of the plant.

Element 3

Identify, either in situ or ex situ, a range of trees, excluding previously collected or uniquely photographed specimens.

Performance criteria

3.1 Trees in arboriculture are identified either in situ or ex situ.

Range 100 out of 115 from the NZHITO list; identification includes – botanical and common names given for each; identifying features; and plant use.

Comments on this unit standard

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ARBORICULTURE
Demonstrate knowledge of safety
requirements for tree work near
electrical supply lines

level:	3
credit:	5
final date for comment:	xxx xxx
expiry date:	xxx xxx
sub-field:	Horticulture
purpose:	This unit standard is for people in a career or training in the arboriculture industry in New Zealand. People credited with this unit standard are able to demonstrate knowledge of hazards involved in working near electrical lines and equipment; and demonstrate knowledge of safety requirements for working near electrical lines and equipment.
entry information:	Open.
accreditation option:	Evaluation of documentation and visit by NZQA, industry and teaching professional in the same field from another provider.
moderation option:	A centrally established and directed national moderation system has been set up by the New Zealand Horticulture Industry Training Organisation.
special notes:	<p>1 Relevant reference material Code of Practice for Safety and Health in Tree Work, Part One: Arboriculture; Part Two: Maintenance of trees around power lines; Approved Code of Practice for power-operated elevating work platforms; and Guide for Safety with Underground Services are available from regional offices of the Department of Labour, Occupational Safety and Health Service or website: www.dol.govt.nz.</p> <p>The <i>Standards</i> are British Standard for Treeworks: BS 3998:1989 – available from British Standards Institute, or website: www.standardsUK.com; and ANSI Z133.1-2006 - American National Standard for Arboriculture Operations – Pruning, Trimming, Repairing, Maintaining, and Removing Trees, and Cutting Brush –</p>

ARBORICULTURE
Demonstrate knowledge of safety
requirements for tree work near
electrical supply lines

Safety Requirements – available from website:
<http://www.isa-arbor.com>.

- 2 Legislation relevant to this unit standard includes the Health and Safety in Employment Act 1992, Health and Safety in Employment Regulations 1995, Resource Management Act 1991, Local Government Act 2002, and their subsequent amendments.

Elements and Performance Criteria

element 1

Demonstrate knowledge of hazards involved in working near electrical lines and equipment.

performance criteria

- 1.1 Basic electrical features are described in terms of their possible effects.

Range: amperage, conductors, current, heating and electromagnetic effects, insulators, Ohms law, resistance, voltage.
- 1.2 Potential hazards are described in terms of how injury could be caused.

Range: arcing, direct and indirect contact, earth potential, flashover, inadvertent contact by personnel and plant, phase to earth contact, phase to phase contact, short circuits, step and touch potential, weather conditions.
- 1.3 Transmission and distribution of electricity are described in terms of systems, voltages, and hardware.
- 1.4 Networks are identified in terms of the voltages they carry.

Range: transmission – 220,000 volts, 110,000 volts, 66,000 volts, 50,000 volts;
distribution – 33,000 volts, 11,000 volts, 400 volts.

ARBORICULTURE
Demonstrate knowledge of safety
requirements for tree work near
electrical supply lines

1.5 Transmission and distribution networks are identified in terms of functions of the hardware used.

Range: transmission hardware – structures and towers;
distribution hardware – air brake switches, auto reclosers, circuit breakers, conductors, dominion drop-out fuses, guy wires, insulators, oil filled circuit breakers, sectionalisers, service lines, spur lines, structures, substations, transformers.

element 2

Demonstrate knowledge of safety requirements for working near electrical lines and equipment.

performance criteria

2.1 Features of Codes of Practice are described in terms of their relevance to safety requirements.

Range: definitions, training, general safety, equipment, hazard identification, operational considerations, methodology, minimum approach distances.

2.2 Safe working distances and minimum approach distances are identified for plant and personnel according to the Code of Practice.

