Boffa Miskell

The Point Mission Bay

Landscape Management Plan

12 September 2025

Prepared for Ngāti Whātua Ōrākei Whai Rawa Limited and Generus Living Group

Document Quality Assurance

This document may be cited as:
Boffa Miskell Limited 2025. *The Point Mission Bay: Landscape Management Plan*. Report prepared by Boffa Miskell Limited for Ngāti Whātua Ōrākei Whai Rawa Limited and Generus Living Group.

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Revision /version:	Issue date:	Prepared by:	Description:	Reviewed by:
Draft – 90%	29 August 2025	Emma Todd Partner | Landscape Architect Boffa Miskell Limited Gwen Smart Graduate | Landscape Architect Boffa Miskell Limited	Draft report issued to client WIP 90% RC Issue	Emma Todd Partner / Landscape Architect Boffa Miskell Limited
Final – 100%	12 September 2025	Emma Todd Partner | Landscape Architect Boffa Miskell Limited Gwen Smart Graduate | Landscape Architect Boffa Miskell Limited	Report issued to client WIP 100% RC Issue	Emma Todd Partner / Landscape Architect Boffa Miskell Limited

Approved for issue:
Emma Todd | Landscape Architect | Partner | 12 September 2025

Release and Reliance

This report has been prepared by Boffa Miskell Limited on the instructions of our Client, in accordance with the agreed scope of work. If it is intended to support an application under the Fast-track Approvals Act 2024, it may be relied upon by the Expert Panel and relevant administering agencies for the purposes of assessing the application.

While Boffa Miskell Limited has exercised due care in preparing this report, it does not accept liability for any use of the report beyond its intended purpose. Where information has been supplied by the Client or obtained from external sources, it has been assumed to be accurate unless otherwise stated.

File name & Project number: BM240301.02_Landscape_Management_Plan_WIP.docx BM240301.02

Template revision: 20230505 0000

Cover photograph: Aerial Photograph Takaparawhau, © Photoblique, 2023

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1.0 Introduction

1.1 Purpose of the Plan

The purpose of this Landscape Management Plan (LMP) is to establish a clear and practical framework for the long-term care, maintenance, and performance of all landscaped areas within The Point Mission Bay (TPMB). This LMP is designed to ensure that the landscaping consistently reflects the design intent and is maintained to a high standard that supports the ongoing health and success of all plantings. It should be read together with soft landscape specifications (Appendix 1) and the Landscape Concept for Fast-Track Resource Consent dated 12 September, prepared by Boffa Miskell Ltd.

Information within this plan addresses the following key components:

- Weed and pest control strategies to preserve plant health and landscape integrity
- Planting management including supply and installation
- Irrigation systems to ensure adequate and efficient water supply
- Plant replacement procedures to maintain design continuity and vitality
- Inspection schedules, including timeframes and frequencies for monitoring and assessment
- Contractor responsibilities and ongoing maintenance obligations

This document serves as a guiding reference for all stakeholders involved in the management of TPMB's landscape, ensuring its long-term sustainability and alignment with the original design vision.

1.2 Applicability

This plan applies to landscape areas within the site, including:

- Planting and landscape elements within natural ground areas
- Planting and landscape elements on podium-level (including balconies and green rooves)

1.3 Site overview and background to the project

The site comprises approximately 1.7 hectares of brownfield land and adjoins the southern boundary of Whenua Rangatira at Takaparawhau | Mission Bay, Auckland. The site largely sits vacant, with only two remaining independent living apartment buildings of the existing aged care facility, Eastcliffe Village located in the eastern portion of the site, accessed from Aotea Street. These buildings will be demolished to accommodate the comprehensive redevelopment of the site. The broader site includes the existing three-storey Care building located at the western end.

The project involves the development of a five-building retirement village, along with associated basement carparking and servicing. The four easternmost buildings are situated atop a podium structure, which serves as the base for landscaped amenity areas between the buildings. The proposal forms a cohesive, integrated residential precinct for retirement living.

The landscape design includes:

- Tree and amenity planting in natural ground and on podium and/or balcony structure
- Pathways and hard landscape treatments on the podium structure
- Pathways and roadways on natural ground
- Fencing, walls, furniture, landscape structures, and lighting

1.4 Landscape Plan Reference

This Landscape Management Plan supports the implementation and ongoing performance of the Landscape Concept for Fast-Track Resource Consent dated 12th September 2025 prepared by Boffa Miskell Ltd.

Figure 1: The Point Mission Bay Landscape Concept Plan. Boffa Miskell Ltd.

2.0 Goals and Objectives

2.1 Goals

The following goals set out the overarching objectives of the landscape design and its long-term management:

2.1.1 Integrate with the immediate context and alignment with the Ngāti Whātua Ōrākei vision

The northern edge of the buildings and podium is set back from the site boundary, adjoining a grassed, open area of Takaparawhau. This mown grass transitions into revegetation planting at the eastern site interface, part of the extensive reforestation initiative led by Ngāti Whātua Ōrākei (NWO) at Takaparawhau. NWO outline their vision, and a framework for achieving it in Ko te Pūkākī 2040, Tirotiro Whānui – Regeneration Plan Overview.

The landscape design for TPMB seeks to support the vision presented in Ko te Pūkākī 2040 document, and to soften the boundaries between the proposed development and Takaparawhau. A ‘native korowai | cloak’ of indigenous trees and shrubs encircles the development. Species selection is informed by Ko te Pūkākī, and includes several taonga species valued for their cultural and ecological significance. Small trees and taller shrubs are positioned to visually break up and soften the podium wall and building façades. Continuing along the western and southern interfaces, the korowai planting draws the ngahere into the development. Strategically placed specimen trees provide amenity and ecological benefit, while mitigating reverse sensitivities from the surrounding residential context to the south and west.

2.1.2 Support indigenous biodiversity and sense of place

The native korowai planting at the site boundary features predominantly native species that could have naturally occurred on-site. This approach enhances biodiversity, strengthens local identity, and complements surrounding revegetation efforts.

Increased canopy cover will support ecological outcomes, provide habitat, and contribute to water-sensitive design. Permeable paving and green podium spaces further reinforce these benefits. While exotic species are included in podium and garden areas, they also offer habitat and food sources for native birds and invertebrates.

The landscape design presents residents with a variety of distinct yet complementary spaces that together express TPMB’s unique character and sense of place.

2.1.3 Create a comfortable, attractive village environment

The landscape design promotes connection, community, wellbeing, nature, and lifestyle.

A private southern driveway and pedestrian route connects to the existing street network, supporting wayfinding, encouraging slow vehicle speeds, and creating a walkable environment for active residents.

Trees and planting provide human scale, shade, shelter, and screening, offering green views from residential units and shared spaces. Integrated with TPMB’s striking architecture, the landscape creates a beautiful and inviting place to live and visit.

Landscape spaces, and the diverse activities they support, are designed to respond to adjacent internal areas, enabling seamless flow between indoor and outdoor living.

2.1.4 Foster community engagement and social interaction

The design provides a range of spaces at different scales, enabling people to meet and socialise, to make new connections, and strengthen old ones.

The *Heart of the Village* is a vibrant garden space designed to promote connection, activity, and joy across generations. It features a versatile lawn for events and lawn games and where people and children can play.

Other spaces include formal and informal outdoor dining areas, more intimate gardens and tranquil seating for small groups to meet and socialise, spill out zones for the library and craft rooms, the pétanque court and walled gardens and a communal orchard and production garden.

A separated pedestrian route along the southern driveway enhances safety and encourages walking within and through the site. This walkway forms a loop with podium-level pedestrian circulation and connects to public paths leading to the reserve and beyond.

2.2 Objectives

The following objectives set out how the goals will be achieved.

2.2.1 Support the establishment and long-term health of the landscape planting.

- Ensure plant and tree species are selected to suit site-specific conditions and microclimates
- Provide appropriate soil preparation and growing environments to support healthy root development
- Undertake planting in accordance with detailed specifications and best practice horticultural methods
- Implement an irrigation regime to support establishment and long-term vitality
- Schedule regular inspections to monitor plant health and identify replacement needs

2.2.2 Effective management of pests and weed

- Apply integrated pest management strategies to minimise chemical use and environmental impact
- Define roles and responsibilities for pest and weed control
- Include inspection frequencies and reporting protocols to ensure timely intervention

2.2.3 Maintain safety, functionality, and durability of landscape assets

- Ensure all soft landscape elements are maintained to support long-term health, visual appeal, and ecological function
- Implement regular inspections to assess plant condition, identify hazards (e.g. overgrowth, root damage, or obstructed pathways), and schedule remedial actions
- Maintain irrigation systems and planting beds to prevent deterioration or safety risks due to poor drainage, plant failure, or pest infestation
- Select hardscape materials (e.g. paving, furniture, walls, and lighting) for durability and compliance with safety standards
- Assign clear responsibilities for ongoing maintenance
- Ensure all maintenance activities are carried out in accordance with this Landscape Management Plan.

3.0 Planting

3.1 Overview

The intent of the planting design is to support the landscape goals and objectives outlined above and the values and guiding principles presented in The Point Mission Bay Landscape Concept for Fast-track Resource Consent. Planting includes a ‘native korowai’ of indigenous plants which integrates the development into its wider context, and contributes to its sense of place, as well as mixed exotic and native gardens. Gardens are designed to provide beautiful and varied spaces and activities for residents to enjoy directly, or from within the buildings of TPMB.

3.2 Planting Management

3.3 Plant Procurement

Native plant seedlings shall be eco-sourced from within the Tāmaki Ecological district and hardened to local conditions. Where plants are unable to be sourced from the local area, substitutions can be submitted for approval to the Landscape Architect. Plants supplied shall be at the specified grades, true to type and not root bound. Plants are to be checked by the Landscape Architect prior to delivery to site. Planting Method

The technical aspects of how the planting will be carried out are detailed in the Soft Landscape Specification (Attached as Appendix 1).

Plant selection and placement have considered site-specific conditions, including:

- Slope and soil depth
- Light and aspect
- Hydrology and wind exposure
- Architectural relationships
- The needs of residents and neighbours

Plants have been chosen to support the design intent of each space and to thrive under the available conditions. During installation, the Landscape Architect will work closely with the Landscape Contractor to ensure that “the right plants go in the right place”. Refer to Plant Lists (Appendix 2).

3.3.1 Topsoil Requirements

It is assumed that soil will largely be quality imported topsoil, with specialised lightweight podium mix used for planting on the podium structure.

Topsoil shall be spread to compacted depths as follows:

- Amenity planting areas (natural ground) 300mm minimum
- Podium planting
  - Green roof & ground cover 250mm minimum
  - Mid-depth planters (shrubs) 400-600mm
  - High planters and specimen trees 1000mm (750mm above paving)
- Specimen tree pits (natural ground) 1000mm minimum.

3.3.2 Watering Requirements

All landscaped areas shall be maintained with appropriate watering provisions as follows:

Automated Irrigation shall be provided to:

- All podium landscape areas and balconies
- High amenity landscape areas on natural ground, including but not limited to the arrival and entry landscape and production gardens

Manual Watering shall be undertaken for:

- All other landscape areas on natural ground not covered by automated irrigation
- These areas must be regularly hand watered during the Defects Liability Period and during extended dry periods to ensure plant health and establishment

The irrigation system shall be designed and operated to support optimal plant growth, minimise water waste, and comply with local water use regulations.

3.3.3 Maintenance Requirements by Landscape Type

For the various types of landscape treatments, the following maintenance regime will be followed.

The content below is intended to compliment the technical aspects detailed in the Soft Landscape Specification (Attached as Appendix 1) and should be read together.

Amenity planting – off podium

- **Weeding**: Monthly for first 12 months, quarterly thereafter.
- **Watering**: Permanent irrigation system and manual watering during defects liability period and dry periods
- **Mulching**: Maintain 100mm depth annually.
- **Staking & Tying**: Check quarterly and adjust accordingly over the initial three (3) growing seasons, after which time they can be removed
- **Replacement Planting**: Annual replacement of failed plants during autumn/winter.
- **Pruning**: Pruning shall be regularly undertaken to all hedging, hanging plants and perianal plants in accordance with specification.

Amenity planting – on podium

- **Weeding**: Monthly and as required
- **Watering**: Permanent irrigation system
- **Mulching**: Maintain 100mm depth annually.
- **Replacement Planting**: Annual replacement of failed plants during autumn/winter.
- **Pruning**: Pruning shall be undertaken monthly to all hedging, hanging plants and perianal plants in accordance with specification.

Specimen Trees

- **Weeding**: Monthly for first 12 months, quarterly thereafter.
- **Watering**: As needed during dry seasons for first 24-months.
- **Mulching**: Maintain 100mm depth annually.
- **Staking & Tying**: Check quarterly and adjust accordingly over the initial three (3) growing seasons, after which time they can be removed
- **Replacement Planting**: Annual replacement of failed trees during autumn/winter.
- **Pruning**: trees to retain natural form of crown.

3.4 Pest and Weed Control

3.4.1 Pest control

Plant and animal pests are to be monitored and controlled. The Constructor shall scope pest levels and establish control methods, in accordance with the Soft Landscape Specification (Attached as Appendix 1). and any relevant standards.

While possums are likely to be less of a risk on-podium, their presence in the adjacent reserve may pose a threat to planting, especially during the establishment period. Monitoring for possum damage must be ongoing, and pest control measures instigated if detected.

3.4.2 Weed control

Weed control will be responsive to the phase of site preparation and plant establishment. The phases are as follows:

Phase 1 – Site preparation

- Clear existing weeds by cutting, mulching, or removal before applying low-toxicity herbicide.
- Vegetation over 500mm must be mown or cleared prior to spraying.
- Site-won topsoil must be treated and weed-free before respreading.
- All work must follow horticultural best practices and be carried out by qualified personnel. MSDS must be submitted before herbicide use.

Phase 2 – Implementation

- Monitor and treat emerging weeds during planting using approved methods.
- Take extra care near waterways and sensitive areas.
- Document all herbicide use and report to Ngāti Whātua Ōrākei Whai Rawa Limited and Generus Living Group as required.

Phase 2 - Following planting

- Maintain weed control following practical completion.

3.5 Inspection Frequency and Reporting Protocols

During the defect's liability and maintenance period, all landscaped areas will be inspected twice annually to assess the presence and impact of pests and weeds. These inspections will be carried out by the Landscape Architect under the oversight of Ngāti Whātua Ōrākei Whai Rawa Limited and Generus Living Group. Each inspection will be documented in a formal report outlining:

- Observed pest or weed activity
- Recommended treatment or control measures
- Replacement of dead or defective planting
- Actions taken and materials used
- Follow-up requirements and timeframes

3.6 Areas of responsibility

To ensure the long-term success and integrity of the landscape design at The Point Mission Bay (TPMB), responsibilities for landscape maintenance are clearly defined across the construction and post-construction phases, in accordance with this Landscape Management Plan (LMP).

