



Tree Planting

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STANDARD SPECIFICATION

Tree Planting

1.0 TREE SELECTION

- 1.1 Each tree shall be of nursery stock and be of good form that is true to species. Each tree will have a well developed and well shaped trunk or stem and branch placement. Plants shall be healthy, vigorous and free of disease, injury, parasites or insects and shall not be pot-bound. All root masses, except open ground trees shall retain their shape and hold together when removed from their containers.
- 1.2 Trees shall be a minimum of 2.5 metres above the ground level, have a trunk calliper measurement no less than 30mm at ground level, and have a container size of no less than 35 litres or pb95 at the time of planting.
- 1.3 Bare root stock will be accepted only in exceptional circumstances, at the discretion of the Parks Advisor.

2.0 TREE SUPPLY AND CARE

- 2.1 The Contractor shall inspect the trees upon delivery and/or at collection time and inform the Parks Advisor within a day of this of any unacceptable defects in the trees supplied.
- 2.2 Trees shall have a sturdy, clean, straight, stem. Trees shall be a minimum of 1.8 metres in height with a stem diameter that supports the tree without the need for supporting hardware attached to the main stem for support. Trees will be specified using the measurement ranges stated in Table 1. The stem diameter measurement is taken at 150 mm above the ground for trees up to 100 mm calliper size and 300mm above the ground for larger trees.

Table 1 Minimum Stem Diameter

Average Height Range (m)	Minimum Stem Diameter (mm)
1.5-1.8	15
1.8-2.5	20
2.5-3.0	30
3.0-3.6	40
3.6-4.2	60
4.2-4.8	80
4.8-5.5	100
5.5-	130

- 2.3 The Contractor will be expected to pick up and deliver trees to site in a good condition. The trees are to be protected during transportation, loading, unloading and planting. Any trees damaged by the Contractor will be replaced at the Contractor's expense.
- 2.4 Any bare rooted trees are to have the roots protected at all times to prevent drying out. They must be in a moisture retentive material such as damp straw or Hessian.
- 2.5 It is the Contractor's responsibility to ensure that trees are watered before they are transported from the nursery. Once trees leave the nursery they are the responsibility of the contractor.



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3.0 SETTING OUT

- 3.1 All trees shall be set out with their locations and spacing in accordance with the supplied landscape or planting plan and/or any agreements reached between the Parks Advisor and Contractor.
- 3.2 Specimen trees and large shrubs in reserves should be planted no closer than the offsets specified in CoP Part 10, Table 10.1 *Minimum tree offsets to reserve boundary*. These offsets are from boundaries with residential properties or from hard surfaces like kerbs, footpaths and cycleways. Specimen trees in lawns shall be planted as far apart as necessary to allow for full growth within a 50-year life span
- 3.3 Specimen trees and large shrubs in the road reserve should be planted in compliance with the offsets specified in Standard Drawings 600-245A/B/C. These offsets are from kerbs, service trenches and hard surfaces like footpaths and cycleways.
- 3.4 The locations of the trees shall be verified by the Parks Advisor by either an approved landscape plan or on-site meeting before any planting works commence.
- 3.5 The Parks Advisor may require that the position of various trees and/or groups of trees be changed onsite as the planting proceeds. The Contractor shall cooperate with this.

4.0 PLANTING TECHNIQUE

- 4.1 The following specifications and the specifications required by Standard Drawings 600-501A or 600-501B are to be adhered to when carrying out tree planting:

Weed free circle/mulching	400mm radius tree circle covered with 7.5cm deep bark mulch.
Tree pit	Pits shall be at least 150mm wider than the root spread each side of the tree and at least 150mm deeper. The bottom of the hole shall be forked over to an additional depth of 150mm to facilitate root penetration, air movement and free drainage. The finished surface shall be slightly convex towards the middle of the pit. The backfilled soil shall be a 50/50 mix of topsoil and compost mix.
Ties	Tree tie shall be looped around the stakes and then bound over itself repeatedly to form a tight support to the tree with giving enough room for slight movement. The tie should be of a black webbing type.
Staking posts (size)	50 x 50 mm timber stakes. If there are multiple trees to be planted, the stakes shall all be uniform in appearance to each other.
Irrigation	A 1900mm long section of perforated Novaflow pipe shall be inserted into the tree pit. The Novaflow is to run down one side of the tree pit, under the intended rootball and up the opposite side of the tree pit to be level with the ground surface. The other end is to extend above the intended mulch layer by 20mm. Both ends of the pipe should be capped. Underground irrigation systems can be used instead of manually watering.
Fertiliser	Each tree shall receive a balanced slow release fertiliser to the amended soil mix.

- 4.2 Planter bags shall be removed from the root ball and the bags removed from the site. Rootballs shall be saturated prior to planting and roots loosened if appropriate.



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- 4.3 Roots shall not be exposed to the sun or wind at any time. As soon as the tree is removed from the bag, it is to be planted immediately. If plants are slightly potbound the roots shall be loosened, trimmed and spread out to ensure healthy growth.
- 4.4 The bottom and sides of the planting holes are to be loosened to encourage root movement into the surrounding soil. Where an auger or similar method is used to excavate the tree pit, the sides of the excavation shall be scarified before planting.
- 4.5 Soil removed from the planting hole shall be amended with compost and fertiliser as per the table above before planting.
- 4.6 The tree is to be planted in the centre of the pit with the amended soil/compost mix backfilled and compacted by heeling in firmly so as to ensure that there are no air pockets below the surface.
- 4.7 Vertical staking (600-501B) will be adopted as the preferred method of above ground staking. Diagonal staking (600-501A) may be used in high vandalism areas but only by the approval of the Park Advisor. Tree stakes are to be firm in the ground and if multiple planting is to be carried out the stakes are all to look uniform. Tree ties are to be visually level in appearance.
- 4.8 The nursery earth marks on each tree's trunk shall be at the same level as the existing ground level once planted.
- 4.9 The finished surface shall be compact, firm and level. Any surplus planting material from the holes shall be removed from the site and the surrounding grass raked free of any residue.
- 4.10 All trees shall be well watered within two hours of planting to assist in the bedding in of the tree. Watering shall be of such that moisture has penetrated to the full rootball. If watering cannot be provided at the site, the Contractor will need to provide his own water supply.
- 4.11 Council reserves the right to ask the Contractor to install root barriers (generally in a street environment) when required. Root barriers may be installed at the time of planting on the kerb side and the footpath side of each tree or where there are other infrastructural services (including private or public buildings or other structures) likely to be affected by future growth. Each barrier shall be a minimum of 2000mm length x 600mm depth x 0.5mm thickness. The top of the barrier is to be level with the surrounding surfaces i.e. not protruding above the surface. The proposed root barrier is to have the approval of the Parks Advisor prior to installation.

5.0 MULCH

- 5.1 The tree circles shall be mulched with a good quality bark such as "Budget Bark" from Taggarts, Rangiora, at an approximate settled depth of 75mm.
 - 5.2 All bark mulch shall be free from all other matter, organic or inorganic. All mulch shall also be free from phytotoxins and pathogens, and free of weed species including chip from willow, poplar or any other adventive weed species.
 - 5.3 A minimum circle of 50mm around the trunk of the tree shall be kept clear of mulch to avoid problems with trunk burn.
 - 5.4 Mulch shall be placed in such a way that it does not run onto any other surfaces, such as grassed, paved or sealed areas.
 - 5.5 At no time shall any topsoil be mixed into the mulch.
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6.0 EDGING

- 6.1 All tree circles shall have a maintained edge. An edge is typically comprised of a minimum vertical cut of 100mm deep on the lawn perimeter, with soils pulled back into the planting hole from the cut to provide a smooth, rounded and defined edge and to avoid any soil spread to lawn areas.