2.3 Network requirements for tree work are identified for a supply system.

Range: must include but is not limited to – accident and emergency procedures, approved methodology, circuit and voltage identification, communication with network, logging on and logging off, network operational procedures, permit to use mechanical plant within 4 metres of lines, shut down procedures.

2.4 Hazards are identified and dealt with for a specific site in accordance with company procedures.

Range: methods are proposed to eliminate, isolate, or minimise significant hazards identified.

2.5 First aid procedures appropriate to electrical incidents are described.

ARBORICULTURE
Demonstrate knowledge of safety
requirements for tree work near
electrical supply lines

Range: burns, electrocution, fall due to electrocution.

Comments on this unit standard

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<http://www.nzqa.govt.nz/site/framework/search.html>.

Arb1
Domain: Arboriculture
Title: Use a Brushwood Chipper

level:	3
credit:	4
final date for comment:	XXXX XXXX
expiry date:	XXXX XXXX
sub-field:	Horticulture
purpose:	This unit standard is for people wishing to extend their range of skills in an arboriculture situation. People credited with this unit standard are able to: prepare a brushwood chipper for use; use a brushwood chipper; and remove a brushwood chipper from the site.
entry information:	Open.
replacement information:	This unit standard and Unit Arb3 <i>Use a stump grinder</i> replace Unit 17260 <i>Use a brush chipper and stump grinder</i> .
accreditation option:	Evaluation of documentation and visit by NZQA, industry and teaching professional in the same field from another provider.
moderation option:	A centrally established and directed national moderation system has been set up by the New Zealand Horticulture Industry Training Organisation.
special notes:	<p>1 Relevant reference material The <i>Codes of Practice</i> are Code of Practice for Safety and Health in Tree Work, Part One: Arboriculture; Part Two: Maintenance of trees around power lines; and are available from regional offices of the Department of Labour, Occupational Safety and Health Service or website: www.dol.govt.nz.</p> <p>Working on the Road – A Handbook for Temporary Traffic Control and Safety at Roadworks sites is available from any office of Transit New Zealand.</p> <p>The <i>Standards</i> are British Standard for Treeworks: BS 3998:1989 – available from British Standards Institute, or website: www.standardsUK.com; and ANSI Z133.1-2006 - American National Standard for Arboriculture Operations – Pruning, Trimming, Repairing, Maintaining, and Removing Trees, and Cutting Brush –</p>

Safety Requirements – available from website:
<http://www.isa-arbor.com>.

- 2 Legislation relevant to this unit standard includes – the Health and Safety in Employment Act 1992, Health and Safety in Employment Regulations 1995, and their subsequent amendments.
- 3 *Workplace procedures* refer to oral or written instructions to staff on procedures for the worksite and equipment.

Elements and Performance Criteria

Element 1

Prepare a Brushwood Chipper for use.

Performance criteria

- 1.1 Personal safety equipment is checked as fit for purpose and used according to workplace procedures and/or manufacturer's instructions.

Range: includes but is not limited to – safety footwear, gloves, non-catch clothes, hard hat, hearing and eye protection.

- 1.2 Chipper is checked and serviced according to workplace procedures and/or manufacturer's instructions.

Range: includes but is not limited to – inspection of all safety features, check for road-worthiness, check for anything loose, fuel, coolant and hydraulic oil levels, regular service and maintenance.

- 1.3 Site is selected according to required functions and workplace procedures.

Range: selection criteria include but are not limited to – ground stability and gradient, safe access, overhead obstacles, proximity to work, site security.

- 1.4 The chipper is prepared according to workplace procedures and/or manufacturer's instructions.

Range: preparations include but are not limited to – pre-start checks, greasing all relevant grease points, checking sharpness of blades, checking the anvil gap, safe discharge chute direction, the infeed-table is clear.

Element 2

Use a Brushwood Chipper.