3.6.1 Contractor Responsibilities (Defects Liability Period)

For a period of two years following Practical Completion, the appointed landscape contractor will be responsible for:

- Soft landscape maintenance, including irrigation management, weed and pest control, and plant replacement as required
- Remedying defects in planting, soil preparation, and irrigation systems
- Conducting monthly inspections of all soft landscape areas to identify issues and implement corrective actions
- Reporting findings to Ngāti Whātua Ōrākei Whai Rawa Limited and Generus Living Group within 10 working days of each inspection, including details of interventions and follow-up requirements

All maintenance activities during this period must be carried out in accordance with the specifications and standards outlined in this LMP.

3.6.2 Ngāti Whātua Ōrākei Whai Rawa Limited and Generus Living Group Responsibilities (Ongoing Maintenance)

Upon completion of the defect's liability period, Ngāti Whātua Ōrākei Whai Rawa Limited and Generus Living Group will assume full responsibility for the ongoing maintenance of all landscape areas. This will be managed through dedicated maintenance teams who will:

- Implement the irrigation, pest/weed control, and plant replacement protocols defined in this LMP
- Continue biannual inspections of soft landscape areas, with formal reporting and documentation
- Maintain all hard landscape assets, including pathways, furniture, walls, structures, and lighting, ensuring they remain safe, functional, and compliant with relevant standards
- Oversee contractor performance where external services are engaged, ensuring alignment with the LMP and design intent

Ngāti Whātua Ōrākei Whai Rawa Limited and Generus Living Group will act as the central authority for landscape management, ensuring that all aspects of the site's landscape are maintained to a high standard and in accordance with the original design vision.

4.0 Conclusion

This Landscape Management Plan provides a clear and structured framework to guide the successful establishment and long-term stewardship of landscape elements within The Point Mission Bay (TPMB). It outlines practical strategies and responsibilities that ensure all landscape components are maintained to a high standard and remain true to the original design intent.

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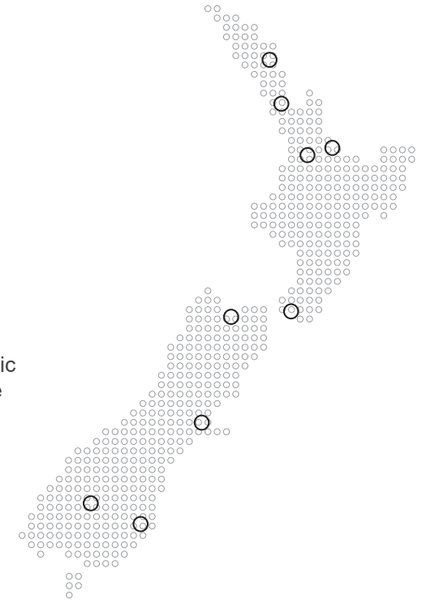
Together. Shaping Better Places.

Boffa Miskell is a leading New Zealand environmental consultancy with nine offices throughout Aotearoa. We work with a wide range of local, international private and public sector clients in the areas of planning, urban design, landscape architecture, landscape planning, ecology, biosecurity, Te Hīhiri (cultural advisory), engagement, transport advisory, climate change, graphics, and mapping. Over the past five decades we have built a reputation for creativity, professionalism, innovation, and excellence by understanding each project's interconnections with the wider environmental, social, cultural, and economic context.



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Appendix 1

The Point Mission Bay

Soft Landscape Specification

Prepared for Generus Living Group

12 September 2025

THE POINT MISSION BAY

Soft Landscape Specification

SP5001 – LANDSCAPE – GENERAL

The work specified in this section covers the general obligations the Constructor shall meet in executing the Landscape Works under this Contract.

Specification sections are as follows:

SP5001 – Landscape – General

SP5002 – Landscape – Site Preparation

SP5003 – Landscape – Plant and Animal Pest Control

SP5004 – Landscape – Plant Propagation

SP5005 – Landscape – Topsoil Supply

SP5006 – Landscape – Planting

SP5008 – Landscape – Defects Liability and Maintenance

SP5001.1 APPLICABILITY

1.1.1 Precedence

This specification shall be read in conjunction with relevant design and construction information contained in each work package. Any additional or specific technical information included within a work package shall take precedence over the provisions in this specification. In the event of the requirements of the Drawings being at variance with the provisions of this specification then the requirements of the Drawings shall take precedence.

1.1.2 General Definitions

The following are definitions of general terminology contained within this document:

- 'the Project' refers to The Point Mission Bay (TPMB) development project.
- 'the Developer' refers to any person (or team) within the Project Development Team (Generus Living Group, TPMB)
- 'the Designer' for the purpose of this specification shall:
  - be a NZILA Registered Landscape Architect or a qualified landscape architect acting under the direction of a NZILA Registered Landscape Architect.
  - Shall act as a technical advisor to the Constructor.
- 'the Constructor' refers to the person (or team) within the Project, appointed by the Developer, responsible for the planning, executions and delivery of the required physical works.
- Where subcontractors are necessary for the execution of physical works they may be referred to as 'the Constructor', 'the Applicator', 'the Supplier' or 'the Installer' as applicable. For the purposes of this specification 'the Installer' and 'the Supplier' refers to the landscape subcontractor(s) responsible for (where required); site preparation, weed and pest control, eco-sourced seed collection, plant propagation and supply, planting, mulching and maintenance of all planting in accordance with the defects liability and maintenance periods specified.

SP5001.2 **STANDARD SPECIFICATION**

This specification shall be read in conjunction with the following standards, which are deemed to form part of this specification. In the event of this specification being at variance with any provisions of these standards, the requirements of this specification take precedence over the provision of the standard. Reference to any standard shall include any amendments thereto and any standard in substitution thereof.

The following substitutions shall be made to referenced standards where present:

i. "the Engineer" shall be read as "the Designer"
ii. "the Contractor" shall be read as "the Constructor"

All materials and workmanship shall comply with these standards unless expressly noted otherwise.

Site Preparation and Pest Control

- Code of Practice for Safety and Health in Tree Work, Part 1 – Arboriculture
- Relevant Auckland Council standards
- Hazardous Substances and New Organisms Act 1996
- NZS 8409:2004 Management of Agrichemicals
- Biosecurity Act 1993
- Wild Animal Control Act 1977
- Health and Safety at Work Act 2015
- The Point Mission Bay Landscape Management Plan

Plant Propagation work

- NZS 4454 Standard for Composts, Soil Conditioners and Mulches
- The aims and objectives of 'Eco-sourcing Code of Practice and Ethics'

Planting

- NZS 4454 Standard for Composts, Soil Conditioners and Mulches
- *SP5002* – Landscape – Site Preparation
- The Point Mission Bay Landscape Management Plan

Maintenance

- SP5008 – Landscape – Defects Liability Period and Maintenance

SP5001.3 **GENERAL**

1.1.3 Scope

To achieve the consistency and high quality in the delivery of landscape treatments for The Point Mission Bay, the following standard specification sets out the minimum standards for the landscape works. This baseline landscape specification sets the required performance standards, quality and workmanship for the landscape treatments which are appropriate for this high-quality development.

Associated with this standard specification shall be landscape plans and plant schedules specific to Project that include design information. Further detailed planting plans with quantities and project specific hard and soft specifications will be provided during the construction documentation phase.

The landscape works shall be for, but not limited to, the supply of all labour, plant and materials for the construction and completion of the works, including the preparation of the site, in accordance with the Project Drawings, Plant Schedules and Management Plans.

Constructors, Applicators and Installers should ensure that they are familiar with relevant conditions of any Resource Consent, or legal/landowner agreements prior to undertaking any works on site. The details of this specification do not in any way absolve the need to comply with these conditions. Where this specification is in conflict with the consent conditions, the conditions would take precedence over the specification.

1.1.4 Use of this Specification

The Developer seeks high quality landscape outcomes. In order to achieve this, consideration of all aspects of the works is required. This includes; site preparation, weed and pest control, topsoil quality, plant material, standard of planting and associated materials, timing of planting and maintenance.

This specification should be read in conjunction with The Point Mission Bay Landscape Management Plan. All of the following specification documents shall be read as a whole:

SP5000 – Landscape – General

SP5001 – Landscape – Quality Control

SP5002 – Landscape – Site Preparation

SP5003 – Landscape – Plant and Animal Pest Control

SP5004 – Landscape – Plant Propagation

SP5005 – Landscape – Topsoil Supply

SP5006 – Landscape – Planting

SP5008 – Landscape – Defects Liability and Maintenance

SP5001.4 **PERFORMANCE CRITERIA**

The aim of the following performance criteria is to achieve the quality landscape outcomes sought by the Developer. The following criteria apply to all of the Project landscape treatments:

- *The works specified in this document and detailed on the Project plans shall be carried out to the best industry standards,*
- *The works shall be carried out in good faith, with open communication and transparency so as to avoid conflict where ever possible.*
- *'Best for Project' decisions shall be encouraged at all times.*
- *Where a landscape treatment to be carried out is outside the scope of the specification, the Contractor is to seek advice from the Project team as to the appropriate outcome to be achieved.*

SP5001.5 **MATERIALS**

1.5.1 General

All materials supplied shall be new (unless noted otherwise) and to the best of their respective kinds, suitable for the purpose for which they have been intended and complying in all respect with this specification.

1.5.2 Inspection

The Constructor shall, prior to installation, inspect all Materials for signs of damage, which may have occurred during transport to the site or during storage or handling on site.

1.5.3 Alternatives and Substitutes

The nomination of a particular manufacturer or brand name for Materials shall be taken to indicate the type and quality required. It does not imply that the nominated Material is readily available, or is the only one acceptable.

Where alternative products, materials, procedures or designs are proposed, whether these are provided for in the specification or not, written approval shall be obtained before any such changes are incorporated. Details of any alternatives shall be submitted to the Designer for approval sufficiently in advance of them being required to be incorporated within, or used upon, the Contract Works, and prior to placing orders and /or purchasing.

SP5001.6 WORKMANSHIP

All materials and construction shall be to a high standard, and workmanship shall meet best trade practice.

SP5001.7 SETTING OUT

The Constructor shall set out the works from the information shown on the Drawings. The site shall be provided with survey control points to be used for set out.

Should any conflict and/or discrepancy exist, the Constructor shall request instruction from the Designer prior to proceeding.

All existing survey marks on Site shall be protected. Any disturbance, displacement or destruction of existing survey marks shall be reinstated.

SP5001.8 PRACTICAL COMPLETION

Certificate of Practical Completion shall not be issued until the landscape works are fully completed as set out in the Specification. Should the Contract allow, staged Practical Completion may be allowed, if agreed with the Developer prior to the Contract being enacted.

END

SP5002 – LANDSCAPE – SITE PREPARATION

The work specified in this section covers (where required) the clearing and disposal of existing vegetation, (except vegetation identified to be retained), site preparation spraying, pruning and minor landscape earthworks (not bulk earthworks), topsoil/soil mix re-spreading, stockpiling and storage of bulk materials (mulch, made up topsoil, imported topsoil). For the removal and disposal of existing hardstand surfaces and inorganic debris, refer to specification sections by others.

SP5002.1 MATERIALS

2.1.1 Topsoil

Topsoil is defined as the top layer of soil characterised by the presence of organic matter and meeting the standards as set out in SP5005 – Landscaping – Topsoil Supply. Where topsoil is referred to throughout, it may be material as defined above and recovered from site, **or** a manufactured slip material/compost/forest duff mix.

2.1.2 On site topsoil and re-use of suitable material

The Constructor shall inspect the site together with the Designer to assess the condition of the existing topsoil and define testing locations.

The Constructor shall provide for soil testing for each batch/area of topsoil as appropriate and submit a report from the soil testing laboratory including topsoil analysis of physical and chemical properties. This shall be interpreted by a soil scientist and recommendations made to achieve a planting medium suited to the plant species proposed. Any remedial measures would generally seek to address compacted soils, poor or low fertility and levels of any contamination.

In the event that the Client or their agent fails to accept the advice of the soil tests, and plants subsequently die due to the topsoil conditions the Constructor shall be responsible for the remediation of the soil and replacement of those plants.

2.1.3 Stockpile and storage

The stockpiling and storage of site won topsoil shall be in accordance with any Consent Conditions and local Council Standards. Stockpiles of topsoil (imported or manufactured) shall be no greater than 2m in height, drained and vegetated (clover grass or legumes) if standing for longer than 90 days.

2.1.4 Topsoil care

Topsoil compaction should be avoided, measure include:

- The use of the lighted possible vehicles and machinery when spreading topsoil and/or trafficking planting areas which have been topsoiled.
- Ensure all machinery is fit for purpose.
- Avoid trafficking completed topsoil areas and limit passes.

2.1.5 Imported Topsoil

All imported topsoil shall be good quality medium loam, easily moulded when moist. It must be neither too sticky nor leave a smooth polished surface when smeared. Topsoil shall be friable, high-quality topsoil suitable to support plant life, including a composition of 10-20% sand, 5-20% humus or organic material intermixed with the balance percentage of silt or clay sized particle without visible lumps of clay or silt and shall have a pH value of between 5.5 and 7.5.

Topsoil shall be free from pollution and all chemical or heavy metal contamination in accordance with regional council acceptance criteria for residential use. It shall not contain excessive proportions of clay, sand, chalk or lime. It shall be free from stones and debris greater than 20 mm, concrete, steel, clay lumps, tree roots, sticks (or other inorganic material), weeds and seeds.

2.1.6 Unsuitable materials

The Constructor shall ensure that all planting is undertaken on suitable material which will sustain the proposed plant species. Unsuitable materials would include:

- Soil that is too weak, impoverished, too compact or lacking in essential structure and/or nutrients to provide support for new planting
- Soil containing rubbish or contaminated material
- Soil containing excessive amounts of pest plant material.

The Constructor may supply a methodology to remediate unsuitable materials, including how the volume of pest plants will be reduced or managed. This shall be approved by the Designer prior to commencement.

Should dormant seed or plant pest seed be present or identified onsite, the Constructor shall supply a methodology to control any infestation. This shall be approved by the Designer prior to commencement.

Failure to identify unsuitable material or plant pest emergence would not alleviate the Constructor of their responsibilities to control these issues or any infestation.

SP5002.2 PREPARATION

2.2.1 Erosion and Sediment Control

For all areas of earthworks, the Constructor shall ensure that erosion and sediment control measures are installed in accordance with the consent conditions and local Council requirements.

2.2.2 Vegetation Clearing

Vegetation clearance is generally required for the following reasons:

- Clearance to enable construction works to be undertaken
- Clearance for safety, visibility/views and removal of hazards
- Clearance of exotic vegetation and/or pest plants in association with native revegetation planting.
- Clearance of exotic vegetation and/or pest plants to reduce long term maintenance costs and the spread of pest plants.

For all clearance works associated with plant pest removal, refer to SP5003 – Landscape – Plant and Animal Pest Control; where the use of herbicides in site preparation spraying is covered.

The Constructor shall ensure that personnel are familiar with relevant conditions of any Resource Consent, or Designation, or legal/land owner agreement prior to undertaking any clearing works on site.

Please note: Should any endangered, rare or noted plant or fauna be required to be removed from any clearance site (i.e. lizards), the Constructor must not undertake such clearance works until the capture/relocation works have been complete and an instruction to proceed has been issued from the Project Team.

(a) Vegetation Disposal

Unless otherwise specified, the Constructor is responsible for the disposal of all cleared materials in a safe and legal manner.

