

## APPENDIX 48.20

S.L.C. Englishchurch City Council Civil  
Engineering Construction Standard  
specifications Part 1 Section 16 and  
Part 2 Landscapes.

## **16.0 PROTECTION OF NATURAL ASSETS AND HABITATS**

Natural assets and habitats include landscape features such as waterways, wetlands and their wildlife, planting including trees, shrubs and groundcover and structures.

### **16.1 Existing Features**

Before the commencement of the work, the Contractor shall clearly identify and protect all site features (e.g. specimen trees, shrubs, plant beds and structures) that are to be preserved.

### **16.2 Waterways and Their Wildlife**

Any natural waterways shall be outside of the Contractor's work site unless the contract specifically states otherwise.

### 16.3 Protected Trees

Protected trees include notable trees and heritage trees, as listed in the City Plan, trees in special purpose road zones or trees on the list of trees protected by subdivision approval and by resource consent. This list is available through the Council's Arborist team.

Work around protected trees shall be carried out in accordance with the conditions of the resource consent for the works.

### 16.4 Protection of Existing Trees

*A temporary fence shall be erected around all existing trees that are to be retained on site. This fence shall be erected at the greater distance of one metre outside the tree's drip line or half the tree's overall height.*

*This fence shall be erected before any works commence and shall not be removed until all works are complete, without the approval of the Christchurch City Council's Arborist.*

Where it is not possible to complete the works without encroaching within this fenced area, a proposed methodology shall be submitted to the Engineer for approval.

#### 16.4.1 Tree Roots

All roots larger than 25mm diameter shall be retained in an undamaged state and protected, unless the Council Arborist gives permission in advance for them to be cut. No roots shall be cut if this will have a significant adverse affect on the health and stability of the tree. Where consent is given to cut roots they shall be severed cleanly with a saw or pruning shears.

All exposed roots and cut root ends shall be protected from drying and frost with damp sacking/scrim, polythene sheet or similar material if not backfilled immediately.

Wherever practicable, underground services within 10 metres of a protected tree or within 5 metres of any other tree shall be installed by trenchless methods. Otherwise, excavations within the distances set out in the table below shall be carried out by hand.

Trunk diameter at ground level	Minimum distance from edge of trunk	Tree class
0 - 100mm	1 metre	All
100 - 300mm	2 metre	All
300 - 500mm	4 metre	All
500 - 1000mm	5 metre	Protected trees
500mm and above	5 metre	Other trees
1000mm and above	10 metre	Protected trees

#### **16.5 Damage to Existing Features**

The Contractor shall compensate the Council for any damage done to existing features, either by means of a monetary sum or by replacement of that feature. The Engineer will determine any compensation for damaged landscape planting, in consultation with the Christchurch City Council Arborist.

#### **16.6 Tree Removal**

No trees shall be removed unless they have been specifically identified and marked during a joint inspection by the Engineer and the Contractor. Trees shown on the drawings as conflicting with the works, but without an explanation of whether or not they are to be removed, must not be removed until they are identified as above. The Contractor shall notify the Engineer of trees which are not shown on the drawings, but which appear to be in conflict with the works.

#### **16.7 Measurement of Works and Basis of Payment**

All work around existing features shall be included in the rates for the relevant items being constructed.

### **17.0 NOTIFICATION OF AUDIT INSPECTIONS**

*The Contractor shall give a minimum of two working days notice to the Engineer when works are ready for audit inspections. Audit inspections include standards and material compliance inspections of all aspects of work.*

# APPENDIX 48.21

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# CHRISTCHURCH CITY COUNCIL

## CONSTRUCTION STANDARD SPECIFICATION

### PART 7 – LANDSCAPES

CSS: PART 7: 2007

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- 1 Landscape Construction Monthly Establishment Report
- 2 Compliance Requirements Checksheet

## STANDARD DETAILS

### Tree Staking and Root Barriers

SD 701	Diagonal Tree Staking
SD 702	Vertical Tree Staking
SD 703	Square Tree Staking
SD 704	Tree Root Barrier

### Tree Grates and Guards

SD 705	Small Tree Grate
SD 706	Large Tree Grate
SD 707/1	Tree Guard
SD 707/2	Tree Guard Base for Small Tree Grate
SD 707/3	Tree Guard Base for Large Tree Grate
SD 708	Footpath Grate Foundation
SD 709	Kerbside Grate Foundation
SD 710	Minor Grate Foundation

### Structures

SD 711/1,2	Standard Park Bench
SD 712	Park Bench Installation
SD 713	U-Bolt Concrete Litter Bin Fixing
SD 714	Post and Cable Fence
SD 715	Post and Chain Fence
SD 716	Park Entrance
SD 719	Dog bowl base with e-mac drinking fountain and bottle filler
SD 720	Bus stop seat

### Plant bed formation

SD 721	Plant bed formation and edging adjacent to grass area
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## 1.0 FOREWORD

This Specification forms Part 7 of the Christchurch City Council Civil Engineering Construction Standard Specification (abbreviated as CSS).

The full Specification includes the following Parts:

CSS: Part 1: 2006 - General  
CSS: Part 2: 2006 - Earthworks  
CSS: Part 3: 2006 - Utility Drainage  
CSS: Part 4: 2006 - Water Supply  
CSS: Part 5: 2006 - Lights  
CSS: Part 6: 2006 - Roads  
CSS: Part 7: 2006 - Landscapes

Part 7 of the Standard Specification includes those Standard Details (SD) relating to this part only. The Standard Details (SD) are not to scale and all units are in millimetres (mm) unless otherwise shown. All rights reserved on Standard Details.

## 2.0 RELATED DOCUMENTS

The following documents shall be read and form part of this standard specification, together with revisions, replacements and amendments up to the date of calling tenders. The requirements of this specification supersede the requirements of any related documents listed or referred to within this specification. Where this document is referred to in a contract, the requirements of that contract supersede the requirements of this specification.

NZS 4680:1999	Hot-dip galvanized (zinc) coatings on fabricated ferrous articles
NZS 3602:2003	Timber and wood-based products for use in building
AS/NZS 4787:2001	Timber - Assessment of drying quality
AS 4373: 1996	Pruning of amenity trees
BS 3998: 1989	Recommendations for tree work
BS 4043: 1989	Recommendations for transplanting root-balled trees
BS 5837: 1981	Guide for trees in relation to construction

### 3.0 APPROVAL OF MATERIALS, OPERATORS/CONTRACTORS, EQUIPMENT, LABORATORIES AND WORKMANSHIP

'Approved' in this document means approved by the Engineer unless otherwise specified.

Schedules of approved materials, contractors and equipment can be found on the Christchurch City Council web page at:

'<http://www.ccc.govt.nz/DoingBusiness/ApprovedMaterials/>'

'<http://www.ccc.govt.nz/DoingBusiness/ApprovedContractors/>'

'<http://www.ccc.govt.nz/DoingBusiness/ApprovedEquipment/>'

Selected materials are specified in CSS: Part 1: 2006 - General.

Approved testing laboratories are IANZ or ISO accredited to carry out the particular test being requested.

### 4.0 SUPPLY OF PLANT MATERIALS

#### 4.1 Scope of Work

This specification is for the supply of plant materials.

#### 4.2 Plant Materials

*Plant materials shall be nursery stock, true to name and type with well developed and well shaped trunk or stem and head. Plants shall be healthy, vigorous and free of disease, injury, parasites or insects and shall not be potbound. All root masses, except open ground trees, shall retain their shape and hold together when removed from their containers.*

*Plants shall be handled with care at all times and lifted by the container. Plants shall not be substituted without the Engineer's approval.*

##### 4.2.1 Trees

*Trees shall have sturdy, clean, straight, stems. Evergreen trees shall be individually wrapped. All rootballs shall be contained in moisture retentive material.*

Open ground trees shall be lifted at the nursery with minimum damage to the roots and with maximum retention of roots. Open ground trees shall have as much soil as possible retained around the rootball.

Average Height Range (m)	Minimum Calliper (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

Trees will be specified using the above measurement ranges. The calliper measure is taken at 150mm above the ground for trees up to 100mm calliper size and 300mm above the ground for larger trees.

4.2.2 Shrubs and Groundcovers

Container size and type shall be as specified, e.g. PB5. Shrubs and groundcovers shall be strong, well rooted and have a good bushy form.

4.2.3 'Wetland' Plants

They shall be supplied as well rooted plants in containers, i.e. pots, root trainers or polythene bags.

**4.3 Measurement of Work and Basis for Payment**

Supply of plant materials shall be paid at the individual rate for the specified size.

**5.0 TRANSPORT OF PLANT MATERIALS**

**5.1 Scope of Work**

This specification is for the transportation and storage of plant materials.

**5.2 Supply and Collection**

*Plants shall be handled with care at all times and lifted by the container. Plants shall not be substituted without the Engineer's approval.*

Plant materials shall be supplied by the Christchurch City Council's nursery, unless otherwise specified. Where supplied by the Christchurch City Council, they have been pre-ordered and can be collected from the Linwood Nursery in Smith Street. Open ground trees are available between 1 June and 31 August. Open grown (bare rooted), spring ring or large container trees, e.g. PB40, can be collected from the Harewood

Nursery at 239 Gardiners Road. The collection location for other suppliers will be specified.

The Contractor shall advise the nursery of the intended pick-up date for the plants at least five working days in advance (contact Christchurch City Council Nursery Supervisor, business hours, at telephone 381-2499, fax 381-2503 or other supplier as specified). The Contractor shall give twenty-four hours notice of the intended time of pick-up.

The Contractor shall check the plants at the nursery at the time of collection and, if they are not considered to be of a suitable standard, shall inform the Engineer. Plant materials shall be nursery stock, true to name and type with well developed and well shaped trunk or stem and head. They shall be healthy, vigorous and free of disease, injury, parasites or insects and shall not be potbound.

It is the Contractor's responsibility to ensure plants are thoroughly watered before they are transported from the nursery. Once plants leave the nursery they are the responsibility of the Contractor.

### 5.3 Transportation and Storage

*All plant material shall be carefully packed and protected during transport to the site to prevent damage. Foliage shall be protected from desiccation during transportation. Black polythene shall not be used for this. Container grown plants shall not be bundled together.*

*Plant roots shall be protected at all times from drying out. Bare rooted plants, such as trees, shall have individual root balls contained in moisture retentive material.*

*Plant materials shall be planted within 48 hours of delivery. The Engineer shall be informed where this is not achieved. Plants that cannot be planted immediately on delivery shall be kept in the shade, well protected, sheltered and the soil kept well watered.*

If damage occurs the plants shall be replaced at the Contractor's expense.

Pots and other protective materials shall not be removed until immediately prior to planting, and shall be disposed of off the site after planting. Plastic pots may be returned to the Christchurch City Council's nursery for reuse.

### 5.4 Measurement of Work and Basis for Payment

Collection, transportation and storage of plant materials shall be included in the rate for planting.

## 6.0 PLANTING OF SPECIMEN TREES

### 6.1 Scope of Work

This specification is for site preparation, setting out, planting, fertilising and establishment of specimen trees.

### 6.2 Timing

Planting shall generally take place between 1 April and 30 September (the planting season). Planting may occur outside these times with the approval of the Engineer.

The Contractor shall carry out the works to protect the existing subsoil and prevent soil structural damage.

### 6.3 Setting Out

Planting positions shall be in accordance with the planting plans.

The Engineer may require minor refinement to the design with adjustments to lines, levels and grouping of trees locally as the planting proceeds. The Contractor shall cooperate with this.

In areas of block planting, plants shall be spaced so that when established they will completely and evenly fill the areas indicated, unless otherwise specified. The extent of the area to be filled by each species shall first be defined with plants spaced around the perimeter. The remaining plants shall then be used to fill the centre of the area in an informal manner avoiding straight lines and regular geometric patterns, unless otherwise specified.

### 6.4 Container Trees

*Containerised trees shall be thoroughly moistened at the time of planting. If the soil is dry, the plant shall be submerged in water for five minutes until air bubbles stop rising. Allow time to drain before planting.*

Balled and container grown plants shall have the cloth cordage, container, wire containment and hessian removed immediately prior to planting. Care shall be taken to ensure that the root ball is not disturbed during container removal or planting.

If plants are slightly potbound the roots shall be loosened, trimmed and spread out to ensure healthy growth. Roots shall not be exposed to the sun or wind.

## 6.5 Transplanted Trees

*Transplanted trees shall be handled in accordance with BS 4043 "Recommendations for transplanting root-balled trees".*

## 6.6 Tree Pit

*Pits shall be at least 150mm wider than the root spread each side of the tree and at least 150mm deeper, with minimum dimensions of 1000mm deep and 750mm wide. The bottom of the hole shall be forked over to an additional depth of 150mm to facilitate root penetration, air movement and free drainage. See SD 701 for installation details.*

The finished surface shall be slightly convex towards the middle of the pit.

*Mulch, to tree pits in lawn areas, shall be placed over the tree pit to 150mm outside the tree stakes, in accordance with clause 8.3 and SD 701, 702 or 703.*

## 6.7 Planting

The trees shall be set upright in the centre of the pit at such a depth that the soil, when firmed down, is at the same height as the nursery earth marks on the stem or as the container soil level. Any major roots that accidentally break off or fray shall be cleanly cut off from the plant.

Loose roots shall be spread out in a natural fashion and the pit progressively backfilled with loam topsoil, carefully placed under and amongst them to fill all voids and consolidated so that no air pockets are present and the tree is firmly held. The soil shall be heeled firmly round the root collar.

The Engineer may approve the use of excavated material for backfilling. Where an auger or similar method is used to excavate the tree pit, the sides of the excavation shall be scarified before planting.

Each plant shall be watered thoroughly after planting, ensuring that the moisture has penetrated to the full depth of the rootball (initial watering is also important to settle the soil around the roots).

Unless otherwise specified, all newly planted trees shall be staked and mulched in accordance with clauses 8 and 9.

