

LANDSCAPE MAINTENANCE PLAN

Costco Oakdale

Oakdale South Industrial Site
Precinct 4, Site 4A
Kemps Creek, Penrith, NSW

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1.0 SCOPE OF WORKS

1.01 Intent

The works in this scope comprises, but is not limited to, the provision of design enhancement, safety, supervision, labour, materials, transport, plant and equipment necessary for the maintenance of landscape areas and related items as indicated within this manual and to the satisfaction of Costco Wholesale, statutory authorities and relevant Australian standards.

The following Landscape Maintenance Plan is prepared in response and in accordance to Condition B42, B43 and B44 (Visual Amenity, Landscaping) of the Development Consent approval, Application No: SSD 8209, dated 23 February 2018.

B42. Prior to the commencement fo operation, the Applicant must prepare a Landscape Management Plan (LMP) to manage the revegetation and landscape works on-site, to the satisfaction of the Secretary, The LMP must form part of the OEMP in Condition C4 and be prepared in accordance with Condition C6. The LMP must:

- (a) be prepared in consultation with Council;*
- (b) be in accordance with the approved Landscape Plans'*
- (c) detail the species to be planted on-site;*
- (d) describe the monitoring and maintenance measures to manage revegetation and landscaping works for the life of the development;*
- (e) demonstrate landscape in accordance with the relevant Australian Standards; and*
- (f) be consistent with the Applicant's Management and Mitigation Measures at Appendix B.*

B43. The Applicant must:

- (a) not commence operation until the LMP required by Condition B42 is approved by the Secretary; and*
- (b) implement the most recent version of the LMP approved by the Secretary for the duration of the Development.*

B44. The Applicant must maintain the landscaping and vegetation on the site in accordance with the approved Landscape Management Plan required by Condition B42 for the life of the Development

1.02 General Description

Regular maintenance of all areas is required to ensure a satisfactory presentation, minimise safety risks and maximise environmental outcomes. Generally, the works for landscape maintenance covered by this maintenance specification includes the following:

- Preliminaries
- Open Space
- Public Paths
- Turf Maintenance
- Horticultural Maintenance
- Tree Care
- Litter Control
- Irrigation Works
- Maintenance of Structures, furniture, play equipment and surfaces.
- Watering of Landscape Areas
- Rubbish Removal

Refer to following appendix, which describe the complete landscape works:

- Appendix 1 – Stamped Approved Landscape Plans
- Appendix 2 – Detailed Landscape Plans (for construction)
- Appendix 3 – Landscape Specification

1.03 Site

The site is known as 15 Ottelia Road, Kemps Creek, NSW. Precinct 4, Site 4A, Oakdale South Industrial Estate. Lot 12 DP 1178389, Kemps Creek, Penrith Local Government Area.

For the purpose of this maintenance manual, the site includes all landscape areas located within the site boundary as well as public domain works to the surrounding verge and footpath areas. Refer to figure 1 – Site Aerial



Figure 1: Site Aerial

2.0 GENERAL CONDITIONS

2.01 Site Facilities and Compound

If required on site, compounds and facilities are to be accommodated within the existing building footprints.

2.02 Existing Services

Fully investigate and become familiar with any services which may be affected by the maintenance works.

2.03 Materials Supply

The scope of this package includes the supply of all materials required to carry out the works, including but not limited to top dressing and top up mulching materials, fertilising, adjustment and replacement of tree ties and herbicide. Provide all fertilisers, chemicals & mulch required for the maintenance of lawns and gardens and ensure they are stored & handled in accordance with local legislation.

2.04 Manufacture, Storage and Transport

Landscape maintenance staff are responsible for the transportation, storage, security, and handling of all materials associated with their works. The following materials shall be properly stored up to the time of incorporation into the works:

- All transportation, horizontal and vertical movement of material supplies is to be allowed for.
- Flammable materials shall be stored in accordance with State and Federal Legislation and the Project EH&S Plan.
- Store materials and equipment on site to prevent damage to the site and minimize hazards to persons, materials and equipment. Keep storage areas neat and tidy.
- Do not use roads, driveways, paths, hardstands and the like for access or storage unless prior approval has been given.
- Dangerous Goods - Obtain approval from the property manager prior to storing any hazardous substances and dangerous goods on the site. Provide a risk assessment and a manifest as required under the Occupational Health and Safety Act 2000.
- Disposal of contaminants - Properly dispose of solid, liquid and gaseous contaminants in accordance with all statutory and contractual requirements.

2.05 Nuisance

Work shall not be carried out or materials handled in such a manner as to cause nuisance on the site or to other users or to the public at large or occupants of adjoining properties. Work causing a hazard to others shall have safety barriers surrounding the services in accordance with Work Cover Authority Regulations.

Dust Control - Restrict dust caused by the Services to a minimum so as not to cause complaint from residents within or adjacent the site.

Minimise Noise: Take all practicable precautions to minimise noise resulting from work, so as not to cause complaint from residents within or adjacent the site.

2.06 Trucking

Convey soils, earth, sand, loose debris, and the like loose materials to or from the site in a manner that will prevent dropping of materials on streets. Ensure that the wheels, tracks and body surfaces of all vehicles and plant leaving the site are free of mud and that mud is not carried on to adjacent paved streets or other areas.

2.07 Site Safety

Landscape maintenance staff must not create or leave unattended any potential hazards within the works caused by the staff or others. All hazards must be made safe.

All employees and subcontractors shall be provided with, wear and always use all necessary protective clothing and equipment including but not limited to steel cap boots, vests, and shirts with sleeves.

2.08 Security

Maintenance staff shall always allow for the security of their equipment.

2.09 Protection of Public and Neighbourhood Properties

Landscape maintenance staff shall take all necessary measures to satisfy the following:

- Access to site shall be by off nominated roads
- Keep all public thoroughfares free and clear of debris during the currency of the works
- Every precaution shall be taken to prevent damage of any kind to private properties caused during execution of the works. All damage shall be made good.
- Provide all things and take all measures necessary to protect people and property within the area during carrying out the maintenance services.
- Avoid unnecessary interference with the passage of people and vehicles within the area.
- Prevent nuisance and unreasonable noise and disturbance from the area.
- Take all reasonable and practical measures to prevent or minimise environmental harm.

Allow at least 2 working days before undertaking work in locations where works may interfere with other site users, submit to owners and occupants of adjoining property written notice of intention to commence work and an outline description of the type and extent of work.

Records: If the Services are likely to impact upon adjoining properties:

Inspect the properties with the Building Manager and owners and occupants of the properties, before commencement of the services.

Make detailed records of conditions existing within the properties, especially structural defects and other damage or defacement.

Arrange for at least 2 copies of each record, including drawings, written descriptions, and photographs, to be endorsed by the owners and occupants, or their representatives, as evidence of conditions existing before commencement of work.

Endorsed copies: Submit one endorsed copy of each record. Keep the other endorsed copy on site.

Purpose of submission: Information only.

Accessways: Do not obstruct or damage roadways and footpaths, drains and watercourses and other existing services in use on or adjacent to the site.

Services: Determine the location of all underground / overhead services.

Property: Do not interfere with or damage property which is to remain on or adjacent to the site, including adjoining property encroaching onto the site, and trees.

Any loss of or damage to, the property within the area caused by the acts or omissions of landscape maintenance staff or any of its employees or agents shall be immediately made good.

2.10 Occupied Premises

General: The whole of the site is designated as occupied premises.

Allow occupants to continue in secure possession and occupancy of the premises for the required period.

Make available safe access for occupants.

Arrange work to minimise nuisance to occupants and ensure their safety.

Protect occupants against weather, dust, dirt, water or other nuisance, by such means as temporary screens.

2.11 Provision for Traffic

In public roads, make full provision for the safe, continuous movement of vehicles with a minimum of disruption to traffic flow, and erect temporary signs and controls. Controls may include (but are not limited to) stop/go personnel, warning signs, directional signs and the like.

2.12 Handover of Public Domain to Penrith City Council

A joint handover inspection by the Development Manager and a representative of the Penrith City Council will be held within the four (4) weeks preceding the expiry of the maintenance works. All public domain areas must be to the standard outlined in the Scope of Works.

Any deficiencies must be rectified within two (2) weeks from the date of inspection of the Site. Landscape maintenance staff are responsible for the area until it is in a condition acceptable to the Penrith City Council and has been handed over.

Areas within the site boundary shall remain the responsibility of the development manager.

2.13 Hours of Operation

The hours of operation for the maintenance are from 7:00 a.m. to 6.00 p.m. Monday to Friday. No maintenance works can be carried out on Saturdays except with written approval from the Building Manager and at no times on Sundays and Public Holidays. Exceptions shall be made for emergency repairs such as an irrigation system leakage. Hours may vary depending on the amount of daylight, weather type of works and number of workers on site.

3.0 REPORTING

3.01 Maintenance Staff to Report

Landscape maintenance staff must report the following to the Building Manager within twenty-four (24) hours:

- Accidents, incidents and exceptions: any unusual major activity/issue, landscape problem, pollution, pesticide spills, etc.
- Illegal dumping.
- Major vandalism or damage to assets.
- Significant pests and diseases problems.
- Pesticide restricted site requests from the public.

Landscape maintenance staff must report the following concurrently to the Building Manager and City Officers within twenty-four (24) hours:

- Illegal dumping - report if it is considered possible that the person responsible can be identified.
- Illegal signs.
- Abandoned vehicles.

Maintenance staff must report all graffiti within twelve (12) hours of sighting concurrently to the Building Manager and to the graffiti removal contractor (if applicable).

Maintenance staff must include in the quarterly report the number of needles and syringes collected and the date and location found.

3.02 Reporting program

Submit a written report on a quarterly basis specifically addressing the following issues:

- Health of plants - growth rates; site coverage in terms of density; mortality rates; watering requirements; threats; replacement planting numbers and dates; disease and pest control measures; condition of tree guards and stakes.
- Weeds - type and degree of infestation; control measures.
- Soil and erosion control - incidents of erosion; temporary and permanent control measures; mulch coverage;
- Rubbish and silt control - sources of contamination; frequency of attention.
- Grass areas - fertilizer program; mowing program.
- Hard landscape elements - condition and repair.
- Roads and kerbs – condition and repair
- Storm water system (including detention tanks) – condition and repair

Submit the Maintenance Log Book as part of report.

Keep a logbook recording when and what maintenance work has been done, the times of attendance and what materials (including toxic materials) have been used. Make the logbook available for inspection on request.

The log book to include, but not limited to:

- maintenance work undertaken
- equipment and chemicals used
- incidents
- staff on site
- sub-contractors used

3.03 Schedule and Requirements

Landscape maintenance staff must provide a summary of all work undertaken. The Report is to include the items detailed in the table below:

Report Name	Frequency	Special Requirements
Work undertaken	Monthly	Brief summary of all work undertaken
Incidents and Accidents	Monthly	Details of any incidents or accidents that occurred during the month
Handling and use of hazardous substances	Monthly	Reports to be provided on type and frequency
Water Quality testing	Seasonal	Testing results to be provided for suspended solids, total phosphorus, total nitrogen, litter, coarse sediment, oil and grease and hydrocarbons. In the event of storm events, tests are to be carried out immediately post storm to monitor and record changes to pollutant levels.
Graffiti	Quarterly	To include all details relating to the location of the graffiti and the date observed on playgrounds, barbecues and the date reported to the Building Manager.
Needles and syringes	Quarterly	Number collected from various locations and date
Pesticide usage	Quarterly	Name of pesticide, rate and volume used, quantity of product used, name of weed, pest or disease problem treated, asset type treated, location, date of spraying and name of operator. The quantity of product used is to be provided. Information to be recorded daily.
List of employees who use pesticide	Quarterly	A full up-to-date list of all employees who undertake the use of pesticides is to be provided.
Plant removals (trees, shrubs, etc.)	Quarterly	To include details of removal date, location, species, size, reason for removal
Vandalism	Quarterly	To include details of assets damaged, location and cost of repairs
Variations and Handovers	Quarterly	Updated and priced list of all variations and handovers for the month.
Use of sub-contractors	Quarterly	Names of all current sub-contractors and those employed during the previous month and the activity or type of service provided.

Report Name	Frequency	Special Requirements
Emergency callouts (outside normal working hours)	Quarterly	To include all details relating to the request including source of request, date, time, work undertaken and asset condition.
Illegal dumping	Quarterly	To include details of major instances of illegal dumping.
Scarab grubs in irrigated turf	January, February, March	Details of population levels (eggs and larvae) to be provided with location and number of sites sampled.
Irrigation	Quarterly	Reports on performance and repairs. All changes are to be recorded on the appropriate plans. Summary of changes to be submitted.
Plant replacement and enhancement programs	Quarterly	
Fertiliser Applications	Autumn and Spring	Site locations, product, quantity and rate applied.
Aeration Program	Spring	Sites aerated.

Landscape maintenance staff must maintain records and provide reports to the Building Manager if requested.

3.04 Incident Reporting

Landscape maintenance staff must provide to the Building Manager full details of any incident involving third parties which may or may not lead to investigation by the Council or any other public authority. If the incident or near miss involves injury to any person or results in lost time, the matter is to be reported within two (2) hours. A written report is to be provided within twenty-four (24) hours.

3.05 Asset Register

Maintain an asset register detailing all major repairs, refurbishments, or replacements of assets. The information is to be submitted quarterly. The information is to include as a minimum: asset ID, location, what work was undertaken, brand or manufacturer of replacement parts and cost.

A Register of all assets (eg, sprinklers, street furniture) installed must be maintained for warranty purposes.

4.0 COMPLIANCE

4.01 Regulations

Comply with all relevant acts, regulations, by-laws including but not limited to:

- OHS Act and Regulations
- Work Cover Authority procedures and instructions and relevant guidelines
- EPA requirements as per legislative requirements
- Federal Dangerous Goods Act and Regulations

Landscape maintenance staff and any subcontractors shall at all times adhere to the requirements of the Environmental Protection Authority of NSW. Maintenance staff will be totally responsible for the proper installation of and maintenance of environmental controls to ensure the environmental protection of the site and the surrounding areas.

4.02 License Permits and Approvals

Landscape maintenance staff will ensure that all relevant licenses (local, state and national) required for the legal execution of works are complied with. Evidence of these licenses will be required prior to commencement of the works. These licenses will include but not be limited to the following:

- Current commercial vehicle drivers licences.
- Various equipment operator certificates, chain saw, skid steer equipment.
- Commercial pesticide and chemical application licences.

Permits for works adjacent to public roads and thoroughfares may be required for specific maintenance functions. It is the full responsibility of landscape maintenance staff to gain the appropriate permits and approvals from the appropriate authorities for the execution of these works.

4.03 Authorities

Where the works require compliance with a Standard or Code, that Standard or Code shall be one current at the time of carrying out the works unless otherwise specified.

Any testing required to be carried out by an authority registered with the National Association of Testing Authorities Australia (NATA).

5.0 GENERAL REQUIREMENTS – SOFTWORKS

5.1 Generally

It is the intent that the landscape areas are to possess the following characteristics at all times:

- Healthy growth
- Vibrant colour (foliage and floral display appropriate to the season and location)
- Cleanliness

The maintenance program involves the application of the correct horticultural techniques, at the correct time, in tune with landscapes and level of presentation.

The landscape requires a high level of inspection and maintenance to ensure high quality presentation and environmental standards.

5.2 Soil Testing

Soil testing is to be undertaken at least once per year from three locations across both planting beds and lawn areas. The results of the test are to be included in the maintenance logbook and must include results for pH and nutrient levels.

The fertilisation program shall be based on the soil testing results. Generally, an all-purpose fertiliser should be applied at recommended rates.

The soil samples for each area must be a conglomerate taken from a uniformed soil structure.

5.3 Protection of Existing Trees and Vegetation to be retained

Protect existing trees and other vegetation from damage by machinery and works. Prevent damage to tree bark and limbs. Do not attach stays, guys and the like to trees. Works must be carried out in such a way as to avoid any contact between machinery and tree limbs and trunks.

Harmful materials: Do not store, stockpile, dump, or otherwise place under or near trees or vegetation, bulk materials and harmful materials including oil, paint, waste concrete, clearings, boulders and the like. Do not place spoil within the dripline of trees, even for short periods. Prevent wind-blown materials from harming or coating trees and plants.

Work under trees: Do not remove topsoil from within the drip line of trees. If it is necessary to excavate within the drip line of existing trees, use hand methods or approved alternatives such that root systems are preserved intact and undamaged.

Grass and vegetation to be removed under or in the vicinity of existing trees to be sprayed with a Glyphosate based herbicide and removed by hand when dead.

Roots: Do not cut tree roots exceeding 50mm diameter unless permitted. Provide written advice from a qualified arborist as to the suitability of any procedures.

Compacted ground: Avoid compaction of the ground under trees, or in the vicinity of existing vegetation.

Work on Trees: If it is considered necessary to perform any work on trees, including trimming, lopping, root cutting, repair and removal, work is to be carried out by a suitably qualified arborist. All pruning work must be in accordance with AS4373 - 1996 Pruning of Amenity Trees.

5.4 Protection of Existing Hard Landscape Elements

Undertake works by procedures that ensure no damage to existing hard landscape structures and fixtures including pavements, walls, fencing and furnishings.

6.0 TURF

6.01 General Turf Requirements

All turf is to have a high-quality finish as summarised below:

- High quality lawn of even green colour and appearance.
- Minimum Fortnightly mowing in winter, once each week in summer – clippings removed, cross cutting. Using a rotary mower.
- Edging of all garden edges, lawn/hard surface interfaces and tree surrounds to maintain definition of lawn edges.
- Control of all weeds.
- Minimum Top dressing twice yearly
- Over sowing to keep colour during cooler months.
- All paths are to be kept clean of clippings.
- Levels flush with adjacent surfaces
- Uniform levels and grades – 25mm±
- 95% grass cover
- <2% surface area affected by weeds, pests or diseases
- Damage to be repaired within 5 days of reporting
- Min 30 mows per year to achieve grass height range specified
- Grass height range as follows:

Species	Grass Height Range	
	Sept – March	April – Aug
Couch	25-30mm	30-40mm
Buffalo	35-40mm	35-40mm

6.02 Turf Maintenance Generally

Maintain grass areas to produce a dense, continuous sward of healthy grass over the entire area, evenly green and of consistent height. Do not remove more than one third of the grass height at any one time. Long grass should have its height reduced gradually over a period of no more than one (1) month until the desired height of cut is reached. The removal of excessive amounts of leaf material at any one mowing, that results in a brown stubby appearance is damaging to the grass (scalping), especially during the summer months.

Mowing patterns should be such that minimal clippings are blown onto paths and roads. All cuttings and debris dispersed onto hard surfaces as a result from the trimming operation are to be collected and removed from site.

Mowing patterns must be altered where practical to avoid wheel cuts or grain patterns. Trim all areas that are not accessible to mower. Trimming refers to the cutting of all grass areas that are inaccessible by the mowing operation. All vegetation around posts, poles, buildings and structures in lawn area will be trimmed at the same frequency and height as the mowing. Trimming is to take place on the same day as grass cutting. When trimming, take care to avoid damage to trees and shrubs.

No mowing is to take place on days hotter than 35 degrees, and wet days to avoid the grass clippings lumps. Mowing and irrigation events need to be carefully programmed to avoid mowing being carried out on a day following a major irrigation event the previous night. If this is unavoidable mowing should be delayed until after 12 noon. Irrigation schedules should be adjusted to complement the mowing program.

Grass mowing is also to include mowing of any weed species. Weed spikes are to be mown to maintain the sward at the heights specified for grass mowing.

Where a 'spade-cut' edge exists reinstate as required. Clean up all debris resulting from edging practices. Maintenance of lawn edges using herbicides will not be acceptable. Lawn edges are to remain flush with surrounding hard surface levels at all times. They are not to creep back from the hard surface edge due to incorrect edging practices. The lawn will be edged with a suitable lawn edger (brush cutter with a nylon cord or metal blade unit that will not damage the concrete) once every mowing cycle.

Prior to mowing, all rubbish including papers, bottles and glass must be removed. Sprinklers must be inspected to ensure stems are depressed and quick coupling valve heads are in a closed position.

6.03 Fertilising

Fertilising will be with granulated or liquid fertiliser. Fertilise grass areas as required to maintain healthy, growing grass. The fertiliser shall not be applied to wet grass and shall be evenly spread over the entire area and thoroughly watered in after application.

Fertilisers used onsite should be quality controlled released granular fertilisers with a minimum N:P:K of the following:

- Summer applications:- 15 + 0 + 20 + 2.4Mg
- Autumn applications: - 22 + 2.2 + 8.3

There may be times when these products will need to be substituted by applications of single elements or specific fertilisers to help correct a deficiency as identified in the soil tests. The fertiliser used in these works will be a quality controlled release product applied at the manufacturer's recommended rate as determined by the soil test results. Fertiliser will be applied through a centrifugal fertiliser spreader. Applications must be uniform over the grass to eliminate the risk of colour bands. Any areas that are affected by colour banding will be re-fertilised. It is recommended that the broadcaster is calibrated to apply half the recommended rate of fertiliser. Broadcast the fertiliser in two alternate directions to achieve an even coverage at the recommended rate.

Remove all fertiliser overspread from paving and other hard surfaces prior to watering. All areas to receive a minimum of 10mm of watering after applying the fertiliser subject to Council water restrictions. Application frequency will be determined to maintain the desired grass quality per zone.

6.04 Pest and Disease Control

Landscape maintenance staff shall be responsible for the control of any pest or disease which may affect turf areas. Once the problem has been identified, a suitable form of treatment shall be engaged until the problem has been eliminated. If the use of chemical spray is required, strict adherence to the manufacturer's recommended rates and handling is essential. Proper care should be taken to protect both the user and persons likely to be affected or come in contact with the spray.

Application of pesticides shall occur on days with no wind to minimise spray drift. Application should be limited to morning periods. Warning signage, indicating that application of herbicides is occurring is to be displayed at all pedestrian entrances to the site for the duration of application. Allowances should be made to carry out such work outside of normal working hours if necessary.

Pests and diseases will be controlled before their population becomes detrimental to the health and/or appearance of the Lawn. This control will take place prior to the pest or disease creating a visual deterioration to the lawn.

6.05 Weed Control

Control and remove all broadleaf and grass weeds from turf areas through an appropriate programme of physical and chemical control methods. Preventive control measures will be adopted for plant protection procedures. Treatments will include physical removal, application of pre-emergent granular or liquid formulations, contact and translocated formulations.

Remove weed infestations from grass areas including Bindii, Fireweed, Chickweed and the like. Avoid damage to existing plantings from herbicide application and other maintenance activities.

6.06 Turf Renovation

Thatch must be managed in turf so it does not build up. The control of thatch should include both biological and/or mechanical methods. As thatch builds up so does the problems of scalping, disease and dry patch. Biological control of thatch is preferable to mechanical means. Control biologically through:

- Maintain the correct pH of 7 in the thatch layer
- Avoid vigorously growing turf through excessive nitrogen or irrigation
- Addition of micro-organisms in a liquid or granular form to reduce the thatch layer

Mechanical dethatching: If required use an approved 'vertimower'. Avoid cultivating the soil surface. The dethatching process must involve traversing the affected area in two different directions, removing the cut thatch prior to changing direction.

Clean all debris off hard surfaces and do not allow the debris to accumulate in the gardens or drainage structures. Dethatching will only be carried out in areas where thatch build up is resulting in a deterioration of the overall health of the turfgrass.

6.07 Topdressing

Topdressing is to be used to improve the evenness of the grass surface or to help control thatch. This includes where lawn and hard surface edges are uneven and service pits that are located in the lawn areas.

Topdressing material shall be coarse or medium soil to AS 4419 suitable for application to turf or grass seeded areas. Topdressing material is to be free from weed seed and chemical contaminants. Apply topdressing at a maximum depth of 25 mm per application. Allow the grass sward to fully re-establish prior to further applications. To repair deep depressions the turf should be cut and lifted, soil added to correct levels and the turf replaced.

If dethatching or fertilising is to be carried out in the same area, apply topdressing after these activities. Evenly spread the topdressing over the area and work into the grass with screed.

6.08 Reinstatement of Lawns

From time to time due to sinkage and/or other reasons, some areas of the lawns or grass will require lifting and filling to re-establish correct levels. Replace or repair grass areas in failed sections or where bare patches occur. Make good any subsidence to maintain grass surface free from localised ridges, depressions, ruts and the like, and to ensure finished grass surface is 10mm above adjacent pavements.

Obtain turf from a specialist grower of cultivated turf. Provide turf of even thickness, free from weeds and other foreign matter. Turf is to match existing turf on site.

Deliver the turf within 24 hours of cutting, and lay it within 36 hours of cutting. Prevent it from drying out between cutting and laying. Mix the fertiliser thoroughly into the topsoil before placing the turf. Apply lawn fertiliser at the completion of the first mowing, and at other times as required to maintain healthy grass cover.