All material to be retained on site (e.g. approved vegetation to be mulched for re-use) shall be stockpiled in suitable locations where topsoil manufacture can occur. Material that is mulched in-situ, such as trees to be removed, shall be spread to achieve an even spread of mulched material over the ground surface. Deep clumps of mulched material are to be avoided.

Areas that mulched where there are weeds present will need to be carefully controlled to avoid weed contamination to areas where the mulch is to be used. Care needs to be exercised where there is pest plant material that would re-sprout and take root in the mulched area. These plants shall not be mulched and shall be disposed of separately where the risk of spread/re-sprouting is minimised.

Any material not suitable for in-situ mulching shall be removed from the site and disposed of in an appropriate and legal dump site, including payment of any associated fees as required. The Constructor is to identify a suitable disposal area prior to commencing the vegetation clearance works.

2.2.3 Trees to be retained

The Constructor shall take all necessary measures to protect existing vegetation to be retained from damage.

Trees to be retained shall be marked on site by the Constructor, and then inspected and approved by the Designer (or Project Arborist), prior to fencing off. No works are to take place within the drip line of these identified trees without an Arborist present.

SP5002.3 WORKMANSHIP

2.3.1 General

All plant and equipment shall only be operated by licensed, competent operators. The Developer (or nominated Project Team personnel) reserves the right to review competencies at any time without notice.

Only certified applicators shall be responsible for the application of herbicides.

2.3.2 Clearing – General

The working area shall be cleared of all vegetation and structures except those specifically required to remain as noted on the Drawings.

The extent of clearing shall include all areas affected by cutting and filling together with sufficient additional areas on which to stockpile topsoil materials.

Unless elements are noted for retention on the Drawings; clearing shall include the complete removal of all structures, trees and vegetation including inorganic debris, fences.

Particular care shall be taken around the root zone of trees to be retained. (Note: the root zone extends to at least the drip line of the remaining tree). No roots thicker than 200mm shall be cut without the arborist present to minimise risk of disease.

2.3.4 Tree Clearing

All cleared material shall be mulched, buried or removed from site and may not be burnt on site. If the Constructor elects to chip the cleared material on site, then the Constructor shall ensure that its operations do not affect neighbouring properties.

All other areas, remove bulk of the root ball to minimise potential conflicts with future building foundations.

2.3.5 Pruning

Where trees and other vegetation are being retained but require pruning, the work shall be undertaken by skilled operators under the supervision of the Project Arborist. Pruning shall remove all damaged twigs and branches.

Operations are to be carried out using sharp clean implements to give a clean sloping cut with one flat face. Ragged edges of bark or wood are to be trimmed in accordance with current horticultural trade practice.

All prunings shall be chipped on site if possible. Retain mulched material on site at agreed locations. Place stockpiles in sufficient number to make to and from planting sites or topsoil manufacture site economic and feasible.

2.3.6 Site Preparation Spraying

Refer to *SP5003* – Landscape – Plant and Animal Control

Refer to Landscape Management Plan

2.3.7 Topsoil Stripping

Note: See *SP5005* – Landscape – Topsoil Supply for topsoil testing and quality prior to acceptance.

Any topsoil stripping shall not start until the clearing operation has been inspected and passed, and all control measures are installed.

All topsoil including turfs, humus and organic materials shall be stripped to the satisfaction of the Designer from areas affected by cutting or filling and stockpiled clear of the areas affected by other works.

Stripped topsoil shall be stockpiled separately and neatly outside of the stripped areas for later re-spreading or re-use. The stockpiles shall be trimmed to a free draining slope to reduce ingress of rainwater. Location and size of stockpiles in flood hazard areas shall meet consent conditions and be approved by the Designer (Civil Engineer).

2.3.8 Soil Disposal

Unless otherwise specified, the Constructor is responsible for the disposal off site of all cleared materials in a safe and legal manner, including payment of any associated fees as required.

2.3.9 Earthworks and Topsoil

Topsoil shall not be placed and spread if the earth-worked sub-surfaces are not to the required standard. All sub-surface works, including drainage, shall be completed by the Constructor prior to topsoil spreading. Refer to site preparation and topsoil inspections.

Earth worked areas ready for the Constructor to commence landscape work shall be such that earth-worked surfaces:

- Have sufficient drainage and fall to shed water in a controlled manner and prevent ponding and riling (erosion)
- Are free of contaminants, stumps, branches and construction debris
- Have been placed and compacted in layers no greater than 100mm thick and compacted by track rolling (if appropriate) to prevent undue settlement.

2.3.10 Unsuitable Materials

Should sub-surfaces include unsuitable materials and are not to the required standard, topsoiling shall not procced until directed by the Designer.

2.3.11 Soil Mix

Site won topsoil material based manufactured soil mixes comprising topsoil material/compost/ forest duff (if applicable) shall be thoroughly mixed in situ or as approved by the Designer.
(Refer to Specification *SP5005* – Landscape - Topsoil Supply).

2.3.12 Topsoil Placement

Refer to Specification SP5005 – Landscape – Topsoil Supply. Where required in areas where topsoil has been removed (i.e. earthworks areas), topsoil shall be spread to a compacted depth as shown on the Drawings.

Topsoil shall not be placed and spread if the earth-worked sub-surfaces do not have sufficient fall to shed water in a controlled manner to prevent ponding.

Topsoil shall not be placed until the sub-surfaces are at the required standard. Unduly compacted areas (such as in traffic routes) shall be loosened prior to final levelling in readiness for topsoiling.

Topsoil shall not be placed and spread when the ground or topsoil are excessively wet or in a condition which would be detrimental to the work.

Final grading of the topsoil shall be carried out to ensure a true specified level and slope and to avoid dishing or other depressions where water may collect, unless areas to collect water are specified i.e. for direct transfer plantings.

The placed topsoil profile shall allow for subsidence so that after the settlement the levels shall be at the final specified levels.

The Designer shall inspect final topsoil/soil mix depths to ensure they meet specification, after placement and prior to planting.

2.3.13 Imported Topsoil

The Constructor shall co-ordinate with the Designer early in the project regarding both the volumes of topsoil required and the specifications for imported topsoil. Imported topsoil shall be carefully managed to avoid any contamination, seeds or undesirable material being brought to site.

Where imported topsoil is to be used on-podium, a specialised, light-weight podium mix is to be used. The details and a sample of the proposed product must be submitted to the Designer for approval.

2.3.14 Final Grading

The Constructor shall ensure that –

- All earthworks have been shaped to integrate the works with the surrounding landform (except for standalone earthworks such as bunds)
- All areas to be planted shall have been contoured when the topsoil is reasonably dry and workable to smooth flowing contours with falls for adequate drainage and, removing all minor hollows and ridges.

2.3.15 Inspections

The Constructor shall notify the Designer for inspection of the works following:

- Set out for vegetation clearance,
- On completion of the clearance,
- During site preparation of sub-surfaces being at the required standard,
- Completion of the cultivation prior to the placement of stockpiled topsoil, soil mix, or imported topsoil.

SP5002.4 COMPLETION

The Site Preparation will be deemed complete when all areas are in a clean and tidy condition ready for planting.

END

SP5003 – LANDSCAPE – PEST PLANT AND ANIMAL CONTROL

The work specified in this section covers the control of plant pests and animal pests within the project area where plant and animal populations threaten the success of the landscape and ecological treatments.

SP5003.1 REQUIREMENTS

The control of plant and animal pests has been identified as a priority for the Project for the following reasons:

- Addressing pest impacts early aids the establishment and success of the landscape treatments
- Achieves social and environmental objectives

Plant pest control shall address vegetation management and plant pests within the Project boundaries. Priority for control should be given to pest species outlined in any consent conditions and the local authority requirements. It shall also address the non-introduction of plant pests from outside the project area especially where the receiving environment will become relatively pest plant free.

Agrichemical management and application shall adhere to a low toxicity policy. This policy is to aim to minimise risk to users and the environment, by using herbicide with the lowest toxicity that is effective for the weed being targeted. Extra caution is required when using agrichemicals adjacent to waterways. Only appropriate herbicides approved for use over the water shall be used.
Material Safety Data Sheets (MSDS) shall be provided to Generus Living Group or its nominated representative prior to the application of any herbicide.

Animal pest control shall be undertaken if levels of animal pests pose a risk to the landscape treatment, especially new planting areas, and/or if control measures are required in accordance with any consent conditions. Generally, animal pest control is undertaken within the Project boundaries to ensure planting can establish. Operations are strictly controlled and shall be undertaken in accordance with legal requirements by suitable experienced, qualified, licensed (if applicable) personnel.

Overall across the project, there is a requirement for vegetation management and for plant pests to be controlled. Before any work commences, an assessment of pests shall be undertaken. Prior to earthworks and planting, the Constructor shall scope pest levels and establish control methods. Plant pests shall be controlled across the project area during the contract works and during the Defects Liability and Maintenance Period. The goal shall be plant pest control Project-wide.

SP5003.2 MANAGEMENT AREAS

The area to control shall be the site defined as: The entire project area as shown in the Project plans.

The extent of the control areas is to be confirmed with the Developer prior to any plant pest and animal pest control works are undertaken. Due to the multiple landowner areas adjoining the Project site, the work, all legal and landowner agreements must be in place and understood by the Supplier.

Generally, materials required for pest control shall align with the site-specific control methodology. All materials shall be targeted to the species, project context and be certified and used in accordance with best practice and the manufacturers specifications.

SP5003.3 PREPARATION

3.3.1 An assessment of plant and animal pests shall be undertaken by the Constructor prior to any works commencing. This assessment shall outline the baseline pest populations to be controlled throughout the contract works and include a list of pest species (including animal pests if required) and plant pests.

3.3.2 Experience of Staff

a. Plant Pest Control

All plant pest control works shall be in accordance with accepted horticultural practices, and shall be carried out by suitable qualified and experienced personnel in relation to the use of herbicides. Growsafe certification or similar shall be required.

b. Animal Pest Control

All animal pest control works shall be undertaken by staff suitable qualified and experienced in handling (including holding a controlled substance licence CSL) and the application of pesticides and traps, and familiarity with the Hazardous Substances and New Organisms Act 1996, the Biosecurity Act 1993 and the Wild Animal Control Act 1977.

The Installer shall take all prescribed steps contained in the Health and Safety at Works Act 2015 and the Resource Management Act 1991 (RMA) to ensure no act or omission is in breach of any duty or obligation of the Client under the said legislation.

c. Insects

Wasp nests and bees may be an issue in places; eradication and control measures shall be undertaken by staff suitably qualified and experienced in the handling and application of pesticides and traps.

3.3.3 Preparation for Plant Pest Control

a. Pest plant removal

Plant pest control shall be undertaken during site preparation and prior to planting.

b. Disposal

Unless otherwise specified, the Constructor is responsible for the disposal off site of all pest plant materials is a safe and legal manner in accordance with local authority guidance.

3.3.4 Preparation for Animal Pest Control

Where animal pests are a risk to or have damaged the planting, the Constructor shall be responsible for notifying the Designer managing this issue. Lack of notification by the Constructor may result in the Project being responsible for damage caused by pests.

a. Consents

The Constructor is responsible to apply for obtaining any approval from the Medical Officer of Health of the District Health Board, to legally execute the pest control works

b. Notifications, Hoardings and Signs

The Constructor shall supply, install, manage and maintain all Health and Safety Warning signs as required, for the duration of the Contract Works and in accordance with the Application for Medical Officer of Health Permission to lay Controlled Pesticides.

All necessary warning notices and other signage shall be erected for the duration of the pest control and the pesticide caution period, in accordance with the consent(s).

The Constructor shall inform neighbouring landowners of the proposed pest control programme at least 24 hours prior to pesticide applications and again on completion of the programme. Notification shall be in the form of a letter delivered to the property occupier, providing the following details:

- Pests to be controlled
- Poisons to be used (and/or other control measures)
- Drop locations
- Application dates
- Name of Constructor's representative with a 24 hour contact phone number.

SP5003.4 WORKMANSHIP

3.4.1 Site Preparation Spraying

Multiple applications of herbicide may be required in order to achieve weed control. In addition, a variety of weed control measures may have to be implemented in order to achieve adequate control of a wide range of weeds species if they are present on any site. Spot spray and blanket spray methods may be applicable.

The Constructor shall provide details of the proposed herbicide and spraying method to the Designer prior to spraying, for example:

- Herbicide(s) to be used
- Method of application

- Proposed dates of application (and rain day alternatives)
- Targeted species
- Possible effects to non-target species
- Notification areas.

3.4.2 Spraying Operations

The Constructor shall remove and control plant pests regularly throughout the contract and maintenance period. With all planted areas kept plant pest free to the extent that perennial weed species are eradicated and annual weed species are well controlled so not to compete with any planting or pose a long-term risk to plant establishment.

To attain a weed-free ground prior to planting, the existing weed growth will require cutting, mulching, and possibly removal prior to herbicide application. Any vegetation exceeding 500mm in height shall be cleared or mown prior to application of herbicide. Generally, this shall mean that all areas to be sprayed other than well-grazed paddock shall be cleared or mown. Herbicide shall be applied to cleared/mown areas following sufficient re-growth of the weeds as approved by Generus Living Group. or its nominated representative.

The details of the proposed cutting, mulching and herbicide spraying methods shall be provided by the Constructor for approval by Generus Living Group or its nominated representative prior to works commencing. Particular care shall be taken to ensure that adjacent areas of existing native vegetation are not compromised by any form of weed control.

All vegetated areas to be planted shall be sprayed with 2 to 3 applications (as required) of approved herbicide two weeks apart and two weeks prior to final clearing for planting.

Grass in areas that are to be planted shall be eradicated by applications of a suitable translocated herbicide.

Spraying of herbicides shall not take place in windy conditions (refer to GrowSafe manual). The Constructor shall be responsible for reinstating any damage caused by herbicide spray drift.

All spraying equipment is to be carefully calibrated to prevent under or over dosing.

No herbicide containers, empty or full, are to be left unattended on site at any time.

Where herbicide with a residual effect has been applied, the Constructor shall ensure that no planting proceeds until the exclusion timeframe specified by the manufacturer has passed.

Additional pest plant control may be required in spring when the ground warms and sees in the soil may germinate.

Saplings/ re-growth of all woody trees and shrubs to be removed shall be cut and the cut stumps immediately treated with an appropriate herbicide on an ongoing basis.

To avoid spray drift and damage to vegetation to be retained, pest plants and weeds shall be spot sprayed using a protective spray nozzle/cone.

Where a translocated herbicide is used around plants in leaf which are to be retained, an adequate guard must be used, or a suitable hood applicator used for spot spray treatment.

Care shall be taken to avoid disturbances of root systems and excessive compaction of existing vegetation or planting areas.

Where monocotyledon plants are affected by grass intrusion, a grass specific herbicide (Haloxyfop or similar approved) shall be used. This may be in conjunction with line trimming and/or hand weeding.

3.4.3 Animal Pest Control Operations

(a) Control Operations

The control operations for Animal Pests shall be subject to the requirements of the project as outlined within the Constructor's methodology.

(b) Carcass Removal

The Constructor shall collect carcasses, especially during all professional hunting operations, and throughout the Contract period, and dispose of carcasses at licensed landfills.