## 6.8 Establishment

Works to achieve establishment of the trees shall be carried out by the Contractor, in accordance with clause 14. This will mainly consist of watering and weed control. The acceptance criteria set out below may be used to assess the planting throughout the establishment period.

The provision of a monthly report on plant condition and establishment works undertaken shall be submitted to the Engineer within five days of the end of each month. A sample report form is shown in the appendices. Information to be provided in this report is set out in clause 14.

## **6.9 Acceptance Criteria**

*Trees shall be located as specified.*

*Trees shall be well formed, upright and planted so that the soil level is the same as apparent on the trunk collar and without roots exposed.*

*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 new foliage, distributed across the entire plant.*
- *with less than 5% localised dieback of individual branches.*

*Mulch to tree pits in lawn areas shall be a minimum consolidated depth of 75mm or as specified at Practical Completion, during the defects liability period and at the issue of the Defects Liability Certificate. Mulch shall not spread onto paved surfaces or onto lawn. Topsoil shall not be mixed into the mulch.*

## **6.10 Measurement of Work and Basis of Payment**

### **6.10.1 Planting of Specimen Trees**

Planting shall be paid per tree and shall include tree transport, site preparation, setting out, fertiliser, planting and mulching to tree pits only. Excavation and filling of tree pits is paid separately.

### **6.10.2 Establishment**

Establishment shall be paid per tree per month. Establishment shall include all items as set out in clause 14. The 'Monthly Establishment Report' for the period being claimed must be presented with the claim before payment will be made.



## **7.0 PLANTING OF SHRUBS, GROUNDCOVER AND WETLAND PLANTS**

### **7.1 Scope of Work**

This specification is for site preparation, setting out, planting, fertilising and establishment of plant materials.

### **7.2 Timing**

Planting shall generally take place between 1 April and 30 September (the planting season). Planting may occur outside these times with the approval of the Engineer.

The Contractor shall carry out the works to protect the existing subsoil structures and prevent excessive soil structural damage.

Wetland areas that involve permanently or regularly saturated soils, e.g. inter-tidal zones and stream margins may be planted outside the recognised planting season.

### **7.3 Setting Out**

Planting positions shall be in accordance with the planting plans.

The Engineer may require minor refinement to the design with adjustments to lines, levels and grouping of shrubs, groundcover or wetland plants locally as the planting proceeds. The Contractor shall cooperate with this.

In areas of block planting, plants shall be spaced so that when established they will completely and evenly fill the areas indicated, unless otherwise specified. Plants shall be spaced around the perimeter first to define the extent of the area to be filled by each species. The remaining plants shall then be used to fill the centre of the area in an informal manner avoiding straight lines and regular geometric patterns, unless otherwise specified.

### **7.4 Containerised Shrubs and Groundcover**

*Containerised plants shall be thoroughly moistened at the time of planting. If plants are dry, they shall be submerged in water for five minutes until all air bubbles stop rising. Allow time to drain before planting.*

Balled and container grown plants shall have cloth cordage, containers wire containment and hessian removed immediately prior to planting. Care shall be taken to ensure that the root ball is not disturbed during container removal or planting.

If plants are slightly potbound the roots shall be loosened, trimmed and spread out to ensure healthy growth. Roots shall not be exposed to the sun or wind. The planting hole shall be a third larger than the root ball and the soil at the bottom of the hole loosened.

#### **7.5 Planting Hole**

*Planting holes, except for wetland plants, shall be loosened for at least 75mm each side of and under the plant prior to planting.*

#### **7.6 Fertilisers**

*The specified fertiliser shall be thoroughly mixed with the soil in the base of the planting hole, prior to planting.*

Apply quantities as recommended by the manufacturer. The Engineer may vary the amount depending on conditions and stock. The Contractor shall allow for a minimum average fertiliser application rate of 50 grams of 8-9 month slow release fertiliser or approximately one handful and the application of a balanced NPK mix per shrub or ground cover. Wetland plants shall not be fertilised.

#### **7.7 Planting Shrubs and Groundcover**

Plants shall be set in their final positions with main stem vertical and at such a depth that the soil, when firmed down is at the same height as the nursery earth marks on the stem or the container soil level. Any major roots that accidentally break off or fray shall be cleanly cut off from the plant.

Loose roots shall be spread out in a natural fashion, progressively backfilling with loam topsoil, carefully placed under and amongst the roots to fill all voids and consolidated so that no air pockets are present and the plant is firmly held.

Where an auger or similar method is used to excavate the planting hole, the sides of the excavation shall be scarified before planting.

Following planting the bed surface shall be left even and free of hollows. Any surplus soil shall be removed and each plant shall be watered thoroughly, ensuring that the moisture has penetrated to the full depth of the root zone (initial watering is also important to settle the soil around the roots).

#### **7.8 'Wetland' Plants**

Plants identified for 'Wetland' areas shall be planted into permanently or temporarily saturated areas. Planting of aquatic and semi aquatic wetland plants (in stream beds and inter-tidal zones) requires roots to be buried to

ensure they do not float away. These plants may also require pinning down or a small amount of gravel may be added to weight down soil.

Plant in bands or lines following natural contours or as required by the Engineer.

Extreme care is required to ensure 'wetland' plants do not dry out during storage, transportation and planting. If drought conditions occur planting into some areas should be delayed until soil moisture levels are sufficient to sustain the plants. The Contractor shall consult the Engineer over any concerns with soil moisture levels.

## **7.9 Establishment**

Works to achieve establishment of the plants shall be carried out by the Contractor, in accordance with clause 14. This will mainly consist of watering but may also include works such as some plant protection and judicious pruning. The acceptance criteria set out below may be used to assess the planting throughout the establishment period.

The provision of a monthly report on plant condition and establishment works undertaken shall be submitted to the Engineer within five days of the end of each month. A sample report form is shown in the appendices. Information to be provided in this report is set out in clause 14.

## **7.10 Acceptance Criteria**

*Plants shall be located as specified.*

*Plants shall be well formed, upright and planted so that the soil level is the same as was in the container and without roots exposed.*

*Plants shall be thriving:*

- *with new extension growth present.*
- *with less than 10% drop of original foliage.*
- *with less than 10% dieback of new foliage.*
- *with less than 5% localised dieback of individual branches.*

## **7.11 Measurement of Work and Basis of Payment**

### **7.11.1 Shrubs, Groundcover and Wetland Plants**

Shrubs, groundcover and wetland plants shall be paid per plant. Payment shall include plant transport, excavation of the planting holes and disposal of spoil, planting preparation, setting out, filling, fertiliser where specified and planting.

7.11.2 Additional Subgrade Modification

Additional subgrade modification shall be per m<sup>2</sup> and shall include excavation, disposal of excavated material, supply of second-class soil and its placement.

7.11.3 Establishment

Establishment shall be paid per m<sup>2</sup> of plant bed per month. Establishment shall include all items as set out in clause 14. The 'Monthly Establishment Report' for the period being claimed must be presented with the claim before payment will be made.

## 8.0 MULCHING

### 8.1 Scope of Work

This specification is for post planting spraying with pre-emergent herbicides and mulching.

### 8.2 Preparation

*Spraying and the use of herbicides shall comply with the requirements of CSS: Part 2: 2006 - Earthworks. Pre-emergent herbicides shall be applied as specified and at the manufacturer's recommended rate.*

Spraying with pre-emergent herbicides shall occur after planting and before mulching. The topsoil surface shall be smooth, uniform and lightly consolidated prior to spraying. If the ground is dry, a thorough watering shall be carried out before spraying.

### 8.3 Mulch

#### 8.3.1 Bark or Recycled Mulch

*Bark or recycled mulch shall be as specified. The Engineer shall approve the mulch before placement.*

*The surface of the mulch shall be flush with or no more than 25mm below the surrounding ground surface, kerb, path or other formed surface and shall be even and free of hollows.*

*Mulch shall not touch the stems of plants. A small circle shall be cleared (diameter of 50mm minimum) around the stem to avoid stem rot.*

*Unless specified otherwise, mulch shall be placed to 100mm depth and maintained to a minimum consolidated depth of 75 mm for planting beds and tree pits.*

*Topsoil shall not be mixed into the mulch during placement, planting or weeding.*

*Bark mulch shall not be placed below the annual flood level within the channel or within regularly inundated tidal margins.*

**8.3.2 Wool Mulch**

Rolls shall be laid across the slope and pegged down with wire hoops. Wire holding hoops shall be at least 200mm long and shall be spaced at a minimum of 1.0m centres. The soil conditions and gradient may require hoops to be placed at closer centres. Overlap between rolls shall be at least 100mm. The top surface or uppermost edge shall lie on top of the bottom edge of the adjacent sheet. Where specified 1 x 1m square mats shall be placed around individual plants. A wire hoop shall peg down these mats in each corner.

**8.3.3 Cardboard/Paper Mats**

Cardboard circular mulch mats and paper mats shall be placed around each plant after planting where specified. Cardboard or paper mats or circles shall be securely pegged down. Pre-emergent herbicide shall not be placed under these mats. CCC Linwood Nursery will supply the mats, unless otherwise specified.

**8.4 Compost and Soil Conditioners**

*In lawn areas, the base soil shall be cultivated to a depth of 100 mm and then 100 mm of compost or soil conditioner added and thoroughly mixed to a total depth of 200mm.*

*In shrub beds, the base soil shall be cultivated to a depth of 150mm then 75mm soil conditioner or compost added and thoroughly mixed to a total depth of 225mm.*

*Trees shall have equal amounts of compost or soil conditioner and soil.*

**8.5 Surface Boxes**

*Surface boxes shall be accessible, adjusted and repainted in accordance with the requirements of CSS: Part 1: 2006 - General. Water supply surface boxes shall be adjusted and repainted in accordance with the requirements of CSS: Part 4: 2006 – Water Supply clause 13.3. Manholes shall be adjusted in accordance with the requirements of CSS: Part 3: 2006 – Utility Drainage clause 16.*

**8.6 Acceptance Criteria**

**8.6.1 Bark or Recycled Mulch**

*Mulch shall be a minimum consolidated depth of 75mm or as specified at Practical Completion, during the defects liability*

*period and at the issue of the Defects Liability Certificate. Mulch shall not spread onto paved surfaces or onto lawn.*

*Topsoil shall not be mixed into the mulch.*

8.6.2 Wool Mulch and Paper or Cardboard Mats

*Wool mulch mats and paper or cardboard mats shall be securely pegged down.*

8.6.3 Compost and Soil Conditioners

*The mixed material shall have a consistent appearance.*

**8.7 Measurement of Work and Basis of Payment**

8.7.1 Recycled and Bark Mulch

Mulch shall be paid by m<sup>2</sup>, to the nearest m<sup>2</sup>. Mulch rates shall include supply and application of pre-emergent herbicide. Mulching of tree pits shall be included in the rate for planting of specimen trees.

8.7.2 Wool Mulch

Wool mulch shall be paid by m<sup>2</sup>, to the nearest m<sup>2</sup>. Mulch rate shall include the supply and application of pre-emergent herbicide.

8.7.3 Cardboard/Paper Mats

Cardboard and paper mats shall be paid per item and shall include transport, installation and fixing.

8.7.4 Compost and Soil Conditioners

Compost and soil conditioners shall be paid by m<sup>2</sup> to the nearest m<sup>2</sup>.

8.7.5 Surface Boxes

The Contractor shall include the cost of adjustment of all water supply service boxes, including repainting, vents, sewer gully traps, existing storm water inspection openings, and traffic signal loop toby boxes in the rate for the placement of mulch.

Payment for the adjustment of storm water and sewerage manhole tops shall allow for all work involved.

**9.0 STAKING TREES AND SHRUBS**

**9.1 Scope of Work**

This specification is for the staking of specimen trees and the identification and stem protection of trees and shrubs.

## **9.2 Tree Stakes**

*Stems of newly planted specimen trees shall be supported by diagonal stakes to SD 701, unless specified otherwise. Staking shall comply with SD 701, SD 702 or SD 703.*

Stakes shall be uniform in appearance. All tree ties shall be slightly elastic to allow minor movement without chafing of the stems and to allow the development of supportive 'reaction wood' and a strong supporting root system.

## **9.3 Identification Stakes**

*Identification stakes shall be installed to plants as specified. These shall be inserted at the time of planting to ensure that roots are not damaged. The identification stake shall be of untreated timber or similar and shall be no longer than 1.0m.*

## **9.4 Stem Protectors**

*Planting shall be protected with flexible corrugated and perforated PVC pipe where specified. Trees shall have 150mm diameter 300mm long protectors and shrubs shall have 150mm diameter 200mm long protectors. The protectors shall be installed around the base of the plant and secured into the ground.*

## **9.5 Measurement of Work and Basis of Payment**

Tree staking, identification stakes and stem protectors shall be per item.

# **10.0 ROOT BARRIERS**

## **10.1 Scope of Work**

This specification is for the supply and installation of tree root barriers.

## **10.2 Construction**

*Root barriers shall be supplied and installed in accordance with SD 704. The location of root barriers shall be as specified. All root barriers shall be installed prior to the planting of trees.*

## **10.3 Measurement of Work and Basis of Payment**

Root barriers shall be paid per barrier or per metre, as specified and shall include supply of all materials, installation, backfilling and restoration.

## **11.0 TREE GUARDS AND GRATES**

### **11.1 Scope of Work**

This specification is for the supply and installation of tree guards and tree grates.

### **11.2 Construction**

*Foundations for tree grates shall comply with SD 708, SD 709 or SD 710, as specified. Tree grates shall comply with SD 705 and SD 706, as specified. Tree guards shall comply with SD 707.*

### **11.3 Measurement of Work and Basis for Payment**

Tree grates, grate foundations and tree guards shall be paid per item and shall include supply and installation.

## **12.0 TURF SUPPLY AND LAYING**

### **12.1 Scope of Work**

This Specification is for the supply, laying and establishment of turf.

### **12.2 Materials**

*The turf shall be of good quality, free of weeds and pests and of a minimum thickness of 20mm.*

The turf grass mix shall be as specified. The turf shall be sufficiently fibrous for turves to hold together when handled, but excess fibre or thatch is undesirable.