Generally

Lay the turf in the following manner:

- In stretcher pattern with the joints staggered and close butted.
- Parallel with the long sides of level areas, and with contours on slopes.
- To finish flush, after tamping, with adjacent finished surfaces of ground, paving edging, or grass seeded areas.
- Strip turf laying: Close butt the end joints and space the strips 300 mm apart. Apply a layer of top dressing between the strips of turf. Finish with an even surface.
- Lightly tamp to an even surface immediately after laying. Do not use a roller.
- On steep slopes peg the turf to prevent down slope movement. Remove the pegs when the turf is established.
- Water immediately after laying until the topsoil is moistened to its full depth. Continue watering to maintain moisture to this depth. Keep the grass in a healthy condition.

Provide a plant establishment period for all new turf areas, for a period of 13 weeks.

6.09 Coring

Coring is to be used to reduce soil compaction in lawn areas due to pedestrian or vehicular traffic.

No coring is to be allowed where an irrigation system is installed.

7.0 PLANTING

7.01 General Planting Requirements

Garden areas are intended to act as key presentation / display at all times. For this reason all areas are to reflect the level of maintenance as summarised below:

- High intensity maintenance/detail, to high industry standard of horticultural practice.
- Weekly attention required.
- Complete low phosphorus fertiliser program using approved fertiliser as per manufactures instructions.
- Pruning & shaping to best horticultural requirements & appearance, with dead growth removed within 24 hours as reported/inspected.
- Ongoing Weed & pest control to maintain weed & pest free environment.
- Re-mulch quarterly. (Sample to be approved by Landscape Project Manager Prior to Installation)
- Uniform and vigorous plant growth
- Mulch levels maintained at 50-75mm depth – with full cover over irrigation pipes at all times
- >90% vegetative cover
- <5% of area affected by weeds, pests or diseases
- Damage repaired within 3 days of reporting.

7.02 Pruning and Detailing

Landscape maintenance staff shall prune to encourage the plants natural form or design intent. Pruning will also be carried out to remove dead and diseased foliage including dead heading of plants from shrubs and groundcover species. Prune shrubs and vines to maintain clear access and visibility along paths, roads and for signage. Trim groundcover species off paths, fence lines and kerbs to maintain a neat and clear edge at all times.

All pruning work to be undertaken in accordance with AS4373-1996 Pruning of Amenity Trees and to best horticultural practices. Pruning will be required during Spring and may only be necessary on an on-the-spot basis for the remainder of the year. Pruning should reflect the natural growth, flowering and re-growth habit of the individual species. Generally prune shrubs after flowering. Any cutting instruments used are to be sharp and clean, and pruning procedures carried out using standard horticultural practices.

It is important to evaluate the plant or plant group as to their natural growth habit and how they aesthetically and physically work into the total landscape. Take into account the following considerations:

- Are the plants or plant:
 - An accent and should they be pruned to emphasize a certain branching pattern or leaf character.
 - A foundation planting and should they be pruned in a loose textural manner to form a loose mass.
 - A massed screen planting and removal of their lower branches would only expose unwanted view to bare earth, and reduce their screening effect.
- Always use the combined techniques of thinning out and heading back to encourage the natural growth habit of the plant. Never shear.
 - Remove all dead wood, leaves and fronds by cutting close to their growth starting point. Do not leave stubs.
 - Prune so that the sides of the shrubs are inclined at a slight angle so that all areas of the plant receive sunlight. Do not allow the top of the plant to overhang and shade the lower portion of the plant. Never prune from the bottom.
- Prune shrubs to encourage compact growth and induce prolific flowering.
- Remove old stems or sections of branches carrying only thin twiggy growth or an excess of dead twigs, cutting close to where a younger, more robust stem emerges.
- Pruning is to be done with sharp professional pruning equipment. Hedgers are to be kept sharp at all times to provide a clean concise cut.
- All clippings and prunings are to be removed from site.
- DO NOT use any wound dressings.

7.03 Fertilising

Fertilising of the gardens will be carried out with a quality complete fertiliser in granular or liquid form. Recommended controlled release fertilisers should have a minimum N:P:K as follows:

- 21 + 1 + 9
- 12 + 5.2 + 14.1 + trace elements

Any application of fertiliser must be tailored to the individual plant requirements and the soil test results. Granular fertilisers are to be spread evenly over the garden area. Fertiliser is not to be applied just around the base of the plants. During the application of fertilisers care must be taken not to leave fertiliser granules in the leaf axles, plant crowns, flower heads etc.

Applications of fertiliser to gardens just prior to or during rain events is preferable. Additional applications of specific elements may be required throughout the year should deficiencies be identified.

7.04 Weed Control

Control and remove of any plant material that is not designed to be in the garden area. Weed cover must not exceed 5% and the height of the weeds must not exceed 100mm. Weeds must be treated or removed before seeding occurs.

Weeds can be controlled by mulching, physical removal and /or herbicides. Weeds are to be removed by hand unless the infestation deems this impractical. Use of herbicides in garden areas should be minimal as the regular removal of weeds by hand is the preferred option. Selective herbicides can be used to control specific weeds.

Hand weeding of gardens should be carried out methodically and systematically. Gardens should be worked through to ensure all areas are checked. As good practice, once complete go back through in the opposite direction to find any weeds that were missed.

During the works period remove by hand or approved desiccant all weed growth that may occur or re-occur throughout the services area. This work shall be executed regularly so that at fortnightly intervals at least the areas may be observed in a completely clean and tidy condition free from rubbish and weeds. Remove weeds including aquatic weeds, exotic grass species and other undesirable vegetation from all areas of bare ground, and all mulched areas for the duration of the works period. Avoid damage to existing plantings from herbicide application and other maintenance activities.

7.05 Pest and Disease Control

Plants in garden areas are to be maintained in a healthy state. Pests and diseases must be controlled in the least environmentally harmful manner when their population affects that healthy state.

Pests and diseases will be identified and control measures undertaken when their population begins to affect the health or appearance of plants. Pest and disease populations must be continually monitored. Biological control is recommended as the first approach to their management. Biological control is particularly suitable in the situations of mites and certain scale infestations. Only use chemicals when other methods have been unsuccessful. Chemicals used should be designed to control the problem pest or disease not their natural predators.

If the use of chemical spray is required, strict adherence to the manufacturer's recommended rates and handling is essential. Proper care should be taken to protect both the user and persons likely to be affected or to come in contact with the spray. Application of pesticides shall occur on days with no wind to minimise spray drift. Application should be limited to morning periods. Warning signage, indicating that application of herbicides is occurring is to be displayed at all pedestrian entrances to the site for the duration of the application. Allowances should be made to carry out such work outside of normal working hours if necessary.

7.06 Mulching

New mulches will match the existing mulch in garden beds. Provide mulch which is free of deleterious and extraneous matter such as soil, weeds and sticks. To AS 4454. *No recycled mulch will be accepted.* Topping up of mulch will be an ongoing process. Mulch is to be maintained at a height of 75mm.

Prior to mulching an area, remove any weed growth, litter or debris from the garden bed. Fertilise the garden with a recommended fertiliser. Once spread, ensure all mulch is kept away from the plant stems and is not covering any foliage or groundcovers. Remove any mulch from paths or hard surfaces. The mulch surfaces must be kept level and any areas disturbed or damaged must be levelled out or replaced.

Mulched areas are to be inspected at monthly intervals to determine mulch requirements. Maintain in a clean and tidy condition and redistribute mulch as required to achieve even cover. Care when re-mulching should be given to maintaining original ground levels around the base of plants. Rake surfaces as required and remove debris, fallen limbs and branches and the like.

7.07 Replacement Plant Material

Replace failed or damaged plants and evergreen plants that have lost 50% of their normal foliage cover.

Provide plants with the following characteristics:

- Large healthy root systems, with no evidence of root curl, restriction or damage.
- Vigorous, well established, free from disease and pests, of good form consistent with the species or variety.
- Hardened off, not soft or forced, and suitable for planting in the natural climatic conditions prevailing at the site.
- Provide trees which, unless required to be multi-stemmed, have a single leading shoot.
- Supply plants in weed-free containers of the required size.
- Open rooted stock: If trees are to be supplied as open rooted stock, ensure this is appropriate to the species, variety, size, and time of year for planting.

7.08 Planting Methods

For individual plantings in lawn excavate a hole to twice the diameter of the root ball and at least 100 mm deeper than the root ball. Break up the base of the hole to a further depth of 100 mm, and loosen compacted sides of the hole to prevent confinement of root growth. Remove the plant from the container with minimum disturbance to the root ball, ensure that the root ball is moist and place it in its final position, in the centre of the hole and plumb, and with the top soil level of the plant root ball level with the finished surface of the surrounding soil.

Do not plant in unsuitable weather conditions such as extreme heat, cold, wind or rain. In other than sandy soils, suspend excavation when the soil is wet, or during frost periods.

Thoroughly water the plants before planting, immediately after planting, and as required to maintain growth rates free of stress.

In planting beds and individual plantings, place fertiliser pellets around the plants at the time of planting. Backfill with topsoil mixture. Lightly tamp and water to eliminate air pockets. Ensure that topsoil is not placed over the top of the root ball, so that the plant stem remains the same height above ground as it was in the container.

Except in irrigated grassed areas and normally moist areas, construct a watering basin around the base of each individual tree, consisting of a raised ring of soil capable of holding at least 10 L.

After planting place mulch to the required depth, clear of plant stems, and rake to an even surface flush with the surrounding finished levels. Spread and roll mulch so that after settling, or after rolling, it is smooth and evenly graded between design surface levels sloped towards the base of plant stems.

Provide hardwood stakes, straight, free from knots or twists, pointed at one end to individual trees. Drive stakes into the ground at least one third of their length, avoiding damage to the root system.

- For plants 75 Litre and greater (generally ³ 2.5 m high): Use 3 N° 50 x 50 x 1800 mm stakes per plant.
- For plants 15 - 45 Litre (generally 1.0 - 2.5 m high): Use 2 N° 38 x 38 x 1800 mm stakes per plant.
- For plants less than 15 Litre (generally < 1 m high): Use 1 N° 38 x 38 x 1200 mm stake per plant.

Provide approved ties fixed securely to the stakes, one tie at half the height of the main stem, others as necessary to stabilise the plant.

8.0 TREES

8.01 General Tree Requirements

All trees shall be maintained in a healthy, vigorous condition to the best Australian Arboricultural industry standards. They will be maintained true to form. Requirements for tree care are summarised below:

- High level detailing to encourage healthy trees.
- Pruning to encourage the development of a stable trunk and canopy structure.
- Tree surrounds to be kept to a high detailed standard and kept weed and litter free.
- Adjustment of stakes and ties, remove of same when appropriate.
- Treatment of any damage resulting from vandalism, mowers, brush cutters and the like.
- Removal of dead wood.
- Fertilise in late winter & reapply in mid-Summer as per manufacturer's instructions.

All sucker growth and dead palm fronds to be removed within 7 days.

8.02 Condition Check

A condition check is making a schedule observation of the condition of the trees on site. All plant materials will be visually checked whenever maintenance is being performed in an area and after high winds and storms. In addition to this visual check, a scheduled monthly check will be performed to closely observe the trees and palms.

A scheduled condition check will help stop problems before they permanently damage or kill a tree. This is especially true if there are pests, diseases, or soil problems. Checks should be carried out as part of the regular maintenance visits to each area each week.

Regularly monitor the existing tree population in all common planting areas and grass areas to determine the need for seeking specialist arboriculture advice or services.

The following observations should be included:

- Are there broken or missing branches?
- Is there dead wood that needs to be removed?
- Are there wounds on the trunk?
- Pests, Disease, Are the leaves discoloured?
- Are the leaves limp or deformed?
- Are there pests on the tree?
- Does the tree need to be removed and replaced?

Pest and disease control shall be carried out in accordance with general horticultural requirements.

Adjust and/or replace stakes and ties as required. Replace broken or damaged stakes and ties as necessary. Remove stakes and ties and dispose of off-site when plant material is fully self-supporting.

8.03 Damage Check

Check trees for broken or damaged limbs after severe storms and winds, and on a monthly schedule.

Branches that are broken or split should be removed back to undamaged growth area. This will prevent disease and rot from entering the tree from the damaged area. It will also prevent the limb from breaking further and possibly injuring someone below as it falls from the tree.

During storms any debris dispersed onto hard surfaces as a result from the wind and rain is to be collected and removed from site, or blown back into garden beds. The larger branches are to be removed from site.

The branch or trunk of the tree may also be wounded from storm damage or other falling branches. Check the tree monthly for damage. If you find a wound, it should be treated as soon as possible to prevent disease from entering the branch or trunk and eventually infecting the entire tree.

To treat a wound, use a sharp knife to remove dead and injured bark from around the wound area. Scribe the wound in the shape of a vertical ellipse, parallel to the grain of the wood. Cut away any loose bark from the wound to form a clean, smooth surface of the healthy bark. Do not widen the wound more than necessary. Do not apply paint to the wound. Callus tissue will eventually grow over the wound and protect it from disease.

8.04 Pruning

Landscape maintenance staff must carry out all pruning works accordance with AS4373-1996 Pruning of Amenity Trees and best horticultural practices. All tree pruning shall be carried out by a suitably qualified arboriculturalist.

Generally, ensure that all-dead tree branches are removed as soon as noticed. Any cutting instruments used are to be sharp and clean, and pruning procedures shall be carried out using standard horticultural practices.

Trees shall be pruned for the following reasons:

- To encourage a well-structured growth habit, natural to the character of the tree.
- Maintain clear visibility on footpaths and roadways.
- Maintain height clearance for footpaths and vehicle movement.
- The removal of dead or diseased branches/leaves etc.
- Avoid inter-branch contact.
- To thin out crowns in a natural manner.

Palms shall be pruned for the following reasons:

- To remove faded fronds to maintain appearance.
- To maintain visibility clearance.

Where an entire branch is to be removed the cut shall be as close as practical to the branch collar/ridge. Ensure that bark surrounding the scar is not disturbed.

Prune trees up to a height of 3m as required (branches to 100mm only) to provide safe clearance for pedestrians and vehicles.

8.05 Tree Removal

Trees which die or become damaged to a state where repair is considered impractical shall be carefully felled in a series of small sections to alleviate damage to all surrounding areas and adjacent trees.

The surface roots will be dug out and the stump ground down to 200mm minimum below the soil level. Allow to make good all stump holes and ensure that surrounding surfaces are reinstated. Remove all prunings etc from site.

8.06 Fertilising Trees

Fertilise trees under 5 years old only. Generally fertilising will only be required once per year prior to topping up mulch. Fertiliser types will be the same as those used for garden areas (refer to 7.03).

9.0 WATERING

9.01 General

No irrigation to be installed. Watering to be undertaken by truck or hose.

Landscape maintenance staff must monitor all turf and horticultural areas and ensure successful establishment, health and visual appearance.

9.02 Watering Procedures

Watering should take place between 5:00am and 7:00am where possible. On occasions it may be necessary to operate sprinklers during the day for testing, repairs, washing in chemicals, watering newly sown areas, and when temperatures are likely to fall below zero. Watering shall not occur during the day for any other reason.

Avoid water spill and waste on roads and footpaths.

9.03 Watering Scheduling

Watering must be carried out using approved methods to grow strong, healthy, dense plants with deep root systems. The aim of good irrigation management is to wet the entire root zone at each irrigation event. Water as infrequently as possible without causing damage to the plant material and to ensure that all the water applied enters the soil, thus avoiding runoff. Frequent light waterings encourages shallow root growth and never allows the soil profile to be wet to any depth. This must be avoided.

Watering times and run times per garden area shall be made to suit the following criteria:

- Application rate to suit the requirement of planted material i.e. turf and/or mass plantings
- Consideration of infiltration rates of the planted area soil profile, slope, seasons, exposure and any restrictions from local authorities
- Provision to not water following a pre-set level of area rainfall

Only suitably trained employees are to be used to set irrigation regimes to ensure the most efficient use of water.

9.04 Water Restrictions

Landscape maintenance staff must comply with any water restrictions imposed by Sydney Water.

10.0 SITE PRESENTATION

10.01 Litter Collection

Regular collection and disposal into on-site general waste bin, including any stray builders' rubbish, general rubbish and any dumped rubbish. Rubbish includes all debris, litter, rubble, trash, dumped items, dead animals, rocks, sticks, garden waste, fallen limbs and the like. Maintain all open space areas free from all kinds of rubbish.

Performance Standards

- Rubbish removed on a regular basis.
- Rubbish removed within one day of reporting.
- No rubbish apparent.
- Recycle materials where possible.
- Sort waste streams.

Undertake rubbish removal activities regularly so that the site may be observed in a completely clean and tidy condition free from rubbish on a weekly basis.

In grass areas, excessive amounts or piles of leaves, bark, grass clippings and other organic debris are to be removed, if the piles are adversely affecting grass growth underneath. Prior to mowing, all rubbish including papers, bottles and glass must be removed.

10.02 Illegal Rubbish

All rubbish dumped illegally must be removed. Illegal dumping includes all litter, garbage, spoil, soil, building materials, rubble, vehicle parts, shopping trolleys, garden waste, structures and other rubbish.

10.03 Rubbish and Recycling Bins

Collect and remove refuse from litter bins to ensure safety, hygiene and amenity is maintained at all times. All bins are to be emptied before they exceed 75% of the bins capacity by volume.

Bins must be emptied, washed and disinfected immediately if there is evidence of offensive waste or health risk materials or upon direction by the Building Manager. Bins must be washed and disinfected as frequently as required to ensure they are not a health hazard. A minimum frequency for this is once every three (3) months.

Bin holders must be cleaned at least fortnightly. Bins are to be maintained in good condition and replaced if necessary.

10.04 Graffiti / Acts of Vandalism

Acts of vandalism and graffiti that affect the amenity or safety of the structures and or property will be within 24 hours of detection. If the area is not suitable for its intended purpose and/or is in an unsafe state, it must be barricaded as soon as detected. Graffiti shall be removed from all affected areas within one week of detection.

10.05 Maintenance of hard landscape elements

Maintain hard landscape elements in a clean and tidy condition to ensure safety, maximise presentation and prolong the effective life of each element. Elements include:

- Paths, stairs and pedestrian pavements.
- Walls and piers.
- Raised planter beds.
- Fixtures and furnishings including tables, chairs, signs, lights and bollards.
- Fences, gates, balustrades and handrails.

Inspect all hard landscape elements regularly and report any defects which may affect safety or longevity, and damage, including vandalism and graffiti. Carry out inspections to determine if remedial action by a specialist contractor is required. Typical issues to be addressed include:

- Trip factors.

- Unsecured and loose fixings.
- Slip factors.
- Damage or defacement.
- Loose elements, cracking or subsidence.

Clean elements regularly as required to remove debris, dirt, dust, grease, food spills and the like, and to maintain legibility and appearance.

Sweep all paths, stairs and pedestrian pavements as required to maintain clear of soil, mulch, debris and litter. Remove all rubbish/debris/weeds from all sealed surfaces.

10.05 Structures and Furniture

Structures may include pergolas, shelters, seats, benches, lights, bollards and the like. Recurrent activities to be carried out on a weekly basis include:

- Structures are to be maintained to retain their function and safety to users.
- Structures are to be cleaned by broom/blower for leaf litter.
- Any stains or rubbish to be removed by hand weekly.
- Monitor the structural integrity of the construction should include checks for split or broken timber, loose or missing bolts or other fixings, uneven surfaces or dangerous protruding objects.

Quarterly check should be made on the standard or condition of finishes such as paintwork, timber finish and the like.

10.06 Seats and Benches

- Inspect all benches and seats regularly to ensure their safety and function are maintained.
- Remove all graffiti within one week of detection.
- Ensure that the space beneath the bench is free of litter including the build-up of leaves, grass and silt.
- Acts of vandalism that effect the amenity or safety of the seat will be rectified immediately.
- Clean and wipe down legs weekly.
- Oiled finish hardwood: Re-coat 3 months after installation and at 6 monthly intervals thereafter
- Painted timber: Re-application of paint at 6 monthly intervals

10.07 Concrete Areas and Paths

Keep paved areas and paths weed-free via treatment with an application herbicide program as required. Any faults or damage which may affect the safety of pedestrians should be noted and rectified immediately.

- Weekly checks of pathways for weed growth are to be carried out.
- Pathways should be swept weekly.
- Where necessary spray weeds with a translocated herbicide such as ROUND UP.
- Structural integrity of the surface and edges should be carried out regularly monitored.

10.08 Roads, Driveways and Parking Areas

Clean all roads, driveways and parking areas regularly to maintain free from soil, mulch and rubbish.

Undertake regular inspections for damage and notify the Building Manager if remedial works by a specialist civil contractor are required.

Performance Standards:

- No significant build-up of particulate matter and litter apparent on road, driveway and parking areas.
- Stormwater pits not being partially or fully filled with particulate matter from roads.
- Soil, mulch, rubbish or debris to be removed within two days of reporting / unless deemed to present a danger, in which instance it is to be addressed immediately.

Recurrent Activities: Clean all common roads, driveways and parking areas on a regular basis with a motorised street sweeper to remove build-up of particulate matter and litter. The minimum requirement is cleaning on a three monthly basis.

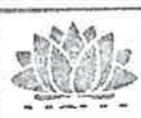
10.09 Drainage Ways/ Swales









Maintain all gullies, grates and drainage pits in car parks, parks and road reserves free from obstruction to allow free drainage of water. Monitor function and structural condition of drains and remedy any deficiencies.

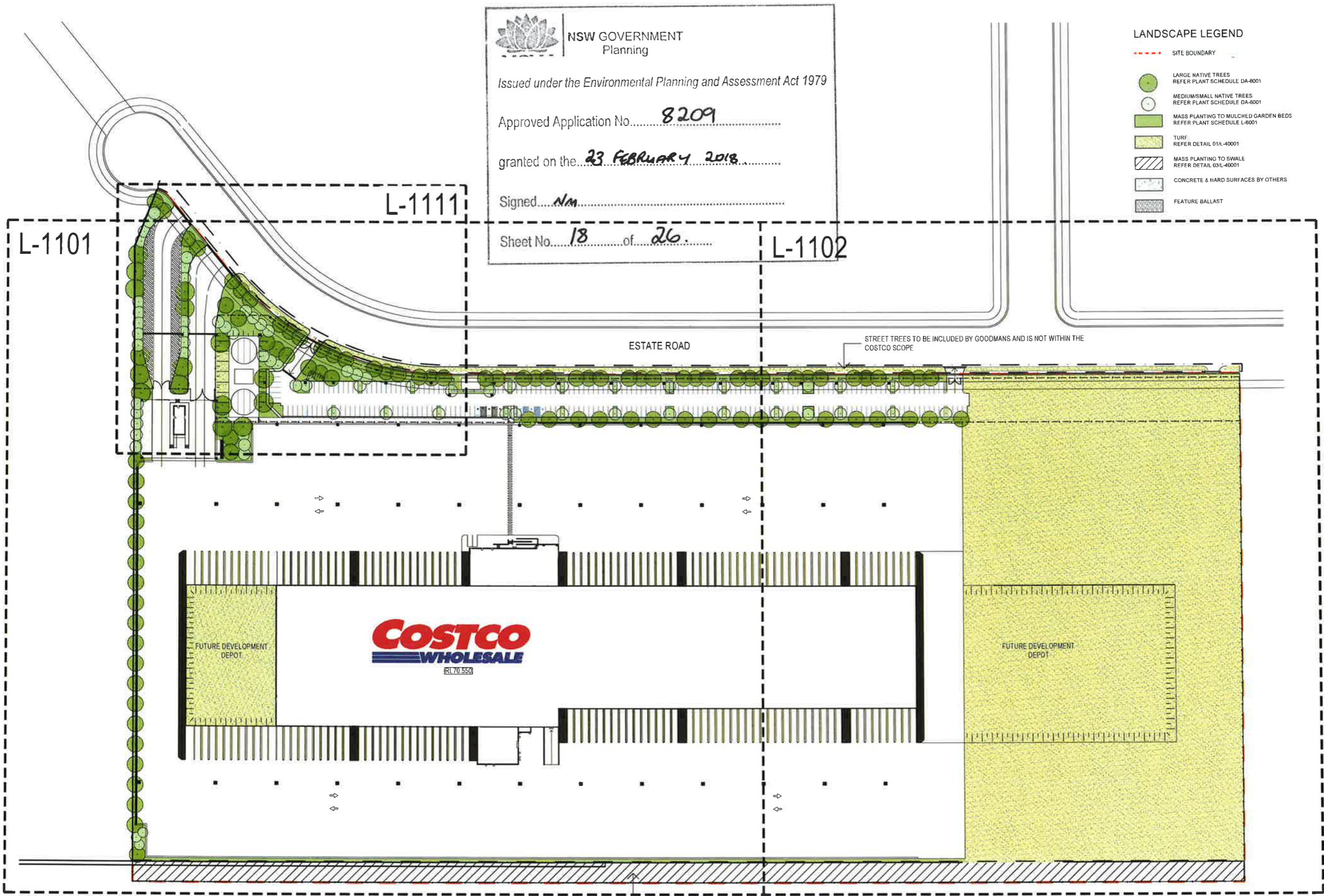
Inspect grass swale drains, ditch drains, bioremediation swales, and infiltration areas on a regular basis to ensure no scour, weed growth or undue thick vegetation is evident. Clean out silt build-up regularly. Maintain grass areas as specified elsewhere. Maintain vegetation in ditch drains to allow passage of water but not expose surfaces to erosion.