Performance criteria

- 2.1 Brush is stacked and made ready to chip according to workplace procedures.
- Range: to include but not limited to – stacking of brush so butts all face towards the chipper, the removal of stubs or short branch ends that may become lodged in the chipper feed area, cutting brush as to remove or reduce of excessively bending branches.
- 2.2 Brushwood chipper is operated according to workplace procedures and/or manufacturer's instructions.
- Range: to include but not limited to – chipper is started and brought up to operating speed according to manufacturer's instructions, safe stopping procedures understood.
- 2.3 Brush is chipped is according to workplace procedures and/or manufacturer's instructions.
- Range: to include but not limited to – selection of material to feed in, feed speed, reducing size of larger branches, maintaining cutting speed, safe feed technique, use of feed reverse as needed, chipper stopped and motor immobilised if left unattended.
- 2.4 Brushwood chipper is stopped when task is completed according to workplace procedures and/or manufacturer's instructions.
- Range: to include but not limited to – the in-feed table is clear before engine slows, chipper is brought to a stop and engine is turned off according to manufacturer's instructions.

Element 3

Remove Brushwood Chipper from the site.

Performance criteria

- 3.1 Chipper is transported off site at the end of the day according to workplace procedures.
- Range: to include but not limited to – putting the chipper into the transport format, leaving the site tidy, safe and secure, noting and actioning any faults in the chipper.
- 3.2 Work is completed and site is left in a condition in accordance with the contract specifications.

Comments on this unit standard

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This unit standard is covered by AMAP 0032 which can be accessed at <http://www.nzqa.govt.nz/site/framework/search.html>.

Arb2

Domain: Arboriculture

Title: Demonstrate Knowledge of Tree Support Systems

level: 4

credit: 5

final date for comment: XXXX XXXX

expiry date: XXXX XXXX

sub-field: Horticulture

purpose: This unit standard is for people wishing to extend their knowledge of tree support systems. People credited with this unit standard are able to: demonstrate knowledge of installation equipment, cable and hardware support materials; describe the process of installing a cable support system; describe the use and installation rod bracing systems; and demonstrate knowledge of inspection and maintenance cycles.

entry information: Open

accreditation option: Evaluation of documentation and visit by NZQA, industry and teaching professional in the same field from another provider.

moderation option: A centrally established and directed national moderation system has been set up by the New Zealand Horticulture Industry Training Organisation.

special notes:

- 1 Relevant reference material
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The *Standards* are British Standard for Treeworks: BS 3998:1989 – available from British Standards Institute, or website: www.standardsUK.com; ANSI A300 - American National Standards for Tree Care Operations; and ANSI Z133.1-2006 - American National Standard for Arboriculture Operations – Pruning, Trimming, Repairing, Maintaining, and Removing Trees, and Cutting Brush – Safety Requirements – both available from website: <http://www.isa-arbor.com>

- 2 Legislation relevant to this unit standard includes – the Health and Safety in Employment Act 1992, Health and Safety in Employment Regulations 1995, and their subsequent amendments.
- 3 *Workplace procedures* refer to oral or written instructions to staff on procedures for the worksite and equipment.

Elements and Performance Criteria

Element 1

Demonstrate knowledge of installation equipment, cable and hardware support materials.

performance criteria

- 1.1 Different types of hardware are described and their uses are identified in an arboriculture situation.

Range: equipment may include but not limited to – threaded rod, cable pullers, wire rope grips, swages, drill bits, thimbles, washers, ground anchor, tree props.
- 1.2 Different types of cable are described and their uses are identified in an arboriculture situation.

Range: includes but is not limited to – 6 x 19 IWRC wire rope, Cobra, TreeSave.
- 1.3 Different types of cable anchors are described and their uses are explained in an arboriculture situation.

Range: includes but is not limited to – Lag hooks (J-screws), eye nuts, eye bolts, anti-friction hose (Cobra), webbing sling (TreeSave).
- 1.4 Different types of in-line shock absorbers are described and their uses are explained in an arboriculture situation.