The Contractor shall inform the Engineer of the location of the supply so that the turves can be inspected prior to lifting.

### **12.3 Surface Boxes**

*Surface boxes shall be accessible, adjusted and repainted in accordance with the requirements of CSS: Part 1: 2006 - General. Water supply surface boxes shall be adjusted and repainted in accordance with the requirements of CSS: Part 4: 2006 – Water Supply clause 13.3. Manholes shall be adjusted in accordance with the requirements of CSS: Part 3: 2006 – Utility Drainage clause 16.*



## 12.4 Laying

*Turf shall be delivered to the site and installed within 36 hours of lifting. Turf shall be kept damp. Slow release fertiliser shall be applied as specified to the turf prior to watering.*

Turf shall be laid on topsoil placed to CSS: Part 2: 2006 - Earthworks. Topsoil shall be cultivated to 25mm to form a fine even bed.

The Contractor shall carry out the works to protect the existing subsoil structures and prevent excessive soil structural damage.

Turf shall be handled with care and laid in a stretcher bond pattern. The turf shall be laid from planks working over turves previously laid.

The turves shall be thoroughly watered until the turf mat and top 50mm of soil is wet. Allow a 'soaking in' period prior to lightly and evenly rolling so that the turf mat and the soil surface are thoroughly bonded.

Any inequalities in finished levels owing to variation in turf thickness or uneven consolidation of soil shall be adjusted by raking and/or packing fine soil under the turf, not by topdressing the turf surface.

## 12.5 Establishment

Works to achieve establishment of the turf shall be carried out, by the Contractor, in accordance with clause 14. This will mainly consist of watering, mowing and weed control. The acceptance criteria set out below may be used to assess the lawn throughout the establishment period.

The grass shall be maintained over the establishment period at a height of between 25mm and 50mm as measured by the Rising Disc test method 'New Zealand Sports Turf Institute'.

## 12.6 Acceptance Criteria

*The lawn shall be an even sward of vegetation at a uniform height with a healthy colour throughout. The lawn shall be free from hollows arising from uneven consolidation of the ground and from stones or similar debris.*

*The specified grasses shall be evenly distributed across the lawn and the entire ground surface covered. The grass sward shall not contain any non-specified grasses or weeds. The lawn height shall be between 25mm and 50mm.*

## 12.7 Measurement of Work and Basis of Payment

### 12.7.1 Turf

Turf shall be paid by m<sup>2</sup>, to the nearest m<sup>2</sup> and shall include preparation of the bed, fertiliser, rolling and establishment.

### 12.7.2 Surface Boxes

The Contractor shall include the cost of adjustment of all water supply service boxes, including repainting, vents, sewer gully traps, existing storm water inspection openings, and traffic signal loop toby boxes in the rate for the placement of turf.

Payment for the adjustment of storm water and sewerage manhole tops shall allow for all work involved.

### 12.7.3 Establishment

Establishment shall be included in the rate for turf and shall include the disposal of clippings from mowing.

## 13.0 SOWING OF LAWN AREAS

### 13.1 Scope of Work

This Specification is for the formation, sowing and establishment of lawn areas in roadways (berms), parks and reserves (amenity areas and playing fields) and swales.

### 13.2 Seed Mixture

*The seed mix shall be as specified. Mixes shall be in accordance with CSS: Part 1: 2006 - General.*

The Contractor shall provide the Engineer with a certificate from the seed merchant supplying the seed verifying that the mixture is as specified and that the seed is no more than one year old.

### 13.3 Sowing

*The method of sowing shall achieve a uniform distribution of seed at the following rates, unless otherwise specified: 300kg per hectare (30 grams per square metre) for berm and high profile amenity areas; 250kg per hectare (20 grams per square metre) for playing field areas, swales and other amenity areas; 50kg per hectare for pasture.*

The seed shall be applied and cultivated to 20mm depth so that the minimum of seed is exposed. The seeded ground shall be levelled and lightly consolidated to ensure good soil/seed contact.

Slow release fertiliser shall be applied as specified before or during sowing at the manufacturer's specified application rates. Fertiliser shall not be applied in waterway areas.

A low-pressure system shall be used to avoid surface rilling or erosion.

### 13.4 Hydroseeding

*The hydroseeding mulch shall be a mixture of the specified seed, wood-fibre based mulch, fertiliser and a binding agent. The percentage of wood fibre in the hydroseeding mulch shall be no less than 75%.*

*The mulch shall be applied to a minimum depth of 5mm. Application rates for berms and high profile amenity areas shall be no less than 200kg/1000m<sup>2</sup>.*

Products such as "Hydra red" or an equivalent are acceptable hydroseeding mulches.

Mulch shall be applied using a suitable pumping system with mixing abilities, to prevent settling between applications.

All existing site features, such as paths and fences, shall be protected during mulch application. Any overspray shall be removed promptly.

A low-pressure system shall be used to avoid surface rilling or erosion.

### 13.5 Surface Boxes

*Surface boxes shall be accessible, adjusted and repainted in accordance with the requirements of CSS: Part 1: 2006 - General. Water supply surface boxes shall be adjusted and repainted in accordance with the requirements of CSS: Part 4: 2006 - Water Supply clause 13.3. Manholes shall be adjusted in accordance with the requirements of CSS: Part 3: 2006 - Utility Drainage clause 16.*

### 13.6 Establishment

Works to achieve establishment of the lawn shall be carried out, by the Contractor, in accordance with clause 14. This will mainly consist of barricading, watering, fertilising, mowing and weed control. The acceptance criteria set out below shall be used to assess the lawn throughout the establishment period.

The grass shall be first cut at 50mm and then maintained over the establishment period at a height of between 25mm and 50mm, as measured by the Rising Disc test method 'New Zealand Sports Turf Institute'. Swale areas shall have their first cut at 50mm grass height and shall be maintained over the establishment period at a height of between 50mm and 150mm.

### 13.7 Acceptance Criteria

*The lawn shall be an even sward of vegetation at a uniform height with a healthy colour throughout. The ground surface shall be free from hollows arising from uneven consolidation of the ground and from stones or similar debris.*

*Within two months of sowing, the specified grasses shall be evenly distributed across the lawn with at least 90% of the ground surface covered and with no bare area greater than 30mm in diameter. The grass sward shall have less than 10% of its area in non-specified grasses and weeds, unless otherwise specified.*

*The lawn height shall be between 25mm and 50mm except swales, which shall be between 50mm and 150mm.*

### 13.8 Measurement of Work and Basis of Payment

#### 13.8.1 Berms

Berms shall be paid by m<sup>2</sup>, to the nearest m<sup>2</sup>, and shall include excavation and disposal of spoil, ripping, cultivation and scarification, topsoil supply and finishing, sowing or hydroseeding and establishment.

Separate rates will be provided for sawcutting and for the installation of battens.

#### 13.8.2 Repair of Existing Lawn

Repair of existing lawn shall be measured by the m<sup>2</sup>, to the nearest m<sup>2</sup>, and shall include preparation of existing landscape or grassed area, sowing and establishment.

#### 13.8.3 Playing Fields and Amenity Areas

Playing fields and amenity areas shall be measured by the m<sup>2</sup>, to the nearest m<sup>2</sup>, and shall include preparation, sowing and establishment.

#### 13.8.4 Swales

Swales shall be measured by the m<sup>2</sup>, to the nearest m<sup>2</sup>, and shall include preparation, sowing and establishment.

#### 13.8.5 Surface Boxes

The Contractor shall include the cost of adjustment of all water supply service boxes, including repainting, vents, sewer gully traps, existing stormwater inspection openings, and traffic signal loop toby boxes in the rate for the construction of lawn.

Payment for the adjustment of stormwater and sewerage manhole tops shall allow for all work involved.

13.8.6 Establishment

Establishment shall be included in the rate for the item and shall include the disposal of clippings from mowing where specified.

**14.0 ESTABLISHMENT**

**14.1 Scope of Work**

This Specification covers the work typically undertaken to provide optimum conditions to establish the constructed landscape, over the Defects Liability period.

This should include barricading, watering, weed control, cultivation, control of pests and diseases, removal of litter, checking of stakes and ties, trimming, pruning or mowing and other accepted horticultural operations necessary to ensure normal and healthy landscape establishment and growth, and the monthly reporting of the works carried out under this clause.

The two most important factors are adequate moisture and eliminating competition from other vegetation. Throughout the establishment period, the Contractor shall visit the site as and when necessary, to ensure that plant establishment is not limited by drought stress or competition from other plants. Details of the proposed methods and frequency of such activities, and the reporting of these, shall typically be set out in the Contractor's Contract Quality Plan.

**14.2 Watering**

*The Contractor shall provide sufficient water to all lawn areas, trees and planting to maintain plants in a healthy condition.*

This may necessitate weekly watering during dry periods.

**14.3 Weed Control**

14.3.1 Trees

*Weed control shall be frequent enough to prevent weed species flowering and seeding. Weed coverage within 300mm of each tree shall not exceed 2.5% of the area. Weed growth shall not exceed 100mm in height or spread. Weeds shall be controlled without the use of residual herbicides.*

14.3.2 Mulched Plant Beds

*Weed control shall be frequent enough to prevent weed species flowering and seeding. Weed coverage shall not exceed 2.5% of any 10m<sup>2</sup> of mulched area. Weed growth shall not exceed 100mm in height or spread.*

The Engineer may approve the use of herbicides. Herbicide use shall comply with CSS: Part 2: 2006 - Earthworks.

14.3.3 Plant Beds (Unmulched and Revegetation Zones)

*Weeds and their roots shall not encroach within 0.5m of the root zones of plants.*

In unmulched areas, plants shall be located and marked before undertaking weed control.

The Engineer may approve the use of herbicides. Herbicide use shall comply with CSS: Part 2: 2006 - Earthworks.

14.3.4 'Wetlands'

*Hand weeding and releasing shall be the only control method employed within and up to one metre from the waterway.*

*The removal of aquatic and semi-aquatic vegetation shall retain any natural stream meander within the channel.*

Aquatic vegetation removed from the channel shall be left on the bank margin within one metre of the channel for a period of 24 hours. This allows stream fauna to migrate back into the channel prior to removal of the debris off site. Volumes less than 0.5m<sup>3</sup> may be removed from site immediately.

**14.4 Pests and Diseases**

*The Contractor shall promptly report all animal, insect or fungal infestations to the Engineer.*

**14.5 Rubbish and Litter Collection and Removal**

*The Contractor shall remove all litter from the landscape area and berms or swales.*

Litter is all extraneous rubbish, which is detrimental to the appearance of the site. Fly tipping includes items such as rubbish bags, builders' rubble, motor vehicle bodies or larger items requiring removal by machine.

The Contractor shall notify the Engineer of suspected fly tipping.

## 14.6 Pruning

*All weak, dead, diseased or damaged growth, including spent flower heads, shall be removed. Sight lines at intersections and driveways shall be maintained and signs shall not be obscured.*

Pruning shall not be carried out during leaf burst or leaf fall.

### 14.6.1 Pruning of Shrubs

*Pruning shall be carried out on shrubs to maintain a high standard of presentation, display and plant vigour and to maintain the desired shape and size.*

The following pruning techniques shall be employed where appropriate:

- Tips shall be pinched or purged, as appropriate for species, to give desired shape and size.
- Form pruning of young plants to ensure compact form and shape.
- Undercutting of groundcovers at border edges.
- Plants shall be pruned so that they do not smother neighbouring plants.

## 14.7 Plant Vandalism, Losses and Replacement

### 14.7.1 Vandalism and Theft of Plants

Any plants vandalised or stolen shall be reported promptly to the Engineer and recorded on the 'Monthly Establishment Report'. The likely cause of damage shall also be reported. The plants shall be removed and replaced where ordered.

Plant loss due to vandalism about which the Engineer is not notified shall be assumed a result of planting operations and replacement shall be at the Contractor's cost.

The Engineer will determine the value of plants or other landscape works lost due to theft, wilful damage or vandalism.

### 14.7.2 Losses

The Engineer may accept plant losses of up to 5%, excluding trees, without replacements being required.

The Engineer may determine losses of a single species greater than 25% are due to extreme weather and are therefore not the Contractor's responsibility.

#### 14.7.3 Replacements

*Replacements to make good defects shall be planted either during the planting season immediately following their loss or on discovery and then maintained until the next planting season. Replacements shall be the same as those specified, unless otherwise agreed between the Engineer and the Contractor.*

The Engineer may order replacement of plants that die through no fault of the Contractor.

Any defective stakes, ties, etc shall be replaced as soon as possible.

#### 14.8 **Lawn Vandalism and Damage**

*The Contractor shall be responsible for any damage that occurs prior to the first cut at 50mm or that is traceable to this period. Subsequent lawn damage from public vandalism, including vehicle, bicycle and foot damage, shall be promptly reported to the Engineer. The likely cause of damage shall also be reported.*

The Contractor shall notify the Engineer of grassed areas damaged by others during the course of their legitimate work, as opposed to vandalism. The Contractor shall notify the Engineer of areas that in his/her opinion have become worn due to wear and tear.

#### 14.9 **Monthly Establishment Report**

*An accurate and up to date monthly report, on plant condition and establishment works undertaken, shall be submitted to the Engineer within five days of the end of each month.*

Information to be provided in this report shall include the date that works were carried out and any types of work, as noted in the above clauses, to aid establishment of landscape areas and berms. A sample report form is shown in the appendices 'Monthly Establishment Report'.

*Unforeseen damage, for example vandalism, plant losses, shall be reported to the Engineer at the time of inspection.*

Any unreported damage or plant losses will be deemed the responsibility of the Contractor.

#### 14.10 **Measurement of Work and Basis of Payment**

Establishment shall include watering, weed control, cultivation, control of pests and diseases, checking of stakes and ties, trimming, pruning or mowing and removal of clippings where required, and other accepted horticultural operations necessary to ensure normal and healthy landscape



establishment and growth, and the monthly reporting of the works carried out under this clause.