(c) Animal Pest Monitoring and Inspections

Where portions of the Contract Works are subject to the approvals by the Designer, the Constructor shall ensure that they have been completed to the required standards.

The Constructor shall notify the Designer of the works completed, for example, following the set up and monitor of bait stations and predator control traps in accordance with the methodology.

(d) Health and Safety

The Constructor shall include in the site specific Health and Safety Plan, details demonstrating compliance with the requirements with the Hazardous Substances and New Organisms Act 1996, the Biosecurity Act 1993, Wild Animal Control Act 1977 and all other relevant legislation.

The Constructor shall provide all necessary Health and Safety equipment, warning signage requirements. The Constructor shall hold all licences and approvals required to undertake the full scope of the works.

The Constructor shall be responsible for controlling the manner and methods of its operations and shall be directly responsible for the health and safety of its employees while on site. The Constructor must comply with the requirements of the site Health and Safety Plan(s) and the Hazardous Substances and New Organisms Act 1996, and the Biosecurity Act 1993, and the Wild Animal Control Act 1977.

SP5003.5 **COMPLETION**

All plant pest control and/or animal pest control works shall be monitored to ensure control methods have achieved the outcomes sought, against the original baseline infestations.

The Constructor shall remove all rubbish, signage, materials and spoil from the site on completion of the works, leaving the site in a clean and tidy condition.

3.5.1 Plant Pest Control Monitoring & Acceptance

The Designer shall inspect the area prior to practical completion to confirm the pest control requirements have been met. This inspection shall be attended by the Constructor to confirm acceptance of the liability relating to the survival of plants through the defects liability and maintenance period.

Any areas requiring further pest control under the contract or that are not satisfactorily controlled as determined by the Designer shall be addressed by the Constructor.

(a) Monitoring and inspections

The Contract Works may be inspected from time to time by accredited representatives from the relevant authorities in relation to consent conditions. Should such representatives ask for information in connection with the pest control component of the Contract Works or its progress, the Constructor shall give them freely and willingly, any details within its knowledge.

(b) Assurances

Prior to Practical Completion of the site preparation portion and 6 monthly following planting, the Constructor shall confirm in writing that the plant pest control has been undertaken and meets the Specifications.

3.5.2 Animal Control Monitoring & Acceptance

The Constructor shall provide the Designer with all necessary material to assess the pest animal control works. This shall include but be not limited to: Day sheets (site visit date, time, area covered and health and safety matters), evidence of control operations such as bait take data, trapping data, carcass disposal data, GPS logs etc.

(a) Assurances

Prior to Practical Completion of all or a portion of the Contract, the Constructor shall confirm in writing that the pest animal control works have been undertaken and meets the Specification.

SP5003.6 **PRACTICAL CMPLETION AND MAINTENANCE PERIOD**

The Contract Works shall be deemed to be Practically Complete when all required plant pest and animal pest control works are complete as specified in the Contract and this has been confirmed in writing.

END

SP5004 – LANDSCAPE – PLANT PROPAGATION

The work specified in this section covers the collection of seeds and the propagules, propagation, growing on and hardening of plants.

SP5004.1 REQUIREMENTS

The Developer requires that all planting shall include quality plant stock, true to form and shape with healthy signs of growth.

Plant species and position in each planting area will be in accordance with relevant plans supplied by the Designer in order to fulfil the design intent.

SP5004.2 MATERIALS

4.2.1 Plant Materials

Plant materials shall mean plants of all descriptions required for the project in accordance with the plans and as specified.

Where available from reputable nurseries native plants should be sourced from production nurseries within a 40km radius of the site to meet Environmental auditing requirements. If plants are sourced from outside this area the Constructor maybe required by the Engineer to substitute at the Constructor's cost with specimens available from within this area should they be found to be available.

The roots shall have a high percentage of fibrous roots that are just touching the edge of their containers. Plants with roots that are wound round their containers in circular fashion shall be rejected.

Plants shall be free from disfiguring knots, bark abrasions, wind, or freezing injury or other disfigurements and shall bear evidence of proper pruning.

All plant material shall be free from pests, diseases and physiological disorders.

All plant material may be grown on in poly bags of the specified PB size or pots of the specified pint or litre grade.

Open ground plant stock (e.g. amenity species) shall be sturdy, have well-formed root systems and supplied in a dormant state ready for planting.

All plant material shall be of the minimum size and grade specified in the plant schedule at the time of delivery.

Plant heights shall be to the minimum sizes for a given PB size or litre grade where described in the drawings and plant schedule.

Legible labels shall be attached to batches of plants delivered to site as a separate unit, or to each box, bundle or bale containing plants. The labels shall give the approved botanical name, and other information required to identify the plant or plants.

4.2.2 Potting Medium – Biosecurity requirements

The Supplier shall ensure plants are propagated in a proprietary brand of potting medium which complies with New Zealand's biosecurity requirements. If necessary, alternative potting medium shall be submitted to the Designer for approval.

4.2.3 Genetic Origin

All native plants shall be sourced from the Tāmaki Ecological Region, as far as practicable. They shall be propagated from seed collected from naturally occurring populations of plants growing in that area. Where plant species are unable to be sourced from the Tāmaki Ecological Region, alternatives must be discussed with and confirmed by the Designer. The Eco-sourcing methodology and locations of seed utilised shall be confirmed by the supplier to the Designer, in a signed statement.

In summary, the supplier of eco-sourced seed shall adhere to the following:

- Arrange permits and approvals for the collection of seed from naturally occurring plant populations in the Tāmaki Ecological Region (i.e. AC, DoC, Iwi, private landowners etc);
- Collect seed at an optimum time to ensure seed viability and quality;
- Accurately record data on the details, location, and date of collection.
- Label, clean and store the seed collected under appropriate conditions to maintain seed germination viability.
- Conduct germination trials of batches of seed collected to help assess seed viability,
- Maintain a complete record of information on the collected seed in a suitable format that enables the identification and tracking of plants from collection, through to subsequent propagation and installation.

4.2.4 Biosecurity

A number of unwanted organisms may pose a threat to the ecology of the areas within the wider Project area and eco-system health (e.g. Myrtle Rust, Kauri Dieback).

The Supplier shall meet any obligations under the Biosecurity Act 1993 to prevent the spread of such unwanted organisms.

(a) Rainbow Skinks

The Department of Conservation (DoC) are working to prevent rainbow skinks from spreading and occupying habitat of New Zealand's skinks.

Where plant stock is supplied from a nursery in an area that has rainbow skink:

- Potting mix: check the pots for any small white eggs:- all equipment, goods or other freight that is to be shifted to the planting site is to be checked for rainbow skinks.
- Any plants to be found harbouring rainbow skinks or evidence of their presence (e.g. eggs) shall be rejected by the Designer.

(b) Myrtle Rust

The Ministry for Primary Industries (MPI) is monitoring the spread of this potentially devastating fungal disease. If found, vegetation movement enforcement areas will be put in place and the infected vegetation will require eradication. Myrtle Rust has the potential to adversely affect large areas of New Zealand indigenous vegetation.

Should Myrtle Rust be identified, do not touch the affected plants but contact MPI immediately (0800 80 99 66).

4.2.5 Fertilisers

Fertiliser for container grown plants shall be of the types and at the rates that are normal industry practice for the species, for the stage of growth and the method employed.

4.2.6 Substitution

There shall be no substitution of plant species without the written approval of the Designer.

SP5004.3 PREPARATION

4.3.1 Seed/Cuttings Collection

The Supplier shall ensure sufficient seed or plant stock is collected to propagate the required plant numbers, with due allowance for losses resulting from poor germination or other propagation failures.

Seed or plant stock shall be collected from healthy, vigorous, young plants with good form that are growing in a similar environment to the planting site.

The Supplier shall provide a Method Statement detailing the proposed method of collection of seed or cuttings, including gaining any licences and approvals. The Designer shall review and approve the methodology prior to collection of this source material.

On completion of an annual collection of plant source material, the Supplier shall provide a certificate confirming the method by which the source material is collected, and its location are in accordance with the approved methodology.

SP5004.4 **WORKMANSHIP**

All workmanship shall be in accordance with the best horticultural practice. All work shall be carried out by staff experienced in plant propagation and supervised by a qualified horticulturalist.

4.4.1 Method of Propagation

Those plants which are normally which are normally propagated by seed shall be grown by seed in preference over cuttings or asexual propagation. Tissue Culture propagation methods shall not be accepted.

The method of production (i.e. seed/cutting) shall be stated in the Method Statement to be approved by the Designer.

The plant material may be grown in either poly bags or pots. These details shall be provided in the Method Statement to be approved by the Designer.

4.4.2 Conditions

Prior to delivery all plant material shall be well hardened off and acclimatised to the site conditions for the proposed planting areas.

4.4.3 Inspection

All plant material shall be inspected by the Designer prior to delivery to ensure that it meets Specification. Should any plant material be grown on a sub-contractual basis then the Supplier shall arrange an appropriate itinerary of inspection at the request of the Designer. This inspection shall be attended by the Supplier for them to confirm the acceptance.

The Designer shall undertake a final inspection of plant materials on arrival of the materials on site.

At Final Inspection, the Supplier shall have supplied all plant material in accordance with the Specification and Plant Schedule for the phase(s) of work being undertaken.

4.4.4 Operations

All horticultural operations, including regular potting up, control of pests and diseases, watering, shade, frost and wind protection shall be undertaken in a method that ensures healthy, vigorous stock that is hardy to the environmental conditions expected on site.

All growing on operations shall be programmed to include an appropriate ‘hardening off’ period prior to dispatch to site. (Note: Hardening off refers to when plants grown in a nursery environment have been subjected to a sustained period to the range of environmental conditions similar to those that will be reasonably expected to be experienced in the area they are to be planted. Once installed, hardened off plants should generally be able to withstand the prevailing environmental conditions).

4.4.5 Spares

The Supplier shall make allowance at all times throughout the Contract Period, for a quantity of each plant species in excess of that scheduled. This is to allow for plant losses. Such plant losses shall be covered at the Suppliers expense.

On completion of the propagation contract, the Supplier shall offer to sell any additional plants to the maintenance contractors at the tendered rates for those plants. If the maintenance contractors choose not to purchase the plants, the Supplier may sell or dispose of the additional plants at their discretion.

4.4.6 Inspections of the propagated plants

The Supplier shall notify the Designer for inspections of the plants following:

- Prior to shipment of plant material

- Upon delivery of the plant material.

The Designer may at their discretion, inspect the plants during any phase of the eco-sourcing of parent material or seeds, propagation or growing on.

4.4.7 Reporting

The Supplier shall keep records on the progress of plant propagations and provide copies of these to the Designer at the end of each month period (dependant on the scale of plant propagation). These records shall include:

- Inventory of seeds and plants that have been eco-sourced including parent plant details of location (e.g. GPS locations), height, grade and condition.
- Plant material propagated, timing of sowing, potted up date and size at reporting time.
- Delivery process
- Holding areas on site, including description of area, available water supply and security.
- Progress for each species in relation to programme for delivery to site
- Any other matters which affect the propagation, growing on, supply and storage of the plant material.

4.4.8 Pruning – General

Immediately prior to delivery, plants shall be checked to ensure that there is a balanced root to foliage ratio. If necessary, the foliage shall be reduced by skilled staff to conform to the best horticultural practice and appropriate to the type of plant.

Operations are to be carried out using clean and sharp implements to give a clean sloping cut with one flat face. Ragged edges of bark or wood are to be trimmed with a sharp knife.

4.4.9 Timing

The plants shall be ready for delivery in the planting season required. The dates for the plants to be ready shall be confirmed by the Designer. The core planting season shall generally be between 1st May and 1st September, but may be extended by two weeks either side of the core period where seasonal conditions allow.

4.4.10 Delivery

The method of transportation is at the discretion of, and is the responsibility of the Supplier.

Plants shall be carefully loaded by hand, unless special container arrangements for mechanical handling have been provided and approved by the Designer.

No plant material shall be subjected to adverse conditions in transit to the work site. Adverse conditions may include:

- Drying out (even in still, apparently moist air)
- Prolonged heating under humid conditions
- Freezing
- Water logging
- Physical breakage

Amongst other factors, plant viability can be reduced by crushing, dropping etc. even if no visible physical breakage results. Plants must therefore be handled gently and with care at all times.

All plant material shall be adequately protected from damage during transit.

All plants shall be loaded, stacked and unloaded in such a way that breakage or crushing by the weight of plants above is avoided during loading, transit and unloading. All plant material being transported shall be completely and firmly covered in such a way that there is the minimum draught from the direction of travel. Provision shall also be made to ensure that the load remains cool and moist at all times.

Where transport is by others, not under the control of the Supplier or the Constructor, the sender must ensure that the packaging is adequate to protect the plants whilst in the third party's charge.

All plant material being transported shall be clearly addressed, manageable units, securely packaged to withstand mechanical damage. The packaging must also include sufficient moisture retentive material around the roots to ensure that they remain cool and moist until they are delivered to the purchaser.

The Supplier shall provide documentation showing the species, grades and quantities of all plant material being transported.

(a) Plant Delivery Planning

It is essential that –

- The planting specifications are prepared in detail to suit the requirements of the project phases and delivery locations.
- The planting is planned, as far as possible in advance of the planting season (core season begins 1st May and ends 1st September, however depending on seasonal conditions planting may occur during a two week 'shoulder' at both ends of the core planting season may be possible), and plants are propagated and available in the sizes specified.
- Site preparation has occurred, and the soil conditions are suitable in advance of planting.
- Plant supply needs to be co-ordinated with the plant supplier so that planting can occur upon delivery, during the planting season.
- Adequate facilities are available for the receipt and storage of plants, including a conveniently situated and suitable water supply.
- Suitably qualified and experienced Installer shall care for the plants and undertake planting and maintenance. Quality control checks shall be undertaken as per the Specification.

(b) Temporary Storage

Generally, plants shall be stood upright upon delivery to site. If on site storage is required, the following shall apply:

Plants shall be stood upright on well-drained, weed free ground. All plants shall be adequately watered prior to and shall be protected from potential wind damage and sun scorching. Tall plants will require support to prevent them blowing over. Species susceptible to frost damage shall be given temporary protection.

SP5004.5 **COMPLETION**

4.5.1 Acceptance

The Designer shall inspect the plants on site to confirm they meet the requirements of the Specification, Planting Plans and Schedules. This inspection shall be attended by the Constructor to confirm acceptance of the liability relating to the planting and ongoing survival of the plant materials.

At the inspection, the Supplier shall have supplied all plant materials to site in accordance with the Specification and Plant Schedules. All plant material to be undamaged by transportation, be healthy, weed free, free of pests and diseases and true to name and size as per the Schedule.

Any plants that are dead, dying, not true to name or size as specified, or not in satisfactory growth as determined by the Designer shall be removed and replaced by the Supplier at their own expense.

4.5.2 Assurances

Prior to Practical Completion of all or a portion of the Contract, the Supplier shall provide assurances that the plants delivered to the site meet the Contract Specifications and confirm in writing the authenticity of eco-sourced plant stock.

4.5.3 Completion

Completion shall be deemed to be acceptance on site of the plants in the correct numbers, species and quantities as specified in the Contract.