Range: includes but is not limited to – shock absorbers (Cobra), shock absorbers (TreeSave), dynamic cable.

Element 2

Describe the process of installing a cable support system.

performance criteria

- 2.1 Identify tree types that are determined as good candidates for accepting support cable in accordance with workplace procedures.

Range: includes but is not limited to – tree species, growth rate, age of the tree, condition of tree, importance of tree, type and/or area of weakness, amount and location of sound-wood.

2.2 Branches are described in terms of their suitability for being supported by a cable bracing system in accordance with workplace procedures.

Range: includes but is not limited to – size of branch, attachment points, angle of cable.

2.3 Pre-installation pruning is described in terms of 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 the effect the installation of a support system has 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.

Element 3

Describe the use and installation rod bracing systems.

performance criteria

3.1 Rod bracing systems are described in terms of their application.

Range: includes but is not limited to – included stems, crossing branches, cavities.

3.2 Rod bracing systems are describe 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.

Element 4

Demonstrate knowledge of inspection and maintenance cycles.

performance criteria

4.1 Tree support systems are described in terms of their inspection and maintenance cycles.

Range: includes but is not limited to – synthetic verses non-synthetic materials, dynamic verses rigid systems, growth rate, location of support.

Comments on this unit standard

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This unit standard is covered by AMAP 0032 which can be accessed at <http://www.nzqa.govt.nz/site/framework/search.html>.

Arb3
Domain: Arboriculture
Title: Use a Stump Grinder

level:	3
credit:	4
final date for comment:	XXXX XXXX
expiry date:	XXXX XXXX
sub-field:	Horticulture
purpose:	This unit standard is for people wishing to extend their range of skills in an arboriculture situation. People credited with this unit standard are able to: operate and maintain a stump grinder.
entry information:	Open.
replacement information:	This unit standard and Unit Arb1 <i>Use a brushwood chipper</i> replace Unit 17260 <i>Use a brush chipper and stump grinder</i> .
accreditation option:	Evaluation of documentation and visit by NZQA, industry and teaching professional in the same field from another provider.
moderation option:	A centrally established and directed national moderation system has been set up by the New Zealand Horticulture Industry Training Organisation.
special notes:	<p>1 Relevant reference material</p> <p>The <i>Codes of Practice</i> are Code of Practice for Safety and Health in Tree Work, Part One: Arboriculture; Part Two: Maintenance of trees around power lines; and Guide for Safety with Underground Services; and are available from regional offices of the Department of Labour, Occupational Safety and Health Service or website: www.dol.govt.nz.</p> <p>The <i>Standards</i> are British Standard for Treeworks: BS 3998:1989 – available from British Standards Institute, or website: www.standardsUK.com; and ANSI Z133.1-2006 - American National Standard for Arboriculture Operations – Pruning, Trimming, Repairing, Maintaining, and Removing Trees, and Cutting Brush – Safety Requirements – available from website: http://www.isa-arbor.com.</p> <p>Working on the Road – A Handbook for Temporary Traffic Control and Safety at Roadworks sites is available from any office of Transit New Zealand.</p>

- 2 Legislation relevant to this unit standard includes – the Health and Safety in Employment Act 1992, Health and Safety in Employment Regulations 1995, and their subsequent amendments.
- 3 *Workplace procedures* refer to oral or written instructions to staff on procedures for the worksite and equipment.

Elements and Performance Criteria

Element 1

Maintain a stump grinder.

Performance criteria

- 1.1 Stump grinder is checked for transport according to workplace procedures and/or manufacturer's instructions.

Range: to include but not limited to – inspection of all safety features, check of trailer for road-worthiness, and security of grinder on trailer.
- 1.2 Personal safety equipment is checked as fit for purpose and used according to workplace procedures and/or manufacturer's instructions.