The 'Monthly Establishment Report' for the period being claimed must be presented with the claim before payment will be made.

14.10.1 Establishment of Specimen Trees

Establishment shall be paid per tree per month.

14.10.2 Establishment of Shrubs, Groundcover and Wetland Plants

Establishment shall be paid per m<sup>2</sup> of plant bed per month.

14.10.3 Replacements

The supply and planting of replacement plants shall be at the Contractor's cost, unless otherwise agreed by the Engineer.

14.10.4 Lawn Vandalism and Damage

The repair of lawn damage and vandalism prior to the first cut at 50mm or that is traceable to this period shall be at the Contractor's cost.

## Landscape Construction Monthly Establishment Report

Contract No: \_\_\_\_\_

Job Name: \_\_\_\_\_

Contractor: \_\_\_\_\_

Defects Liability Period:      From: \_\_\_\_\_ To: \_\_\_\_\_

Inspect Date	Watering	Weed Control	Litter Removal	Landscape Maintenance – list	Plant /Lawn Vandalism, Losses and Damage - likely causes	Signed

I confirm that the above inspections and work were carried out during this period.

Signed: \_\_\_\_\_ Date: \_\_\_\_\_

Company: \_\_\_\_\_

## COMPLIANCE REQUIREMENTS CHECKSHEET - LANDSCAPE

ITEM	CSS REF	TASK	TEST STD/DESCRIP	COMPLIANCE REQUIREMENTS	TEST FREQ.	PASS YES/NO	TEST BY	ACTIONS
1		SUPPLY OF PLANT MATERIALS						
	Pt 7 4.2	Plant materials	Inspect	Well developed, well shaped, healthy, vigorous, not potbound, as specified, rootmass retains shape				
	Pt 7 4.2.1	Tree materials	Inspect	Sturdy clean straight stems, rootballs contained, evergreens individually				
	Pt 7 4.2.2	Shrubs and groundcover materials	Inspect	Strong well rooted, good bushy form				
	Pt 7 4.2.3	Wetland materials	Inspect	Well rooted				
2		TRANSPORT OF PLANT MATERIALS						
	Pt 7 5.2	Handling	Inspect	Lifted by container, true to specification				
	Pt 7 5.3	Transportation	Inspect	Not damaged, foliage and plant roots protected.				
	Pt 7 5.3	Storage	Inspect	Planted within 48 hours. Protected and watered for intervening period				
3		PLANTING TREES						
	Pt 7 6.2	Timing	Inspect	Plant between 1/04 and 30/9, unless approved				
	Pt 7 6.3	Planting positions	Inspect	Complies with plan				
	Pt 7 6.4	Container trees	Inspect	Thoroughly moistened before planting				
	Pt 7 6.5	Transplanted trees	BS 4043	Handling complies with standard				

ITEM	CSS REF	TASK	TEST STD/ DESCRIP	COMPLIANCE REQUIREMENTS	TEST FREQ.	PASS YES/NO	TEST BY	ACTIONS
	Pt 7 6.6	Tree pit construction	Measure	150mm wider and deeper than root spread, at least 1000mm deep, 750mm wide				
	Pt 7 6.6	Tree pit construction	Inspect	150mm forked over				
	Pt 7 6.6	Installation	Specify SD	Complies with SD				
	Pt 7 6.6	Mulch	Measure	150mm outside tree stakes				
	Pt 7 6.7	Planting	Inspect	Soil at same height as for nursery, roots spread and voids filled, tree firm, watered, staked and mulched				
	Pt 7 6.9	Tree acceptance criteria	Inspect	New extension growth, <20% foliage drop or dieback, <5% branch dieback				
	Pt 7 6.9	Mulch acceptance criteria	Inspect	75mm depth, confined to tree area, no topsoil mixed				
4		PLANTING SHRUBS GROUND COVER, WETLAND PLANTS						
	Pt 7 7.2	Timing	Inspect	Plant between 1/04 and 30/9, unless approved or wet area				
	Pt 7 7.3	Planting positions	Inspect	Complies with plan				
	Pt 7 7.4	Container shrubs	Inspect	Thoroughly moistened before planting				
	Pt 7 7.5	Planting hole	Measure	1/3 bigger than rootball, 75mm depth and sides loosened				
	Pt 7 7.6	Fertilisers	Inspect	Mixed thoroughly, specified amount				
	Pt 7 7.7	Planting shrubs and groundcover	Inspect	Soil at same height as for nursery, roots spread and voids filled, plant firm, watered, upright				
	Pt 7	Planting wetland	Inspect	Plants anchored, surrounding soil moist				

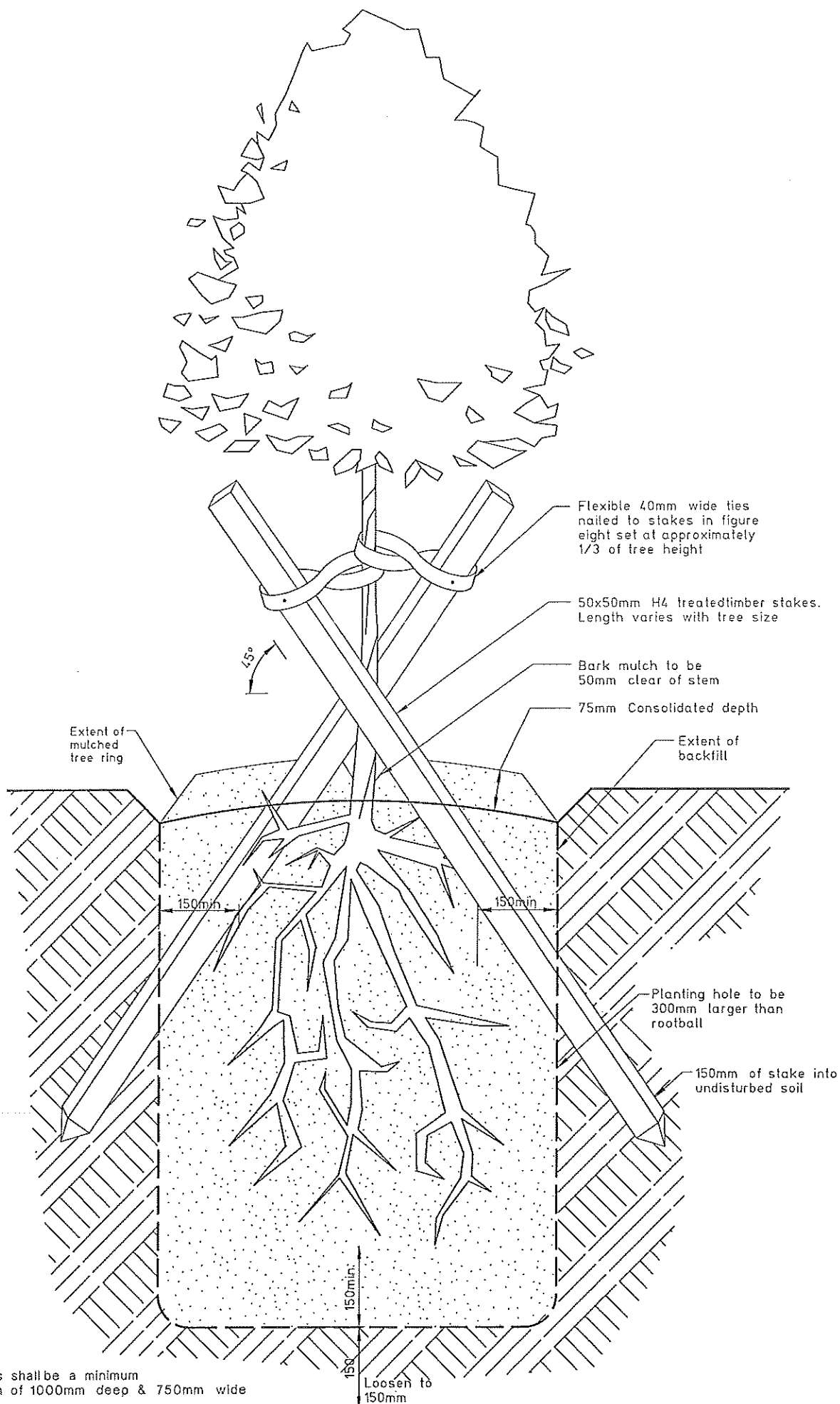
ITEM	CSS REF	TASK	TEST STD/ DESCRIP	COMPLIANCE REQUIREMENTS	TEST FREQ.	PASS YES/NO	TES T BY	ACTIONS
	7.8	plants						
	Pt 7 7.10	Plant acceptance criteria	Inspect	New extension growth, <10% foliage drop or dieback, <5% branch dieback				
5		<b>MULCHING</b>						
	Pt 7 8.2	Herbicide application	CSS Part 2	Complies with specification, after planting before mulch				
	Pt 7 8.3.1	Mulch material	<i>Specify</i>	<i>Complies with specification</i>				
	Pt 7 8.3.1	Mulch placement	Measure	+0mm, -25mm surrounding surface, 50mm clear or stem, 75mm depth				
	Pt 7 8.3.1	Mulch placement	Inspect	No topsoil mixed in, not placed below flood or tide level				
	Pt 7 8.3.2	Wool mulch	Inspect	200mm hoops at 1m centres, 100mm overlap, top edge on top				
	Pt 7 8.3.3	Cardboard/paper	Inspect	Pegged down, no herbicide, where specified				
	Pt 7 8.4	Compost and soil conditioner material	Inspect	Complies with specification				
	Pt 7 8.4	Placement - lawn	Measure	Base cultivated to 100mm, 100mm depth added and thoroughly mixed				
	Pt 7 8.4	Placement - plant beds	Measure	Base cultivated to 150mm, 75mm depth added and thoroughly mixed				
	Pt 7 8.4	Placement - trees	Measure	Equal amounts of compost or soil conditioner and soil				
	Pt 7 8.5	Surface boxes adjustment	CSS Part 1	Adjusted as specified.				
6		<b>STAKING</b>						
	Pt 7 9.2	Tree stakes	<i>Specify</i>	<i>Complies with SD</i>				
	Pt 7	Identification stakes	Inspect	Installed at time of planting, untreated				

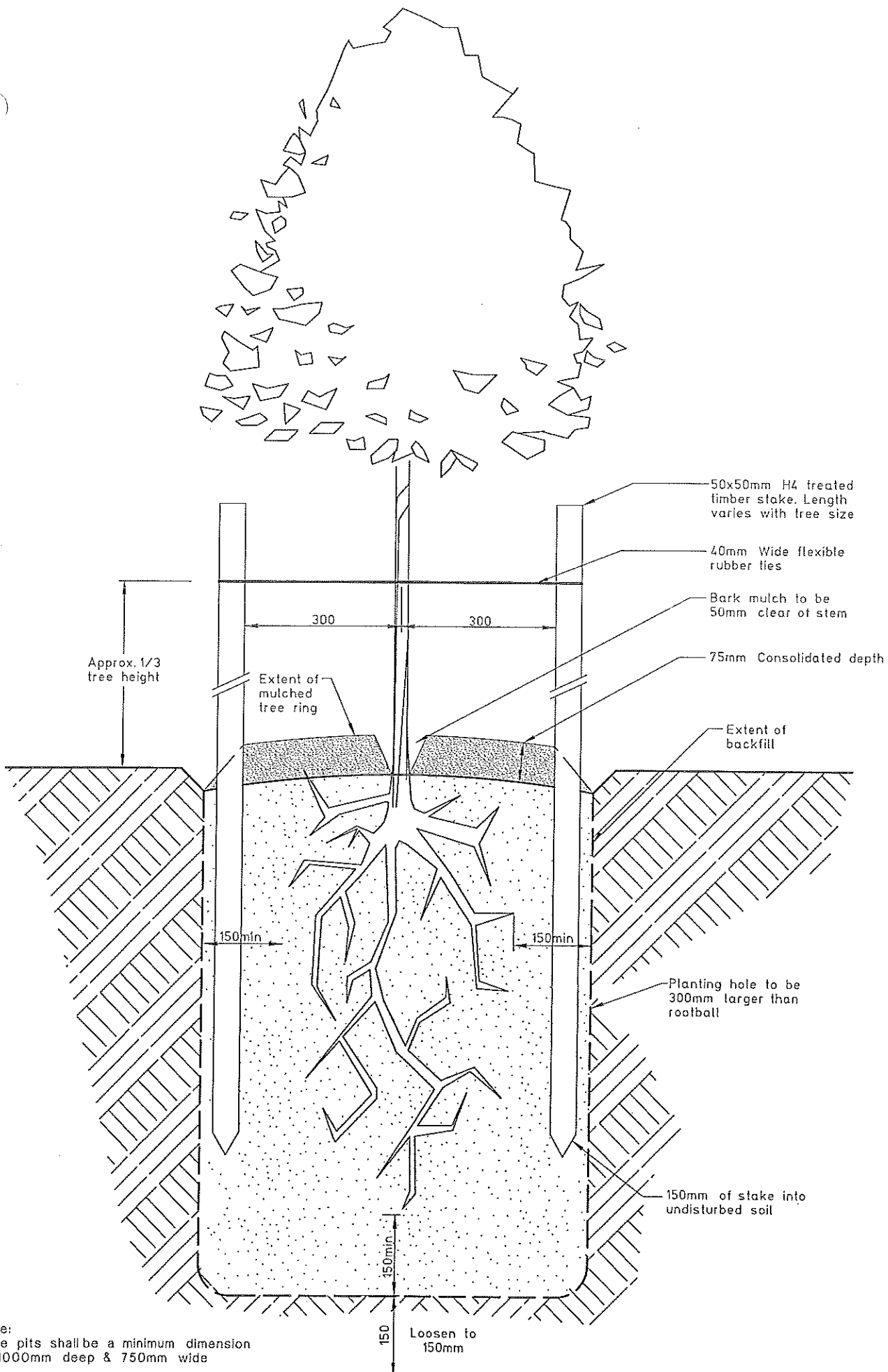
ITEM	CSS REF	TASK	TEST STD/DESCRIP	COMPLIANCE REQUIREMENTS	TEST FREQ.	PASS YES/NO	TEST BY	ACTIONS
	9.3			timber, under 1m				
	Pt 7 9.4	Stem protector materials	Inspect	150mm diameter, flexible corrugated perforated PVC pipe				
	Pt 7 9.4	Stem protectors - trees	Inspect	300mm long, secured to ground				
	Pt 7 9.4	Stem protectors - shrubs	Inspect	200mm long, secured to ground				
7		<b>ROOT BARRIERS</b>						
	Pt 7 10.2	Materials	SD 704	Complies with specification				
	Pt 7 10.2	Installation	SD 704	Located as specified, before tree planting				
8		<b>TREE GUARDS AND GRATES</b>						
	Pt 7 11.2	Construction	Specify	Complies with SD				
9		<b>TURF SUPPLY AND LAYING</b>						
	Pt 7 12.2	Turf materials	Inspect	Good quality, weed free, +20mm thick, grass as specified, hold together				
	Pt 7 12.3	Surface boxes adjustment	CSS Part 1	Adjusted as specified.				
	Pt 7 12.4	Laying	Inspect	Laid within 36 hours of lifting, kept damp, fertilised prior to watering until top 50mm wet				
	Pt 7 12.4	Laying	Inspect	Stretcher bond pattern, on 25mm cultivated topsoil, with levelling soil underneath				
	Pt 7 12.6	Turf acceptance criteria	Inspect	Even healthy sward, uniform 25mm – 50mm height, no hollows or stones, ground covered, no weeds				