7.0 SITE CLEAN UP AND RECTIFICATION

- 7.1 The planting site will be left in a clean and tidy condition at the completion of the work, with any loose stones and soil being removed from grass verges.
- 7.2 The Contractor shall ascertain if ground conditions are suitable before commencing the work. Any damage to the turf or surrounding areas resulting from work carried out in unsuitable conditions shall be rectified by the Contractor at the Contractor's own expense.

8.0 HEALTH AND SAFETY

- 8.1 The Contractor shall ensure that all requirements of the Health and Safety in Employment Act 1992 are complied with.
- 8.2 If working on the road or road verge, the Contractor shall have in place an approved Traffic Management Plan for the work.
- 8.3 The Contractor shall be solely responsible for public safety within and around the site and shall provide all necessary warning devices, barricades and personnel to ensure adequate safety, protection and warning to any person or vehicle or any property within and around the site.
- 8.4 The Parks Advisor shall be entitled to inspect the site and all plant and equipment at any time to ensure the Contractor is complying with its obligations under section 8.0.

9.0 MAINTENANCE SPECIFICATIONS

- 9.1 The Contractor shall maintain the trees for a period of 24 months to ensure their successful establishment. Council will accept the trees when the trees have passed their final audit and have been jointly signed off by the Parks Advisor and Subdivisions Engineer, after the 24 month maintenance period.
- 9.2 The Contractor shall maintain the level of mulch around the trees during the 24 month maintenance period to the depth specified above. Mulch shall be kept off grass and hard surfaces.
- 9.3 During the maintenance period, trees shall be watered on a weekly cycle during the summer period (Oct-Mar) and/or as directed by the Council. Each tree should receive approximately 40 litres of water per application in order to saturate the rootball. During period of drought the trees should be watered twice a week at the same 40 litre application. Water shall be applied at low pressure from a height of less than 500mm radially to 600mm from the base of the tree. Care shall be taken to avoid the displacement of soil or mulch whilst undertaking this watering. Where Novaflow pipe has been installed, water should be feed directly into the pipe instead of around the base of the tree. If an underground irrigation system is installed, the Contractor shall monitor the amount of water applied to all trees regularly to establish that water is being applied at adequate amounts for the trees and that all trees are being supplied water.
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- 9.4 Fertiliser is to be applied to each tree in the Spring of the year following planting. This fertiliser shall be in the form of a balanced slow release fertiliser such as Nitrophoska Permanent, which has a 12 month release period.
- 9.5 Trees should be checked bimonthly. This must include checking ties and stakes to ensure the trees are secure and that they maintain a proper form.
- 9.6 Trees damaged, in poor form or dead during the maintenance period shall be replaced during the next planting season, at the Contractor's expense, as required to maintain the original numbers, grades and species, as per the approved plans. Any replaced trees will require a 24 month maintenance period commencing from when the tree is planted.
- 9.7 Trees shall be kept free of pests and diseases, and tree mulch circles free of weeds and inorganic litter in order to achieve their optimum performance and visual amenity.
- 9.8 All edging shall be maintained in a sharp, neat and vertical condition with all cuttings removed off site on the day of activity. All curves shall be smooth and regular.

10.0 CONTRACT AUDITING

- 10.1 The Council will audit compliance with the contract by both site inspections and checking of associated documentation to the extent necessary to ensure the work is completed in accordance with the approved plans and specifications and to the Council's standards.
- 10.2 The Contractor shall notify the Parks Advisor at least one working day prior to commencing various stages of the works. This is to enable audit inspections required by the contract to be performed.
- 10.3 The Parks Advisor shall send the Contractor a copy of an audit carried out, with any areas of concern identified.
- 10.4 Acceptance criteria shall be as follows.
- a) Trees shall be thriving:
 - With new extension growth present
 - With less than 20% of the original foliage having dropped.
 - With less than 20% dieback of the new foliage, distributed across the entire plant.
 - With less than 5% localised dieback of individual branches.
 - b) Each tree shall be of good form that is true to species. Each tree will have a well developed and well shaped trunk or stem and branch structure. Plants shall be healthy, vigorous and free of disease, injury, parasites or insects.
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