1.0 APPENDIX 1

1.1 STAMPED APPROVED LANDSCAPE PLANS


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 Approved Application No. 8209
 granted on the 23 FEBRUARY 2018
 Signed NM
 Sheet No. 18 of 26

- LANDSCAPE LEGEND**
-  SITE BOUNDARY
 -  LARGE NATIVE TREES
REFER PLANT SCHEDULE DA-8001
 -  MEDIUM/SMALL NATIVE TREES
REFER PLANT SCHEDULE DA-8001
 -  MASS PLANTING TO MULCHED GARDEN BEDS
REFER PLANT SCHEDULE L-8001
 -  TURF
REFER DETAIL 01/L-40001
 -  MASS PLANTING TO SWALE
REFER DETAIL 03/L-40001
 -  CONCRETE & HARD SURFACES BY OTHERS
 -  FEATURE BALLAST



THE SWALE PLANTING TO THE EASTERN BOUNDARY IS TO BE CONSTRUCTED BY GOODMAN'S AND IS NOT WITHIN THE COSTCO SCOPE

FOR DA
COSTCO
OAKDALE DEPOT
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Sheet No. **19** of **26**

L-1102

LANDSCAPE LEGEND

- SITE BOUNDARY
- LARGE NATIVE TREES
REFER PLANT SCHEDULE DA-8001
- MEDIUM-SMALL NATIVE TREES
REFER PLANT SCHEDULE DA-8001
- MASS PLANTING TO MULCHED GARDEN BEDS
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REFER DETAIL 01/L-4001
- MASS PLANTING TO SWALE
REFER DETAIL 03/L-4001
- CONCRETE & HARD SURFACES BY OTHERS
- FEATURE BALLAST

L-1101

L-1111

ESTATE ROAD

STREET TREES TO BE INCLUDED BY GOODMAN'S AND IS NOT WITHIN THE COSTCO SCOPE

COSTCO
WHOLESALE
RL 70.550

THE SWALE PLANTING TO THE EASTERN BOUNDARY IS TO BE CONSTRUCTED BY GOODMAN'S AND IS NOT WITHIN THE COSTCO SCOPE

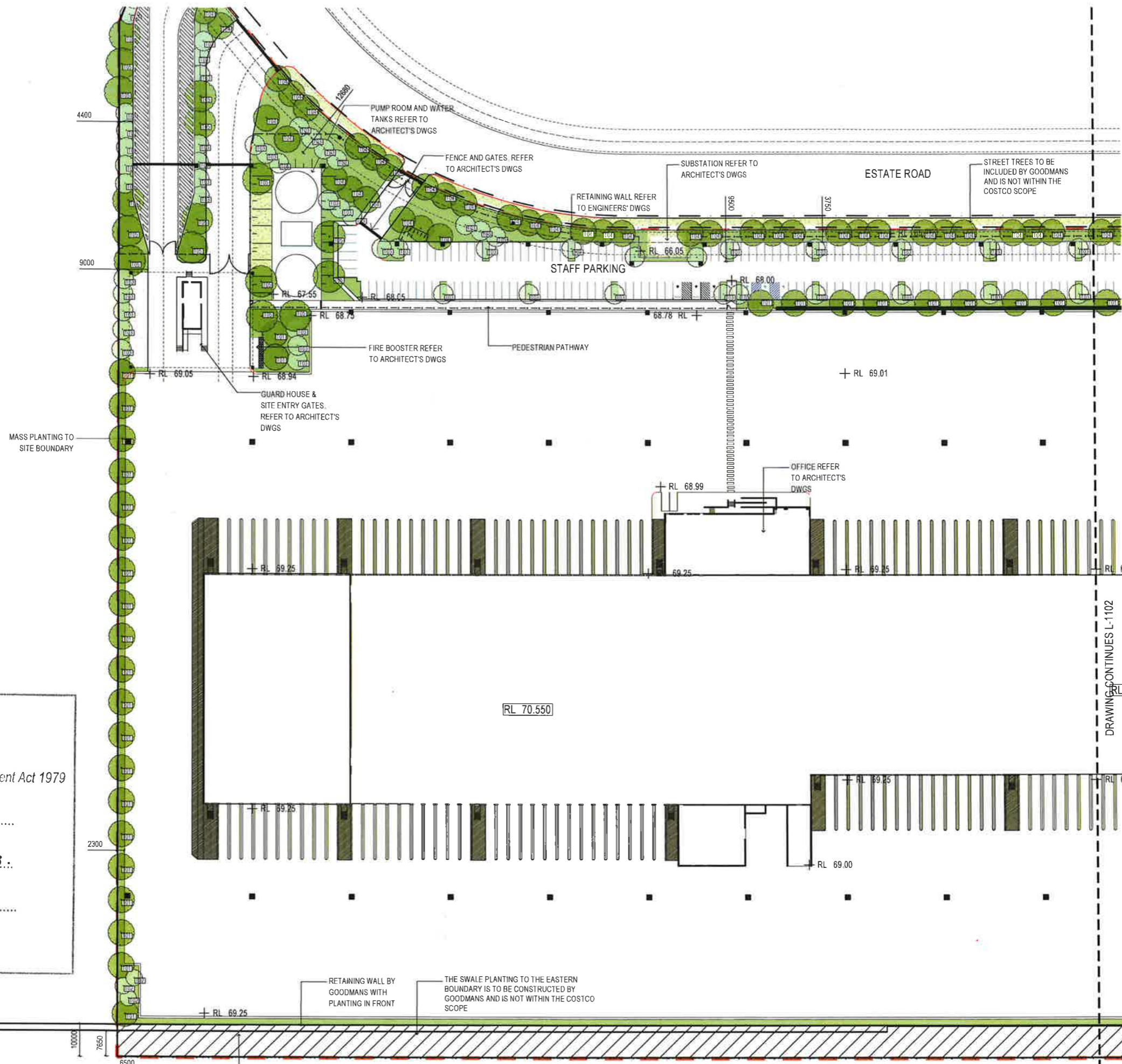
FOR DA

COSTCO
OAKDALE DEPOT

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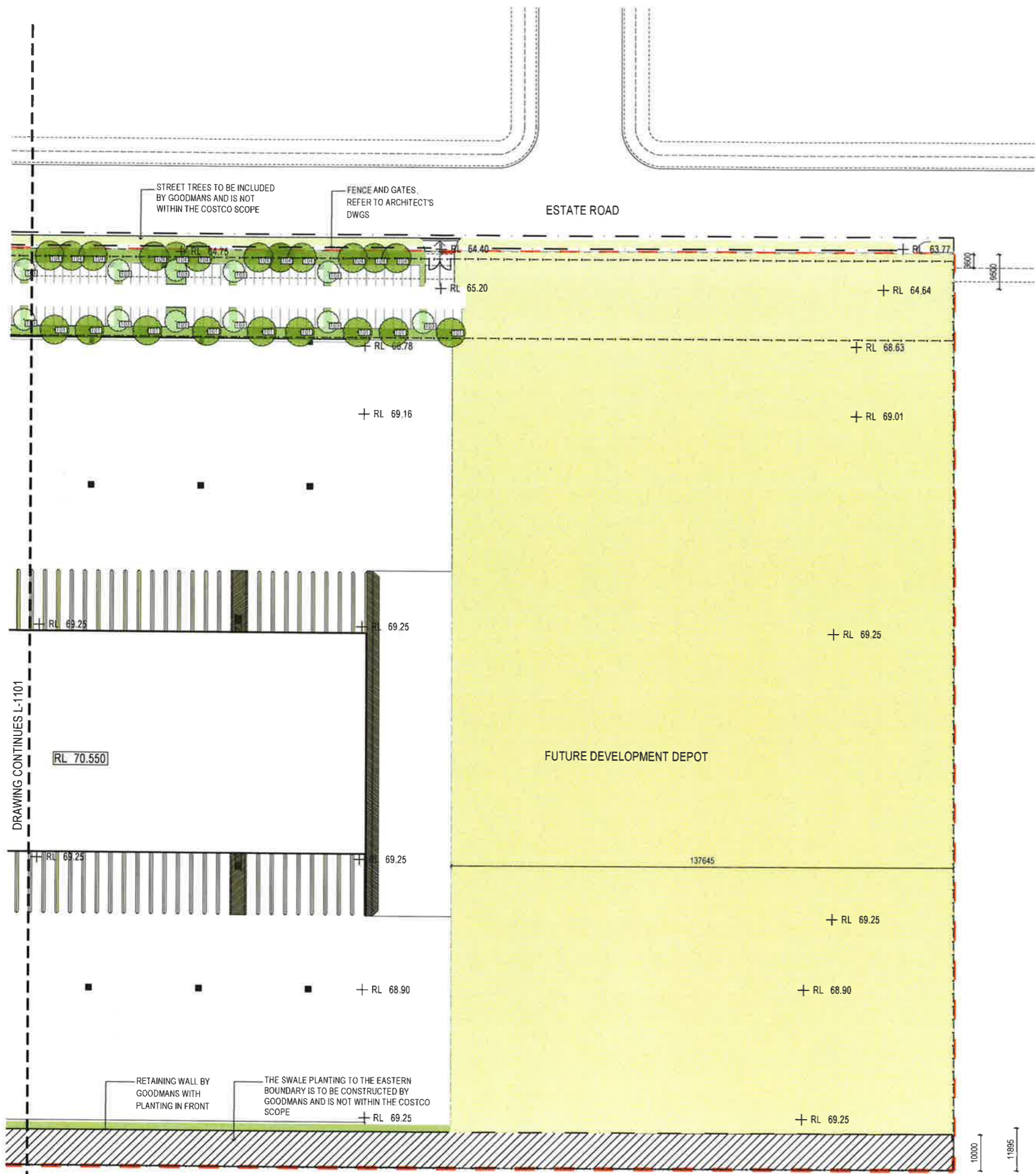
COSTCO
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NOTE: THIS DRAWING HAS INCORPORATED AERIAL, SITE AND BOUNDARY INFORMATION BY OTHERS. GROUP GSA HAS BEEN INSTRUCTED TO USE THIS AS THE ONLY AVAILABLE INFORMATION FOR THE FEASIBILITY STUDY. GROUP GSA WILL NOT BE LIABLE FOR THE ACCURACY OR USE OF THAT INFORMATION.

ISSUE DESCRIPTION FOR DA	DRAWING LANDSCAPE PLAN SHEET 1	NUMBER L-1101	REVISION G	DATE 06/11/2017	SCALE 1:500@ B1	NORTH
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LANDSCAPE LEGEND

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- MEDIUM SMALL NATIVE TREES
REFER PLANT SCHEDULE DA-8001
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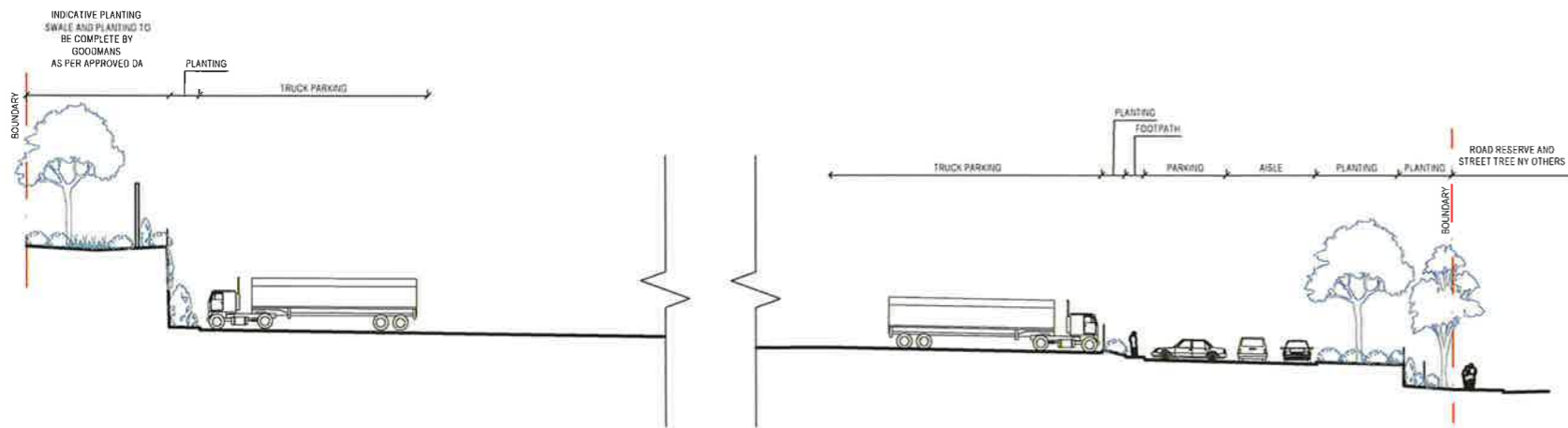
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OAKDALE DEPOT

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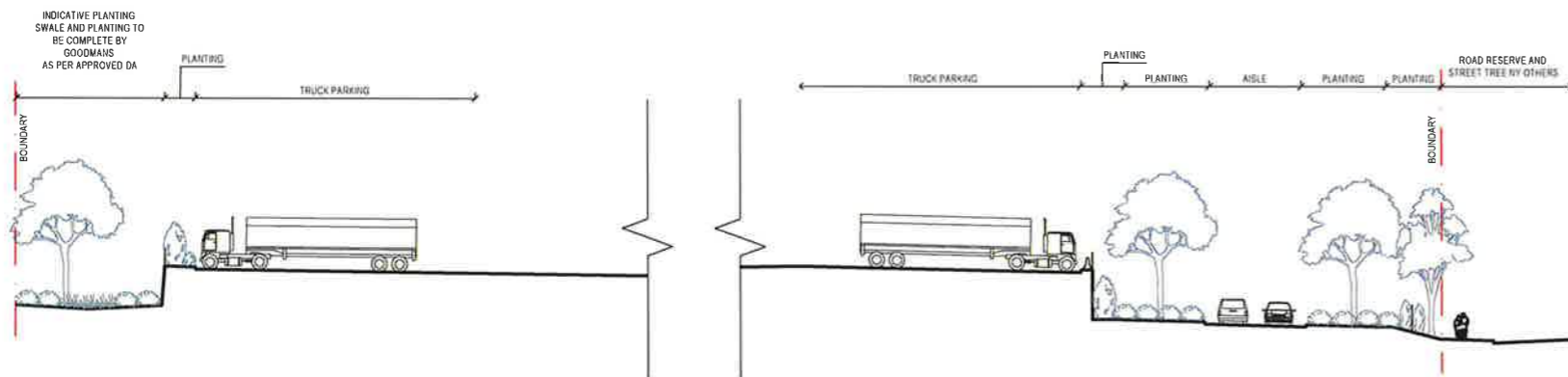



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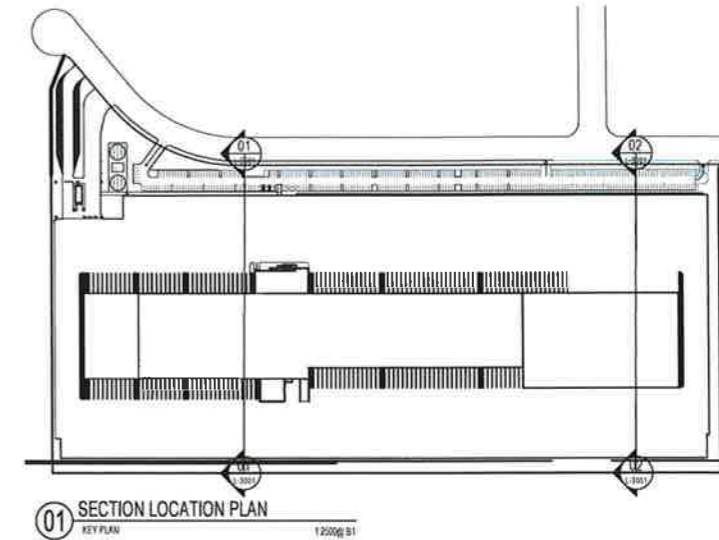
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 -  MASS PLANTING TO MULCHED GARDEN BEDS
REFER PLANT SCHEDULE L-8001
 -  TURF
REFER DETAIL 01/L-40001
 -  MASS PLANTING TO SWALE
REFER DETAIL 03/L-40001
 -  CONCRETE & HARD SURFACES BY OTHERS
 -  FEATURE BALLAST




02 LANDSCAPE SECTION 01
SECTION 1:200@B1



03 LANDSCAPE SECTION 02
SECTION 1:200@B1




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Approved Application No. 8209

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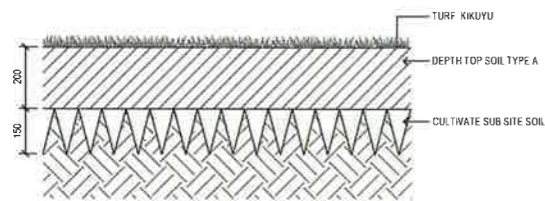
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Sheet No. 24 of 26

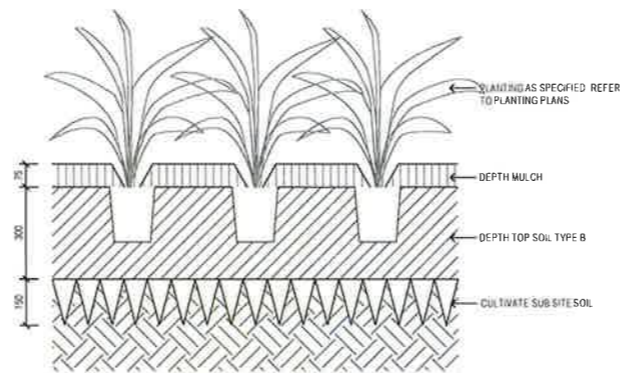
FOR DA

COSTCO
OAKDALE DEPOT

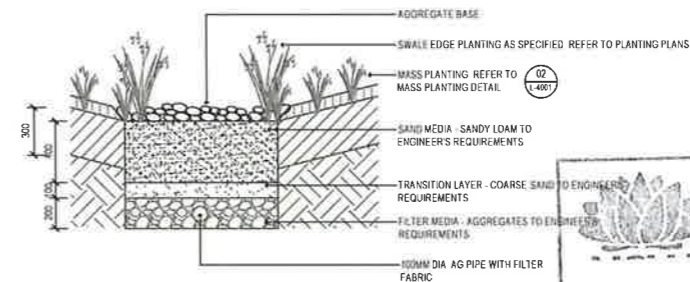
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01 TURF
TYPICAL SECTION 1:10@ B1



02 PLANTING TO GARDEN BEDS
TYPICAL PLAN 1:10@ B1



03 PLANTING TO BIO-RETENTION SWALE
TYPICAL SECTION 1:20@ B1

NSW GOVERNMENT
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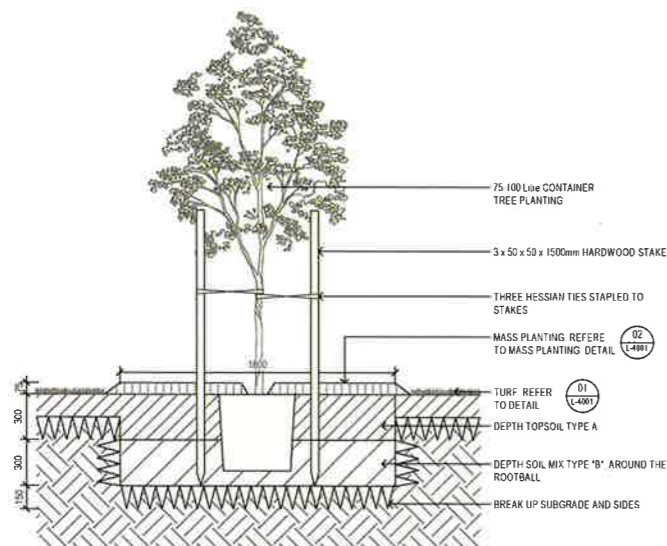
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Approved Application No. **8209**

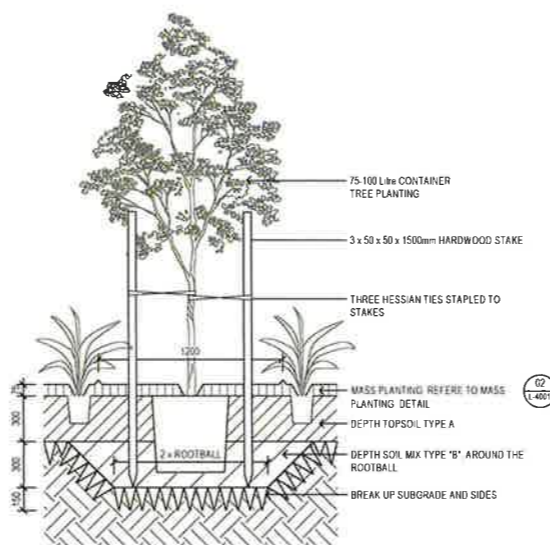
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Signed **mm**

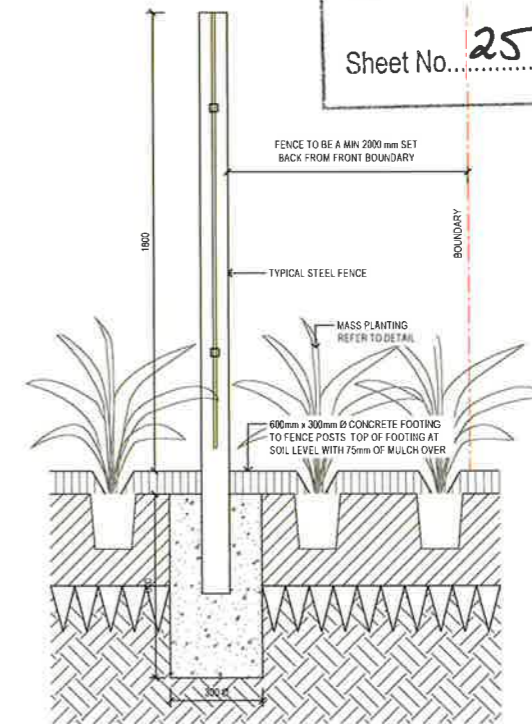
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04 TREE PLANTING IN TURF
TYPICAL SECTION 1:20@ B1