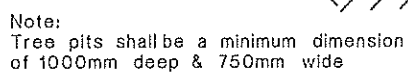
ITEM	CSS REF	TASK	TEST STD/ DESCRIP	COMPLIANCE REQUIREMENTS	TEST FREQ.	PASS YES/NO	TEST T BY	ACTIONS
10		<b>SOWING LAWN</b>						
	Pt 7 13.2	Seed mixture	Inspect	Complies with specification. Certificate received, seed under 12 mths old				
	Pt 7 13.3	Sowing weights	Measure	Uniform 30g/m <sup>2</sup> berm, high profile, 20g/m <sup>2</sup> other lawn, swale, 50kg/ha pasture				
	Pt 7 13.3	Sowing method	Inspect	Cultivated to 20mm, lightly consolidated, fertilised, erosion avoided				
	Pt 7 13.4	Hydroseeding materials	Measure	Complies with specification, +75% wood fibre				
	Pt 7 13.4	Hydroseeding application	Measure	+5mm depth, 200kg/1000m <sup>2</sup> berms, overspray removed promptly				
	Pt 7 13.5	Surface boxes adjustment	CSS Part 1	Adjusted as specified.				
	Pt 7 13.7	Sown acceptance criteria - lawn	Inspect	Even healthy sward, uniform 25mm – 50mm height, no hollows or stones, 90% ground covered, <10% weeds, bare areas <30mm dia				
	Pt 7 13.7	Sown acceptance criteria - swales	Inspect	Even healthy sward, uniform 50mm – 150mm height, no hollows or stones, 90% ground covered, <10% weeds, bare areas <30mm dia				
11		<b>ESTABLISHMENT</b>						
	Pt 7 14.2	Watering	Inspect	Plants maintained in healthy condition				
	Pt 7 14.3.1	Weed control - trees	Inspect	No flowering weeds. Weed coverage <2.5% within 300mm of tree. Weeds under 100mm height or spread. No residual herbicide use				
	Pt 7	Weed control –	Inspect	No flowering weeds. Weed coverage				

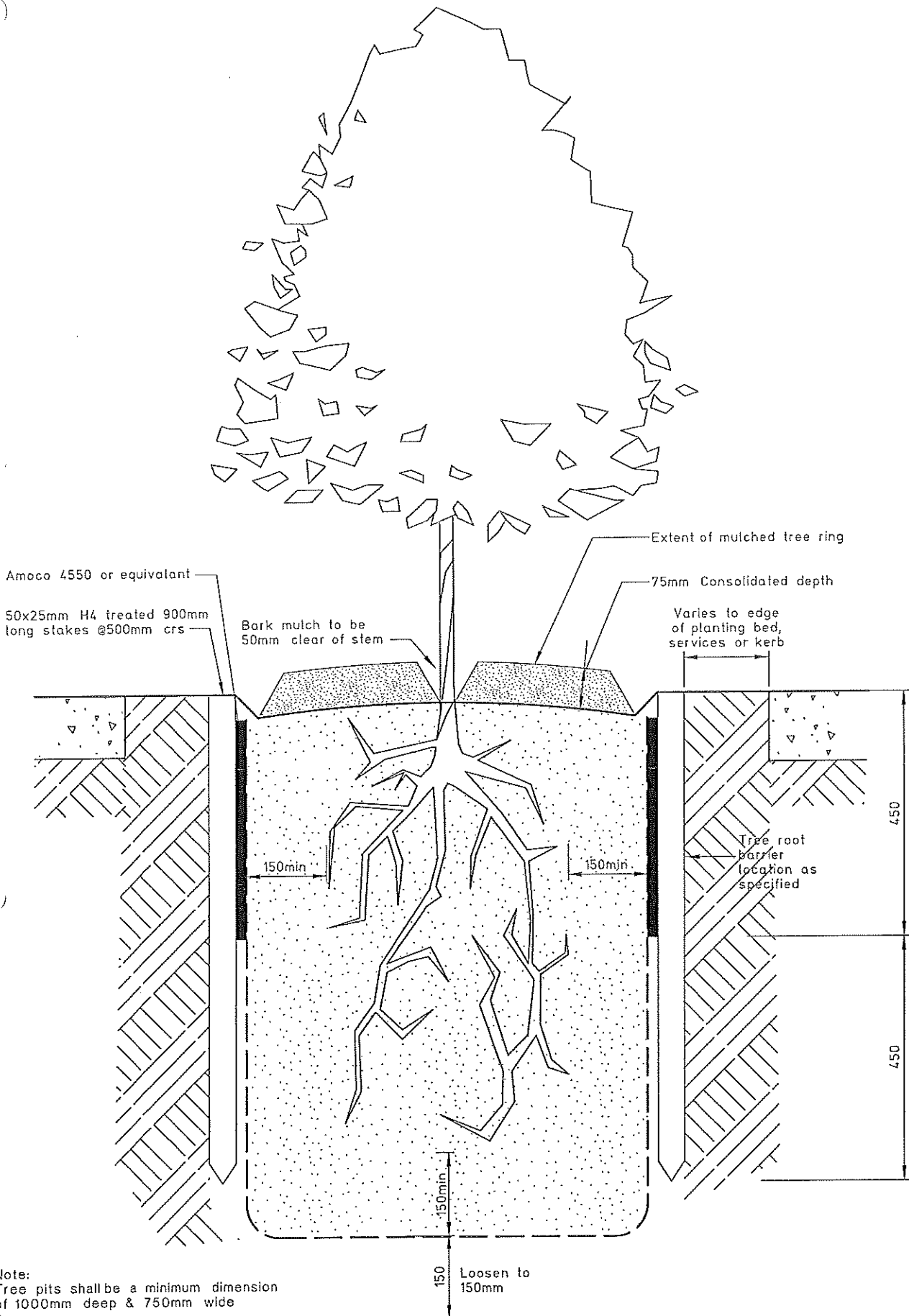
ITEM	CSS REF	TASK	TEST STD/ DESCRIP	COMPLIANCE REQUIREMENTS	TEST FREQ.	PASS YES/NO	TEST BY	ACTIONS
	14.3.2	mulched plant beds		<2.5% of any 10m2. Weeds under 100mm height or spread.				
	Pt 7 14.3.3	Weed control – unmulched planting	Inspect	No weeds or roots within 0.5m of plant root zone				
	Pt 7 14.3.4	Weed control – wetlands	Inspect	Handweeded within 1m of waterway. Natural meanders kept in channel.. vegetation on river bank 24 hours				
	Pt 7 14.4	Pests and diseases	Inspect	Infestations reported promptly				
	Pt 7 14.5	Rubbish and litter	Inspect	Landscape areas, berms and swales free of rubbish and litter				
	Pt 7 14.6	Pruning	Inspect	Plants green, healthy, vigorous, not damaged, well shaped. Sight lines, signs clear				
	Pt 7 14.7.1	Vandalism	Inspect	Reported promptly and recorded				
	Pt 7 14.7.3	Replacements	Inspect	Specified plants				
	Pt 7 14.8	Lawn vandalism	Inspect	Reported promptly				
	Pt 7 14.9	Establishment report	Inspect	Submitted within 5 days of end of month				