END

SP5005 – LANDSCAPE – TOPSOIL SUPPLY

The work specified in this section covers the topsoil and operations relating to topsoil for this site. Quality/characteristic testing of existing site topsoil, topsoil from outside the site, manufactured topsoil, stripping, storage and the quality required of topsoil, preparation for topsoil and topsoil placement. This section only applies to those areas where the existing topsoil has been stripped for civil earthworks.

SP5005.1 MATERIALS

Topsoil is defined as 'the top layer of soil characterised by the presence of organic matter'. In order to be retained for use on site, topsoil shall meet certain specific characteristics.

Imported topsoil, including specialised, lightweight podium mix to be used on all podium areas, shall be carefully managed to avoid any contamination, weed seeds or undesirable material being brought to site.

5.1.1 Topsoil Analysis

Topsoil, whether existing material from within the project site, imported soil from external sites or site manufactured topsoil shall be tested.

The Constructor shall provide a report from the soil testing laboratory and topsoil analysis of physical and chemical properties as below.

Samples for analysis shall be representative of the batches of topsoil being offered and 10 equal samples shall be taken and well mixed. From this mixture, approximately 100gms of topsoil shall be placed in a plastic bag[1], labelled with the name and details of origin and sent to a laboratory for testing and analysis with a request for the following information:

i. Soil reaction (soil pH)
ii. Basic soil profile based saturation and volume weight and nutrient levels (potassium, calcium, magnesium and sodium)
iii. Organic soil profile (total nitrogen, organic matter, available nitrogen, C:N ratio and anaerobically mineralised nitrogen)
iv. Sulphur
v. Sulphate sulphur
vi. Recommendations for correction of nutrient deficiencies.

Note: in some situations, testing for toxic or hazardous substances may be required.

Laboratory testing shall be accompanied by recommendations from a soil scientist for measures to remedy soils to sustain planting.

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[1] Sample bags are available on request from testing laboratories.

5.1.2 Existing site topsoil, imported topsoil and on site manufactured topsoil

The characteristics of the existing site topsoil (where present) to be retained, imported topsoil and on site manufactured topsoil shall be tested at a New Zealand laboratory to ascertain that is of sufficient quality.

Provided for information, the following laboratories can provide information:

New Zealand Laboratory Services Ltd www.nzlabs.co.nz

0800 NZLABS (800 695 227)

OR

Hill Laboratories www.hill-labs.co.nz

07 858 2000

Following receipt of soil tests, the results are to be interpreted by a soil analyst where adjustment is required.

The Constructor shall confirm in writing:

The topsoil has been tested and found to be satisfactory for use on site.

OR

The topsoil once tested was found to be deficient and what the recommendations of the soil analyst are to remediate the soil to meet specification

OR

The soil is not recommended for use on site.

Table C5005.1 – Topsoil Characteristics

Texture	Sand (0.005 – 2.0mm)	Maximum 75% Minimum 20%
	Silt (0.002 – 0.05mm)	Maximum 20% Minimum 5%
	Clay (<0.002mm)	Maximum 30% Minimum 5%
Stone Content	Stones (2.00mm – 50mm)	Stone content to not be more than 15% by dry weight; of this the faction 2.00m – 5.00mm must not exceed 10% by dry weight
Organic Matter		Organic matter is not to be less than 4% by weight
Soil Reactions		pH to be between 5.5 and 7.8
Nitrogen		Nitrogen (N) shall be within optimum levels for grass/pasture growth
Phosphorus		Extractable phosphorus shall be within optimum levels for grass/pasture growth
Potassium		Extractable potassium (K) shall be within optimum levels for grass/pasture growth
Magnesium		Extractable magnesium (Mg) shall be within the optimum levels for grass/pasture growth
Calcium		Calcium (Ca) shall be within the optimum levels for grass/pasture growth
Sodium		Sodium (Na) shall be within the optimum levels for grass/pasture growth
Sulphur		Sulphur (S) shall be within the optimum levels for grass/pasture growth
Contamination		Soil shall be free of perennial weeds, toxic chemicals and any foreign matter (e.g. construction debris)
Structure		Topsoil shall have a clearly defined crumb structure and not be waterlogged or over compacted.

a. Source and Samples

The Constructor shall advise the Designer of the supply source and the existing use of the topsoil. If requested, the Constructor shall take the Designer to view the topsoil at source.

The Constructor shall obtain a sample load of not less than five cubic metres (or similar approved) for inspection by the Designer. The accepted sample is to be retained on site for comparison with subsequent loads. Prior to inspection by the Designer the sample must have been analysed in accordance with the requirements of the topsoil analysis clause.

Manufactured soil mixes comprising site won material/composted mulch/rotted sawdust/forest duff (if available) material will be accepted if the material meets the topsoil quality requirements. The incorporation of composted mulch and forest duff material is important as it will provide the organic matter which in turn provides microbial activity, 'activates' the soil and acts as an inoculum for some plant species.

The final composition and the blends of the manufactured soil mix shall be determined according to the type of stripped material, its attributes confirmed by testing, and input from a soil scientist who analysed the testing results.

b. Blending of Material for Manufactured Soils

The Constructor shall supply a methodology statement outlining how the soil mix components will be blended together. The methodology statement shall be approved by the Designer and shall form the basis for soil blending and installation on site. If the soil mix components are installed in layers and then cultivated together, the layers shall be no more than 300mm.

5.1.3 Topsoil Strip

The site topsoil which is to be retained for later use shall be stripped and stockpiled. The following method shall be used:

I. During suitable dry weather conditions, the existing vegetation shall be cleared in preparation for stripping
II. Clear the site of foreign materials
III. In locations where there are areas of pest plants are present these should be first stripped and set aside for disposal
IV. During suitable dry weather conditions (i.e. when the topsoil is friable and not plastic) strip topsoil down to its full natural depth, taking care to avoid contamination with subsoil or foreign materials.

5.1.4 Topsoil Storage

The Constructor shall determine the topsoil storage requirements at an early stage in the project. Suitable accessible, dry/free draining and secure storage areas shall be provided.

a. Storage Period

Topsoil for use on this site shall be stored for as short a period as practicable. Existing topsoil shall not be stored for more than 18 months unless remedial measures approved by the Designer are adopted (e.g. topsoil stockpiles may be grassed, which will also act as a dust suppression measure).

b. Stockpile

Topsoil stockpiles shall be graded to shallow falls over a large an area as practical to prevent the formation of ponding, to a maximum height of 2.0 metres to prevent deterioration of the soil structure.

c. Weed Control

The Constructor shall carry out weed control to the topsoil storage mounds using a suitable translocated herbicide spray. Herbicide sprays to be carried out three times at least 2 weeks apart. Spraying shall be carried out in early April or preferably starting in August through September to allow for full treatment prior to the season for placement. Refer to SP*5003* – Landscape– Plant and Animal Pest Control.

5.1.5 Preparation of Formation

a. Sub Soil Preparation

Prior to any cultivation or grading, the subsoil shall be completely cleared or treated for any weed growth using an approved herbicide in accordance with the manufacturer's specifications. Where necessary through compaction by machinery, subsoils should be ripped to a depth of 300mm to prevent a slip plane developing between the placed topsoil and the native ground.

b. Formation Level

The site shall be brought to formation level using a suitable subsoil material. All soil handling should be carried out when the soil is sufficiently dry and not plastic. The formation level shall be completely free of all rubbish, prior to any topsoiling taking place. The Constructor shall liaise with the Designer on formation levels to ascertain which areas can be reinstated to the soil depths specified or otherwise reinstated. Formation levels shall align with the landscape treatments including setting out of planted areas and tree pits prior to the commencement of topsoiling.

The Installer shall provide short stakes to mark the exact positions of tree and climber pits for acceptance by the Designer prior to excavation and retain in the same position after topsoiling.

Topsoil depths in planted areas are to be as follows:

- In planted amenity areas 300mm minimum
- In raised planting areas on podium 250mm minimum, 1000mm maximum (light weight podium mix)

Tree pits are to be:

- For 40 litre grade trees 500 x 500 x 1000m depth
- For larger grade trees 1000 x 1000 x 1000 depth minimum

5.1.6 Workmanship

a. Topsoil Spreading

Topsoil shall be spread and lightly consolidated using layers (usually 100 mm depth), but not compacted.

I. Weather

The Constructor shall spread the topsoil during appropriate dry weather free of frost.

II. Depths

The areas of different topsoil depths and finished levels are to be as shown on the drawings.

III. Ground Modelling

There shall be an even grade with no depressions that will result in water ponding or hollows.

IV. Gradients

Finished gradients are to be smooth, flowing and free of minor hollow and high spots and marry in neatly with existing levels and adjoining topography, paving, kerbing, edgings and manhole covers where applicable.

V. Contamination

Any areas of topsoiling that are contaminated with subsoil, rubbish, construction debris and other deleterious material shall be removed by the Constructor in the course of carrying out the earthworks.

The Constructor shall ensure all topsoiling is free from stones greater than 50mm.

VI. Compaction

Topsoiling areas shall be in a lightly consolidated and uncontaminated state prior to setting out of all planting areas.

END

SP5006 – LANDSCAPE – PLANTING

The work specified in this section of the works shall include the preparation for planting, setting out plants, planting, staking (of trees, if required), fertilising and mulching of all plant material. Planting shall include all areas of planting associated with the project's landscape treatments.

SP5006.1 MATERIALS

6.1.1 Plant Materials – General

Plant materials shall be:

- First class specimens of nursery stock.
- True to name and type with well-developed roots and well-shaped stem and foliage head. They shall be hardened off to cope with the climatic conditions of the site, and free from weeds, pests and disease.
- The roots shall have a high percentage of fibrous roots that are just touching the edge of their containers. Plants that have roots that are wound around their containers in a circular fashion shall be rejected.
- Plants shall be free from disfiguring knots, bark abrasions, wind or freezing injury or other disfigurements and shall bear evidence of proper pruning.

Where several specimens of the same species are to be selected, evenness of shape and size is required within the size range specified.

All plant material shall be available for inspection by the Designer, prior to planting. They shall be inspected on delivery to site or at the Constructor's depot in a single batch. Any plant not approved by the Contract Administrator shall be replaced.

All trees shall be inspected by the Designer prior to delivery.

Legible labels shall be attached to each batch of plants delivered to site as a separate unit, or to each box, bundle or bale containing plants. The labels shall give the approved botanical name and quantity and other information required to identify the plant or plants.

In exceptional shortages, plant substitutions may be considered by the Designer. No substitution shall be made without the written approval of the Designer. Approved substitutions shall be of a similar height and habit to those specified.

Plant sizes are specified by litre bag size (litre grade). Specimen trees may be supplied by grade, girth or height or a combination of these. Where the Supplier proposes to supply plants in PB (pint bag sizes): the conversion factor shall be 1 pint equalling 0.568 litres. The exact sizes must be shown, so the Constructor is aware of the exact conversion.

It is required by the Developer that all planting and associated plant ancillaries (such as climber supports, mulch, biodegradable weed mat and pins, tree stakes and ties), where required, shall meet the requirements of this Specification.

It is required by Developer that all planting shall be 100% completed by Practical Completion.

6.1.2 Supply and Possession of Plants

The Installer shall inspect all plants on arrival to site to ensure the required quality is provided and that the plants have not been damaged in transit. The Installer shall confirm acceptance of the plants. On acceptance, the Installer shall thereafter be responsible for the condition of the plants and shall replace dead or unhealthy plants at their own cost.

6.1.3 Container Grown Shrubs

Container grown shrubs shall be to the container size (litre grade) specified in the Schedule and on the Drawings.

Container grown shrubs shall be strong, well-rooted sturdy plants without stakes or canes. Shrubs shall have two or three main stems and a good bushy form. They must have been grown in their containers for at least 6 months over a summer period prior to planting out and the container shall be full of roots but not root bound.

6.1.4 Trees – Advanced Nursery Stock

Advanced nursery stock PB40 (22 litre grade) and larger to be planted in tree pits and staked as specimen plants.

Advanced stock shall be to the bag size, girth or height or a combination of these specified on the Drawings and Schedules.

Trees shall have a sturdy straight and vertical stems with a well-balanced canopy of branches. Only specimens which have a well-defined, single central leader which is reasonably straight and upright, unless a single straight leader is uncharacteristic of that species. Trees shall have well developed vigorous branch systems of normal habit, dimensions and density for a well grown nursery plant of their species. Trees which have 'leggy', narrow or thin branch systems will not be accepted.

All trees to have good, vigorous, fibrous root systems in keeping with the normal rooting habit of the species. The roots shall be just touching the edge of their containers. Trees with roots that are wound round their containers in circular fashion shall be rejected. Root balls and container growing medium shall be free from perennial weed and soil borne plant diseases.

Trees to be fully hardy having been acclimatized in the nursery to sun, exposure and cold. Trees which have not been hardened off and drawn plants with soft growth or plants requiring additional support to that specified will not be accepted.

6.1.5 Stakes and Ties

All stakes shall be driven sufficiently deep enough to secure the plant. In total, 2 stakes per tree shall be used depending upon the tree size or situation.

Stakes shall be straight, pointed H4 treated *Pinus radiata* stakes 50 x 50 x 1500mm long (or similar approved). The final desired height for the stakes shall be set to ensure ties secure the plant.

Ties shall be 50mm wide, flexible ties attached to the stakes with approved galvanised fastenings (hessian webbing or similar approved proprietary products). Ties and fixings to the stakes shall be sufficiently durable to provide support to the plants for a minimum of 3 years.

6.1.6 Support Structures

Any climbing plants require support structures. Where a climbing plant species are in association with engineering structures, the engineering structures are to be considered on a case-by-case basis as to their suitability to act as a support structure for the climbing plant species.

6.1.7 Mulch

Organic mulch Reharvest (or approved similar) shall be applied to planting areas only where indicated on the Drawings and Schedules. The use of mulch in this Project is for the purpose of weed suppression and moisture retention. It is not intended as a supplement for the soil conditions.

Where required, mulch may be applied (either blown onto the site or mechanically applied) prior to planting, to a depth of 100mm. Planting shall be completed through the mulch layer, which shall be scraped back then carefully placed back, once the plant has been installed, as specified below:

- To retain soil moisture levels and limit possible weed seed germination, mulch shall be applied immediately or as soon as practicable after topsoil placement.
- Alternatively, mulch may be placed after planting with the approval of the Designer.
- All trees shall be mulched to a 100mm depth at least with not less than 75mm depth remaining after settling.
- Individual specimen trees located within grassed or planted areas shall include a circular 1.0m diameter mulched area surrounding the base of each tree.
- The perimeter of any mulched area adjacent to grassed areas or ground level structures, shall be shaped to allow the full depth of mulch to be at the same level as the grass or structure.
- Mulch is to be kept clear from the base of tree trunks or underneath shrubs and not piled against the stems of plants.
- Mulch that may contain pest plant material that is likely to re-sprout and take root shall be rejected to avoid pest plants being transferred to the planting area. Any weeds that emerge from the mulch must be controlled as soon as possible to prevent further spread.
- Mulch type and grade may vary according to the requirements of the particular location. The type of mulch, grade and any particular treatment to prevent washout/movement shall be as described on the Drawings and Schedules.