05 TREE PLANTING IN MASS PLANTING
TYPICAL SECTION 1:20@ B1



06 TYPICAL FENCE DETAIL
TYPICAL SECTION 1:20@ B1

INDICATIVE PLANT LIST

Plants to be selected from the following list

Code	Botanical Name	Common Name	Height x Width (m)	Planting Density	Pot Size
TREES					
T01	<i>Tristanopsis laurina</i> 'Luscious'	Water Gum	8 x 8	as shown	75L
T02	<i>Melaleuca slypheloides</i>	Picky Leaved Paperbark	8 x 5	as shown	75L
T03	<i>Cupaniopsis anacardioides</i>	Tuckeroo	15 x 6	as shown	75L
T04	<i>Corymbia maculata</i>	Spotted Gum	30 x 8	as shown	75L
T05	<i>Eucalyptus leucocarpa</i>	Forest Red Gum	30 x 10	as shown	75L
T06	<i>Melaleuca decora</i>	White Feather Honey-myrtle	8 x 3	as shown	25L
T07	<i>Angophora costata</i>	Rough-barked Apple	20 x 8	as shown	75L
T08	<i>Eucalyptus amplifolia</i>	Cabbage Gum	25 x 6	as shown	75L
T09	<i>Eucalyptus crebra</i>	Narrow Leaved Ironbark	15 x 6	as shown	75L
T10	<i>Eucalyptus moluccana</i>	Grey Box	20 x 8	as shown	75L
T11	<i>Pyrus calleryana</i>	Callery Pear	11 x 7	as shown	75L
AM	<i>Acacia meamsii</i>	Black Wattle	8 x 6	as shown	25L
SHRUBS					
AP	<i>Acacia labata</i>	Sickle Wattle	4 x 2	1.5m cts	5L
AP	<i>Acacia pycnantha</i>	Golden Wattle	3 x 2 m	1.5m cts	5L
GM	<i>Grevillea 'Moonlight'</i>	Grevillea Moonlight	3 x 2 m	1.5m cts	300mm
DE	<i>Doryanthes excelsa</i>	Gymea Lily	1.6 x 1 m	0.6m cts	300mm
PTP	<i>Phormium tenax 'Purpurea'</i>	Flax	1.5 x 1.5	0.7m cts	300mm
CE	<i>Callistemon 'Endeavour'</i>	Bottlebrush	3 x 3	1m cts	5L
KA	<i>Kunzea ambigua</i>	Tick Bush	2.5 x 2.5	0.7m cts	300mm
PTEG	<i>Phormium tenax 'Evening Glow'</i>	NZ Flax Lily	1.5 x 3	1.5m cts	300mm
PMM	<i>Pitoposporum 'Miss Muffet'</i>	Dwarf Pitoposporum	1.5 x 1	0.8m cts	300mm
VO	<i>Viburnum odoratissimum</i>	Sweet Viburnum	1 x 1	0.8m cts	300mm
MN	<i>Melaleuca nodosa</i>	Ball Honey-myrtle	5 x 3	1.5m cts	5L
WCG	<i>Westringia glabra</i>	Violet Westringia	1 x 1	0.6m cts	300mm
GROUNDCOVERS AND GRASSES					
DCB	<i>Dianella caerulea 'breeze'</i>	Blue Flax Lily	0.4 x 0.4	0.8m cts	150mm
HV	<i>Hardenbergia violacea</i>	Happy Wanderer Native	2.5 x 2.5	1m cts	150mm
LL	<i>Lomandra longifolia</i>	Mat Rush	1 x 0.6	0.8m cts	200mm
HS	<i>Hibbertia scandens</i>	Snake Vine	0.2 x 2	0.5m cts	200mm
MP	<i>Myoporum parvifolium</i>	Creeping Boobialla	0.5 x 1.5	1m cts	200mm
PN	<i>Pennisetum 'Nalray'</i>	Nalray	0.8 x 0.5	0.6m cts	150mm
PL	<i>Poa labillardieri</i>	Tussock Grass	0.5 x 0.8	0.6m cts	140mm
TA	<i>Themeda australis</i>	Kangaroo Grass	0.8 x 0.3	1m cts	140mm

TREES



Cupaniopsis anacardioides



Corymbia maculata



Eucalyptus tereticornis



Tristanopsis laurina 'Luscious'



Melaleuca decora



Melaleuca nodosa



Melaleuca slypheloides



Angophora costata



Eucalyptus amplifolia



Eucalyptus crebra



Eucalyptus moluccana



Pyrus calleryana



Acacia meamsii

SHRUBS



Acacia falcata



Callistemon 'Endeavour'



Kunzea ambigua



Phormium tenax 'Purpurea'



Pitoposporum 'Miss Muffet'



Viburnum odoratissimum



Westringia glabra



Doryanthes excelsa



Phormium tenax 'Evening Glow'



Acacia pycnantha



Grevillea 'Moonlight'

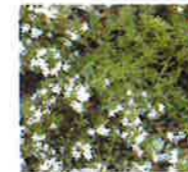
GROUNDCOVERS AND GRASSES



Hardenbergia violacea



Lomandra longifolia



Myoporum parvifolium



Pennisetum 'Nalray'



Poa labillardieri



Lomandra longifolia 'Tanika'




Themeda australis



Hibbertia scandens



Dianella caerulea 'breeze'



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Sheet No. 26 of 26

FOR DA

COSTCO OAKDALE DEPOT

2.0 APPENDIX 2

2.1 DETAILED LANDSCAPE PLANS (FOR CONSTRUCTION)

Amendments	Issue	Description	Date
A	FOR TENDER		19/01/18
B	FINAL REVIEW		06/04/18
C	50% DA ISSUE		05/06/18
D	FOR CONSTRUCTION		07/08/18

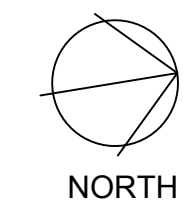
COSTCO DEPOT

OAKDALE INDUSTRIAL SITE, HORSLEY PARK NSW, 2175



VICINITY MAP - NTS

DRAWING SCHEDULES		
NO.	TITLE	SCALE @ B1
L-0000	LANDSCAPE COVER SHEET	N.T.S
L-1000	LANDSCAPE SITE PLAN	1:1000
L-1101	LANDSCAPE PLAN SHEET 1	1:500
L-1102	LANDSCAPE PLAN SHEET 2	1:500
L-1111	LANDSCAPE PLAN - DETAIL PLAN	1:200
L-4001	LANDSCAPE DETAILS	AS SHOWN
L-4002	LANDSCAPE DETAILS	AS SHOWN
L-8001	PLANTING SCHEDULE	N.T.S



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DEFIRE
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ST LEONARDS NSW 2060

WSP
LEVEL 1, 41 MCLAREN ST
NORTH SYDNEY 2060

SPAN
1841 HOWARD RD
MADRID

Client
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COSTCO WHOLESALE
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norm architect M. Sheldon 3990

Project Title
COSTCO OAKDALE
OAKDALE INDUSTRIAL SITE,
HORSLEY PARK NSW, 2175
Drawing Title
LANDSCAPE COVER SHEET

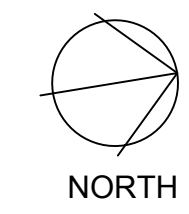
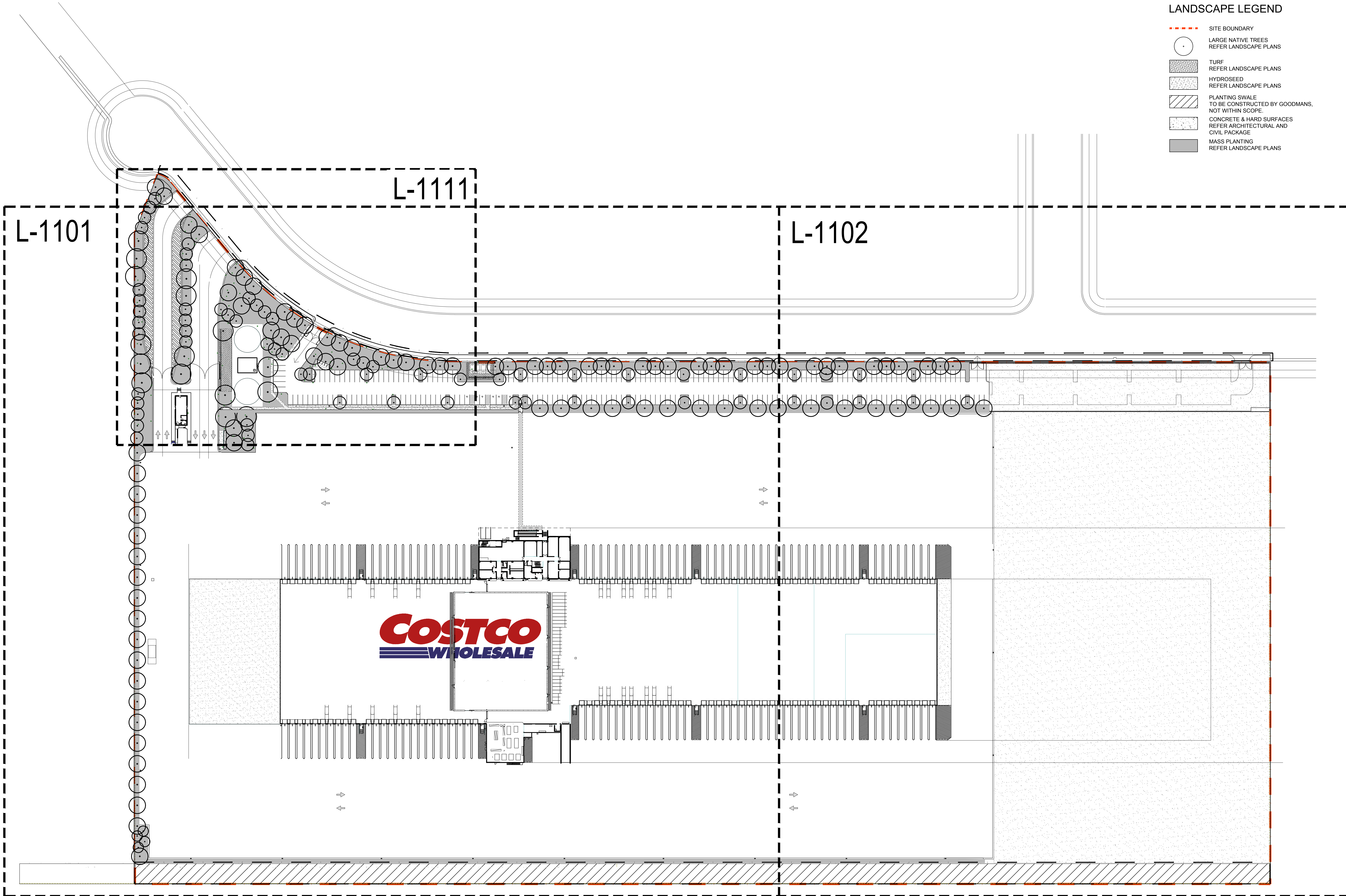
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Plotted and checked by	LI
Verified	FR
Approved	JH
Project No	15441
Drawing No	L-0000
Issue	D

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Amendments	Issue	Description	Date
A	FOR TENDER		19/01/18
B	FINAL REVIEW		06/04/18
C	50% DA ISSUE		05/06/18
D	FOR CONSTRUCTION		07/08/18

LANDSCAPE LEGEND

- SITE BOUNDARY
- LARGE NATIVE TREES
REFER LANDSCAPE PLANS
- TURF
REFER LANDSCAPE PLANS
- HYDROSEED
REFER LANDSCAPE PLANS
- PLANTING SWALE
TO BE CONSTRUCTED BY GOODMANS,
NOT WITHIN SCOPE.
- CONCRETE & HARD SURFACES
REFER ARCHITECTURAL AND
CIVIL PACKAGE
- MASS PLANTING
REFER LANDSCAPE PLANS



CIVIL
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FIRE ENGINEERS
DEFIRE
SUITE 3, LEVEL 4, 83-98 KIPPAX ST, SURRY HILLS 2010

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5 FRANK STREET
WETHERILL PARK, NSW 2164

MOTT MACDONALD
LEVEL 2, 60 PACIFIC HWY
ST LEONARDS 2065

WSP
LEVEL 1, 41 MCLAREN ST
NORTH SYDNEY 2060

SPAN
1841 HOWARD RD
MADEIR

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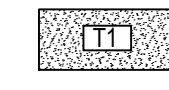
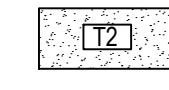
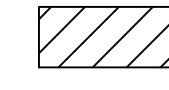
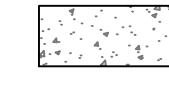
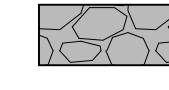
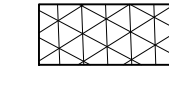
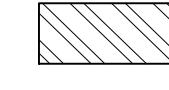
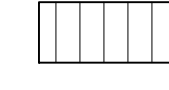
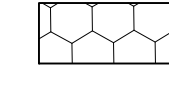

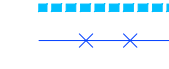
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nom architect M. Sheldon 3990

Project Title
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OAKDALE INDUSTRIAL SITE,
HORSLEP PARK NSW, 2175
Drawing Title
LANDSCAPE SITE PLAN

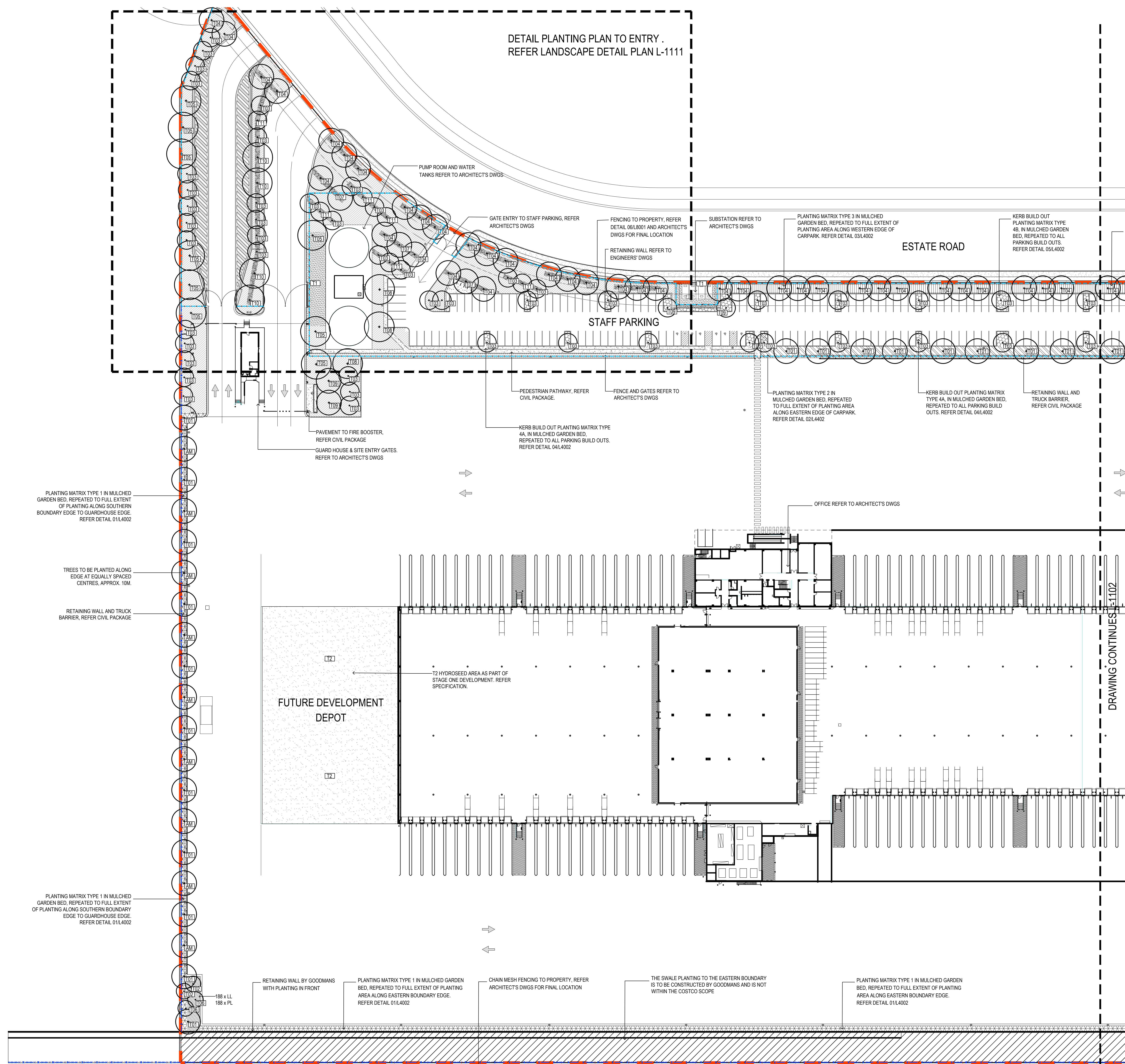
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Approved	JH
Project No	15441
Drawing No	L-1000
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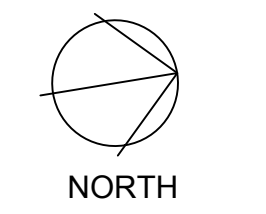
LANDSCAPE LEGEND

-  SITE BOUNDARY
-  TREES
REFER PLANT SCHEDULE L-8001
AND DETAIL 03-05/L4001
-  T1 TURF
REFER DETAIL 01/L-40001
-  T2 HYDROSEED
REFER SPECIFICATION.
-  PLANTING SWALE
TO BE CONSTRUCTED BY GOODMANS,
NOT WITHIN SCOPE.
-  CONCRETE & HARD SURFACES REFER
ARCHITECTURAL AND CIVIL PACKAGE
-  FEATURE BALLAST,
REFER DETAIL 03/L4001
-  PLANTING MATRIX TYPE 1, REFER DETAIL 01/L4002
AND PLANTING SCHEDULE L-8001
-  PLANTING MATRIX TYPE 2, REFER DETAIL 02/L4002
AND PLANTING SCHEDULE L-8001
-  PLANTING MATRIX TYPE 3, REFER DETAIL 03/L4002
AND PLANTING SCHEDULE L-8001
-  PLANTING MATRIX TYPE 4, REFER DETAIL 04/L4002
AND PLANTING SCHEDULE L-8001
-  PLANTING TO ENTRY,
REFER LANDSCAPE DETAIL PLAN L1111
-  FENCING TYPES, REFER DETAIL AND ARCHITECTS
DWGS FOR FINAL LOCATION AND SPECIFICATION.

**DETAIL PLANTING PLAN TO ENTRY .
REFER LANDSCAPE DETAIL PLAN L-1111**



Amendments	Issue	Description	Date
A	FOR TENDER		19/01/18
B	FINAL REVIEW		06/04/18
C	S98 DA ISSUE		05/06/18
D	FOR CONSTRUCTION		07/08/18



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ST LEONARDS 2065

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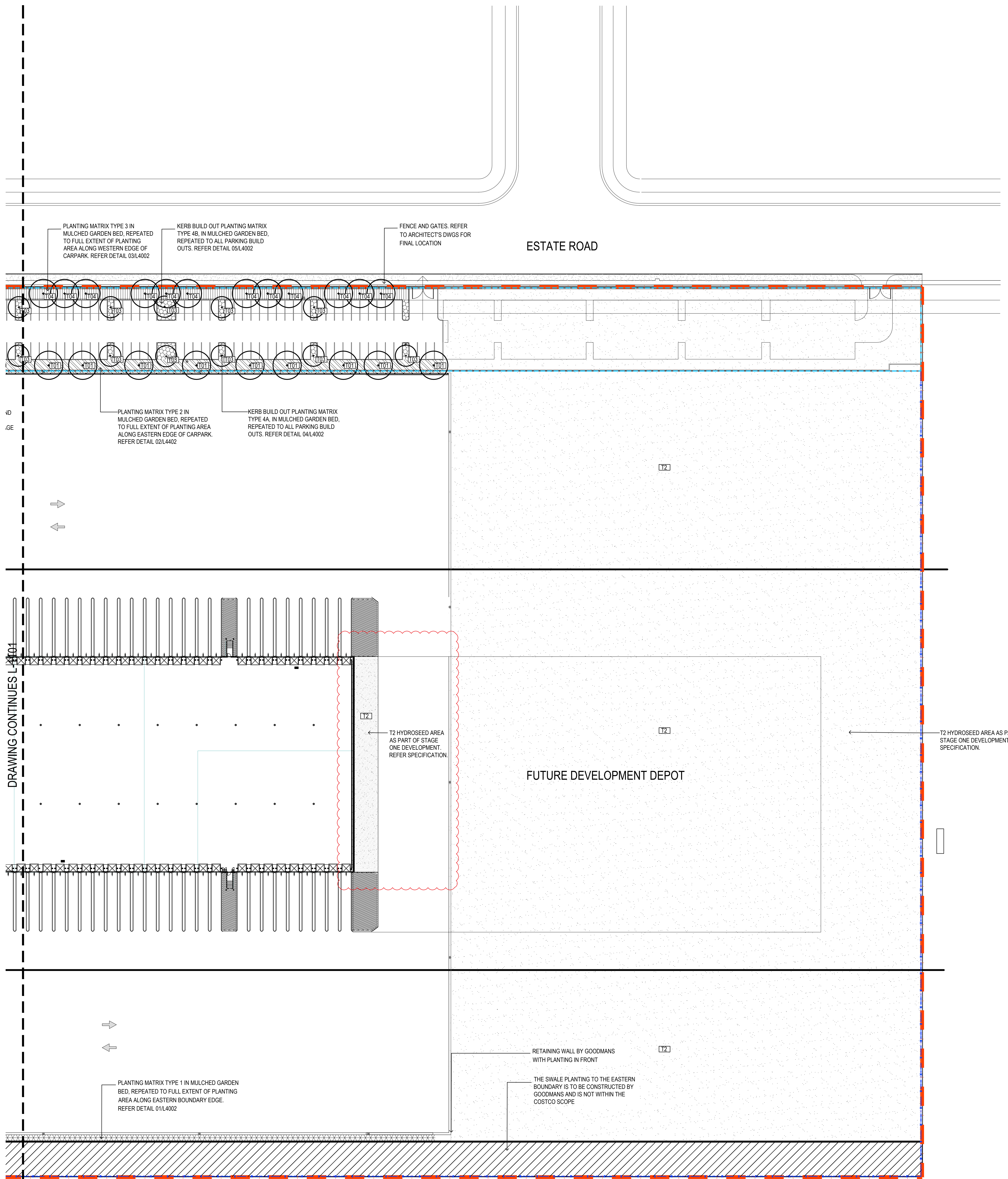
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HORSLEY PARK NSW, 2175
Drawing Title
**LANDSCAPE PLAN
SHEET 1**

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Verified	FR
Approved	JH
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Drawing No	L-1101
Issue	D

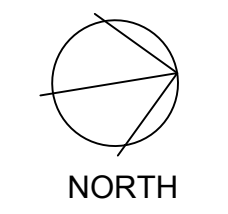
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LANDSCAPE LEGEND

- SITE BOUNDARY
- TREES
REFER PLANT SCHEDULE L-8001
AND DETAIL 03-05/L4001
- T1 TURF
REFER DETAIL 01/L-40001
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ARCHITECTURAL AND CIVIL PACKAGE
- FEATURE BALLAST,
REFER DETAIL 03/L4001
- PLANTING MATRIX TYPE 1, REFER DETAIL 01/L4002
AND PLANTING SCHEDULE L-8001
- PLANTING MATRIX TYPE 2, REFER DETAIL 02/L4002
AND PLANTING SCHEDULE L-8001
- PLANTING MATRIX TYPE 3, REFER DETAIL 03/L4002
AND PLANTING SCHEDULE L-8001
- PLANTING MATRIX TYPE 4, REFER DETAIL 04/L4002
AND PLANTING SCHEDULE L-8001
- PLANTING TO ENTRY,
REFER LANDSCAPE DETAIL PLAN L1111
- FENCING TYPES, REFER DETAIL AND ARCHITECTS
DWGS FOR FINAL LOCATION AND SPECIFICATION.