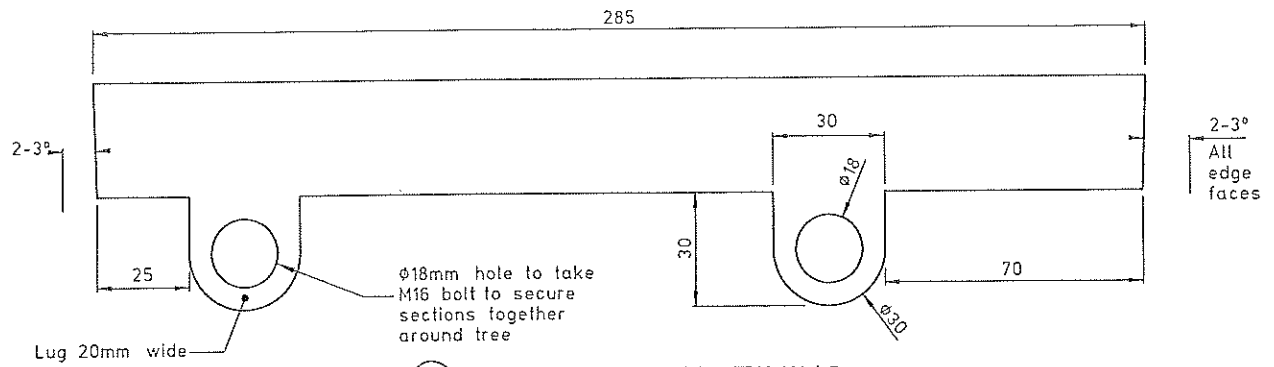






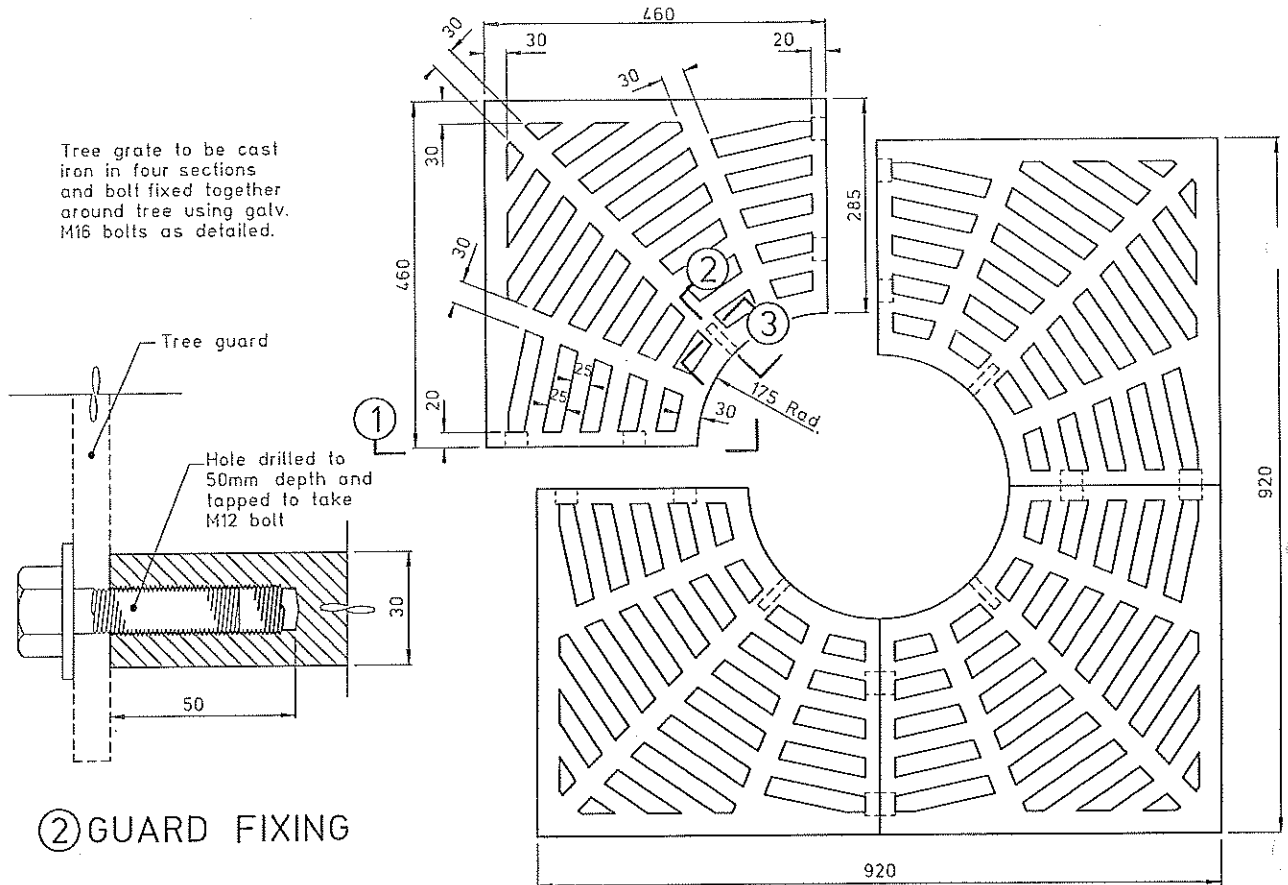


Note:  
Tree pits shall be a minimum dimension  
of 1000mm deep & 750mm wide

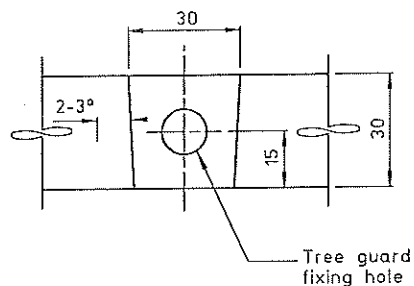


① TREE GRATE FIXING

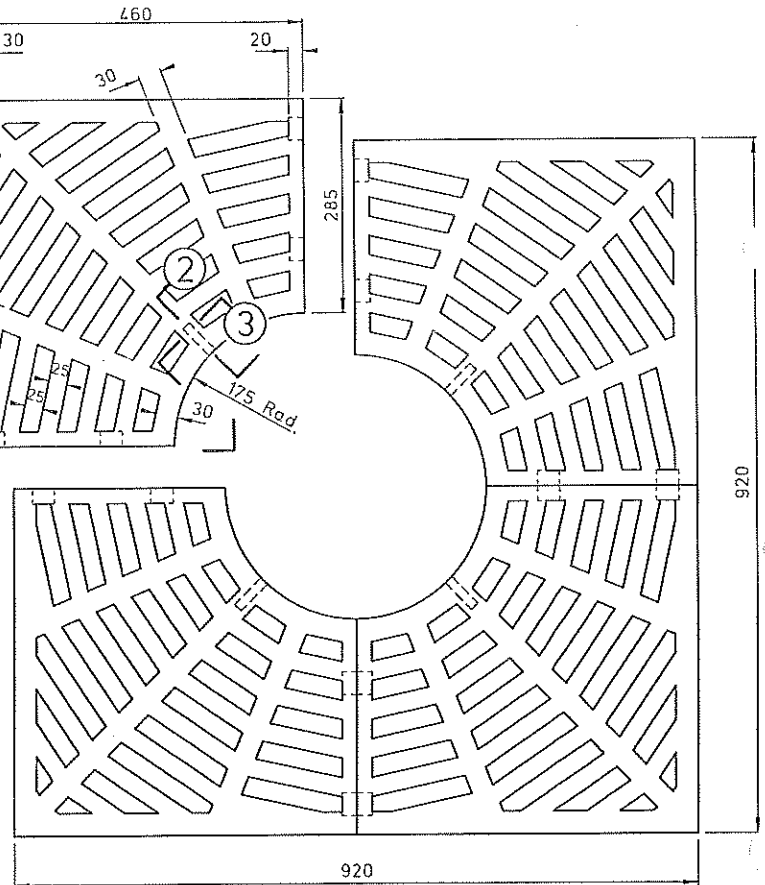
Tree grate to be cast iron in four sections and bolt fixed together around tree using galv. M16 bolts as detailed.



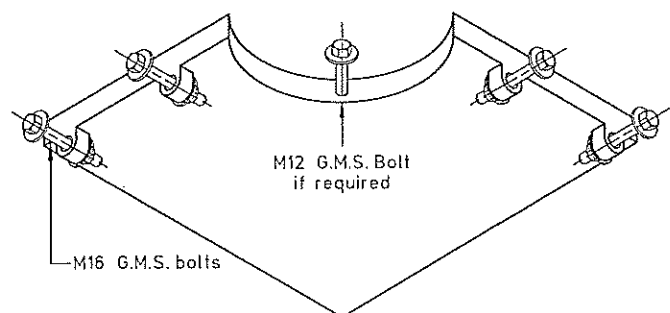
② GUARD FIXING



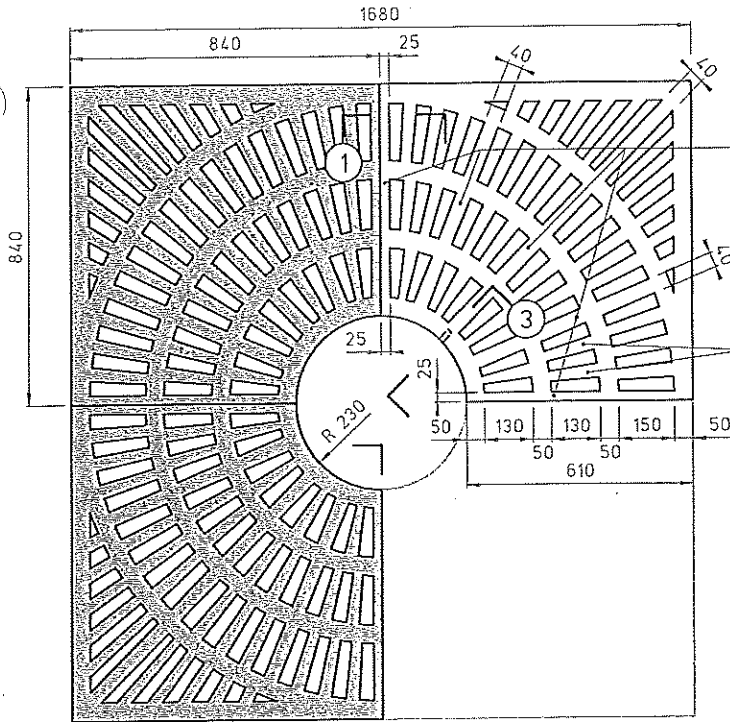
③ TREE GUARD FIXING



TREE GRATE PLAN



ISOMETRIC UNDERVIEW

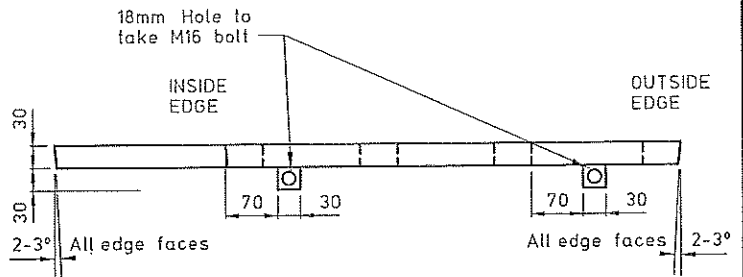
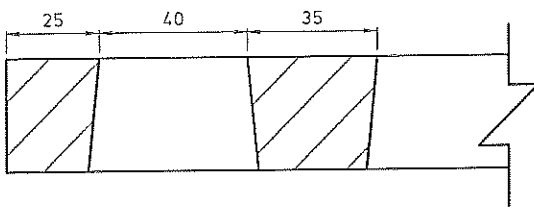


Main Spokes of equal thickness from outside edge through to centre

Tree grate to be cast iron in four sections and bolt fixed together around tree using galv. M16 bolts as detailed.

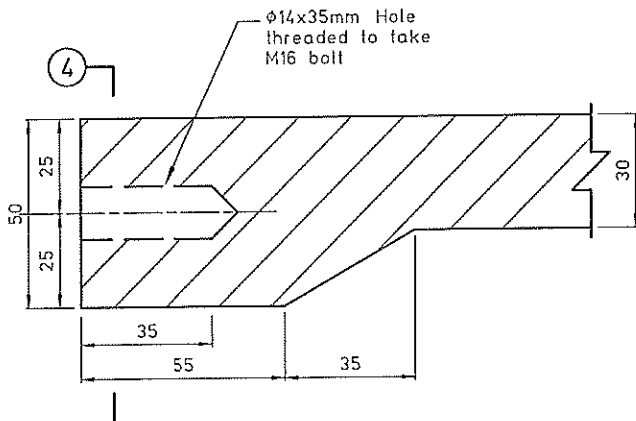
Sections between main spokes on radials & tapering thickness towards centre