Range: includes but is not limited to – safety footwear, gloves, non-catch clothes, hard hat, hearing and eye protection.
- 1.3 Site is checked for underground services according to the Codes of Practice.
- 1.4 The stump grinder is prepared according to workplace procedures and/or manufacturer's instructions.

Range: to include but not limited to – pre-start checks, greasing all relevant grease points, checking condition of grinder teeth, barriers/signage may be erected.

Element 2

Use a stump grinder.

Performance criteria

- 2.1 Stump grinder is positioned for use according to workplace procedures and/or manufacturer's instructions.

Range: procedures must include but are not limited to – grinder is started according to manufacturer's instructions and moved to stump, choice of work direction is made, grinder is positioned ready to grind over stump.

2.2 Stump grinder is operated according to workplace procedures and/or manufacturer's instructions.

Range: to include but not limited to – grinder is started and brought up to operating speed according to manufacturer's instructions, stump is ground below ground level maintaining grinder wheel speed, reverse used as needed, grinder stopped and motor immobilised if left unattended.

Element 3

Stump grinder is removed from site.

Performance criteria

3.1 Grinder is transported off site at the end of the day according to workplace procedures.

Range: to include but is not limited to – putting the grinder into the transport format, leaving the site safe and secure.

3.2 Work is completed and site is left in a condition in accordance with the contract specifications.

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Arb 5
Domain: Arboriculture
Title: Advanced tree climbing for Arborists

level:	4
credit:	10
final date for comment:	XXXX XXXX
expiry date:	XXXX XXXX
sub-field:	Horticulture
purpose:	This unit is for experienced and skilled climbers. People credited with this unit are able to tie knots and friction hitches for use in tree climbing; install, use and compare false crotches in accordance with workplace procedures; use the 'foot lock' method to safely ascend to at least 15 metres and descend safely to the ground using the 'foot lock' line; undertake an aerial rescue where the victim is on a foot lock line; describe and use single rope techniques (SRT) to ascend a tree; use a retrievable redirect efficiently; and undertake an aerial rescue using the 'counterweight' method.
entry information:	Prerequisite: Unit 2774 <i>Climb and branch walk difficult trees</i> .
accreditation option:	Evaluation of documentation and visit by NZQA, industry and teaching professional in the same field from another provider.
moderation option:	A centrally established and directed national moderation system has been set up by the New Zealand Horticulture Industry Training Organisation.
special notes:	<p>1 Relevant reference material</p> <p>The <i>Codes of Practice</i> are Code of Practice for Safety and Health in Tree Work, Part One: Arboriculture; Part Two: Maintenance of trees around power lines; Approved Code of Practice for power-operated elevating work platforms; and Guide for Safety with Underground Services; are available from regional offices of the Department of Labour, Occupational Safety and Health Service or website: www.dol.govt.nz.</p> <p>The <i>Standards</i> are British Standard for Treeworks: BS 3998:1989 – available from British Standards Institute, or website: www.standardsUK.com; and ANSI Z133.1-2006 - American National Standard for Arboriculture Operations – Pruning, Trimming, Repairing, Maintaining, and Removing Trees, and Cutting Brush –</p>

Safety Requirements; available from website:
<http://www.isa-arbor.com>.

- 2 Legislation relevant to this unit standard includes the Health and Safety in Employment Act 1992, Health and Safety in Employment Regulations 1995, and their subsequent amendments.
- 3 *Workplace procedures* refer to oral or written instructions to staff on procedures for the worksite and equipment.

Elements and Performance Criteria

element 1

Tie knots and friction hitches for use in tree climbing.

Range: may include but not limited to – double fishermans knot, Schwabisch, Distel, klemheist, Valdotain Tresse, alpine butterfly.

performance criteria

1.1 Knots are tied and dressed in accordance with workplace procedures.

Range: evidence is required for at least three different types of knots and friction hitches.

1.2 Knots are used in tree climbing situations in accordance with workplace procedures.

element 2

Install, use and compare false crotches in accordance with workplace procedures.