Amendments	Issue	Description	Date
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C	S99 DA ISSUE		05/06/18
D	FOR CONSTRUCTION		07/08/18



- CIVIL
ACOR
UNIT10, LEVEL 1, 1 WAITLAND PLACE BAULANDHAM HILLS NSW, 2153
- FIRE ENGINEERS
DEFIRE
SUITE 3, LEVEL 4, 83-98 KIPPAX ST, SURRY HILLS 2010
- MULTI-TECH
5 FRANK STREET
WETHERILL PARK, NSW 2154
- MOTT MACDONALD
LEVEL 2, 60 PACIFIC HWY
ST LEONARDS 2055
- WSP
LEVEL 1, 41 MCLAREN ST
NORTH SYDNEY 2060
- SPAN
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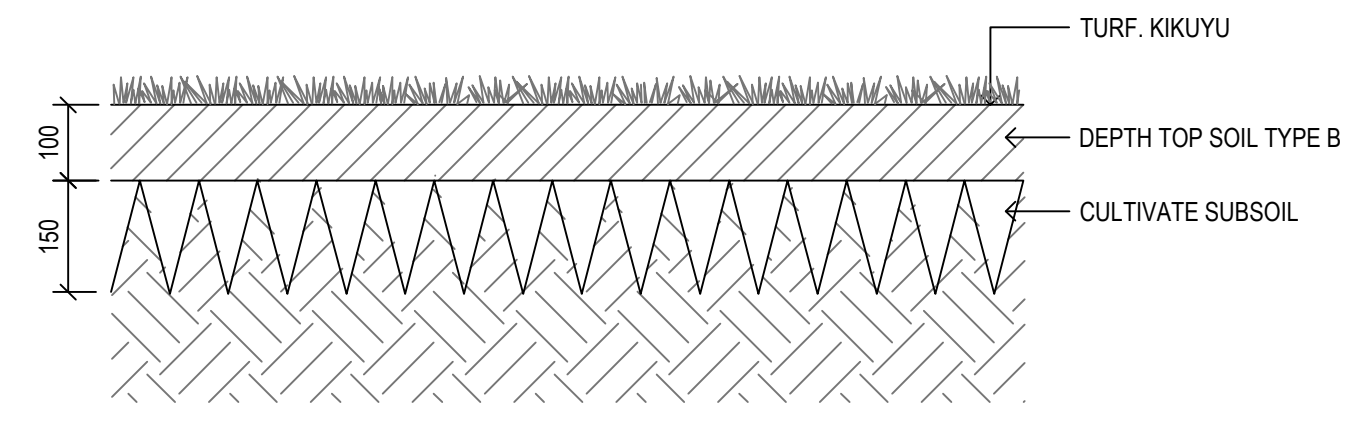
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Project Title
COSTCO OAKDALE
OAKDALE INDUSTRIAL SITE,
HORSLEY PARK NSW, 2175
Drawing Title
LANDSCAPE PLAN
SHEET 2

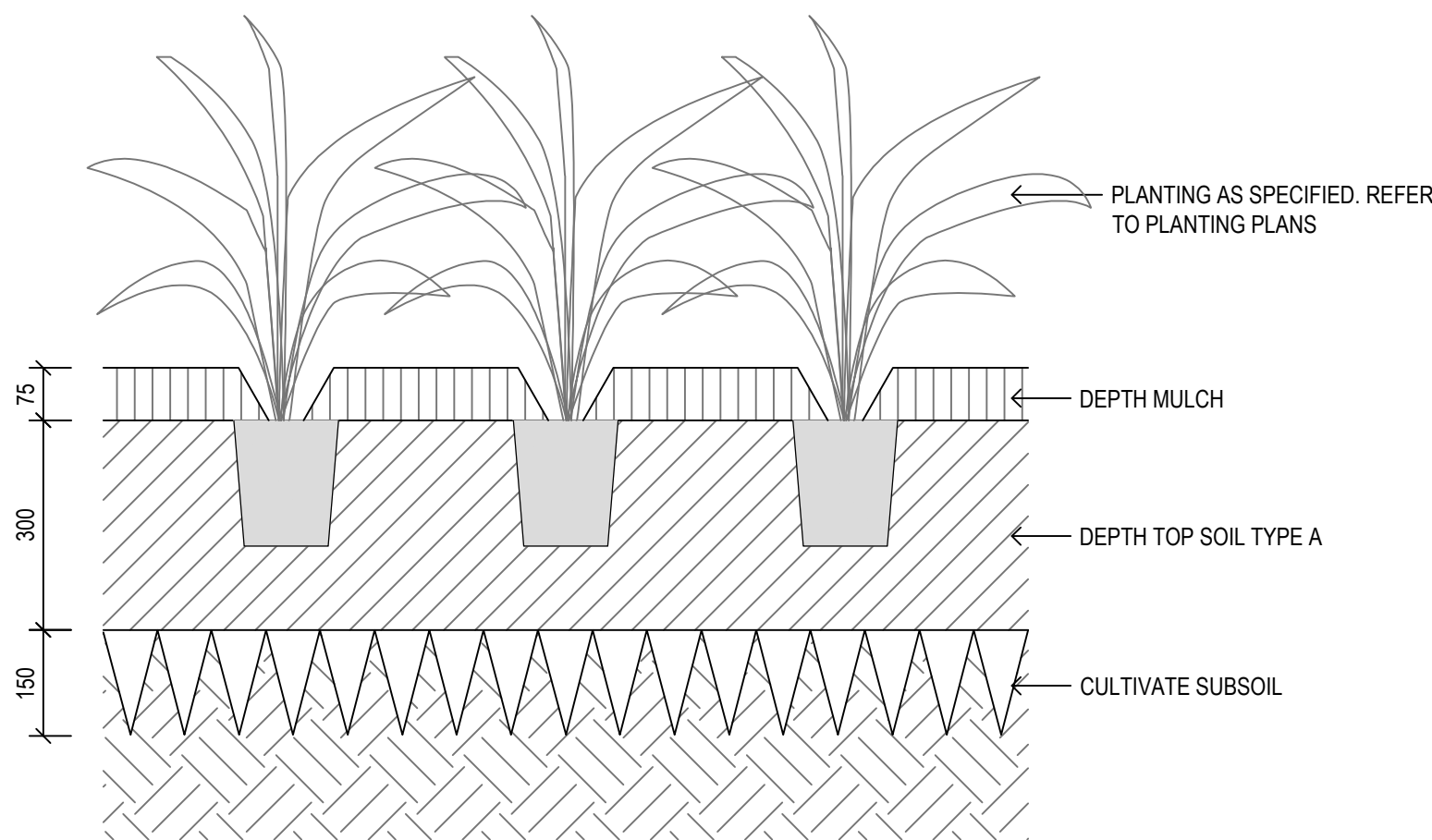
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Verified	FR
Approved	JH
Project No	15441
Drawing No	L-1102
Issue	D

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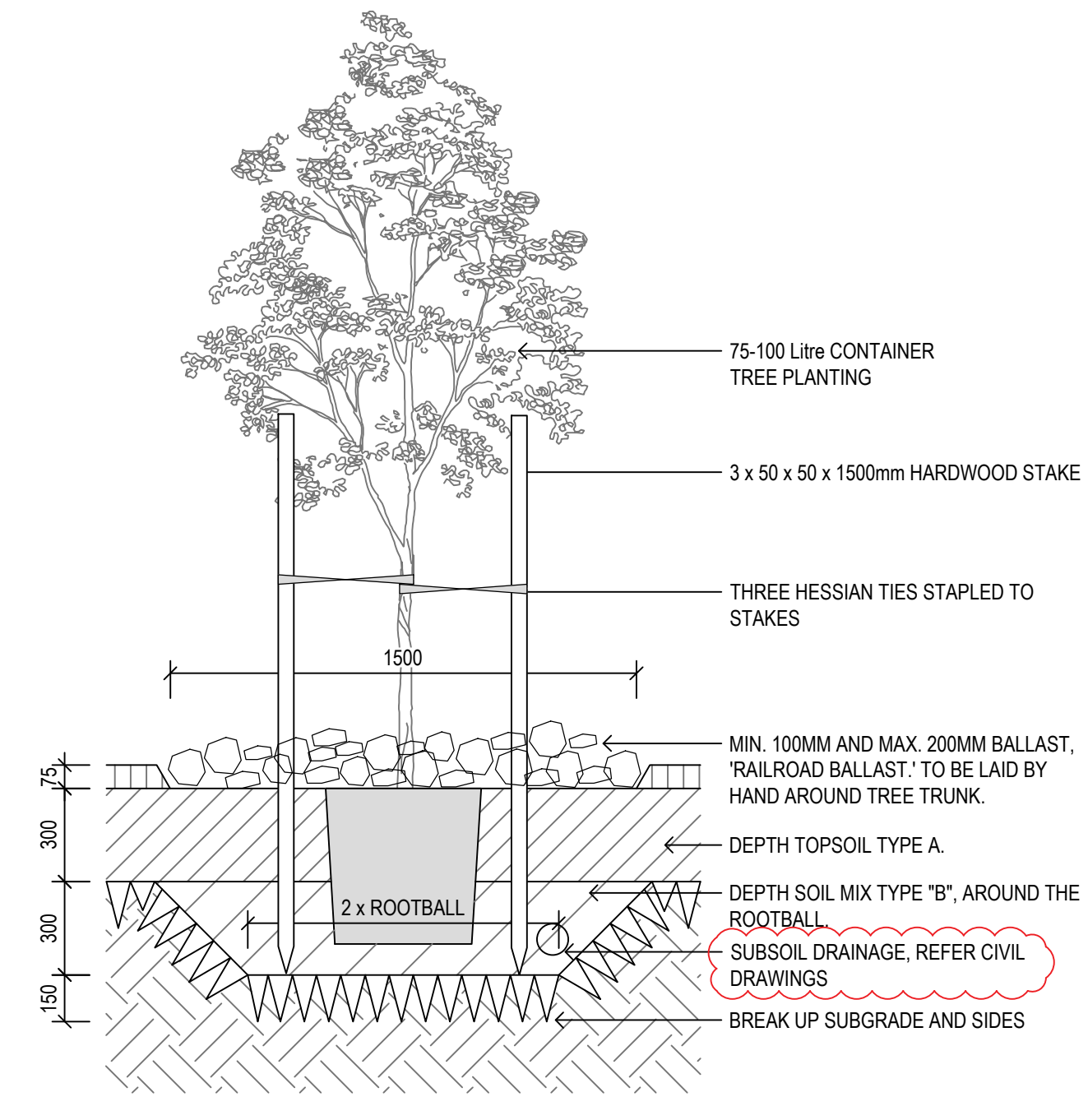
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B	FINAL REVIEW		06/04/18
C	S98 DA ISSUE		01/05/18
D	FOR CONSTRUCTION		07/08/18



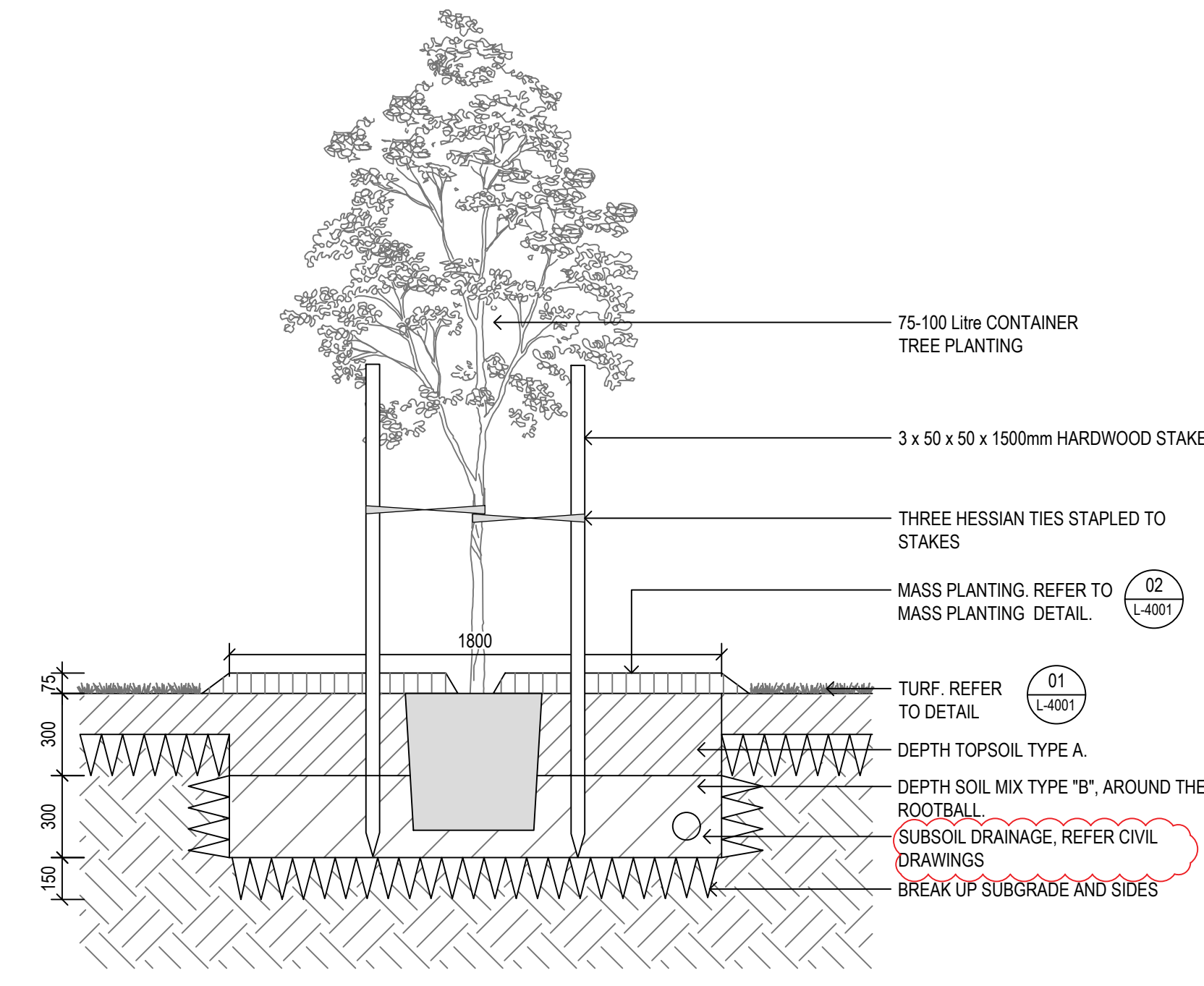
01 TURF
TYPICAL SECTION 1:10@B1



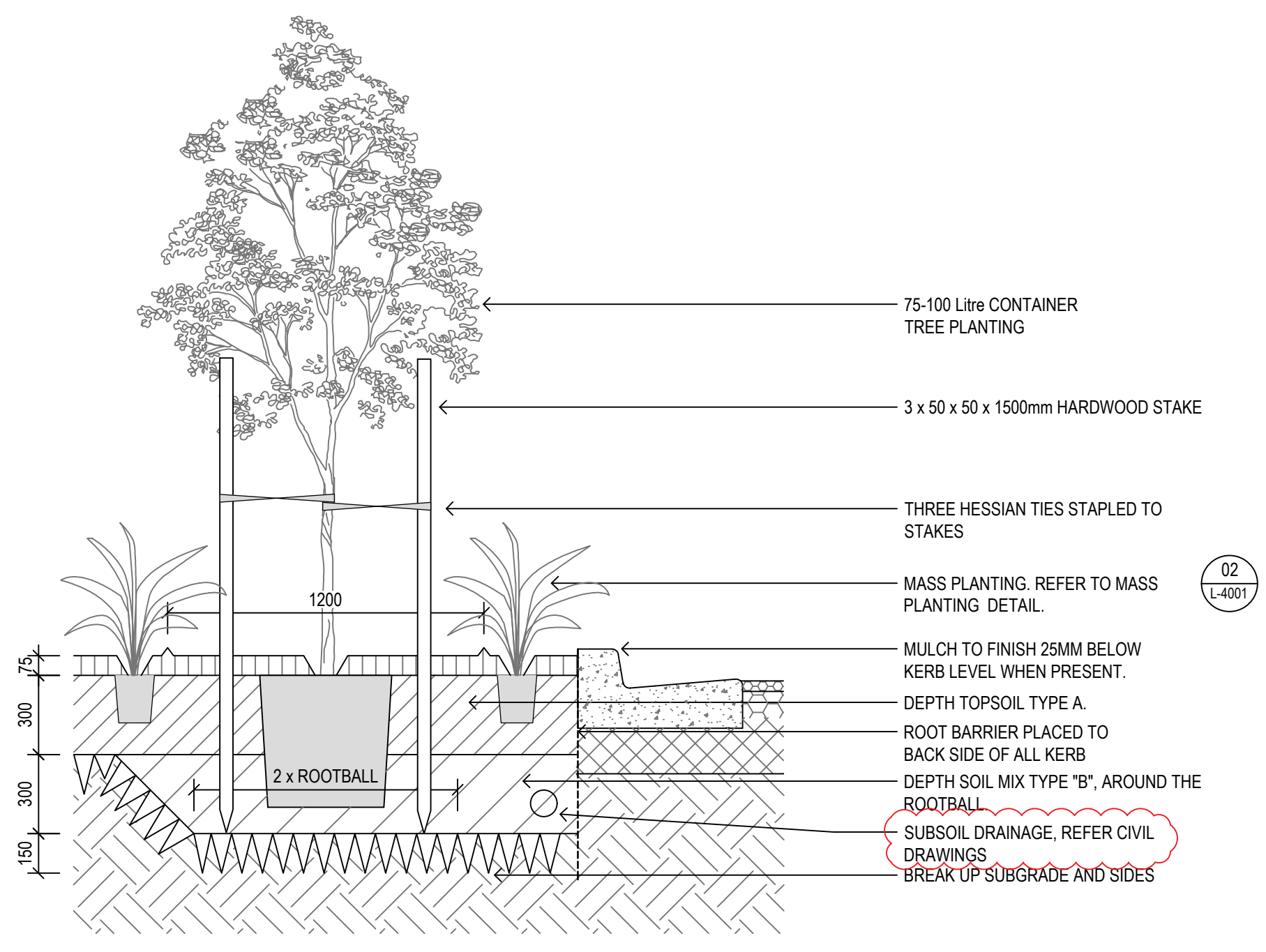
02 PLANTING TO GARDEN BEDS
TYPICAL PLAN 1:10@B1



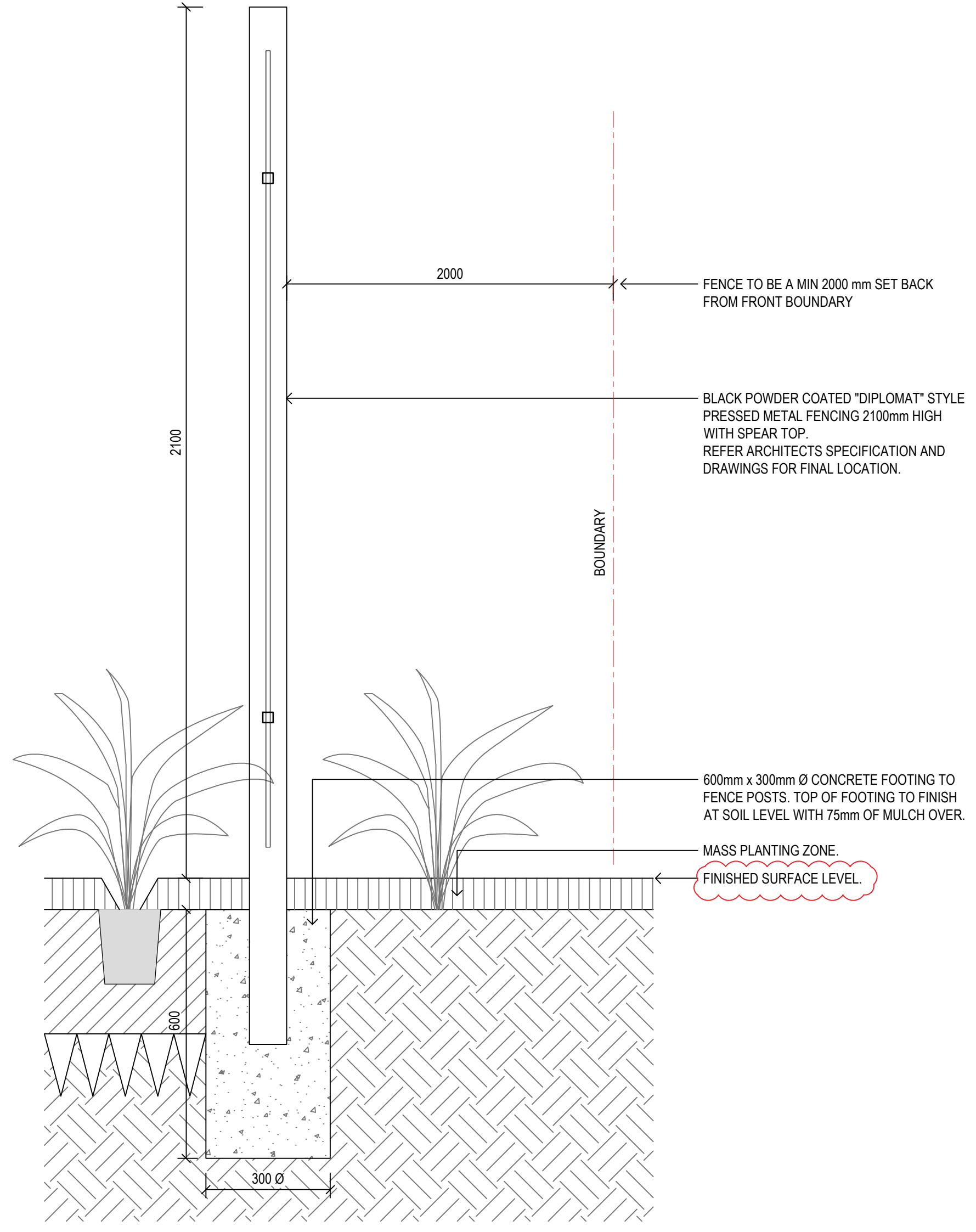
03 TREE PLANTING WITH BALLAST
TYPICAL SECTION 1:20@B1



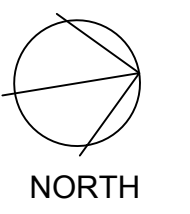
04 TREE PLANTING IN TURF
TYPICAL SECTION 1:20@B1



05 TREE PLANTING IN MASS PLANTING
TYPICAL SECTION 1:20@B1



06 TYPICAL FENCE DETAIL
TYPICAL SECTION 1:20@B1



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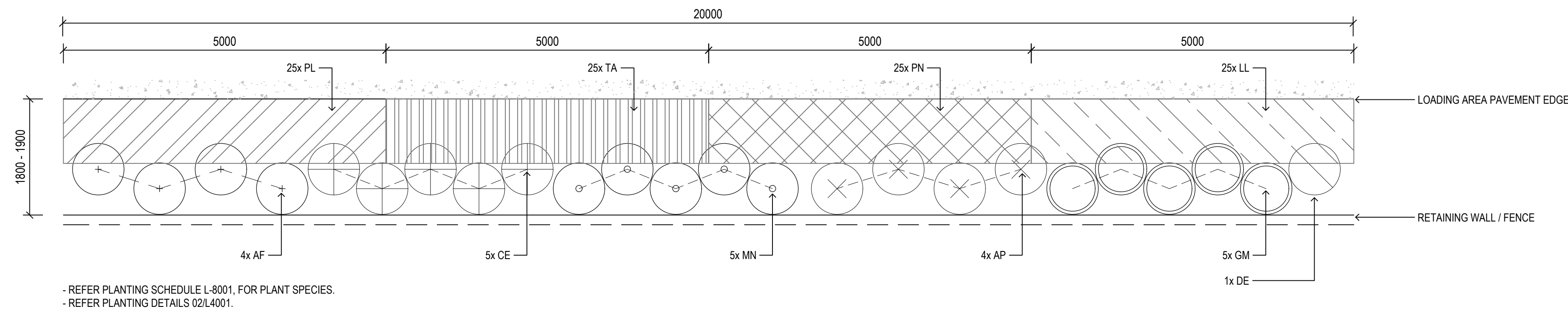
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Project Title
COSTCO OAKDALE
OAKDALE INDUSTRIAL SITE,
HORSLEY PARK NSW, 2175
Drawing Title
LANDSCAPE DETAILS

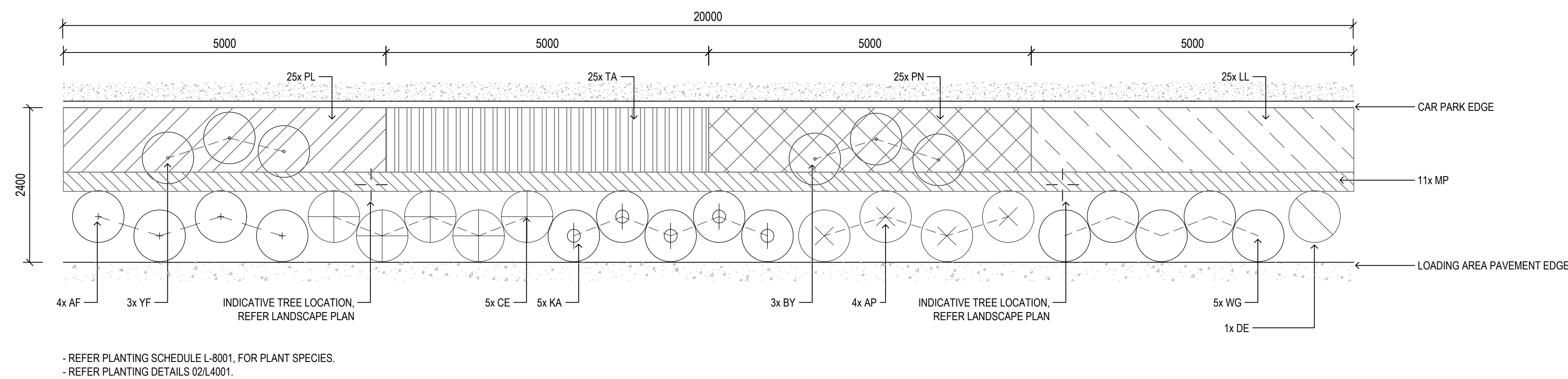
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Drawing Created (date)	16/01/2018
Drawing Created (by)	OK
Plotted and checked by	LI
Verified	FR
Approved	JH
Project No	15441
Drawing No	L-4001
Issue	D