SP5006.2 **WATER**

6.2.1 Water Generally

All plants shall be thoroughly watered a few hours prior to planting to help with successful establishment.

The Constructor shall be responsible for providing suitable water for watering plants in the event of unseasonal dry conditions that could compromise plant survival and establishment.

Notwithstanding any prevailing restrictions by the local authority on the use of water for watering any plants, the Constructor shall be deemed totally responsible for making any special arrangements which may be necessary to ensure an adequate supply of water for watering trees and shrubs for successful establishment.

In the interests of good horticultural practice, watering shall be sufficient to give 300mm minimum soil penetration and not just surface dampening.

In the event of unseasonal dry conditions, the Installer shall bring to site sufficient water carts, hoses and sprinklers to provide an adequate water supply to the plant material.

Drought Conditions:

In the event of drought conditions, the Installer shall notify the Constructor. If water supply is likely to be restricted, the Constructor shall organise water from other approved sources. The Installer shall be responsible for watering all plants as required to ensure their survival.

Irrigation:

Permanent irrigation is required to all podium and balcony planting locations. Irrigation performance requirements to be determined by irrigation consultant specialist in conjunction with landscape architect.

6.2.2 Watering Tubes

If watering tubes are required, they shall be 65mm diameter perforated HDPE pipe (Novaflo or approved equivalent) installed across the base of the tree pit and up the side to extend 100mm above the finished ground level (i.e. above the mulch).

6.2.3 Fertilisers

All plants shall be planted with a controlled, slow-release fertiliser such as ‘Nutricote’ or ‘Osmocote Plus’ or ‘Grotabs’ of composition 12:8:6 (N:P:K).

Fertiliser shall be applied to the backfill of each tree, shrub and groundcover in accordance with the following application rates. In all cases, the fertiliser shall be mixed with the soil in the prepared hole prior to placement of the root ball. Care shall be taken to avoid the roots having direct contact with the fertiliser.

“Terracotem” soil conditioner with water retention granules is recommended to be incorporated into each planting hole at the rate recommended by the Manufacturer, to minimise watering requirements. If this product is used, other fertiliser should be omitted.

Table SP5006.1 – Fertiliser Application Rates

Plant Size	Application Rate per Plant (gms) or tab
0.5 litre (approx. PB1)	12g or 1 x tab
1.0 litre (approx. PB2)	12g or 1 x tab
1.5 litre (approx. PB3)	12g or 1 x tab
10 litre (approx. PB18)	50g or 2 x tab
22 litre (approx. PB40)	50g or 2 x tab

Note: Fertiliser to be applied as per the Manufacturer's recommendation but shall not be less than the rates detailed in Table SP5006.1

6.2.4 Delivery and Transport

The Installer shall arrange for the plants, once brought to site, to be placed in a secure, temporary storage area on site. Plants delivered shall be limited to that able to be planted over the following 3 days.

All plants stored on site shall be watered daily.

Plant roots shall be protected at all times from sun or drying winds. Plants that cannot be planted immediately on delivery shall be kept in the shade, well-protected, with soil kept well-watered.

If roots or shoots suffer slight damage they shall be carefully pruned and treated with an approved fungicide sealant. If major damage occurs the plants shall be replaced at the Installers expense.

Pots and other protective materials shall not be removed until immediately prior to planting, and shall be disposed of off site after planting. Roots shall not be left uncovered at any time.

SP5006.3 PREPARATION

Refer to SP5002 – Landscape – Site Preparation

6.3.1 Cultivation prior to planting (Off podium Amenity Planting areas)

Cultivate planting areas to a depth of 300mm to form a firm and friable tilth suitable for pit planting by hand. During cultivations remove all weed including weed root off site.

Grade to smoothly flowing or even contours to the finished levels by hand or machine as necessary, ensuring an even surface that will not hold water, particularly at junctions with edges, kerbs, manholes, paths etc. Refer to SP5005 – Landscaping – Topsoil Supply.

After cultivating remove all stones, grass sods and other debris larger than 75mm in any dimension and all roots in excess of 15mm diameter or 200mm length.

Within the root zones of trees to be retained, cultivation shall be undertaken with hand held tools (spades etc).

6.3.2 Tree Pit Excavation

All plants larger than 22 litre (approx. PB40), shall be planted in to pits 1.0m deep with a diameter of at least 500mm greater than that of the root system when fully spread and a depth of 200mm greater than the depth of the root system.

The bottom of each pit shall be loosened to a depth of 200mm to ensure root penetration and free drainage. The sides of the pits dug by rotary augers shall be roughened to remove any surface glazing of the soil.

The base of the tree pits shall be provided with 200mm depth of proprietary compost and sides backfilled with site won topsoil or soil mix, which is then mixed into the soil in the base of the pit.

Material excavated from tree pits that is unable to be distributed within adjoining areas without affecting adjacent planting or mulch shall be stockpiled for later removal from the site.

6.3.3 Acceptance of soil conditions

All subsoil shall be reviewed prior to topsoiling and planting. Prior to planting, the Installer shall also consider whether the existing soil is deficient or waterlogged. The Constructor shall conduct soil testing for sectors or groups of sectors and for batches of manufactured topsoil to ascertain the soil condition and whether any remedial measures will be required. Together with the Designer, soil tests will be reviewed along with the accompanying recommendations from a soil scientist for soil remediation and any remedial measures to be undertaken.

In the event that the Constructor fails to accept the advice of the Designer regarding soil problems and remediation, and the plants subsequently die due to topsoil conditions or associated effects (e.g. waterlogging), the Constructor shall be responsible for the replacements of those plants and the remediation of the topsoil.

6.3.4 Setting Out

Prior to planting, all plant positions shall be pegged/laid out, in accordance with the planting plan. Set out shall recognise the growth and spread of all planting and associated setbacks in relation to protected areas, structures, utilities/services and maintenance and operation access.

Prior to laying out plants for revegetation areas, the Installer and the Designer shall discuss the plant placement requirements on site, to confirm plant placements based on aspect, soil moisture and plant mix.

Specimen tree positions shall be pegged out prior to planting and the final positions approved by the Designer prior to tree pits being excavated.

In areas of massed planting, plants shall be spaced evenly so that when established they will completely fill the areas. Planting shall be in general accordance with the Drawings and Schedules.

The Installer shall arrange for the Designer to inspect the setting out. The Designer may require minor refinement to the design with adjustments to lines, levels and grouping of trees/shrubs locally as the planting proceeds requiring the Installer's co-operation and agreement.

The Installer shall not commence planting until the setting out has been inspected and approved by the Designer. If work is carried out without the prior approval, realignment and re-siting may be required.

SP5006.4 WORKMANSHIP

6.4.1 Planting Generally

All planting shall be performed by experienced worker in accordance with the recognised best horticultural practice and under the supervision of the Installer's skilled foreperson.

All plants not requiring tree pits shall be planted into holes so that the soil after settlement shall match the original soil mark on the stem of the plant. The bottom of each planting hole shall be loosened to ensure root penetration and free drainage. The sides of the hole shall be roughened to remove any glazing of the soil.

Fertiliser shall be applied to the base of the hole in accordance with Table SP5006.1 Fertiliser Application Rates.

Container grown plants shall have the container removed immediately prior to planting. Care shall be taken to ensure the root ball is not disturbed during container removal or planting.

Plants shall be set in their final positions with the main stem vertical and at such a depth that the soil, when firmed down is at the same height as the nursey earth marks on the stem or the container soil level. Loose roots shall be spread out in a natural fashion; the soil being carefully placed under and amongst them to fill all voids and firmed in.

Specimen trees and advanced stock shall be orientated when planted, so that the weathered face of the trunk faces north.

Any major roots that become accidentally broken off or frayed shall be cleanly cut off from the plant. Damaged roots over 25mm diameter on advanced nursery stock and specimen trees shall be cut back to sound growth and treated with fungicidal sealant.

The Designer shall regularly check the planting, mulch placement, stakes and ties, progressively as planting is completed.

6.4.2 Timing of Operations

Work shall only be undertaken when the weather is suitable, and when the ground is moist and workable. All planting operations shall be suspended during periods of severe frosts, waterlogging, drought or persistent drying winds.

6.4.3 Pruning – General

After planting, all plants with damaged branches unless rejected, shall be carefully pruned back to healthy wood.

Operations are to be carried out using sharp clean implements to give a clean sloping cut with one flat face. Ragged edges of bark or wood are to be trimmed with a sharp knife.

All pruning waste shall be removed from the site.

At the end of the maintenance period, all plant material shall be checked for any dead wood, broken or damaged branches which shall be pruned and removed from the plant.

6.4.5 Water – General

The Constructors shall be responsible for the provision of water supply for watering (or water carts if necessary) at the time of planting.

Attention must be paid to watering during and after planting to ensure successful establishment. Notwithstanding any prevailing restrictions by the local authority on the use of water for watering any plants, the Installer shall be deemed totally responsible for making any special arrangements which may be necessary to ensure regular and adequate watering of trees and shrubs to ensure successful establishment.

(a) Prior to Planting

All plants shall be thoroughly watered a few hours prior to planting.

(b) After Planting

The Installer shall be responsible for watering all plants as required to ensure their survival.

(c) Drought Conditions

Lack of availability of water shall not release the Installer from his obligation to replace all dead or dying plants at the end of the first season of growth after planting. The price submitted shall allow for adequate watering and /or plant replacement.

If during a drought some planting has not been carried out, planting may be delayed by agreement with the Designer.

6.4.6 Staking

Stakes shall be driven 600mm into the ground clear of the plant root ball, at the following quantities:

Number of stakes	Grade
1	10-18L
2	22 – 45L
3	80L
4	160L
Underground stainless-steel anchors	200L – 1000L

Prior to planting, position each stake close to and on either side of the tree, with the alignment at right angles to the prevailing wind, outside the rootball, and drive vertically into the bottom of the pit until the top of the stake is 600mm above ground level, with at least 600mm embedment. Consolidate material around the stake during backfilling. The trees shall be held firmly, although not rigidly, by staking to prevent a pocket forming around the stem and newly formed fibrous roots being broken by mechanical pulling as the tree rocks in the wind.

Hessian ties to be used, positioned proportional to the height of the tree (i.e. generally this will be approximately one third from the base of the tree).

6.4.7 Planting Bed Edge

All planting beds located adjacent to a grassed area (where a mowing strip or proprietary garden restraint edge has not been specified) shall have a 100mm deep 'V cut" (or similar approved) edging formed around the perimeter of the beds to act as a mulch containment and to provide a neat border with the adjacent grassed area.

6.4.8 Mulch Placement

Refer to Materials clause SP5006.4.7 above

6.4.9 Quality Control

See SP5001 – Landscape – Quality Control.

During the Contract Period, the Installer shall control weeds, which affect the establishment and growth of the plants already installed under the contract. Prior to release of the Certificate of Practical Completion, the Installer shall remove all weeds within the landscape treatment areas. The removal shall be deemed to include the killing of the weeds with an approved herbicide or the removal of the entire root system.

The Installer shall also control weeds throughout the Defects Liability and Maintenance Period as set out in SP5009 – Landscape – Defects Liability and Maintenance.

All weed material shall be removed from the planting areas and disposed of offsite at an approved facility.

Any seed heads on weeds that are well formed and could potentially germinate shall be removed from site and disposed of in a safe secure manner to an approved facility.

6.4.10 Defects

During implementation of planting works under the Contract, all defects shall be repaired/replaced at the Installer's expense (SP5009 – Landscape – Defect Liability and Maintenance

Defects for which the Installer is liable prior to issue of Practical Completion include the following:

- Defective plants shall be deemed to be those plants, which in the opinion of the Designer are dead or dying,
- Vandalised or broken plants or stakes,
- Mulch not to the specified depth at Practical Completion.
- Plants that have declined due to lack of water.

SP5006.5 COMPLETION

6.5.1 Condition on Acceptance

The Installer shall ensure that any non-conformance with these specifications will be remedied prior to application for issue of the Certificate of Practical Completion. Within any planting project there may be a natural attrition of plants which have been planted. Under this Contract up to a level of 5% is acceptable as provided for in SP5006.8.2 below.

The Designer shall inspect planting on completion for each area of planting.

6.5.2 Loss, Damage or Theft of Plants

Greater than 5% loss or damage of plants as part of any ‘massed planting area’ during the Defects Liability period, shall be made good by the Installer at their own expense.

Less than 5% of plants lost shall be deemed to be an acceptable loss, provided the lost plants are evenly spread over the whole of the planting area and are not noticeable as a bare patch. In the event that loss occurs over a confined area, the Installer shall replace such plants at its cost. The Designer shall have the sole discretion to determine if the plants are evenly spread or in a confined area.

Any plants stolen or vandalised after Practical Completion shall be recorded in writing to the Developer who may agree to replace the plants at agreed rates.

Any plants stolen or vandalised after Practical Completion and identified during regular maintenance inspections shall be recorded in writing to the Developer who may agree to replace the plants at an agreed rate.

END

SP5008 – LANDSCAPE – DEFECTS LIABILITY AND MAINTENANCE

The work covered in this section covers the correction of defects relating to the landscape treatment works installed by the Constructor, together with maintenance of the site during the Defects Liability and Maintenance Period.

SP5008.1 **REQUIREMENTS**

The Defects Liability and Maintenance Period shall be as follows:

- **Two** (2) years for all landscape works associated with planting.

The following definitions shall apply:

- **Practical Completion**: means where planting is complete for all intents and purposes and the site can be used.
- **Defects Liability Period**: Means the period immediately following Practical Completion in which any defects in the planting works is remedied for the duration of Defects Liability Period timeframe.
- **Final Completion** (Completion of the Contract): means when the site is handed over from the Constructor to the Developer (or Residents Association or similar entity) to maintain the works thereafter.
- **Maintenance Period**: means maintaining the landscape works over the duration of the Defects Liability and Maintenance Period. Within the Defects Liability and Maintenance Period the role of the Designer is as a Technical Advisor and Reviewer, to provide quality control checks and ensure the works are undertaken in accordance with this Specification.

SP5008.2 **DEFECTS LIABILITY AND PERFORMANCE CRITERIA**

At Practical Completion, the Installer shall advise the Designer to make an inspection. After the inspection, the Designer shall issue a list of any areas or items that require remediation.

The Installer shall remedy all defects relating to the landscape treatment works, throughout the Defects Liability and Maintenance Period, at the first available opportunity. All planting defects shall be addressed within the planting season (1st May to 1st September with a two week shoulder period at both or either ends of the planting period depending on environmental conditions). The aim of the defects liability is to achieve quality establishment of the projects landscape components.

To ensure that is the case, the Developer has set the following performance criteria:

- All ground preparation, topsoil and mulch shall support plant growth within the landscape treatments.
- All planting shall include quality plant stock, true to form and shape with healthy signs of growth.
- All associated plant ancillaries (such as climber supports, matting, tree stakes and ties) shall meet this Specification.
- For any specimen trees, successful planting shall be defined as 100% plant survival, with 100% of the tees in full leaf at the time of Final Completion (seasonally dependant). Trees are to have a habit of growth that is normal to that species and are to be sound, healthy and vigorous with a normal well-developed branch system at the time of Final Completion.
- The effects of pest plants and pest animals shall be managed to ensure the establishment of all plantings and amenity outcomes. Limiting the distribution of pest plants and costly retrospective maintenance across the network is also sought. Consistent control of pest plants is required throughout the Contract period.
- All defects shall have been progressively rectified during the defects period and prior to the issue of the Defects Liability Certificate at the end of the period.
- At the Contract completion, the Designer nominated in the tender shall complete a producer statement. The statement shall confirm that the Contract Works have been undertaken in accordance with the Drawings and Specification. The Developer may accept the producer statement as evidence the landscape treatment works comply with the landscape design and the requirements included in the Landscape Specification for the Project.