Range: any two of – double ringed cambium savers, rope guide, pulley carabiner.

performance criteria

2.1 False crotches are installed and used in accordance with workplace procedures.

2.2 Advantages and disadvantages of each friction system are compared in accordance with workplace procedures.

element 3

Use the 'foot lock' method to safely ascend to at least 15 metres and descend safely to the ground using the 'foot lock' line.

performance criteria

- 3.1 Climber uses foot lock method to ascend to 15 metres safely in accordance with Code of Practice and workplace procedures.
- 3.2 Climber descent to the ground is in a controlled and smooth manner in accordance with Code of Practice and workplace procedures.

element 4

Undertake an aerial rescue where the victim is on a foot lock line.

performance criteria

- 4.1 Victim's line is accessed to determine if it is appropriate to perform the rescue on.
Range: condition of line, anchor point, position of victim, other hazards.
- 4.2 Climber uses foot lock line to ascend to the victim as high as practicable in accordance with Code of Practice and workplace procedures.
- 4.3 Victim is secured to climber and lowered to the ground in a safe and appropriate manner in accordance with Code of Practice and workplace procedures.

element 5

Describe and use single rope techniques (SRT) to ascend a tree.

performance criteria

- 5.1 Equipment is identified and selected for SRT tree ascending in accordance with workplace procedures.
Range: ascenders, kroll, pantene, grigory, petzl stop, handle ascenders, figure eight.
- 5.2 Rope loading problems are identified and explained in accordance with workplace procedures.
- 5.3 Climber uses single rope technique to ascend to 10 metres in accordance with workplace procedures.
- 5.4 Advantages of the single rope technique are described in accordance with workplace procedures.

element 6

Use a retrievable redirect efficiently.

Range: Any three systems.

performance criteria

- 6.1 Demonstrate knowledge of the configuration of redirect systems.
- 6.2 Identify appropriate positions to install the redirect in accordance with workplace procedures.
- 6.2 Install, use and retrieve the redirect in accordance with workplace procedures.

element 7

Undertake an aerial rescue using the 'counterweight' method.

performance criteria

- 7.1 Counterweight system is established a between the climber and the victim in accordance with Code of Practice and workplace procedures.
- 7.2 Victim is manipulated through the tree successfully and in a safe and secure manner in accordance with Code of Practice and workplace procedures.
- 7.3 Climber descends safely with the victim to the ground in accordance with Code of Practice and workplace procedures.

Arb 6
Domain: Arboriculture
Title: Use advanced rigging in tree work

level:	4
credit:	10
final date for comment:	XXXX XXXX
expiry date:	XXXX XXXX
sub-field:	Horticulture
purpose:	People credited with this unit standard are able to select equipment for sectional felling involving the controlled lowering of timber on rigging systems, and use techniques and procedures suitable for rigging operations in tree work.
entry information:	Prerequisite: Unit 2822, <i>Undertake sectional felling in tree work</i> .
accreditation option:	Evaluation of documentation and visit by NZQA, industry and teaching professional in the same field from another provider.
moderation option:	A centrally established and directed national moderation system has been set up by the New Zealand Horticulture Industry Training Organisation
special notes:	<p>1 Relevant reference material</p> <p>The <i>Codes of Practice</i> are Code of Practice for Safety and Health in Tree Work, Part One: Arboriculture; Part Two: Maintenance of trees around power lines; Approved Code of Practice for power-operated elevating work platforms; and Guide for Safety with Underground Services; and are available from regional offices of the Department of Labour, Occupational Safety and Health Service or website: www.dol.govt.nz.</p> <p>The <i>Standards</i> are British Standard for Treeworks: BS 3998:1989 – available from British Standards Institute, or website: www.standardsUK.com; and ANSI Z133.1-2006 - American National Standard for Arboriculture Operations – Pruning, Trimming, Repairing, Maintaining, and Removing Trees, and Cutting Brush – Safety Requirements – available from website: http://www.isa-arbor.com.</p>

- 2 Legislation relevant to this unit standard includes the Health and Safety in Employment Act 1992, Health and Safety in Employment Regulations 1995, and their subsequent amendments.
- 3 *Workplace procedures* is a written plan detailing how the company will meet the requirements of the Health and Safety legislation.
- 4 Definitions
Rigging refers to systems used for felling or limb removal.