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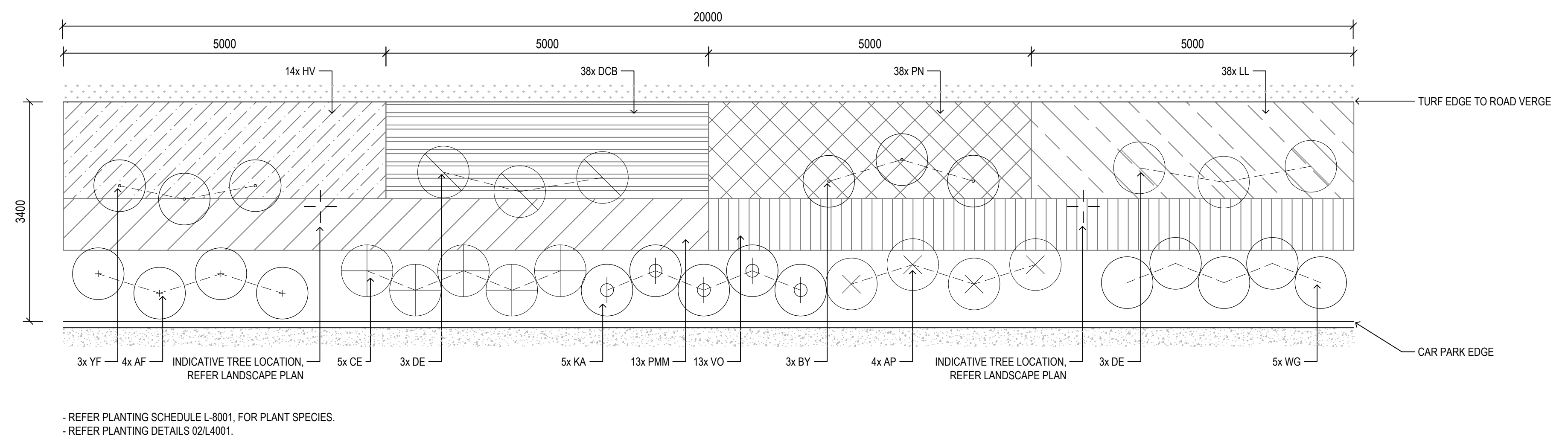
Amendments	Issue	Description	Date
A	FOR TENDER		19/01/18
B	FINAL REVIEW		06/04/18
C	S99 DA ISSUE		01/06/18
D	FOR CONSTRUCTION		07/08/18
E	AMENDED FOR CONSTRUCTION		24/10/18
F	AMENDED FOR CONSTRUCTION		17/04/19



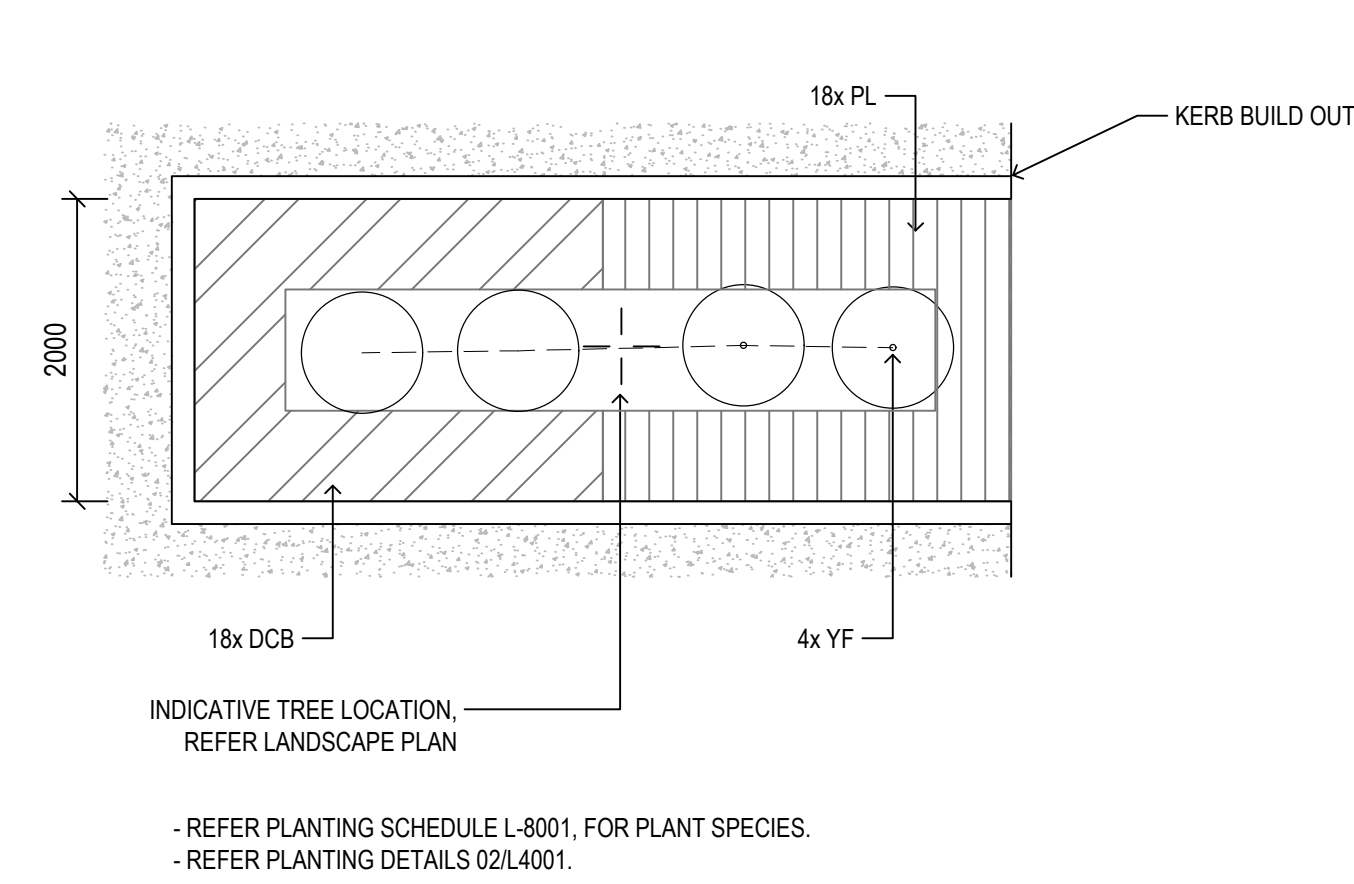
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TYPICAL PLAN 1:50@B1



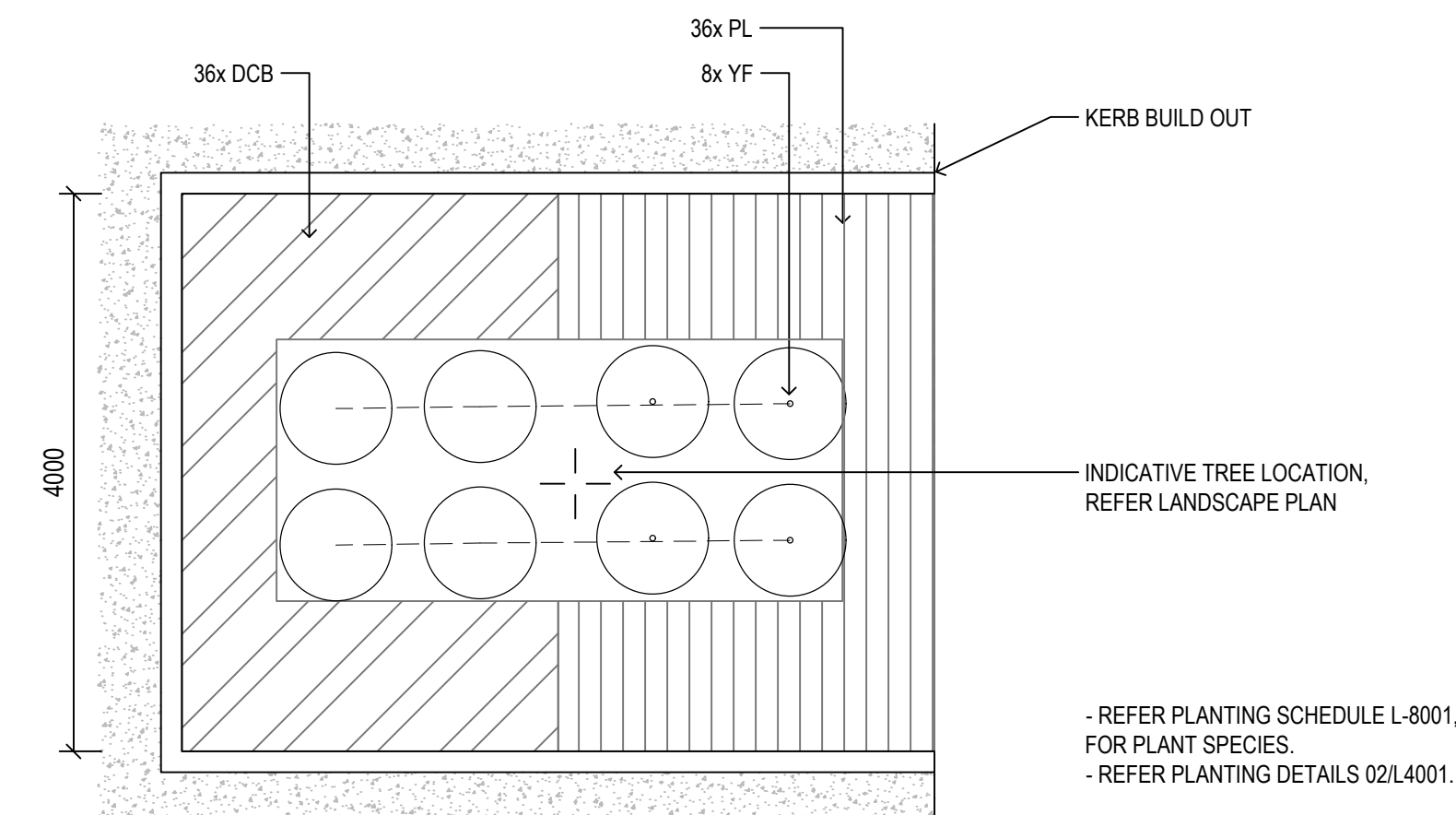
02 PLANTING MATRIX TYPE 2 - 2400MM WIDE BED ALONG EASTERN CARPARK EDGE
TYPICAL PLAN 1:50@B1



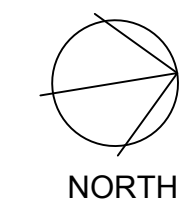
03 PLANTING MATRIX TYPE 3 - 3400MM WIDE BED ALONG WESTERN CARPARK EDGE
TYPICAL PLAN 1:50@B1



04 PLANTING MATRIX TYPE 4A - 2000MM WIDE CARPARK KERB BUILD OUT
TYPICAL PLAN 1:50@B1



05 PLANTING MATRIX TYPE 4B - 4000MM WIDE CARPARK KERB BUILD OUT
TYPICAL PLAN 1:50@B1



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Project Title
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OAKDALE INDUSTRIAL SITE,
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Drawing Title
LANDSCAPE DETAILS

Scale	AS SHOWN @B1
Drawing Created (date)	16/01/2018
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PLANT SCHEDULE

Code	Botanical Name	Common Name	Height x Width (m)	Planting Density	Pot Size	Quantity
TREES						
T01	<i>Callistemon viminalis</i>	Weeping Bottlebrush	8 x 5	as shown	75L	29
T02	<i>Melaleuca styphelioides</i>	Prickly Leaved Paperbark	8 x 5	as shown	75L	2
T03	<i>Eucalyptus microcorys</i>	Tallowood	18 x 8	as shown	75L	56
T04	<i>Corymbia maculata</i>	Spotted Gum	30 x 8	as shown	75L	45
T05	<i>Eucalyptus tereticornis</i>	Forest Red Gum	30 x 10	as shown	75L	9
T06	<i>Melaleuca decora</i>	White Feather Honeymyrtle	8 x 3	as shown	25L	2
T07	<i>Angophora costata</i>	Rough-barked Apple	20 x 8	as shown	75L	3
T08	<i>Eucalyptus amplifolia</i>	Cabbage Gum	25 x 8	as shown	75L	3
T09	<i>Eucalyptus crebra</i>	Narrow Leaved Ironbark	15 x 6	as shown	75L	2
T10	<i>Eucalyptus moluccana</i>	Grey Box	20 x 8	as shown	75L	4
T11	<i>Pyrus calleryana</i>	Callery Pear	11 x 7	as shown	100L	6
AM	<i>Acacia meansii</i>	Black Wattle	8 x 6	as shown	25L	9

PLANT MATRIX TYPE 1

SHRUBS						
AF	<i>Acacia falcata</i>	Sickle Wattle	4 x 2	1.5m ctrs	5L	120
AP	<i>Acacia pycnantha</i>	Golden Wattle	3 x 2	1.5m ctrs	5L	120
CE	<i>Callistemon 'Endeavour'</i>	Bottlebrush	3 x 3	1m ctrs	5L	150
DE	<i>Doryanthes excelsa</i>	Gymea lily	1-6 x 1	0.8m ctrs	300mm	30
GM	<i>Grevillea 'Moonlight'</i>	Grevillea Moonlight	3 x 2	1.5m ctrs	200mm	150
MN	<i>Melaleuca nodosa</i>	Ball Honey-myrtle	5 x 3	1.5m ctrs	5L	150
GROUND COVER AND GRASSES						
LL	<i>Lomandra longifolia</i>	Mat Rush	1 x 0.6	5 per/m2	75ml tubestock	940
PN	<i>Pennisetum 'Nafray'</i>	Nafray	0.8 x 0.5	5 per/m2	75ml tubestock	750
PL	<i>Poa labillardieri</i>	Tussock Grass	0.5 x 0.8	5 per/m2	75ml tubestock	940
TA	<i>Themeda australis</i>	Kangaroo Grass	0.8 x 0.3	5 per/m2	75ml tubestock	750

PLANT MATRIX TYPE 2

SHRUBS						
AF	<i>Acacia falcata</i>	Sickle Wattle	4 x 2	1.5m ctrs	5L	45
AP	<i>Acacia pycnantha</i>	Golden Wattle	3 x 2	1.5m ctrs	5L	45
BY	<i>Beschorneria yuccoides</i>	Mexican Lily	1.5 x 2	0.8m ctrs	200mm	33
CE	<i>Callistemon 'Endeavour'</i>	Bottlebrush	3 x 3	1m ctrs	5L	55
DE	<i>Doryanthes excelsa</i>	Gymea lily	1-6 x 1	0.8m ctrs	300mm	11
KA	<i>Kunzea ambigua</i>	Tick Bush	2.5 x 2.5	1m ctrs	300mm	55
WG	<i>Westringia glabra</i>	Violet Westringia	1 x 1	0.6m ctrs	200mm	55
YF	<i>Yucca filamentosa</i>	Adam's Needle	1.5 x 1	0.8m ctrs	200mm	33
GROUND COVER AND GRASSES						
LL	<i>Lomandra longifolia</i>	Mat Rush	1 x 0.6	5 per/m2	75ml tubestock	275
PN	<i>Pennisetum 'Nafray'</i>	Nafray	0.8 x 0.5	5 per/m2	75ml tubestock	275
PL	<i>Poa labillardieri</i>	Tussock Grass	0.5 x 0.8	5 per/m2	75ml tubestock	275
TA	<i>Themeda australis</i>	Kangaroo Grass	0.8 x 0.3	5 per/m2	75ml tubestock	275
MP	<i>Myoporum parvifolium</i>	Creeping Boobialla	0.5 x 1.5	0.75m ctrs	75ml tubestock	120

NOTES:

- ALLOW TO MULCH TO 75MM DEPTH TO FULL EXTENT OF PLANTING BEDS.
- ALLOW TO PROVIDE TIMBER EDGE WHERE TURF MEETS MULCHED PLANTING BEDS.
- REFER TO DETAILS AND SPECIFICATION FOR SOIL TYPE, SOIL DEPTHS AND PREPARATION.

PLANT MATRIX TYPE 3

SHRUBS						
AF	<i>Acacia falcata</i>	Sickle Wattle	4 x 2	1.5m ctrs	5L	55
AP	<i>Acacia pycnantha</i>	Golden Wattle	3 x 2	1.5m ctrs	5L	55
BY	<i>Viminaria juncea</i>	Native Broom	1.5 x 2	1m ctrs	200mm	33
CE	<i>Callistemon 'Endeavour'</i>	Bottlebrush	3 x 3	1m ctrs	5L	55
DE	<i>Doryanthes excelsa</i>	Gymea lily	1-6 x 1	0.8m ctrs	300mm	66
KA	<i>Kunzea ambigua</i>	Tick Bush	2.5 x 2.5	1m ctrs	300mm	55
WG	<i>Westringia glabra</i>	Violet Westringia	1 x 1	0.6m ctrs	200mm	55
PMM	<i>Melaleuca 'Claret Tops'</i>	Honey Myrtle	1.5 x 1	0.8m ctrs	300mm	145
VO	<i>Melaleuca thymifolia 'Cotton Candy'</i>	Melaleuca 'Cotton Candy'	1 x 1	0.8m ctrs	300mm	145
YF	<i>Poa 'Kingsdale'</i>	<i>Poa 'Kingsdale'</i>	1.5 x 1	0.8m ctrs	200mm	33
GROUND COVER AND GRASSES						
DCB	<i>Dianella caerulea 'breeze'</i>	Blue Flax Lily	0.4 x 0.4	5 per/m2	75ml tubestock	420
HV	<i>Hardenbergia violacea</i>	Happy Wanderer Native	0.4 x 2.5	0.75m ctrs	75ml tubestock	155
LL	<i>Lomandra longifolia</i>	Mat Rush	1 x 0.6	5 per/m2	75ml tubestock	420
PN	<i>Pennisetum 'Nafray'</i>	Nafray	0.8 x 0.5	5 per/m2	75ml tubestock	420

PLANT MATRIX TYPE 4A & 4B

GROUND COVER AND GRASSES						
YF	<i>Poa 'Kingsdale'</i>	<i>Poa 'Kingsdale'</i>	1.5 x 1	0.8m ctrs	200mm	128
DCB	<i>Dianella caerulea 'breeze'</i>	Blue Flax Lily	0.4 x 0.4	5 per/m2	75ml tubestock	575
PL	<i>Poa labillardieri</i>	Tussock Grass	0.5 x 0.8	5 per/m2	75ml tubestock	575

PLANTING SCHEDULE ENTRY

SHRUBS						
AF	<i>Acacia falcata</i>	Sickle Wattle	4 x 2	1.5m ctrs	5L	84
AP	<i>Acacia pycnantha</i>	Golden Wattle	3 x 2	1.5m ctrs	5L	84
BY	<i>Viminaria juncea</i>	Native Broom	1.5 x 2	1m ctrs	200mm	189
CE	<i>Callistemon 'Endeavour'</i>	Bottlebrush	3 x 3	1m ctrs	5L	273
DE	<i>Doryanthes excelsa</i>	Gymea lily	1-6 x 1	0.8m ctrs	300mm	66
GM	<i>Grevillea 'Moonlight'</i>	Grevillea Moonlight	3 x 2	1.5m ctrs	200mm	83
PMM	<i>Melaleuca 'Claret Tops'</i>	Honey Myrtle	1.5 x 1	0.8m ctrs	200mm	64
VO	<i>Melaleuca thymifolia 'Cotton Candy'</i>	Melaleuca 'Cotton Candy'	1 x 1	0.8m ctrs	300mm	64
YF	<i>Poa 'Kingsdale'</i>	<i>Poa 'Kingsdale'</i>	1.5 x 1	0.8m ctrs	200mm	111
GROUND COVER AND GRASSES						
DCB	<i>Dianella caerulea 'breeze'</i>	Blue Flax Lily	0.4 x 0.4	5 per/m2	75ml tubestock	445
HS	<i>Hibbertia scandens</i>	Snake Vine	0.2 x 2	0.75m ctrs	75ml tubestock	159
LL	<i>Lomandra longifolia</i>	Mat Rush	1 x 0.6	5 per/m2	75ml tubestock	3847
PL	<i>Poa labillardieri</i>	Tussock Grass	0.5 x 0.8	5 per/m2	75ml tubestock	2567
PN	<i>Pennisetum 'Nafray'</i>	Nafray	0.8 x 0.5	5 per/m2	75ml tubestock	3589

Issue	Description	Date
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Project Title
COSTCO OAKDALE
OAKDALE INDUSTRIAL SITE,
HORSLEY PARK NSW, 2175
Drawing Title
**LANDSCAPE PLANTING
SCHEDULE**

Scale	N/A
Drawing Created (date)	16/01/2018
Drawing Created (by)	OK
Plotted and checked by	LI
Verified	FR
Approved	JH
Project No	Drawing No
15441	L-8001 F

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3.0 APPENDIX 3

3.1 LANDSCAPE SPECIFICATION



LANDSCAPE SPECIFICATION

Issued For:

Costco Depot Oakdale

Oakdale Industrial Site, Horsley Park, NSW, 2175

Issue: For Construction

Date: 07/08/2018

Doc No. 15441_100



GROUP GSA

LANDSCAPE SPECIFICATION

Issued For: Construction

Costco Depot Oakdale

Oakdale Industrial Site, Horsley Park, NSW, 2175

Issue	Date	Description	Group GSA approval
A	19/01/18	For Tender	TF
B	04/04/18	Revised Tender	TF
C	07/08/2018	For Construction	FR

Note: All Amendments noted in ***bold and italics***.

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Revisions: Specification Sections bearing this note, show amendments (if any) throughout the Section in the following manner

- Revisions are underlined and deletions are struck through.
- Adjustments of format, spelling, or punctuation are not identified, unless likely to affect the sense.
- The whole of the currently revised Section is reissued.
- The full scope and extent of revisions should be comprehended by comparison with previous editions
- Signing of the Quality Record above to Construction Issue status is evidence that this been verified as conforming to the requirements of the Project Managers Plan. Where it has not been signed, all information is intended for non- Construction Issue purposes only.

TECHNICAL SPECIFICATION – LANDSCAPE

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1 GENERAL

1.1 SCOPE OF WORKS

GENERALLY

The work as covered by this Contract includes the ordering, supply and coordination of delivery of all materials (unless otherwise specified) and the cost of all labour, equipment, machinery, all applications, testing, certificates, supervision, profits, overheads and making good as necessary to complete the works as detailed in the Contract Documents to the satisfaction of the Superintendent.

All works under this contract are to be carried out by a reputable Landscape Contractor and Specialist Subcontractors required to complete the scope of works, as described below.

The Contractor shall be responsible for the setting out of the work, unless otherwise specified, and checking the work for discrepancies and ambiguities prior to undertaking the works. The Contractor shall refer any discrepancies or ambiguities to the Superintendent for resolution. No claims for delays to the works shall be accepted due to discrepancies found after the works have commenced.

SPECIFIED IN THIS SECTION

Planting including cultivation, plant and other materials, planting works, plant establishment and maintenance;

SPECIFIED IN OTHER SECTIONS

- Civil Engineering
- Structural Engineering
- Hydraulic services
- Architectural

USE OF QUALIFIED TRADESPERSONS

Use qualified tradespersons when completing the works. The use of such persons shall not relieve the contractor of liability for the fitness of the Works for the purposes required by the Contract.

1.2 SUBSTITUTIONS

Identified proprietary items: Identification of a proprietary item does not necessarily imply exclusive preference for the item so identified, but indicates the necessary properties of the item.

Alternatives: If alternatives to the documented products, methods or systems are proposed, submit sufficient information to permit evaluation of the proposed alternatives, including the following:

- Evidence that the performance is equal to or greater than that specified.
- Evidence of conformity to a cited standard.
- Samples.
- Essential technical information, in English.
- Reasons for the proposed substitutions.

Availability: If the documented products or systems are unavailable within the time constraints of the construction program, submit evidence.

Criteria: If the substitution is for any reason other than unavailability, submit evidence that the substitution:

- Is of net enhanced value to the principal.

- Is consistent with the contract documents and is as effective as the identified item, detail or method.

1.3 INSPECTIONS

GENERALLY

Give sufficient notice so that inspection may be made of the following as required:

- Plants in nursery
- Delivery of plants to site.
- Upon practical Completion
- Upon completion of Defects Liability work.

Minimum notice required: Shall be forty eight (48) hours

1.4 SAMPLES

REQUIREMENT

Provide sample plants for approval prior to final order of materials.

1.5 ORDERING

REQUIREMENT

The contractor is to provide proof of ordering the required materials (as per Program of Works 1.12) and advise immediately if any supply difficulties are encountered. No extension of time or cost variation will be granted if any material or product is not available because of late ordering.

2.1 GENERAL

General: Provide landscape soil as specified and detail.

CROSS REFERENCES

Requirement: Conform to the General worksection

STANDARDS

SOILS

Site and imported topsoil: To AS 4419.

Composts, soil conditioners and mulches: To AS 4454.