Defects relating to landscape works for this project include reinstatement of the soil profile where ground conditions following earthworks have adversely affected plant establishment, replacement of dead and dying plants, re-spreading mulch, checking and correcting all plant ancillaries for example, ties loosened to allow for plant growth, stakes inspected and re-fixed or replaced as required (or removed). The Installer's responsibility relating to defects liability of landscape treatments includes the control of pests and diseases in order to maintain the plants to a sufficient degree to ensure the plantings establish and grow.

8.2.1 Maintenance

In addition to the remedy of defects, the Installer shall undertake maintenance of the area or of the landscape works regularly throughout the Defects Liability and Maintenance Periods. The minimum degree required and frequency is detailed in this Specification.

The objective of the maintenance is to maintain plant pest free areas and to encourage the healthy establishment of landscape treatments to a point where the Developer can be assured there are no inherent defects in the planting stock.

In all cases, landscape maintenance access shall be established, unless otherwise specified in the Contract.

8.2.2 Areas of Landscape Maintenance

The area to be maintained shall be the site as defined by the Contract and showing on the planting plans. It comprises of boundary planting, on and off-podium amenity planting and green rooves.

The full extent of the Installer's works area, cover landscape maintenance of all planted areas within the Project area unless otherwise specified.

In all cases landscape maintenance shall be established and maintained for the duration of the Defects Liability and Maintenance Period unless otherwise specified.

SP5008.3 FREQUENCY

8.3.1 Defects

Defects of the landscape treatments shall be remedied within a reasonable time of being notified by the Designer of the defect and shall be completed no longer than one month after notification (unless an environmental factor or construction activity affects access and the delay is agreed to by the Designer).

Replanting where required shall be carried out annually during the planting season (1st May to 1st September – with a two-week shoulder period at either end if environmental conditions allow). Any defect shall be remedied prior to release of the Defects Liability Certificate.

Watering, pest and disease control associated with defects liability of landscape treatments shall be at a frequency proposed by the Installer and agreed with the Designer. The Installer shall submit a proposed maintenance regime, based on the schedule included as a guide in this Specification, to the Designer for approval.

If in the opinion of the Designer, the frequency of maintenance visits is inadequate, the Installer shall amend the maintenance regime to the satisfaction of the Designer. The approval of the maintenance regime, by the Designer, shall not relive the Installer of its liabilities with respect to defects, in the event that the landscape treatment is found defective.

8.3.2 Maintenance

Maintenance shall be undertaken in accordance with the following schedule: the final maintenance work in each task shall be completed immediately prior to the release of the Defects Liability Certificate.

Table SP5008.1: Landscape Treatments Maintenance Schedule

	GROWING SEASON												AT COMPLETION
	SPRING			SUMMER			AUTUMN			WINTER			
	September	October	November	December	January	February	March	April	May	June	July	August	
TREES, SHRUBS and GROUNDCOVERS													
Staking	Monthly – as required												
Trimming/Foliage Reduction	Monthly – as required												
Fertiliser													
Weed Control	Monthly (year 1) then Three Monthly												
Watering		As required during dry periods											
Replacement	Annually												
LITTER REMOVAL													
Removal	Monthly												
MULCH (if required)													
Top up													

8.3.**3** **Responsive Maintenance**

In addition to the routine maintenance of landscape treatments programmed in Table SP5007.1: Landscape Treatments Maintenance Schedule, responsive monitoring and repairs are required as necessary. These should be carried out as follows:

- Following a storm event
- Following prolonged dry or wet periods
- If damage from animal pests occurs
- Should any vandalism to any landscape works be reported

The Installer shall visit the site and report back to the Designer for confirmation of any actions to address issues arising from the events noted above.

8.3.4 Notification of Defects Liability/Maintenance Visits

The Installer shall supply to the Designer, a maintenance schedule which details the location and dates of work to be undertaken. In addition, the Installer shall notify the Designer immediately prior to those visits being made, the Designer shall attend to make any necessary inspections.

8.3.5 Access

The Installer shall ensure that all applicable approvals and access permits are obtained prior to undertaking any maintenance visits. Failure to do so will result in the Installer being unable to access areas of landscape works.

SP5008.4 **LANDSCAPE – DEFECTS**

The Installer shall check for the following defects in accordance with the maintenance schedules above (or as notified by the Designer) and remedy as necessary at the Installer's expense.

8.4.1 Topsoil

Any settlement or slipping shall be made good by the Constructor. All surfaces shall be reinstated to the originally specified condition. Topsoil/soil mix used to re-levelling shall be uncontaminated, dry and meet the requirements for imported topsoil as specified in SP5005 – Landscape – Topsoil Supply.

8.4.2 Removal of Temporary Works

Prior to issue of the Defects Liabilities Certificate, the Constructor shall remove all temporary fencing or other works provided to protect the works during the Defects Liability Period or during the establishment of the planting. Areas affected by the removal of temporary works shall be made good.

SP5008.5 LANDSCAPE TREATMENT (PLANTING) – DEFECTS

8.5.1 Planting Defects

Any material or plant that is found to be defective (e.g. does not show leaf or make adequate growth) during the Defects Liability Period from any cause other than vandalism, shall be replaced at the Installer's expense. If there is a significant plant mortality within a given area or of a certain species, the Installer shall review the defect with the Designer, this may result in replacements of a different species.

Planting shall be done to a standard that is fit for purpose. If poor growth of plants is attributed to the ground preparation or any associated horticultural operation that is within the control of the Installer, then the Installer shall be liable for plant replacement and the associated costs.

Broken or damaged stakes and ties shall be replaced as soon as practicable. Damage to the plants resulting from delays in replacing plant supports shall be made good at the Installer's expense. Refer to the clause relating to vandalism at the end of this Specification.

The Installer is responsible to ensure that plants installed, survive and grow. Water is essential to achieve this. As part of the Installer's work relating to defects liability, the Installer shall water the plants as frequently as necessary to achieve this obligation (refer to clause 2.1 above relating to *Frequency: Defects*).

The Installer shall inspect the landscape works no less than monthly to confirm the health of the plants, existence of pests, diseases or vandalism. The Installer shall control pests, diseases or repair vandalism as directed by the Designer.

8.5.2 Replacement Plants

Plants used to replace defective plants, shall be reviewed to ensure that the species are suitable. Replacement planting shall be of a similar size to those originally specified, supplied and approved, unless otherwise agreed between the Installer and the Designer. The Installer shall be responsible for any preparatory and other work necessary to enable planting to be properly carried out including the removal and disposal of dead or defective plants and materials.

Dead or unhealthy plants shall be replaced, within the immediately following planting season of the Installer being aware of this condition of the plants. Any plant which is found to be defective (e.g. does not show leaf or make adequate growth – at the discretion of the Designer being aware of the geological and environmental conditions within the Project works area) from any cause other than vandalism, shall be replaced by the Installer at their expense.

The Installer shall be responsible to ensure replacement plants survive and grow in accordance with these Contract Specifications.

Replacement of plants, which are damaged through vandalism, may be replaced as a Variation at the discretion of the Designer with the approval of the Developer.

SP5008.6 LANDSCAPE TREATMENT (PLANTING) – MAINTENANCE

8.6.1 General Maintenance

General maintenance shall include watering, weed removal, plant trimming, cultivation, animal pest and disease control, checking tree stakes and ties, pruning and other accepted horticultural operations to ensure normal and healthy plant establishment and growth and generally keeping the area neat and tidy.

8.6.2 Watering

The Installer shall water all plants over periods of dry weather as part of the Installer's obligations relating the Defects Liability. In addition to the defects liability requirement to ensure the plants survive and grow, the Installer shall undertake additional watering as necessary.

Water shall be applied until the top 200mm of topsoil around each plant is saturated.

Watering should be undertaken during the hot part of the day. Watering nozzles shall be fine rose or sprinkler heads to prevent damage to growth areas of the plants.

Irrigation

The irrigation system shall be free of defects and shall be operated in accordance with the approved design. Any deviation from the design relating to the operation, timing, sensors or controls shall be rectified. Any defective parts shall be repaired or replaced. Any leakage in pipework or fittings shall be repaired to the satisfaction of the Developer.

Immediately prior to issue of the Defects Liability Certificate, the Contractor shall fully test the irrigation system in the presence of the Contract Administrator. Any defects or deviation from the approved design operation shall be rectified or repaired to the satisfaction of the Developer.

8.6.3 Weed Control

The Installer shall remove and control weeds regularly through the period of maintenance. Removal of weeds at the end of the Defects Liability Period only, is not acceptable.

All cultivated planted areas shall be kept weed free to the extent that perennial weed species are eradicated, and annual weed species are well controlled. Care shall be taken to avoid disturbances to the shrub roots and excessive compaction of the planting bed surface. The Installer shall remove all arisings, litter and other debris and dispose of off the site at the end of each day.

Weeds shall be removed to the best horticultural practice and in accordance with any consent conditions. Spraying of weeds with an approved herbicide will be required. Focused weed control shall be required in spring when the ground warms and seeds in the soil germinate. Herbicide application shall be spot- sprayed using protective spray nozzles/cone. Chemicals shall be selected to target weed species and avoid damaging any landscape assets through spray drift or run-off.

8.6.4 Fertiliser

Slow-release fertiliser is applied to the bedding soil of plants at the time of plant installation, unless Terracotem soil conditioner is used.

Further applications of approved NPK (nitrogen, phosphorus and potassium) balanced, slow-release fertiliser shall be applied in accordance with the Maintenance Schedule. Application rates shall be as recommended by the fertiliser manufacturer with regard to the plant size.

Fertiliser should be watered in after application.

Fertiliser shall be Osmocote, or similar approved, applied at the rate of 20gm/m^2 or at a rate recommended by the manufacturer.

8.6.5 General Pests

The Installer shall monitor the works for animal, insect and plant problems (e.g. disease); on identifying a problem, the Installer shall apply appropriate remedy through accepted horticultural practices including isolating the area, chemical control or biological control methods.

The Installer is responsible to take all suitable precautions for the safe handling and application of certified herbicides, fungicides and insecticides and shall use these strictly in accordance with the manufacturer's specifications. In all cases, sprays shall be applied according best trade practice. The public shall be advised by signage that spraying is occurring and shall be directed away from the spray areas.

Damage to neighbouring properties caused by the Installer's spraying, shall be made good at the Installer's expense.

8.6.6 Mulch

The Installer shall supply and install additional mulch (the same as the material as originally placed) to ensure all mulch areas have a depth of not less than 100mm with not less than 75mm depth remaining after settling.

8.6.7 Specimen Trees

(a) Horticultural Operations

Planted trees are to be encouraged to grow to maturity as naturally as possible to achieve their natural characteristic form, through sound management practices including weeding, trimming, checking of stakes and ties, pruning and other accepted horticultural operations. Pruning may also be required as a safety measure to remove overhanging branches that may cause an obstruction.

(b) Staking

Young specimen trees are staked and tied when they are planted in order to protect the growth and development of these trees through to semi-maturity. Staking shall be repaired or replaced as required.

Ties must be checked regularly every two to three months, to ensure that ties are not broken and more importantly, that they have not become too tight around the trunk as the tree grows. Ties should be maintained firm but not tight so as to cause damage. Ties should be adjusted accordingly over the initial three (3) growing seasons for planted trees, after which time the majority of stakes can be removed.

(c) Pruning

Remedial pruning may be required in addition to the regular/ maintenance pruning required to maintain and promote the desired growth and form of specimen trees. The Installer shall undertake pruning of the trees over a period of time as may be required to avoid one severe pruning. Broken or dangerously overhanging branches shall be removed, and consideration given to access and safety around trees, lines of site, shading, and the health and form of the tree.

Overhanging branches shall be pruned back to a minimum clearance of 2.3m above the ground. Dead and broken branches must be removed as they pose a safety hazard to the site as well as encouraging wood rotting organisms. Care must be taken when removing branched to prevent damage to nearby vegetation as well as the tree being pruned. All pruning shall be undertaken in accordance with a health and safety plan.

Prune back to a sound and healthy branch with a clean cut, in accordance with good arboricultural practice. Final cuts shall be made as close as possible to the branch collar without damaging the collar. Final cuts and wound treatments are to be carried out in accordance with the principles and practice of good arboriculture.

All pruning waste will be removed and disposed of offsite.

8.8.8 Shrubs and Ground Cover

(a) Operations

The Installer shall maintain plantings to establish good plantings and achieve a high level of lush vegetation. Maintenance shall include weed control, trimming, watering and fertilising. Ground cover plants should grow to fully cover the ground and thus reduce weed growth and maintenance.

Plantings shall be maintained to a neat and tidy appearance in the same condition as when the works were completed at Practical Completion.

(b) Trimming

The Installer shall undertake trimming of shrubs as required to maintain the following aspects:

- Removal of dead or weak growth
- Cutting back to encourage vigorous growth
- Clipping/ shaping where required
- Dead-heading to promote longer flowering and a tidy appearance

- Thinning out mass planting areas to allow stronger plants to dominate
- Cut back groundcover plants that are growing outside the planted area and across adjacent surfaces such as grass, paths or gravel.

(c) Ground Covers

Groundcover planting is to be checked for required pruning in spring and autumn (as a minimum). Cut back hard after flowering to encourage compact form and to establish growth shape. In general, pruning will help remove dead foliage, encourage new growth, and establish coverage. Ensure all edges to pathways and stepping stones are kept neatly pruned.

(d) Climbers

Climbing shrubs shall be trained to grow over the climbing frame and wires. The Constructor shall adjust vegetation and tie to wires to encourage even spread over the structure where necessary.

(e) Hedges

Hedge shrubs shall be trimmed to form low hedges to the height, shape and form shown on the drawings. All trimmings shall be removed off site.

(f) Perennials

Remove spent flower spikes to prolong bloom period. The Constructor shall trim and remove dead or decaying foliage back to ground level at the end of the growing season. All trimmings shall be removed off site.

8.8.9 Plant and Animal Pest Control

Refer to Specification SP5003 – Landscape – Plant and Animal Pest Control. Undesirable weeds shall be sprayed with approved herbicide strictly in accordance with the manufacturer's specifications and with all necessary safety precautions.

Undesirable weeds shall be sprayed with glyphosate or similar approved target chemical mixed and applied in strict accordance with the manufacturer's specifications. Selective weed sprays may be used in appropriate circumstances.

Fungal infection and insect attack shall be controlled with appropriate chemical sprays as approved by the Designer, applied strictly in accordance with the manufacturer's specification.

The Installer shall observe target species for Myrtle Rust signs at all times. If found, vegetation movement enforcement areas will be put in place and the infected vegetation will require eradication. Myrtle Rust has the potential to adversely affect large areas of New Zealand indigenous vegetation.