Elements and Performance Criteria

element 1

Loads rigging system are evaluated in accordance with workplace procedures.

performance criteria

- 1.1 The masses of given timber sections are calculated in accordance with workplace procedures.
- 1.2 The load of a known mass of timber falling a known distance is calculate in accordance with workplace procedures.
- 1.3 The forces on each component of the rigging system are calculated when under load in accordance with workplace procedures.

element 2

Select rigging system equipment and prepare for use under load.

performance criteria

- 2.1 Identify and select suitable equipment and techniques required to complete the work.

Range: suitable equipment and techniques may include but are not limited to – frictional devices, lowering and raising brakes, false crotches, lowering ropes, pulling ropes, speed line ropes, whoopie slings, snatch blocks, pulleys.
- 2.2 Hazards involved in the work and the site are identified and managed in accordance with workplace procedures.
- 2.3 Demonstrate knowledge of the safe working load and breaking strain of the equipment selected and determine the weakest component of the system.

- 2.4 Communication systems are established with the grounds person in accordance with workplace procedures.
- Range may include but not limited to – radio communications, hand signals, verbal communications.
- 2.5 Ground staff are briefed on the removal procedure in accordance with workplace procedures.
- Range method and sequence of work, individual responsibilities.

element 3

Knots required for sectional rigging are tied, dressed and used in accordance with workplace procedures.

Range: running bowline, cow hitch, clove hitch, timber hitch, and one of alpine butterfly or bowline on a bight.

performance criteria

- 2.1 Demonstrate knowledge of knots used for rigging in accordance with workplace procedures.
- 2.2 Select the appropriate knot for each component of the rigging system in accordance with workplace procedures.
- Range mid line knot, anchor attachment, timber being lowered, tensioning knot.
- 2.3 Tie and dress knots in accordance with standards and workplace procedures.

element 4

Rigging systems are used to snatch timber sections.

Range From above 10 metres, sections exceeding 50kg in weight, from a clear bole and branches.

performance criteria

- 4.1 Timber sections for removal are identified and attached in accordance with workplace procedures.
- 4.2 Climber assumes a safe working position in accordance with standards and workplace procedures.
- Range anchor points, double tie in, work position stable and safe
- 4.3 Timber sections are removed in a safe and controlled manner, in accordance with the Code of Practice and work place procedures.

Range vertical and horizontal timber sections.

- 4.4 Timber sections are lowered under climbers directions in accordance with workplace procedures.

element 5

Speed line systems are installed and used to lower sections of timber.

performance criteria

- 5.1 Anchor points are selected a speed line is establish in accordance with standards and workplace procedures.
- 5.2 Describe techniques for attaching timber to the speed line in accordance with workplace procedures.
- Range tip rope, butt rope, cradle, snatch
- 5.3 Speed line attachment techniques are selected in accordance with maximum timbers sizes and speed line configuration.
- 5.4 Timber is lowered down the speed line in a controlled manner in accordance with workplace procedures.

ARBORICULTURE
Assess a site for amenity trees and
select trees

level:	3
credit:	8
final date for comment:	June 2008
expiry date:	December 2008
sub-field:	Horticulture
purpose:	People credited with this unit standard are able to: identify site specific soil factors likely to limit tree selection, growth or survival; identify site specific climatic factors likely to limit tree selection, growth or survival; identify other factors likely to limit tree selection, growth or survival; prepare a site survey summary; and identify and select species suited to specific sites.
entry information:	Open.
Replacement information:	This unit standard replaced unit standard 2770 and unit standard 2819.
accreditation option:	Evaluation of documentation and visit by NZQA, industry and teaching professional in the same field from another provider.
moderation option:	A centrally established and directed national moderation system has been set up by the New Zealand Horticulture Industry Training Organisation.
special notes:	None.