INTERPRETATION

DEFINITIONS

For the purposes of this worksection the following definitions apply:

- Bad ground: Ground unsuitable for the purposes of the works, including fill liable to subsidence, ground containing cavities, faults or fissures, ground contaminated by harmful substances and ground which is or becomes soft, wet or unstable.
- Site rock: Rocks selected for salvage.
- Site topsoil: Soil excavated from the site which contains organic matter, supports plant life, conforms generally to the fine to medium texture classification to AS 4419 (loam, silt, clay loam) and free from the following:
 - Stones > 25 mm diameter.
 - Clay lumps > 75 mm diameter.
 - Weeds and tree roots.
 - Sticks and rubbish.
 - Material toxic to plants.
- Imported topsoil: Similar to naturally occurring local topsoil, suitable for the establishment and on going viability of the selected vegetation, free of weed propagules and of contaminants, and classified by texture as follows to AS 4419 Appendix I:
 - Fine: Clay loam, fine sandy loam, sandy clay loam, silty loam, loam.
 - Medium: Sandy loam, fine sandy loam.
 - Coarse: Sand, loamy sand.
- Low density soil: Soil for use on an artificial base material, e.g. roof top garden or large landscape containers usually be blends of mineral and organic compounds with the following properties:
 - Bulk density: 0.3 to 0.6 kg/L.
 - Organic matter: 10 % to 40 % by mass.
- Natural soil: A soil dug from the landscape and presented for use with no more than minor amendment. This soil may be topsoil, subsoil or a mixture of both, with a bulk density < 0.6 kg/L.
- Organic soil: A general purpose soil (normally an amended natural soil or soil blend) with the following properties:
 - Bulk density: > 0.6 kg/L.
 - Organic matter: 15% to 25% by mass. Naturally occurring organic soil can be 95% organic by mass.

- Soil blend: A general purpose soil derived from the blending of two or more of sand, natural soil material or organic materials and with a bulk density and organic matter to meet site specific requirements.
- Top dressing: A soil suitable for surface application to lawns.

2.2 SITE INVESTIGATION

NOTICE

If the following are encountered, give notice immediately and obtain instructions before carrying out any further work in the affected area:

- Bad ground.
- Discrepancies.
- Rock.
- Springs, seepages.
- Topsoil > 100 mm deep.

INSPECTION

Give notice so inspection may be made of the following:

- Setting out completed.
- Subgrades cultivated or prepared for placing topsoil.
- Topsoil spread before planting.
- Grassing bed prepared before turfing, seeding, or temporary grassing.

2.3 TESTS

SOIL TESTS

General: To AS 4419, Table 1.

Sampling: As recommended in AS 4419 Appendix A.

Laboratory: NATA registered.

Imported topsoil tests: Submit the results of type tests to AS 4419 Appendix B to I (topsoil), or AS 3743 Appendix D to G (potting mixes), as applicable.

Site topsoil tests: To AS 4419 Appendix C to I.

2.4 SUBMISSIONS

SOIL TESTS FOR IMPORTED TOPSOIL

Report: Submit a certificate noting the following:

- Suitability of each soil type for its specified use.
- Similarity to naturally occurring local soil.
- Suitability for establishment and on-going viability of the site specified vegetation.
- Absence of any weed propagules or contaminants.

Ameliorants recommendation: If required to include ameliorants, recommend the source of ameliorant material, rates and methods of incorporation.

SOIL TESTS FOR SITE TOPSOIL

Report: Submit a certificate noting the following:

- Suitability of the soil for specified use.
- Suitability for establishment and on-going viability of the site specified vegetation.
- Presence of any weed propagules or contaminants.

Recommendation:

- Soil amelioration: If required to include ameliorants, the source of ameliorant material, rates and methods of incorporation.
- Purpose: Amelioration recommendations for the following:
 - . Bushland reconstruction areas.
 - . Planting on grade.
 - . Grass mixes.
- Weed eradication: Species and eradication method.
- Contaminant removal.

SAMPLES

General: Submit representative samples of each material, packed to prevent contamination and labelled to indicate source and content.

Bulk materials: Submit a 1 kg sample of each type specified. Submit bulk material samples, with required test results, at least 5 working days before bulk deliveries.

SUPPLIERS

Statements: Submit statements from suppliers of soils and other materials, giving the following, where applicable:

- Particulars of the supplier's experience in the required type of work.
- Production capacity for material of the required type, sizes and quantity.
- Lead times for delivery of the material to the site.

MATERIALS

Supplier's data: Submit supplier's data including the following:

- Material source of supply for topsoil, filling, stone and filter fabrics.

Compost: Submit a certificate of proof of compost pH value.

EXECUTION

Program: Submit a work program in the form of a bar chart, for the landscape works.

2.5 PRODUCTS

TOPSOIL

General: Import topsoil to the **SELECTIONS** unless the topsoil type can be provided from material recovered from the site.

Deliveries: Documentation to AS 4419, clause 8.

Additives: If using additives to raise topsoil to the required standard, ensure compliance with the relevant test criteria of AS 4419.

Nitrogen drawdown: If the NDI₁₅₀ value is < 0.5 to AS 4419 Appendix E add a source of soluble nitrogen to bring the value above zero.

Compost: Provide well rotted vegetative material or animal manure, free from harmful chemicals, grass and weed growth to the organic content by mass noted in the **SELECTIONS**.

IMPORTED TOPSOIL

Particle size: Provide soil to the **Topsoil particle size table** for the textures nominated in **SELECTIONS**.

Topsoil particle size table (% passing by mass)

AS sieve aperture to AS 1152	Soil textures		
	Fine	Medium	Coarse
2.36	100	100	100
1.18	90 – 100	95 – 100	95 – 100
0.60	75 – 100	75 – 100	70 – 90
0.30	57 – 90	55 – 85	30 – 46
0.15	45 – 70	38 – 55	10 – 22
0.075	35 – 55	25 – 35	5 – 10
0.002		2 – 15	2 – 8

Nutrient levels: Provide soil to the **Topsoil nutrient level table**.

Topsoil nutrient level table

Nutrient	Unit	Sufficiency range
Nitrate-N (NO ₃)	mg/kg	> 25
Phosphate-P (PO ₄) – P tolerant	mg/kg	43 - 63
Phosphate-P (PO ₄) – P sensitive	mg/kg	< 28
Phosphate-P (PO ₄) – P very sensitive	mg/kg	< 6
Potassium (K)	mg/kg	178 - 388
Sulphate-S (SO ₄)	mg/kg	39 - 68
Calcium (Ca)	mg/kg	1200 - 2400
Magnesium (Mg)	mg/kg	134 - 289
Iron (Fe)	mg/kg	279 - 552
Manganese (Mn)	mg/kg	18 - 44
Zinc (Zn)	mg/kg	2.6 - 5.1
Copper (Cu)	mg/kg	4.5 - 6.3
Boron (B)	mg/kg	1.4 - 2.7

Method References

pH in H₂O (1:5), pH in CaCl₂ (1:5) and Electrical Conductivity (EC) by Rayment & Higginson (1992) method 4A2, 4B2, 3A1

Soluble Nitrate-N by APHA 4500

Soluble Chloride by Rayment & Higginson (1992) modified method 5A2

Extractable P by Mehlich 3 – ICP

Exchangeable cations – Ca, Mg, K, Na by Mehlich 3 – ICP

Extractable S by Mehlich 3 – ICP

Extractable trace elements (Fe, Mn, Zn, Cu, B) by Mehlich 3 - ICP

SITE TOPSOIL

General: Provide site topsoil to the **SELECTIONS**.

Soil blend: Stripped topsoil with ameliorants noted in **SUBMISSIONS** to AS 4419 clause 4.6.

2.6 EXECUTION

PREPARATION

VEGETATIVE SPOIL

Spoil suitable for mulch or spreading for bushland restoration: Spread freshly harvested native plant biomass, free of weed propagules.

Unsuitable material Remove vegetative spoil from site. Do not burn.

2.7 SUBSOIL

GEOTECHNICAL TESTING AUTHORITY

General: Use an independent testing laboratory certified for this work by an organisation accredited by JAS-ANZ.

Level of responsibility to AS 3798 Appendix B.

SOIL TEST

Undertake subsoil testing to AS 4419.

PREPARATION

Remove all weeds, roots, builder's rubbish and other debris.

PLANTING BEDS

Excavate to bring the subsoil to at least 300 mm below finished design levels. Shape the subsoil to fall to subsoil drains where applicable. Break up the subsoil to a further depth of 100 mm. Should subsoil base be rock, excavate rock as necessary to ensure adequate drainage.

CULTIVATION

Cultivate site subsoil to all turf and planting areas on natural ground to a minimum depth of 150mm.

Services and roots: Do not disturb services or tree roots and if necessary cultivate these areas by hand.

Cultivation: Thoroughly mix in materials required to be incorporated into the subsoil. Cultivate manually within 300 mm of paths or structures. Remove stones exceeding 25 mm, clods of earth exceeding 50 mm, and weeds, rubbish or other deleterious material brought to the surface during cultivation. Trim the surface to design levels after cultivation.

ADDITIVES

General: Apply additives after ripping or cultivation and incorporate into the upper 100 mm layer of the subsoil. Test the sub soil by chemical and physical analysis to determine appropriate remedial methods.

Gypsum: Incorporate at the rate of 0.25 kg/m².

SUBSOIL ADDITIVES SCHEDULE

Location	Additive type	Additive rate
Planting areas	Magrillime or 50/50 dolomite mixture	200-500g / m ³
	Compound NPK turf fertilizer	0.5 -1.0 kg / m ³

Herbicide: Before spreading topsoil apply a herbicide treatment.

2.8 SUBSOIL DRAINAGE

GENERALLY

Landscape Contractor to liaise with Superintendent regarding the location and with the civil contractor regarding sub-soil drainage installation. Agricultural sub-soil drainage shall be

located at base of planting zone, have adequate fall to allow excess water to be removed and shall connect into proposed storm water drainage system.

PRODUCT

Preferred layout of sub-soil drainage shall be 1No. 100mm dia. pipe set in 200mm deep trench of 'Riverstone' gravel (10 – 50mm nominal size), as supplied by 'Benedict Sand and Gravel' or approved equal.

Under no circumstances shall other aggregate not specified be used for drainage purposes unless approved in writing by construction manager. Note that Civil Contractor shall undertake sub-soil drainage works.

2.9 TOPSOIL

GENERALLY

Site topsoil is to be stripped, stockpiled and improved for reuse, raised to the appropriate standard by the use of specified additives as outlined in this specification for all planting and shall conform to AS 4419 (1998) Clause 4.1.

Where the improved site soil is deemed to be unsuitable for reuse, topsoil shall be obtained from an approved off-site source and consisting of a mixture of nominated ingredients.

* The Contractor is to use soil that is guaranteed free of weed seeds and provide documentation of such to the Principal's satisfaction.

DEFINITIONS

SITE TOPSOIL:

Soil excavated from the site which contains organic matter; supports plant life; defined as Medium (sandy loam) or equivalent which complies generally with the texture classifications and typical uses of AS 4419; is free from unwanted matter such as:

- stones over 25 mm diameter;
- clay lumps;
- weeds and tree roots;
- sticks and rubbish; and
- material toxic to plants; and has been reviewed and analysed to ascertain topsoil quality prior to reuse on site as topsoil.

IMPORTED TOPSOIL:

Soil and compost or other additives as per TOPSOIL SCHEDULE from an off-site source, defined as Medium (sandy loam) or equivalent which complies generally with the texture classifications and typical uses of AS 4419 – Appendix I and thoroughly mixed before placing.

Imported topsoil shall consist by definition of:

- Topsoil Additives: Well rotted vegetative material or animal manure, or other approved material to AS 4454, free from harmful chemicals, grass and weed growth, and with a neutral pH value incorporated into topsoil mixture as scheduled. Provide a certificate of proof of compost pH value as required.
- Coarse Sand: To be free from deleterious material including soluble salts and shall have a neutral pH value. It shall be equal to washed river sand used for propagation.

- Black Soil: Shall be fertile, friable sandy loam of coarse to medium texture. it shall not set hard or become difficult to work as a consequence of drying out and shall be capable of handling when moist.

Organic admixture: Shall be a complete soil conditioner specifically designed for incorporation with site topsoils. The mix shall be an organic humus product comprising approximately 95% composted organic matter to AS 4454 and of the following composition:

- Treated hardwood sawdust 20%
- Composted pine bark fines 20%
- Treated spent mushroom compost 20%
- "Deep Litter" chicken manure 20%
- Sterilised spent coffee grounds 20%

The admix shall be certified to have reached a stage of decomposition and be free of phytotoxins. Add organic admixture to site soil as necessary to improve soil condition as an acceptable growing medium. When added to the site soil a balanced carbon/nitrogen ratio is to be achieved. As a guide the product shall have the following analysis:

pH	EC	Ca Calcium	Ma Magnesium	K Potassium	Na Sodium	P Phosphorus
6.2	0.3	8.25	1.58	0.05	0.10	88 ppm

TESTING

Take samples of all site topsoils as recommended in AS 4419 and test to the methods in AS 4419 Appendix C-I, or AS 3743 – Appendix D-G, as applicable providing the Superintendent with a certificate noting test results.

Allow for 'Type Testing' of the recycled topsoil / sand mixes to finalise the exact formulation to meet the performance specification. When blending allow for 6 QA/ QC samples to be taken at random to verify the achievement of the specification and thoroughness of mixing.

SOIL ADDITIVES SCHEDULE:

Location	Additive type	Additive rate
Planting areas	Magrillime or 50/50 dolomite mixture	200-500g / m3

SITE TOPSOIL PREPARATION

Waste: Remove from site all clay lumps, balled compacted particles greater than 20 mm, stones and trash foreign to the normal composition of soil.

Contamination: If diesel oil, cement or other phytotoxic material has been spilt on the site topsoil, excavate the contaminated soil and dispose of it off the site.

PLACING TOPSOIL

Eradicate weeds by environmentally acceptable methods prior to placing topsoil, using a non-residual glyphosate herbicide in any of its registered formulae, at the recommended maximum rate.

Site topsoil: Do not incorporate site topsoil into the works until soil testing certification has been approved. Remove unauthorised material from the site.

General: Spread the topsoil on the prepared subsoil and grade evenly, making the necessary allowances to permit the following:

- Required finished levels and contours may be achieved after light compaction.
- Planted areas may be finished flush with adjacent hard surfaces such as paths and tops of walls

Finishing: Feather edges into adjoining undisturbed ground.

CONSOLIDATION

General: Compact lightly and uniformly in 150 mm layers. Avoid differential subsidence and excess compaction and produce a finished topsoil surface which has the following characteristics:

- Finished to design levels.
- Smooth and free from stones or lumps of soil.
- Graded to drain freely, without ponding, to catchment points.
- Graded evenly into adjoining ground surfaces.
- Ready for planting.

SURPLUS TOPSOIL

General: Spread surplus topsoil on designated areas on site. If no designated areas dispose of surplus topsoil off site.

2.10 EMBANKMENT STABILISATION

General: Where necessary to prevent erosion or soil movement, stabilise embankments.

Method: Either matting overlay or hydromulching.

Matting installation: Sow before matting is installed, where sowing is required. Plant after matting is installed, where planting is required. Peg the matting into 300 x 300 mm anchor trenches at top and bottom, backfill the trenches with soil and compact.

Matting pegs: U-shape galvanized steel, 2 per m² generally, 250 mm spacing at overlaps.

MATTING OVERLAY SCHEDULE

Location or area	Type	Weight (gsm)	Product
Any slope steeper than 1:4 (not required on slopes with 1:4 gradient)	100% organic biodegradable fine jute mesh	250 – 280 gsm (nominal)	TEC MAT JUTE MEDIUM, 450g/m, Polyfabrics Australia or approved equivalent

2.11 SELECTIONS

TOPSOIL TYPE A

Property	Requirement / Acceptable Range (AS4419)
Location	Top 300mm for all planting on natural ground
Type	Organic soil for planting on natural ground
Description	Loamy sand
Texture	Medium
Soil pH	5.5 – 7.5
Bulk density	>0.7 kg/L
Permeability	2-100 cm/hr
Wettability	>5 mm/min
Organic content by mass	3-15%
Toxicity	≥70%
Fertiliser	Incorporate as per requirements in planting
Product	SmartMix #6 Native Garden Soil Mix or approved equal
Source	Benedict Industries or approved equal

TOPSOIL TYPE B

Property	Requirement / Acceptable Range (AS4419)
Location	Sub -soil blend below Topsoil Type A for planting on natural ground
Type	Soil blend for planting on natural grade
Description	80% - 2mm washed sand & 20% premium alluvial topsoil
Texture	Medium
Soil pH	5.5 – 7.5
Bulk density	>0.3 kg/L
Organic content 2-5mm	3-15%
Organic content >5mm	0%
Fertiliser	Incorporate as per requirements in planting
Product	80/20 Premium Turf Underlay Horticultural Drainage Medium or approved equal
Source	Benedict Industries or approved equal

3.1 GENERAL

RESPONSIBILITIES

Requirement: Provide plants that have been grown to a standard that allows them to establish rapidly and grow to maturity.

Maintenance: Encourage and maintain healthy growth for the duration of the contract.

Program: Provide a suitable irrigation, pruning, fertiliser and monitoring program for all plant materials held by the supplier. Take any other precautions required to safeguard the health and well being of all plant materials before and including their delivery to site.

Selections: Conform to the **SELECTIONS**.

3.2 STANDARD

GENERAL

Tree supply: Follow the guidance given in NATSPEC Guide: *Specifying Trees – a guide to assessment of tree quality* (Clark R. 2003).

3.3 INTERPRETATION

DEFINITIONS

General: For the purposes of this worksection the definitions given below apply:

- Calliper: The stem or trunk diameter at a nominated point. Generally measured at 300 mm above ground.
- Destructive inspection. The washing away of all soil from a rootball to allow inspection of rootball development.
- External inspection: Tree inspection without washing away of soil from the rootball which assesses the following:
 - . The tree's ability to be self-supporting.
 - . Its balance.
 - . Its root development.
- Investigative inspection: Any method of root inspection that involves the washing away of all or portions of the soil from the rootball to expose a section or all the roots.
- Large trees: Trees grown in containers ≥ 20 L, and ex-ground trees of size index ≥ 35 .
- Partial inspection: A method of exposing a section of a root system to enable inspection of root development by washing the soil away in a wedge-shaped section from the stem to the extremity of the rootball. This soil can be gently replaced so the tree is not damaged.
- Size index: Product of height (m) x calliper (mm).
- Small trees or shrubs: Trees or shrubs grown in containers < 20 L (other than tubes or plant cells), and ex-ground trees of size index < 35 .
- Tubes or plant cells: Trees or shrubs grown in small containers or cells in trays with a height:diameter ratio $> 3:2$, typically < 0.75 L.

3.4 CONTINGENCY PLANT MATERIAL

REPLACEMENT

Provision: Anticipate replacement of failures on site.

Amount: 15% above any normal allowances (for shrubs and ground covers) made in the nursery trade for anticipated losses in the course of propagation and the growing on of plant materials.

Delivery: Supply to the site upon 7 days notice to the supplier.

Holding: Until the contingency plant material is delivered to site or until the expiry of twelve months from the date of completion of the works, whichever is the earlier. The supplier is not entitled to holding costs for contingency plant material.

Surplus plant material: To remain the property of the supplier.

3.5 SUBMISSIONS

GENERAL

Species: Provide written certification that all plant material is true to the required species and type.

SUPPLIERS

Submit statements from suppliers of plants and other materials, giving the following, where applicable:

- Particulars of the supplier's experience in the required type of work.
- Production capacity for material of the required type, sizes and quantity.
- Lead times for delivery of the material to the site.

TEST RESULTS

General: Complete and return the **Tree inspection form** (refer Appendix) for each batch inspected.

Rejection: Non-compliance may lead to rejection of the entire batch.

Corrective action: Comply with corrective action procedures for each order as instructed.

Substitution: If non-complying trees are proposed, submit a proposal in writing.

Authentication: Supply a copy of the written approval of substitution with any non-complying trees.

PHOTOGRAPHIC EXAMPLES

Requirement: Submit photographic examples as follows:

- 75ml tubestock, 300mm, 5L, 25L, 75L, 100L, plant species.

Program: Within fourteen (14) days of the date of contract.

Clarity: Sufficient to be able to ascertain the species, size and quality of a single specimen of the subject plant.

Identification: Provide photographs as follows:

- In colour.
- With a clearly identifiable scale reference located in the same plane as the plant stem or trunk.
- Labelled with plant species name.

3.6 INSPECTION

NOTICE – OFF SITE

Inspection: Give notice so that inspection may be made of the following:

- Immediately prior to the acceptance of tender to view representative samples of all stock scheduled.
- After eight weeks of the growing on period.
- At 80% completion of stocking of plant material.
- At completion of stocking of plant material, deemed to be as close as practical to 100% in terms of species and numbers.
- At the date of commencement of delivery.

3.7 PRODUCTS

PLANT BALANCE

SMALL TREES AND SHRUBS

Conformance at inspection: To balance (small plants) assessment requirements.

Balance (small plants) assessment requirements:

- Tubes or plant cells: Height above soil level must be between 1.5 and 2.5 times the height of the tube or plant cell.
- Trees and shrubs in containers < 20 L (other than tubes or plant cells) or ex-ground trees of size index < 35 (e.g. 1.4 m high x 25 mm calliper); height must fall within the range indicated for the container size in the Small container-grown plant table.
- Containers/rootballs (other than tubes or plant cells) must remain flat on the ground when the stem, held at 80% of height above ground, is deflected 30° from the vertical, side to side.

Exempt: Species that naturally produce hard inflexible wood in the early stages of their development.

SMALL CONTAINER-GROWN PLANT TABLE

Container size or minimum rootball diameter	Height range (m)	
	Thin-stemmed species	Thick-stemmed species
Tubes or plant cells	Height between 1.5 and 2.5 x the height of the container	
150 mm (1.8 L)	0.4 – 0.6	0.3 – 0.5
170 mm (2.6 L)	0.5 – 0.7	0.4 – 0.6
200 mm pot (4 L)	0.7 – 0.9	0.6 – 0.8
200 mm bag (5 L)	0.8 – 1.0	0.7 – 0.9
250 mm (8 L)	1.0 – 1.2	0.8 – 1.0
300 mm (15 L)	1.2 – 1.5	1.0 – 1.2

LARGE TREES

Conformance at inspection: To balance (large trees) assessment requirements.

Balance (large trees) assessment requirements:

- For trees grown in containers ≥ 20 L, the size index must lie within the range for the nominal container size shown in the **Common container volumes table**.
- Ex-ground trees with a size index ≥ 35 (e.g. 1.4 m high x 25 mm calliper) must have rootball diameters ≥ the minimum rootball diameters shown in the **Ex-ground trees table**.

COMMON CONTAINER VOLUMES TABLE

Size index	Nominal container volume (L)	Size index	Nominal container volume (L)
26-33	20	371-480	450
32-41	25	412-518	500
45-58	35	453-587	550
57-74	45	495-640	600
77-99	60	533-716	700
83-107	75	632-818	800
111-143	100	711-921	900
154-200	150	791-1023	1000
194-251	200	842-1089	1100
227-314	250	918-1188	1200
273-353	300	1148-1485	1500
289-373	350	1530-1980	2000
330-427	400	1913-2475	2500

EX-GROUND TREES TABLE

Size index	Minimum rootball diameter (mm)	Size index	Minimum rootball diameter (mm)
36-55	350	341-383	850
56-72	400	384-429	900
73-106	450	430-530	1000
107-131	500	531-642	1100
132-156	550	643-732	1200
157-173	600	733-859	1300
174-228	650	860-1144	1500
229-249	700	1145-1507	1750
250-299	750	1508-1968	2000
300-340	800	1969-3075	2500

3.8 GENERAL QUALITIES

LABELLING

General: Clearly label individual plants and batches.

- Label type: To withstand transit without erasure or misplacement.

HEALTH AND VIGOUR

Health: Supply plants with foliage size, texture and colour at time of delivery consistent with the size, texture and colour shown in healthy specimens of the nominated species.

Vigour: Supply plants with extension growth consistent with that exhibited in vigorous specimens of the species nominated.

Damage: Supply plants free from damage and from restricted habit due to growth in nursery rows.

Stress: Supply plants free from stress resulting from inadequate watering, excessive shade or excessive sunlight experienced at any time during their development.

Site environment: Supply plants that have been grown and hardened off to suit the conditions that could reasonably be anticipated to exist on site at the time of delivery.

FREE FROM PESTS AND DISEASE

Pests and disease: Supply plants with foliage free from attack by pests or disease.

Native species with a history of attack by native pests: Restrict plant supply to those with evidence of previous attack to < 15% of the foliage and ensure absence of actively feeding insects.

3.9 ABOVE GROUND QUALITIES - TREES

SUPPLY

Supply trees that:

- Are free from injury.
- Are self-supporting.
- Have the calliper at any given point on the stem greater than the calliper at any higher point on the stem.

Clean stem height: < 40% of total tree height.

PRUNING WOUNDS

Extent: Restrict fresh (i.e. recent, non-calloused pruning wounds) to < 20% of total tree height.

Type: Ensure a clean-cut at the branch collar.

Diameter of wound: < 50% of the calliper immediately above the point of pruning.