② PLAN

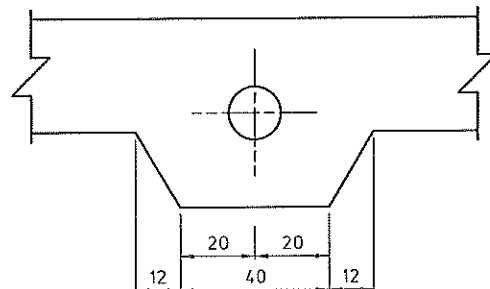


① CROSS SECTION

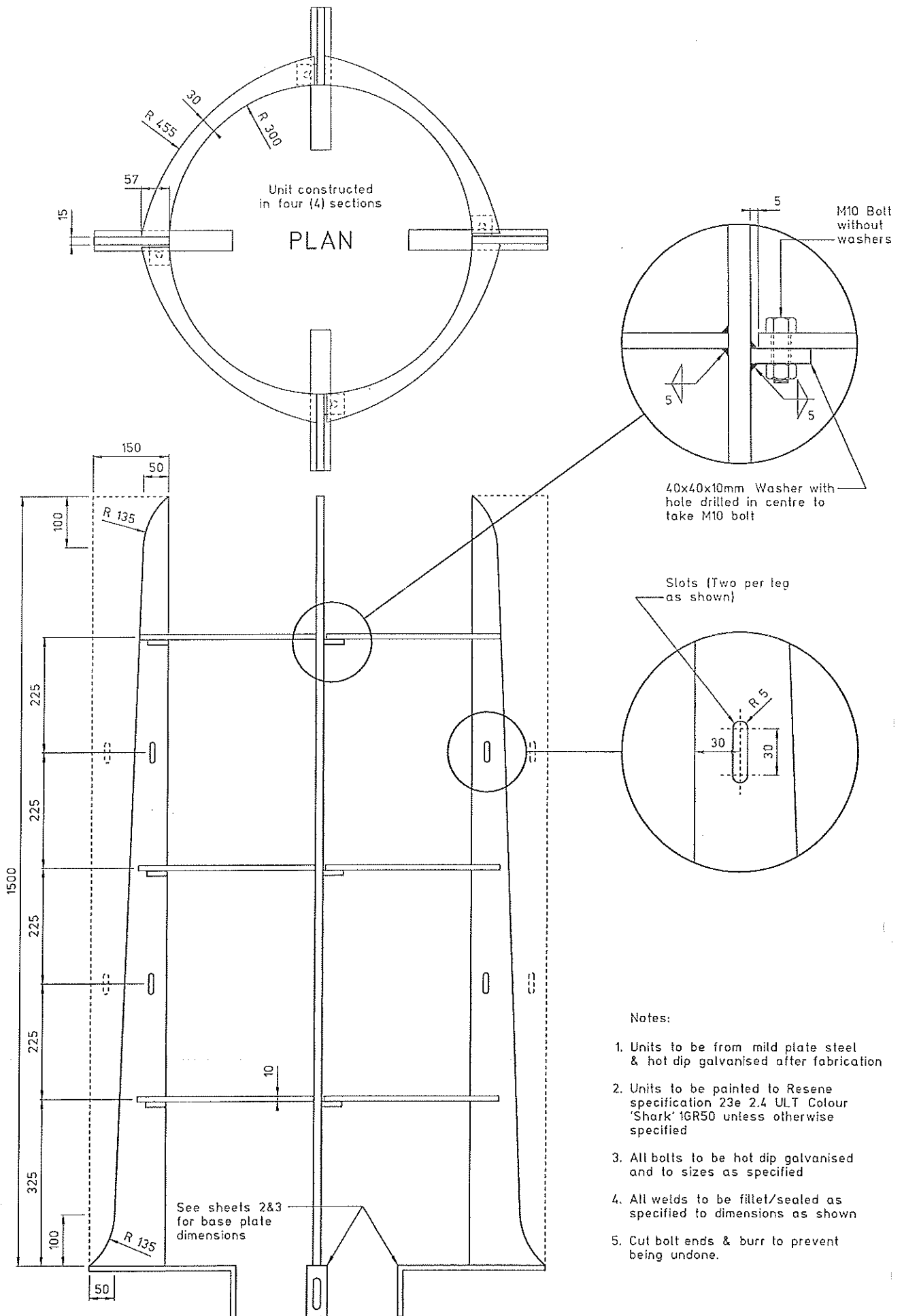
② TREE GRATE FIXING

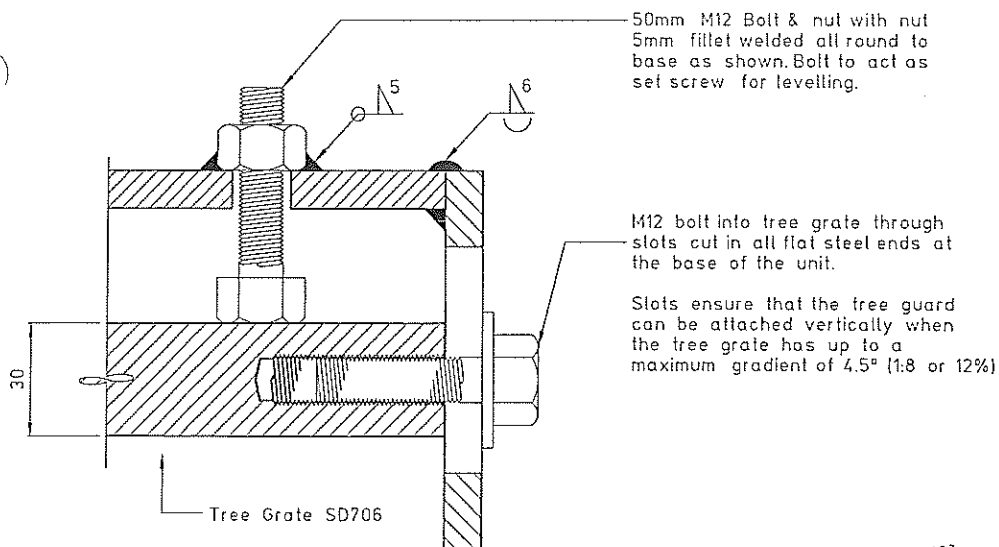


③ GUARD FIXING

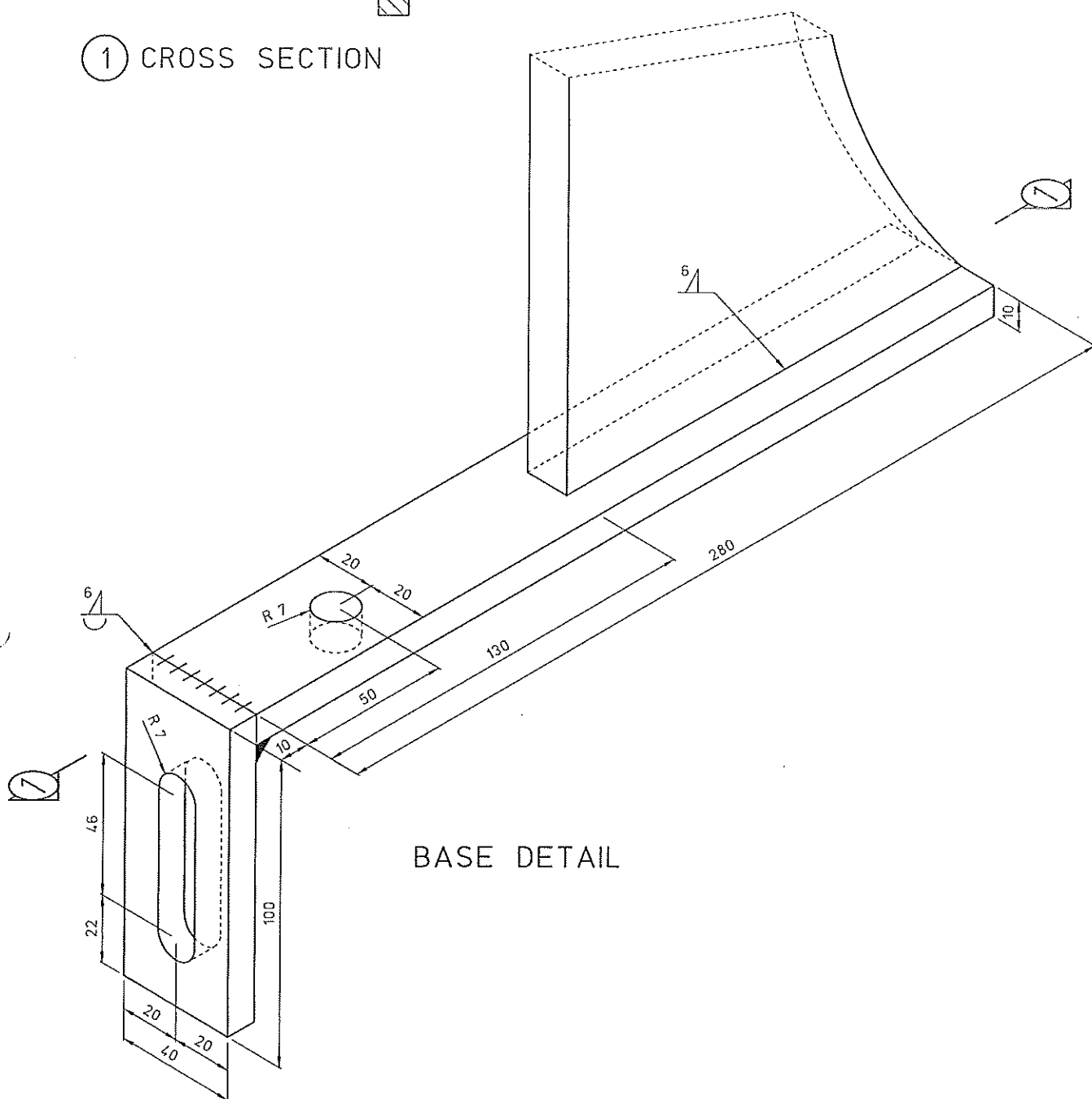


④ TREE GUARD FIXING

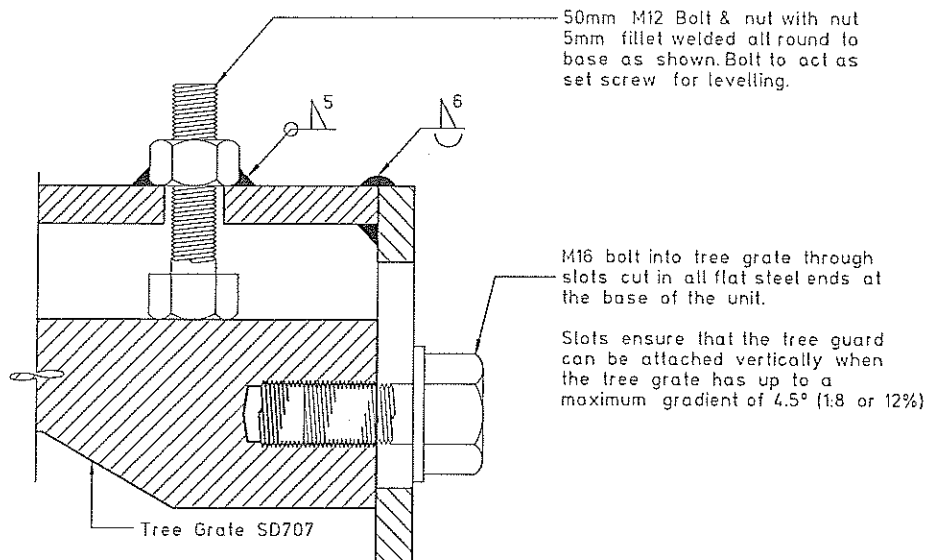




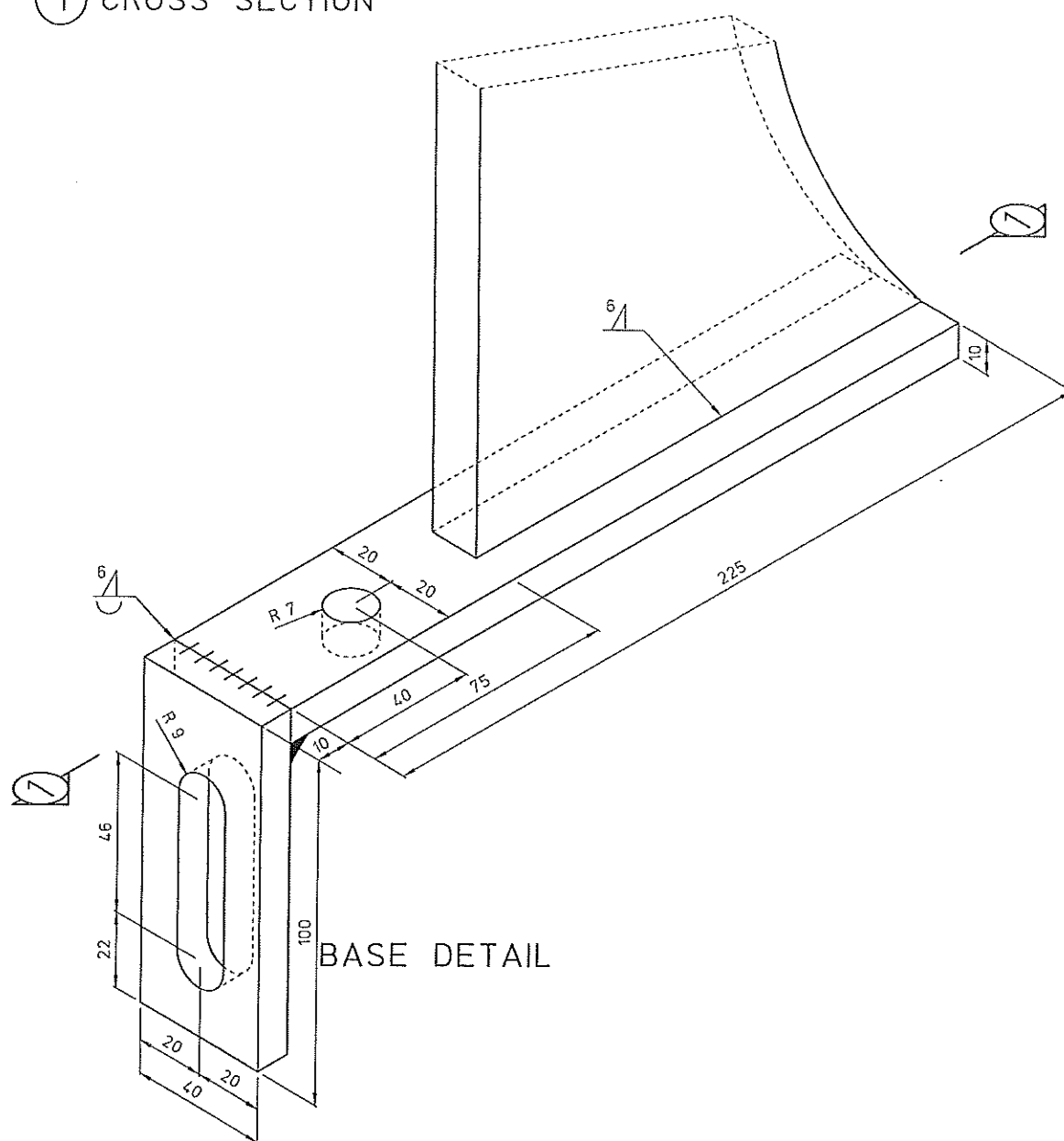
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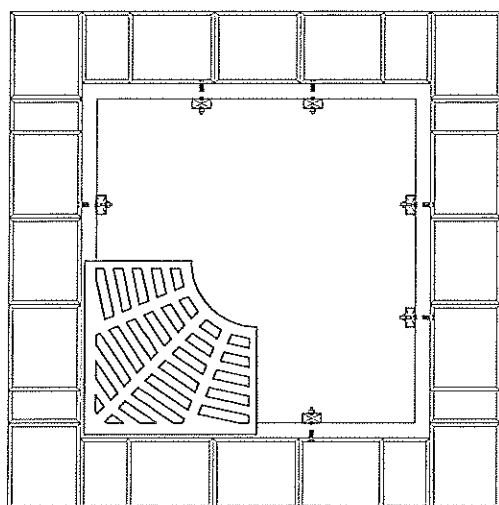