ARBORICULTURE
Assess a site for amenity trees and
select trees

Elements and Performance Criteria

element 1

Demonstrate knowledge of soil factors likely to limit tree selection, growth or survival.

performance criteria

1.1 Describe the soil properties, which could limit tree selection, growth or survival.

Range: soil type, nutrient content, chemical properties, aeration, compaction, depth, drainage, pans, water holding capacity, water table, salinity, texture.

1.2 Describe the measures that can be taken to assess and restore soil on a specific site.

Range: soil sampling, use of imported media, soil conditioning.

1.3 Describe the signs and symptoms of soil borne pests and diseases that could reduce tree growth.

element 2

Demonstrate knowledge of climatic factors likely to limit tree selection, growth or survival.

performance criteria

2.1 Describe the weather factors likely to limit tree selection, growth or survival.

Range: temperature range, rainfall, likely periods of moisture deficit in each season of the year, drought, frost, hail, snow.

2.2 Describe local climatic influences that are likely to limit tree selection, growth or survival.

Range: aspect, proportion of shade the site receives, wind effects, and exposure are identified from site inspection, flooding, salt spray, water table level.

ARBORICULTURE
Assess a site for amenity trees and
select trees

element 3

Demonstrate knowledge of other factors likely to limit tree selection, growth or survival.

performance criteria

3.1 Describe factors likely to limit space available for trees.

Range: includes but not limited to – access requirements, buildings and their light requirements, power lines and other overhead obstructions, view restrictions, shading of neighbouring sites, reflections from tall buildings.

3.2 Describe factors likely to limit rootzone volume.

Range: includes but not limited to – drains, foundations, impermeable paving, root control pits, underground services.

3.3 Describe potential air and water pollution, which could cause a reduction in plant growth rates.

3.4 Describe human influences on tree selection in terms of the requirements and responsibility of people using it.

Range: includes but not limited to – site use, design intentions, effects on neighbouring sites, access, screening, shade, shelter, sunlight, vandalism, views.

element 4

Identify tree species suited to different sites.

Range: evidence is required for any five types of sites – calcareous, clay, dry, loess, montane, peat, pumice, shallow and wet soils, small sites, saline winds, strong winds, mild winters, cold winters, vehicle emissions, pollution, light shade, heavy shade.

4.1 Trees species are identified for specified sites in terms of the site limitations and effects on plant growth rates and health.

element 5

ARBORICULTURE
Assess a site for amenity trees and
select trees

Undertake a preliminary site survey for a specific site.

performance criteria

5.1 Site analysis identifies limitations of the specific site for trees in terms of soil, climatic and other factors.

Range: includes but not limited to – local meteorological data, local features, and local knowledge.

5.2 Site analysis identifies positive aspects of the specific site for trees in terms of tree growth and survival.

5.3 Site analysis identifies trees to be retained and/or removed from the specific site.

5.4 A range of trees species suitable to the specific site are given in terms of the site analysis carried out.

Range: evidence is required for at least three suitable species.

element 6

Select tree species and plan location of trees for a specific site.

performance criteria

6.1 Trees selected conform to the needs of the specific sites use and design intentions.

Range: seasonal appearance, habit, size, leaf and flower and fruit, growth rates, colour, evergreen/deciduous, growth rate, shape, soil and climate tolerance.

6.2 Planting plan prepared enables staff to complete planting to plan, and meets client specifications.

6.3 Provision and layout of trees conform to requirement of the planting plan and site specifications.

ARBORICULTURE
Assess a site for amenity trees and
select trees

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