APICAL DOMINANCE

Species with an excurrent form: Supply trees with a defined central leader and the apical bud intact.

CROWN SYMMETRY

Crown distribution: Difference on opposite sides of the stem axis < 20%.

STEM STRUCTURE

Species with excurrent form: Supply trees with a single stem roughly in the centre of the tree with any deviation from vertical < 15°.

Species with decurrent form: Supply trees where the central stem is not divided at any point lower than the clean stem height nominated, and that the stem junction at the point of division is sound.

All species: Ensure that branch diameter is less than or equal to one-half of the calliper immediately above the branch junction.

3.10 EXECUTION

WARRANTIES

TRUE-TO-SPECIES

Parties: Supplier(s) to the principal.

Form: All the plants supplied under these works are true-to-species and type, and free of disease, fungal infection and/or any other impediment to their future growth and that they have been fully acclimatised for the conditions of the site.

Submission of warranty: At the time of each delivery.

MAINTENANCE

Parties: Supplier(s) to the principal.

Form: Maintain all plant materials sourced and secured by the supplier throughout the procurement and pre-transplanting maintenance period. Cover the cost of purchase, labour, equipment, transport and materials to replace any losses, with plant materials of equivalent sizes and quality during the warranty period. Ensure that it is physically possible for any or all of the on site plant material to be successfully prepared and transplanted.

Warranty period:

- Commencement: The date of contract.
- Completion: To cease in respect of any particular plant material upon issue of a delivery notice issued by the contractor upon delivery to site.
- Earliest delivery date: One week after the date of contract.

3.11 SELECTIONS

PLANT SCHEDULES

Refer to landscape drawings. L-8001.

4 PLANTING

4.1 GENERAL

RESPONSIBILITIES

General: Provide planting as shown on the landscape plans.

4.2 INSPECTION

NOTICE

Inspection: Give notice so inspection may be made of the following:

- Plant materials available at the source of supply
- Plant materials delivered to the site
- Plant material set out before planting.
- Planting, staking and tying completed.
- Completion of planting establishment work.

4.3 SUBMISSIONS

MATERIALS

Supplier's data: Submit supplier's data including the following:

- Material source of supply.

Compost: Submit a certificate of proof of compost pH value.

EXECUTION

Program: Submit a work program in the form of a bar chart, for the landscape works.

Maintenance program: Submit a proposed planting maintenance program.

Planting machine: If a planting machine is to be used as an alternative to hand planting, submit proposal.

Spraying: Submit proposal.

Plants – open rooted stock: If open rooted stock is to be used, submit proposal.

Material site storage: Submit proposal.

SAMPLES

General: Submit representative samples of each material, packed to prevent contamination and labelled to indicate source and content.

Bulk materials: Submit a 5 kg sample of each type specified. Submit bulk material samples, with required test results, at least 5 working days before bulk deliveries.

Sample required of,

- Compost
- Mulch
- Topsoil (all types)

REPLACEMENT PLANTS

Species: Provide written certification that all plant material is true to the required species and type.

4.4 PRODUCTS

ROOT BARRIERS

Extent: All tree planting to medians type and where paths or services are within 1500mm of trees.

Installation: In accordance with the manufacturer's recommendations. Ensure root barrier extends to a depth such that all adjacent services are protected by at least 400mm above and below the affected service.

Manufacturer: Nylex General Products or approved equivalent.

Proprietary Item: Nylex Root Barrier or equal approved

Material: Flexible UV stabilised 2-4mm thick medium density plastic

Depth: min 600mm

SOIL CONDITIONING AND FERTILISER

SOIL CONDITIONING PROPERTIES

Wettability: ≤ 2 to AS 3743 Table 2.1 as tested to Appendix C.

Total water holding capacity: ≥ 40 to AS 3743 Table 2.1 as tested to Appendix B.

Nitrogen draw down index: ≥ 0.7 to AS 3743 Table 2.1 as tested to Appendix E.

FERTILISER

Delivery: Provide proprietary fertilisers, delivered to the site in sealed bags marked to show manufacturer or vendor, weight, fertiliser type, N:P:K ratio, recommended uses and application rates, to the **Fertiliser schedule**.

FERTILISER SCHEDULE

Location	N:P:K ratio	Application rate	Proprietary product
All tree & shrub planting	19.4:1.6:5	To manufacturer's recommendation	Osmocote Total All Purpose or approved equal
Turf	9:4:5	50g/m ²	Shirleys No. 17 Lawn Food or approved equal.

4.5 WETTING AGENT

General: Provide wetting agent to all planted areas

Extent: As indicated in the **Wetting Agent Schedule**.

Product: Terracottem® Universal by Terracottem or approved equal.

Delivery: Provide proprietary wetting agent, delivered to the site in sealed bags marked to show manufacturer or vendor, weight, recommended uses and application rates.

Execution: Place required quantity of TerraCottem® and soil mix at bottom of the hole as dug to the specified depth, place plant in hole and fill hole with remaining TerraCottem® and soil mixture.

WETTING AGENT SCHEDULE

Location	Application rate	Directions	Proprietary product
Tree planting- 400lt	6 kg per planting pit	Mix wetting agent with most of the soil taken from around the root ball and to be used as backfill under and around plant root balls.	Terracottem® Universal
Tree planting- 100lt	1.5 kg per planting pit		
Shrub planting- 45lt	750g per planting pit		
Shrub planting- 35lt	550g per planting pit		
Mass planting areas	150 grams per m ²	Dig wetting agent through top 200mm depth of soil before planting.	
Turfed areas	100 grams per m ²	Dig wetting agent through top 150mm depth of soil before turfing.	

4.6 MULCH

GENERAL

Provide mulch to all planted areas as shown on landscape drawings.

Provide Mulch which is free of deleterious and extraneous matter such as soil, weeds and sticks. Do not include fine mulch.

Standard:

- Particle size, physical and chemical contaminants: To AS 4454.
- pH, electrical conductivity, ammonium, chlorine and other nutrients: To AS 3743.

Organic mulches: Free of stones.

Mulch material: Recycled pine bark mulch graded to approximately 30mm

Mulch depth: 75mm

Mulch product: Pine Bark from ANL or approved equal.

Location: to all planting areas as shown on landscape plans

PLACING MULCH

General: Place mulch to the required depth, clear of plant stems, and rake to an even surface flush with the surrounding finished levels. Spread and roll mulch so that after settling, or after rolling, it is:

- smooth and evenly graded between design surface levels;
- flush with adjacent finished levels;
- sloped towards the base of plant stems in plantation beds, but not in contact with the stem (not closer than 50 mm in the case of gravel mulches)

In mass planted areas: Place after the preparation of the planting bed but before planting and other work.

In smaller areas (e.g. planter boxes): Place after the preparation of the planting bed, planting and other work.

4.7 TURF

TURF:

Obtain turf rolls from a specialist grower of cultivated turf. Use turf roll of even thickness, free from weeds and other foreign matter.

Turf species: Kikuyu

SUPPLY:

Deliver the turf sods from the supplier within 24 hours of cutting, and lay it within 36 hours of cutting. Prevent it from drying out between cutting and laying. If it is not laid within 36 hours roll it out on a flat surface with the grass up, and water as necessary to maintain a good condition.

FERTILISING:

As per manufacturer's instructions.

LAYING:

Lay the turf:

- in "stretcher" pattern with the joints staggered and close butted;
- to finish flush, after tamping, with adjacent finished surfaces of ground, and edging.

TAMPING:

Lightly tamp to an even surface immediately after laying. Do not use a roller.

WATERING:

Water immediately after laying. Moisten the topsoil to its full depth. Continue watering as necessary to maintain moisture to this depth. Keep the grass in a healthy condition.

FERTILISING:

Apply lawn fertiliser at the completion of the first and last mowings, and at other times as required to maintain healthy grass cover.

TOP DRESSING:

Top dress the turf 1 week after laying to fill joints between rolls and smooth irregularities.

MAKING GOOD:

Lift failed turf and relay with new turf to give a good even layer whilst still revealing the grass shoots.

4.8 HYDROSEED

SEED

Obtain hydroseeding from a specialist supplier. Use of pump to spray blend of seed, fertilizer and water, with ground free from weeds and other foreign matter before applying.

Grass seed: Kikuyu couch.

SUPPLY/INSTALL

Prepare ground condition and install hydroseeding as per manufacturers requirements.

Supplier: Spray Grass Australia or approved equal.

PROTECTION

Protect newly seeded areas against all traffic until well established.

WATERING:

Continue watering as necessary to maintain moisture and grass in a healthy condition, as per manufactures requirements for establishment.

4.9 EXECUTION

PREPARATION

WEED ERADICATION

Herbicide: Eradicate weeds using environmentally acceptable methods, such as a non-residual glyphosate herbicide in any of its registered formulae, at the recommended maximum rate.

Removal: Regularly remove, by hand, rubbish and weed growth throughout grassed, planted and mulched areas. Remove weed growth from an area 750 mm diameter around the base of the trees in grassed areas. Continue eradication throughout the course of the works and during the planting establishment period.

4.10 PLANTING

LOCATIONS

General: If it appears necessary to vary plant locations and spacings to avoid service lines, or to cover the area uniformly, or for other reasons, give notice.

PLANTING CONDITIONS

Weather: Do not plant in unsuitable weather conditions such as extreme heat, cold, wind or rain. In other than sandy soils, suspend excavation when the soil is wet, or during frost periods.

WATERING

Timing: Thoroughly water the plants before planting, immediately after planting, and as required to maintain growth rates free of stress. Continue watering as required to maintain health and growth of plants.

PLACING

Method: Remove the plant from the container with minimum disturbance to the root ball. Root prune to ensure all circling roots have been either severed or aligned radially into the surrounding soil. Ensure that the root ball is moist and place it in its final position, in the centre of the hole and plumb, and with the top soil level of the plant root ball level with the finished surface of the surrounding soil. Compact lightly so as to minimise subsidence without compacting the backfill. Avoid mixing mulch with topsoil.

FERTILISING

Pellets: In planting beds and individual plantings, place fertiliser pellets around the plants at the time of planting.

BACKFILLING

General: Backfill with topsoil mixture. Lightly tamp and water to eliminate air pockets. Ensure that topsoil is not placed over the top of the root ball, so that the plant stem remains the same height above ground as it was in the container.

SPRAYING

NOTICE

General: Immediately give notice of evidence of insect attack or disease amongst plant material.

SPRAYING

Product: Where required, spray with insecticide, fungicide or both.

4.11 STAKES AND TIES

STAKES

Material: Hardwood, straight, free from knots or twists, pointed at one end.

Installation: Drive stakes into the ground at least one third of their length, avoiding damage to the root system.

Stake sizes:

- For plants \geq 2.5 m high: Three 50 x 50 x 1800 mm stakes per plant.
- For plants 1 – 2.5 m high: Two 50 x 50 x 1800 mm stakes per plant.
- For plants $<$ 1 m high: One 38 x 38 x 1200 mm stake per plant.

TIES

General: Provide ties fixed securely to the stakes, one tie at half the height of the main stem, others as necessary to stabilise the plant. Attach ties loosely.

Tie types:

- For plants \geq 2.5 m high: Two strands of 2.5 mm galvanized wire neatly twisted together, passed through reinforced rubber or plastic hose, and installed around stake and stem in a figure of eight pattern.
- For plants $<$ 2.5 m high: 50 mm hessian webbing stapled to the stake.

4.12 COMPLETION

PRODUCT CERTIFICATION

Certification: Submit the supplier's written statement certifying that plants are true to the required species and type and free from diseases, pests and weeds.

MAINTENANCE MANUAL

General: Submit recommendations for maintenance of plants.

CLEANING

Stakes and ties: Remove those no longer required at the end of the planting establishment period.

Temporary fences: Remove temporary protective fences at the end of the planting establishment period.

5.1 SCOPE

GENERALLY

Establishment of all works executed under this contract shall include the following items as a minimum. The contractor shall maintain the contract areas for a set period after the date of Practical Completion, with any maintenance of the works prior to the date of Practical Completion not to be included as part of this period.

PRACTICAL COMPLETION

Practical Completion of all works shall include, but not be limited to, replacement of plants which have failed and/or died, been damaged or been stolen during the Contract.

PLANTING ESTABLISHMENT PERIOD

52 Weeks following Practical Completion.

RECURRENT WORKS

Throughout the Planting Establishment Period, continue to carry out recurrent works of a maintenance nature including, but not limited to, watering, weeding, rubbish removal, fertilising, pest and disease control, staking and tying, replanting, cultivating, pruning, hedge clipping, aerating, renovating, and keeping the site neat and tidy.

DEFECTS LIABILITY PERIOD

The Contractor shall be liable for defects for all works undertaken within this contract for a period of fifty two (52) weeks to run after the date of Practical Completion, to run concurrently with the nominated Plant Establishment Period.

5.2 REQUIREMENTS

MAINTENANCE PROGRAM:

Furnish a proposed planting maintenance program, and amend it as required until approved. Comply with the approved program.

MAINTENANCE LOGBOOK:

Keep a logbook recording when and what maintenance work has been done and what materials, including toxic materials, have been used. Make the logbook available for inspection on request.

COMPLETION:

Notwithstanding anything to the contrary of the Contract, the Superintendent may instruct the Contractor to perform urgent maintenance works. Should the Contractor fail to carry out the work within seven (7) days of such notice, the Superintendent reserves the right to employ others to carry out such urgent and specified work and charge it to the Contractor.

WARRANTY:

Submit the supplier's written statement certifying that plants are true to the required species and type, and are free from diseases, pests and weeds.

5.3 MAINTENANCE PROGRAM

GENERAL

The landscape works shall be as per the areas indicated on the Landscape Plans L1000-L1111.

Regular maintenance of all areas is required to ensure a satisfactory presentation, minimise safety risks and maximise environmental outcomes.

The works in this scope comprises, but is not limited to safety, supervision, labour, materials, transport, plant and equipment necessary for the maintenance of landscape areas and related items as indicated on the drawings and in accordance with the contract conditions and to the satisfaction of statutory authorities and relevant standards

PERIOD

The contractor is to undertake on-going landscape maintenance works from the final date of the maintenance and defects liability period related to the construction contract.

SCOPE OF WORKS

The scope of works includes but shall not be limited to:

- Open space
- Horticultural maintenance
- Tree care
- Watering of landscape areas
- Rubbish removal
- Monthly reporting to Building Manager

REGULATIONS

The contractor shall comply with all relevant acts, regulations, and by-laws including but not limited to:

- OHS Act and Regulations
- Work Cover Authority procedures
- EPA requirements
- Federal Dangerous Goods Act Regulations

LICENSE PERMITS AND APPROVALS

The contractor will ensure that all relevant licenses (local, state and national) required for the legal execution of works are complied with. Evidence of these licenses will be required prior to the commencement of the Maintenance Contract. These licenses will include but are not limited to:

- Current commercial vehicle driver's license
- Various equipment operator certificates, chain saw, skid steer equipment
- Commercial pesticide and chemical application licenses.

5.4 SOFTWORKS

GENERALLY

It is the intent that the landscape areas are to possess the following characteristics at all times:

- Healthy growth

- Vibrant colour (foliage & floral display appropriate to the season and location)
- Cleanliness

SOIL TESTING

Soil testing is to be carried out a minimum of once per year and additionally where plant material does not meet the general characteristics listed above. The fertilisation program shall be based on the soil testing results. Generally an all-purpose fertiliser should be applied at recommended rates.

PROTECTION OF HARD LANDSCAPE ELEMENTS

Undertake works by procedures that ensure no damage to existing hard landscape structures and fixtures including pavements, and fencing.

WASTE REMOVAL

The contractor will be required to manage all waste and by-products generated by the maintenance works. All waste material must be removed from site and transported to an approved dumping site.

5.5 GARDEN HORTICULTURAL CARE

FINISHES

Garden areas are intended to act as key presentation / display for the project at all times. For this reason all areas are to reflect the level of maintenance specified, including:

- Maintenance detail, to the best industry standard of horticultural practice
- Complete low phosphorus fertiliser program using approved fertiliser as per manufacturer's instructions
- Pruning and shaping to best horticultural practices
- Ongoing weed and pest control to maintain weed and pest free environment
- Uniform and vigorous plant growth
- Mulch levels maintained at 75mm depth - will full cover of irrigation pipes at all times
- Damage repaired within 2 days of reporting

PLANTING

Continue to ensure the general appearance and presentation of the landscape and the quality of plant material at date of Practical Completion is maintained for the full Planting Establishment Period.

PRUNING

All pruning work to be undertaken in accordance with AS4373 - 1996 Pruning and Amenity of Trees and to best horticultural practices. The contractor shall prune plants to encourage the plants natural form or design intent. Prune shrubs and grasses to remove dead and diseased foliage and to maintain clear access and visibility along paths and for signage. Trim groundcover species off paths and fence lines to maintain a neat and clear edge at all times.

As trees and shrubs grow, they may obscure light fixtures and prevent the desired intensity of light. Plants should be pruned to remain clear of the light emitting part of the fixture and allowed to grow around them ensuring adequate lighting is still achieved.

FERTILISING

Fertilising of the gardens will be carried out with a quality complete fertiliser in granular or liquid form. Recommended controlled release fertilisers should have minimum N:P:K as follows:

- Summer applications: 21 + 1 + 9
- Autumn applications: 12 + 5.2 + 14.1 + trace elements

Any application of fertiliser must be tailored to the individual plant requirements and any relevant soil test results. Granular fertilisers are to be spread evenly over the garden area. Fertiliser is not to be applied just around the base of the plants.

WEED CONTROL

Control and remove any plant material that is not designed to be in the garden area. Weeds can be controlled by mulching, physical removal, and / or herbicides. Weeds are to be removed by hand unless the infestation deems this impractical. This work shall be executed regularly so that the planted, paved and mulched areas are weed free when observed at bi-weekly intervals.

Weed cover must not exceed 5% and the height of the weeds must not exceed 100mm. Weeds must be treated or removed before seeding occurs. Avoid damage to existing plantings from herbicide application and other maintenance activities.

USE OF HERBICIDES CAN BE HARMFUL TO PEOPLE AND THE ENVIRONMENT. THEY SHOULD ONLY BE APPLIED BY PERSONNEL WITH A COMMERCIAL OPERATORS LICENSE.

PEST AND DISEASE CONTROL

Pests and diseases must be controlled in the least environmentally harmful manner when their population affects the healthy state of the intended planting. The contractor will accurately identify pests and diseases and take controlled measures when their population begins to affect the health or appearance of plants. Biological control is recommended as the first approach. Only use chemicals when other methods have been unsuccessful.

MULCHING

Mulched areas should be inspected bi-weekly to determine mulch requirements. Mulch is required to be maintained to a depth of 75mm to all garden beds and planted areas. Topping up of mulch will be an ongoing process. Provide mulch which is free of deleterious and extraneous matter such as soil, weeds and sticks. Mulch to AS 4454.

MOWING

Mowing height: 20 – 40mm.

Frequency: Weekly during November to March, fortnightly during April to October. Do not mow under wet conditions.

Edges: At the same time as mowing, trim lawn edge to planter beds, paving edge and other obstacles. Ensure trees and shrubs are not damaged.

REPLACEMENT PLANT MATERIAL

Continue to replace failed, dead and/or damaged plants at minimum 2/3 week intervals as necessary throughout the full Plant Establishment Period

Provide plants with the following characteristics:

- Large healthy root systems, with no evidence of root curl, restriction or damage
- Vigorous, well established, free from disease and pests, of good form consistent with the species or variety
- Hardened off, not soft or forced, and suitable for planting in the natural climatic conditions prevailing at the site
- Trees: all trees to be supplied by the contractor
- Provide trees which, unless required to be multi-stemmed, have a single leading shoot
- Supply plants in weed-free containers of the required size
- Open rooted stock: If trees are to be supplied as open rooted stock, ensure this is appropriate to the species, variety, size and time of year for planting

Deliver plant material to the site on a day to day basis, and plant immediately after delivery. If plant material needs to be stored on site then plants must be kept in good conditions, adequately protected from frost, wind, sun and vermin by appropriate storage methods.

5.6 TREE WORKS

GENERALLY

All existing trees shall be maintained in a healthy, vigorous condition to the best Australian Arboricultural industry standards. They will be maintained true to form. All sucker growth will be removed immediately.

Planted tree care:

- Pruning to encourage the development of a stable trunk and canopy structure
- Tree surrounds to be kept weed and litter free
- Treatment of any damage or vandalism, mowers, brush cutters and the like
- Removal of dead wood
- Fertilise once per year as per manufacturer's instructions

CONDITION CHECK

A condition check is making a scheduled observation of the conditions of the trees on site. All plant materials will be visually checked whenever maintenance is being performed in an area after high winds and storms. In addition to this visual check, a detailed annual condition check will also be required.

DISEASE AND PEST CONTROL

The contractor shall be responsible for the control of any pest or disease which may affect trees. Report any incidence of insect attack or evidence of disease amongst plant material.

PRUNING TREES

All pruning work to be undertaken in accordance with AS4373 - 1996 Pruning of Amenity Trees and to the highest Arboricultural industry standards. Trees shall be pruned for the following reasons:

- To encourage a well-structured growth habit, natural to the character of the tree
- Maintain clear visibility on footpaths
- Maintain height clearance for footpaths and car parking areas

- The removal of dead or diseased branches / leaves etc.

Prune trees up to a height of 3m as required (branches to 100mm) to eliminate diseased or damaged growth and provide safe clearance for pedestrians and vehicles.

Chip pruned material for mulch or composting.

STAKES AND TIES

Adjust stakes and ties where necessary. Where plants are robust with well developed systems and are strong enough to no longer require support, stakes and ties shall be removed. Where plants are unable to be self supported or where stakes are damaged, plants shall be staked or re-staked. Remove those not required at the end of the Plant Establishment Period.

TREE REMOVAL

Trees which become damaged due to whatever reason to a state where repair is considered impractical or the tree will die, shall be carefully felled in a series of small sections to alleviate damage to all surrounding areas and adjacent trees.

The surface roots will be dug out and the stump ground down to 200mm minimum below the soil level. Allow to make good all stump holes and ensure that surrounding surfaces are reinstated. Remove all pruning's etc. from site.

FERTILISING TREES

Fertilise trees under 5 years old only. Generally fertilising will only be required once per year prior to topping up mulch. Fertiliser types will be the same as those used for garden areas.

5.7 REPAIR, REPLACEMENT & ADDITIONAL WORKS

Any repairs, replacement (including plant replacement), or additional work beyond the scope of services will only be performed by the contractor upon receipt of a notice of variation.

WATERING

All plantings, trees and turf are to be watered to ensure establishment and health. As a minimum, the planted areas are to receive nine (9) complete watering (i.e. soaked to a depth of 150mm) at fortnightly intervals for the first 12 weeks of plant establishment irrespective of natural rainfall.

Allow to water turf a minimum of once per week to maintain health and vigour. Allow to increase watering during dry/hot periods.

DRAINAGE WAYS/ SWALES

Maintain all gullies, grates and drainage pits in car parks, parks and road reserves free from obstruction to allow free drainage of water. Monitor function and structural condition of drains and remedy any deficiencies.

Inspect grass swale drains, ditch drains, bioremediation swales, and infiltration areas on a regular basis to ensure no scour, weed growth or undue thick vegetation is evident. Clean out silt build-up regularly. Maintain grass areas as specified elsewhere. Maintain vegetation in ditch drains to allow passage of water but not expose surfaces to erosion.

LITTER COLLECTION

Maintain all open spaces free from all kinds of rubbish. Rubbish includes all debris, litter, trash, dumped items, fallen limbs and the like.

Performance standards:

- Rubbish removed on a regular basis
- No rubbish apparent
- Recycle materials where possible
- Compost suitable vegetative waste
- Sort waste streams

Undertake additional activities if directed by the Property Manager including the removal of any dumped rubbish including whitegoods, builder's materials and the like.

GRAFFITI / ACTS OF VANDALISM

Acts of vandalism and graffiti that affect the amenity or safety of the structures and or property will be reported to the Property Manager within 24 hours of detection. If the area is not suitable for its intended purpose and / or is in an unsafe state, it must be barricaded as soon as detected. The contractor must supply an electronic copy of photos of the graffiti and / or vandalism with the subcontractor's invoice, before payment of this work.

END OF SPECIFICATION

APPENDIX A

TREE INSPECTION FORM

General

Date		Reference	
Purchaser			
Supplier		Inspected by (supplier/purchaser/agent)	
Species		Batch identification	
Number of trees in batch		Container/rootball size	
Height range		Calliper range	
Special requirements			

Above ground

Labelling	
Health and vigour	
Freedom from pests/disease	
Freedom from injury	
Self-supporting	
Stem taper	
Pruning	
Apical dominance	
Crown symmetry	
Stem structure	
Included bark	
Trunk position	
Compatibility of graft unions	
Indication of north	