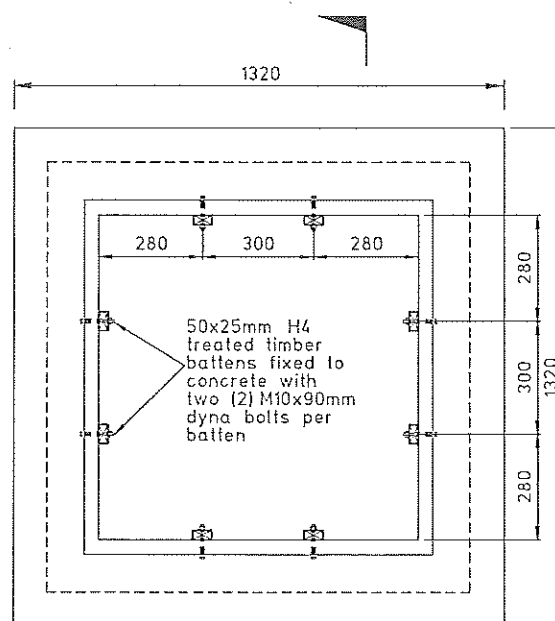


① CROSS SECTION



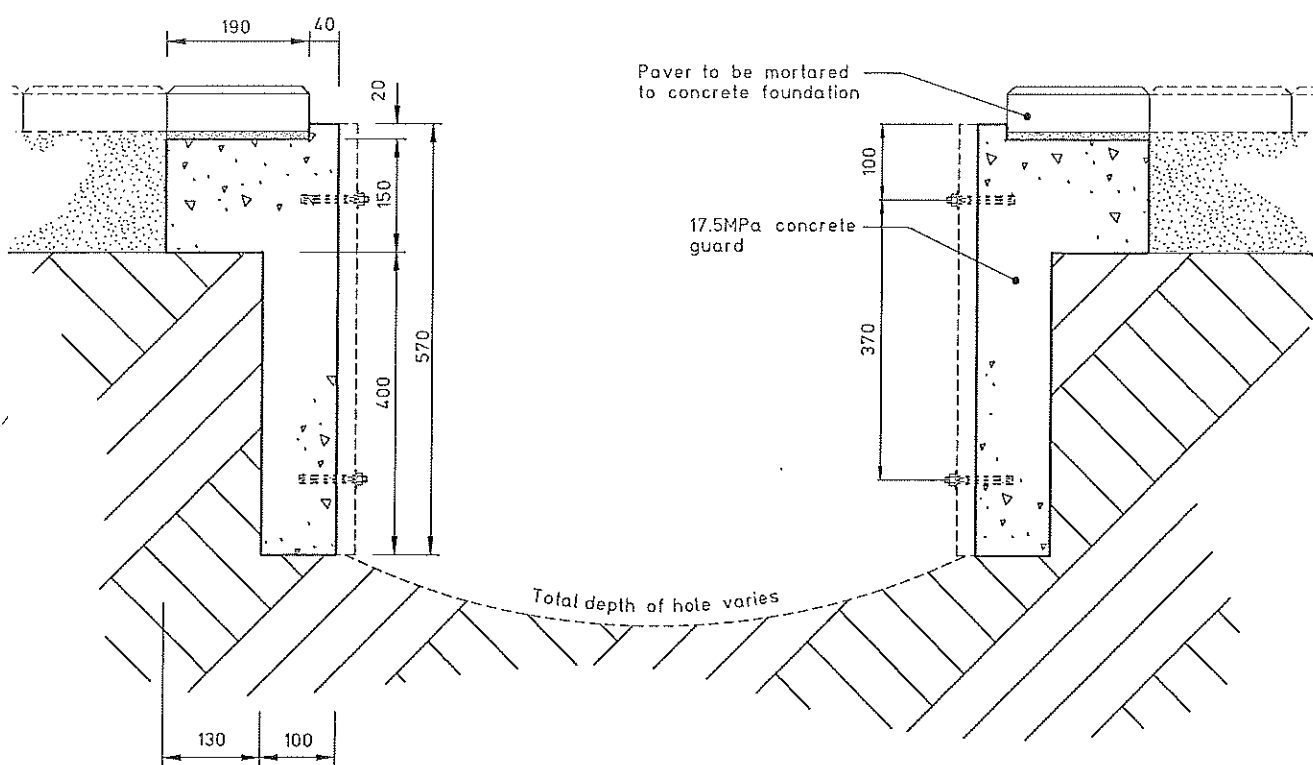


PAVER LAYOUT

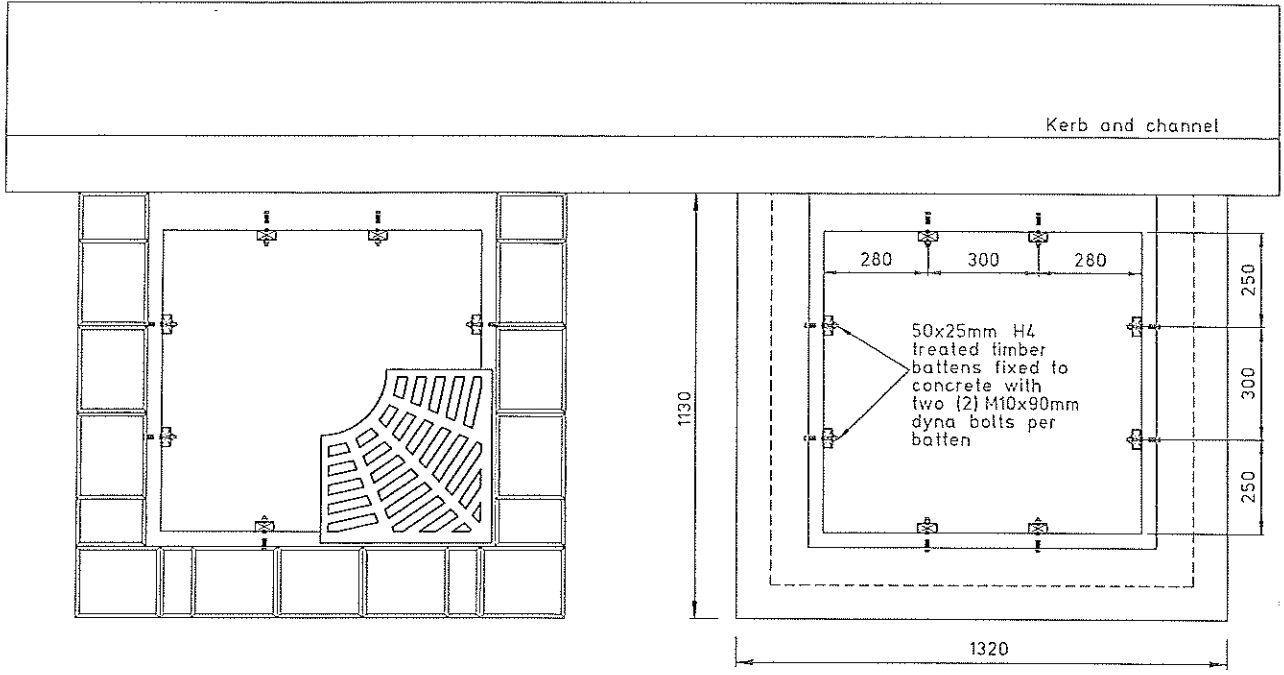


PLAN

①



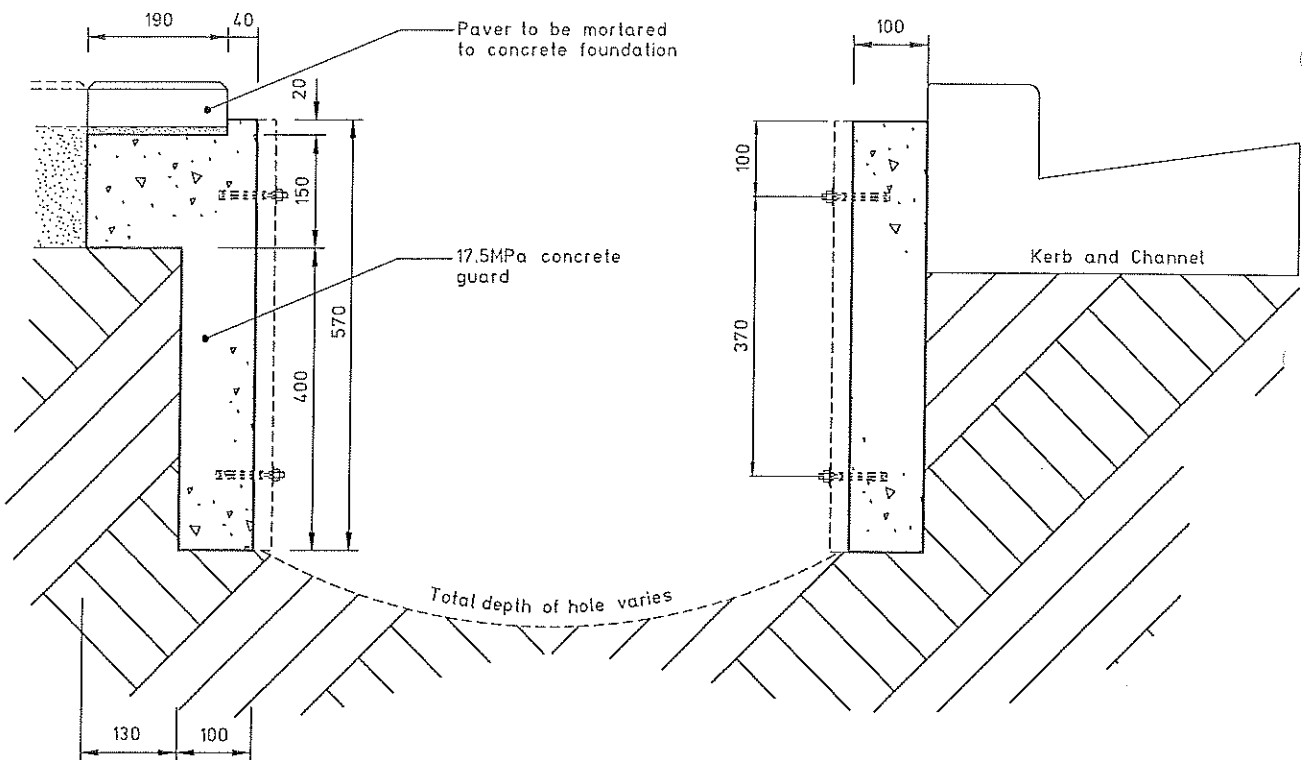
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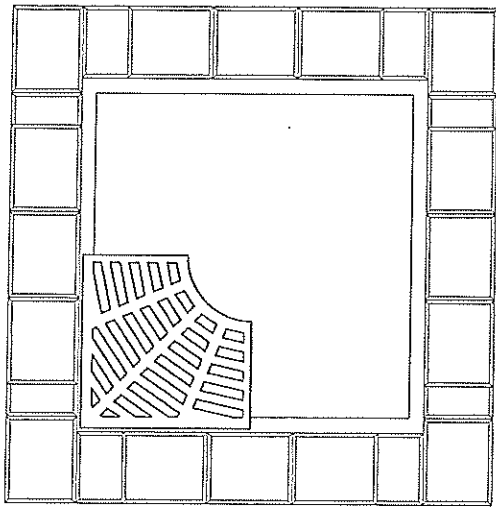
PAVER LAYOUT

PLAN

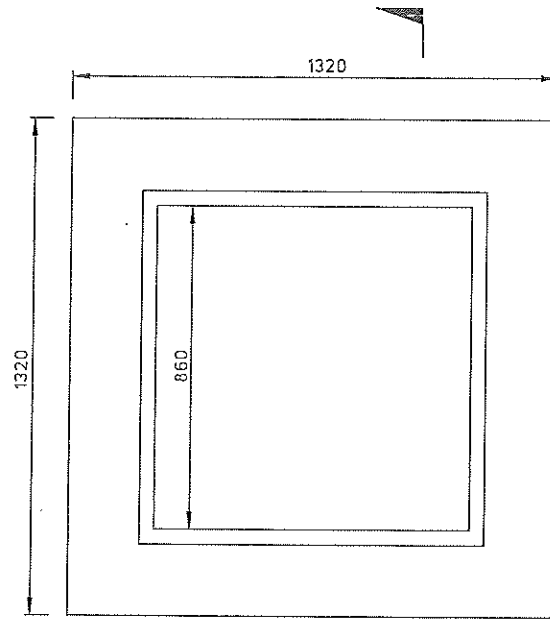
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1 CROSS SECTION

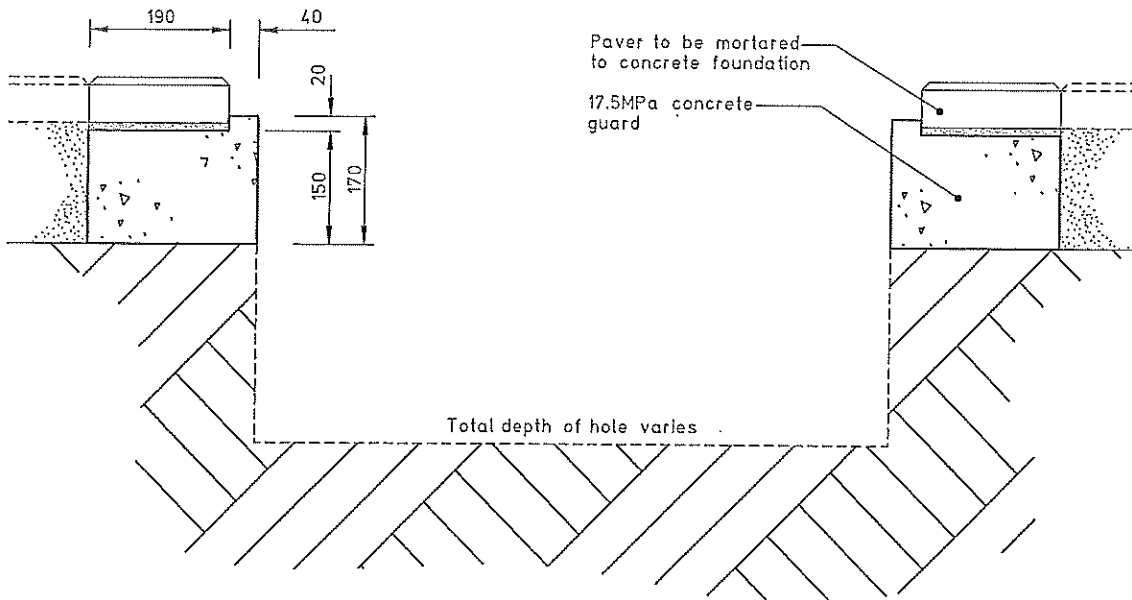


PAVER LAYOUT



PLAN

1



1 CROSS SECTION

# APPENDIX 48.22

## TREES ON COUNCIL LAND

T2

### SPECIMEN TREES ON COUNCIL LAND

T201

- 1 The Asset Delivery Manager may remove, trim or top a problem tree if it is considered that there is a safety issue in regard to the tree or if it has, or is likely to have, a detrimental effect on the neighbouring property, but only after:
  - a) discussion with the complainants to identify their concerns;
  - b) carrying out a site inspection of the particular tree to ascertain the problem;
  - c) identifying the species and its potential for growth, height, spread etc.; and
  - d) consultation with the local Ward Councillor.
- 2 Before making any decision the Asset Manager or his nominee shall have regard to:
  - a) the interests of the public in the maintenance of an aesthetically pleasing environment;
  - b) the desirability of protecting public reserves containing trees;
  - c) the value of the tree as a public amenity;
  - d) the historical, cultural or scientific significance of (if any) of the tree;
  - e) the likely effect (if any) of the removal or trimming of the tree on ground stability, the water table, or run-off.
- 3 Provisions of the District Plan must be met prior to the pruning or removal of any heritage tree

*Community Works and Services 26.4.1995*

*Council 17.5.1995*

*Reconfirmed Works and Services 28.10.1997*

*Amended Council 13.9.2000*

*Confirmed by Council 11.7.2007*

*Council 10.6.2009*

### ALLERGY-FRIENDLY PLANT SELECTION FOR COUNCIL ADMINISTERED LAND

T202

- a) There will generally be no active removal of highly allergenic\* tree and shrub species but rather natural attrition of such species through non-replacement. Requests for specific tree removal may be considered using the criteria listed in the policy 'Tree removal from SDC administered land.'
- b) The Council tree and shrub plantings will be selected from species known to be low risk\* in generating allergic affects as well as female individuals of dioecious plants.
- c) Plantings of highly\* allergenic species may be considered but only where there is minimal exposure of residents to pollen i.e. outside of residential areas.
- d) The public will be encouraged to plant low risk allergenic plant species.
- e) Raise public awareness of the allergic affects of various plant pollens and those tree species that are highly allergenic.
- f) Endorse landscape plans submitted with resource consents for land development which utilise low risk allergenic species.

*\* Numerous plant species produce allergenic pollen. For the purposes of this policy, highly allergenic species are defined as those with OPALS scores of 7 and above and low risk species scoring 1 - 5.*

*Council 13.5 2009*

*Council 10.6.2009*

## **REMOVAL OF ALLERGENIC PLANT SPECIMENS FROM COUNCIL ADMINISTERED LAND**

**T203**

1. Tree removal on SDC reserves and streets will primarily be for reasons of poor tree health, major public works, significant impact on neighbours or possibly damage to SDC property or privately owned property. (See Policy T201, Specimen Trees on Council Land)
2. If tree removal is requested due to a resident's poor health, requests will be assessed on a case by case basis with due consideration to the following matters:
  - Proof of allergic reaction to specific tree species e.g. Doctor's certificate.
  - Likely affects of tree removal on resident's health.
  - Distance from property that trees have been requested to be removed.
  - Other possible sources of allergenic pollen in vicinity of resident's property.
  - Were the trees in question planted prior to the resident purchasing their property.
  - Protected/Heritage tree exemption.
  - Neighbour to contribute 50% of costs of removal and replacement.

*Council 13 May 2009  
Council 10.6.2009*