Should Myrtle Rust be identified, do not touch the affected plants but contact MPI immediately (0800 80 99 66).

8.8.10 Protection of Trees and Structures

Care shall be taken to avoid damage to existing and newly planted trees during cutting or trimming operations. Generally areas around trees shall be trimmed by small appliances (e.g. line trimmer). Maintain a minimum of 100mm of mulch area around trees in grassed areas to avoid ring barking.

The Installer shall take due care to located and protect all structures from damage from mowers and make good any damage. Boundary pegs are included in structures to be protected.

8.8.11 Vandalism

The Installer shall notify the Designer of areas, which have in its opinion, been vandalised (including any graffiti). The Designer may issue a request for the vandalism to be reinstated as a Variation.

Any plants vandalised after Practical Completion shall be notified in writing to the Designer.

Those plants which fail and are not notified to the Designer shall be assumed to have died as a result of planting operations and shall be replaced at the Installer's expense.

The cost of plants or other landscape works deemed to have failed due to theft, wilful damage or vandalism shall be the Owner's responsibility.

Where planting is suffering damage as a result of wear and tear, the Installer shall advise the Designer, who may issue a request to provide temporary barriers or substitute damaged species with a more resilient planting solution as a variation.

(a) Fly Tipping

Fly tipping shall refer to items such as soil, aggregate, builder's rubble, motor vehicle bodies, beds, mattresses, fridges and televisions or any larger item requiring removal by machine. Any fly tipping shall be reported to the Constructor immediately.

Removal shall be advised by the Constructor.

SP5008.9 **COMPLETION OF MAINTENANCE**

On completion of the Defects Liability and Maintenance Period and prior to the issue of the Defects Liability Certificate, The Installer shall undertake the following:

- Repair all defects to the satisfaction of the Designer and undertake all maintenance as required in accordance with the maintenance schedule.
- Provide written summary of all maintenance visits, machinery used, staff employed and weather during defects liability/maintenance visits.

The Contract Works may be inspected from time to time by accredited representatives of the Developer and /or Auckland District Council in relation to any consent conditions. Should such representatives ask for information in connection with the pest control component of the Contract Works or its progress, the Installer shall give it to them freely and willingly, any details held within its knowledge.

SP5008.10 **COMPLETION OF CONTRACT**

On completion of the Contract and prior to the issue of the Final Completion Certificate, the Constructor shall undertake/supply the following:

i. Provide a copy of the maintenance and defects reporting.
ii. Provide a copy of the designer review sign-off and quality control reporting (prepared by the Designer).
iii. As built drawings (mark ups of the Contract Plans) to show any variations undertaken during the Contract works.

END

Appendix 2

The Point Mission Bay

Planting Lists

Prepared for Generus Living Group

12 September 2025

The Point Mission Bay - Planting Lists

					Zones											Plant size and spacing					Ko te Pūkāki 2040	
Type	Botanical name	Common name	Deciduous / Winter dormant	Evergreen	Native Korowai	Arrival Porte Cochère	Balcony & Podium Edge Mix	Village Heart - North	Village Heart - South	Sensory & Wellness - North	Sensory & Wellness - South	The Gardens - North	The Gardens - South	Productive Garden	Green Roof	Height at planting (m)	L grade	Spacing (m)	Height (m) at 2-years	Height (m) at 10-years	Included Species	Taonga Species
Ground covers																						
	Acaena purpurea	Piripiri		x							x	x	x	x	x	0.1	2	0.5	0.2	0.2		
	Ajuga reptans 'Black Scallop'	Bugle		x					x		x	x				0.1	2	0.5	0.2	0.2		
	Blechnum penna-marina	Alpine hard fern		x	x	x			x		x	x	x		x	0.05	2	0.5	0.1	0.2		
	Dichondra 'Emerald Falls'	Green kidney weed		x					x	x		x				0.1	2	0.5	0.1	0.1		
	Dichondra 'Silver Falls'	Silver kidney weed		x				x	x	x	x					0.05	2	0.5	0.1	0.1		
	Disphyma australe	Horokaka													x	0.1	2	0.7	0.2	0.2		
	Geranium Rozanne	Cranesbill	x							x						0.1	2	1	0.4	0.4		
	Leptinella 'Platt's Black'	Brass buttons		x							x		x			0.1	2	0.5	0.1	0.1		
	Lobelia angulata	Panakenake		x	x	x	x	x	x	x	x	x	x	x	x	0.1	2	0.7	0.2	0.2		
	Muehlenbeckia axillaris	Pohuehue		x	x	x	x		x		x	x	x	x	x	0.1	2	0.7	0.2	0.2		
	Ophiopogon planiscapus 'Nigrescens'	Black mondo grass		x					x		x					0.1	2	0.3	0.2	0.2		
	Pimelea prostrata	Pinatoro | NZ Daphne		x	x	x				x	x			x	x	0.1	2	0.8	0.1	0.2		
	Rubus pentalobus	Orangeberry		x				x		x				x		0.1	2	1	0.2	0.2		
	Schizocentron elegans	Spanish shawl		x				x		x						0.1	2	0.7	0.2	0.2		
	Scleranthus biflorus	Nāereere | Cushion plant		x						x						0.1	2	0.5	0.1	0.1		
	Selliera radicans	Remuremu		x	x	x			x		x	x	x		x	0.15	2	0.7	0.15	0.15		
	Thymus serpyllum	Creeping thyme		x				x		x				x		0.1	2	0.8	0.1	0.2		
Prostrate/ sprawling shrubs																						
	Coprosma acerosa 'Red Rocks'	Red Rocks' coprosma			x	x									x	0.2	2	1.2	0.3	0.3		
	Coprosma repens 'Poor Knights'	Taupata | mirror plant		x	x	x	x	x	x	x					x	0.2	3	0.7	0.4	0.5		
	Grevillea 'Bronze Rambler'	Spider flower		x				x		x				x		0.2	3	1.2	0.3	0.4		
	Grevillea lanigera 'Mt Tamboritha'	Spider flower		x				x		x				x		0.2	3	0.8	0.3	0.5		
	Rosmarinus prostratus	Prostrate rosemary		x				x		x		x		x		0.1	2	0.9	0.2	0.3		
	Sophora prostrata 'Little Twister'	Prostrate kōwhai	x	x				x		x						0.2	3	0.7	0.75	0.75		
Perennials																						
	Achillea spp.	Ornamental yarrow	x							x				x		0.2	3	0.5	0.5	0.5		
	Alchemilla mollis	Lady's mantle	x									x				0.2	3	0.5	0.4	0.4		
	Anemone huphenis	White windflower	x									x				0.3	3	0.6	1	1		
	Anigozanthos spp.	Kangaroo paw	x							x						0.3	3	0.5	0.5	0.5		
	Astrantia major	Great masterwort	x									x				0.2	3	0.5	0.5	0.5		
	Cynara scolymus	Artichoke	x							x				x		0.3	3	1	1.5	1.5		
	Echinecea purpurea	Coneflower	x							x				x		0.2	3	0.5	0.9	0.9		
	Gaura lindheimeri var.	Beeblossom	x					x		x	x	x		x		0.3	3	0.7	1	1		
	Geum 'Rustico Orange'	Avens	x							x						0.2	3	0.3	0.3	0.3		
	Helenium 'Waldstrand Copper'	Sneezeweed	x							x						0.3	3	0.9	1	1		
	Helleborus orientalis spp.	Lenten | winter rose		x							x	x		x		0.3	3	0.4	0.5	0.5		
	Heuchera var.	Coral bells	x						x		x					0.2	3	0.4	0.3	0.3		
	Lavandula angustifolia 'Hidcote'	Hidcote English lavender		x				x		x				x		0.2	3	0.6	0.6	0.6		
	Liriope muscari sp.	Lilyturf		x				x			x	x				0.15	3	0.4	0.4	0.4		
	Salvia spp.	Ornamental sage	x							x				x		var.	3	var.	var.	var.		

The Point Mission Bay - Planting Lists

Type	Botanical name	Common name	Deciduous / Winter dormant	Evergreen	Native Korowai	Arrival Porte Cochère	Balcony & Podium Edge Mix	Village Heart - North	Village Heart - South	Sensory & Wellness - North	Sensory & Wellness - South	The Gardens - North	The Gardens - South	Productive Garden	Green Roof	Height at planting (m)	L grade	Spacing (m)	Height (m) at 2-years	Height (m) at 10-years	Included Species	Taonga Species
			Zones													Plant size and spacing					Ko te Pūkāki 2040	
	Sedum spectabile 'Autumn Joy'	Stonecrop	x							x						0.3	3	0.5	0.6	0.6		
	Stachys byzantina	Lamb's ear		x						x	x	x		x		0.2	3	0.5	0.5	0.5		
	Verbena bonariensis	Purpletop vervain	x							x				x		0.3	3	0.8	1.2	1.2		
Grasses, reeds, ferns																						
	Apodasmia similis	Oioi		x	x	x		x		x		x	x		x	0.3	3	0.5	0.8	0.8		
	Asplenium bulbiferum	Hen and chicken fern		x							x		x			0.3	2	0.8	0.8	1		
	Asplenium oblongifolium	Shining spleenwort		x					x		x	x	x			0.3	2	1	1	1.5		
	Blechnum gibbum 'Silver Lady'	Dwarf tree fern		x							x		x			0.3	2	1	1	1		
	Chionacloa rubra	Red tussock		x	x	x		x						x	x	0.3	2	0.6	0.8	0.8		
	Chionochloa flavicans	Haumata		x		x		x		x		x	x			0.4	3	0.7	1	1		
	Dianella nigra	Turutu		x	x	x	x		x		x	x	x		x	0.3	2	0.5	0.5	0.5		
	Ficnia nodosa	Wiwi		x		x									x	0.4	2	0.6	0.8	0.8		
	Hakonechloa macra	Japanese forest grass	x						x		x		x			0.2	3	0.6	0.6	0.6		
	Libertia grandiflora	Mikoikoi |NZ iris		x		x	x		x					x	x	0.2	2	0.7	0.5	0.7	x	
	Libertia ixioides	Mikoimikoi		x	x	x	x		x						x	0.2	2	0.5	0.4	0.4	x	
	Libertia peregrinans	Mikoimikoi		x											x	0.2	2	0.5	0.3	0.3		
	Lomandra spp.	Lomandra		x		x		x	x	x	x	x	x			0.2	3	0.5	0.5	0.5		
	Miscanthus sinesnsis sp.	Maiden grass	x					x		x						var.	3	var.	var.	var.		
	Poa cita	Wī | silver tussock		x		x									x	0.3	3	0.5	0.6	0.6		
Shrubs																						
	* Mixed annual vegetable & herb spp.	Vegetables (eg. lettuce, raddish)	x											x		var.	plug / seed	var.	var.	var.		
	Acacia cognata 'Limelight'	River wattle		x					x	x	x	x	x			0.2	3	1	0.8	0.8		
	Arthropodium cirratum	Rengarenga		x	x	x			x	x	x	x	x	x	x	0.4	3	0.7	0.8	0.8	x	x
	Astelia banksii	Wharawhara		x	x											0.1	3	1	0.8	1.2	x	
	Astelia chathamica 'Silver Spear'	Kakaha		x		x					x	x				0.2	3	1	1	1.5		
	Astelia solandri	Kōwharawhara		x	x											0.2	3	1.5	1	1.5	x	
	Camellia transokoensis	Camellia		x								x	x	x		0.5	8	as per plan	1.2	prune		
	Carpodetus serratus 'Prostrata'	Dwarf putaputawētā		x		x			x		x	x	x			0.2	3	0.8	0.6	1.5		
	Clivia miniata var.	Clivia lily		x									x			0.3	3	0.5	0.6	0.6		
	Convolvulus cneorum	Silver bush		x				x		x	x					0.2	3	0.6	0.6	0.6		
	Coprosma rhamnoides	Mingimingi		x	x	x				x					x	0.3	3	0.8	1	1.5		
	Coprosma viriscens	Mingimingi		x	x	x										0.3	3	1	1	3		
	Corokia 'Frosted chocolate'	Korokio		x						x					x	0.3	3	1	2	2		
	Euphorbia glauca	Waiū-atua		x							x				x	0.2	3	0.5	1	1		
	Euphorbia spp.	Spurge		x				x		x		x		x		var.	3	var.	var.	var.		
	Gardenia radicans	Gardenia		x				x		x	x	x				0.2	3	var.	var.	var.		
	Hydrangea paniculata 'Limelight'	Panicle hydrangea	x						x		x	x				0.4	8	1.3	1.5	1.5		
	Leucospermum spp.	Pincushion bush		x				x		x						var.	8	var.	var.	var.		
	Ligularia renformis	Tractor seat		x					x	x	x	x	x			0.4	3	0.8	0.6	0.6		
	Lorapetalum spp.	Fringe flower		x					x	x	x	x	x	x		var.	3	var.	var.	var.		
	Michelia 'Fairy Blush'	Fairy Magnolia		x								x				1.7	8	2	2	3		
	Muehlenbeckia astonii	Shrubby tororaro		x		x		x		x					x	0.3	8	1.5	0.8	2		

The Point Mission Bay - Planting Lists

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	Pachystegia insignis	Malborough rock daisy		x		x				x	x					0.2	3	0.8	0.5	0.5		
	Philodendron 'Xanadu'	Winterbourne philodendron		x					x		x		x			0.3	3	0.8	0.8	1		
	Phormium 'Black Magic'	Black Magic' dwarf flax		x		x					x			x		0.1	3	0.3	0.3	0.4		
	Phormium cookianum ‘Emerald Gem’	Mountain flax		x	x	x		x		x	x	x				0.2	3	1	0.8	1		
	Phormium 'Platt's Black'	'Platt's Black' flax		x		x					x			x		0.3	3	0.7	0.7	1		
	Phormium 'Sweet mist'	'Sweet Mist' dwarf flax		x		x		x		x						0.2	3	0.4	0.4	0.4		
	Phormium tenax	Harakeke		x	x											0.3	3	1.5	1.5	2.5	x	x
	Pieris 'Temple Bells'	Lily of the valley bush		x								x				0.3	8	1	1	1.5		
	Piper excelsum	Kawakawa		x	x	x								x		0.2	3	1.2	1.2	2	x	x
	Pittosporum 'Golf Ball'	Kōhūhū | Golf Ball		x					x	x	x	x	x	x		0.2	3	0.7	0.6	1 (clip)		
	Pseudopanax 'Cyril Watson'	Houpara | Cyril Watson		x	x	x										0.2	3	1.5	1.5	3		
	Veronica spp.	Hebe spp.		x	x			x	x	x	x	x	x	x	x	var.	3	var.	var.	var.		
	Viburnum davidii	David viburnum		x					x		x	x	x			0.3	3	1.5	1	2 (clip)		
	Vireya 'Tropic Glow' or 'Golden Charm'	Vireya		x									x			0.3	8	as per plan	1	1.2-1.5		
Hedging					Sited as per plan and clipped to specified heights																	
	Camellia spp.	Camellia		x					x		x	x				1.2	19	0.5	clip	clip		
	Coprosma repens 'Middlemore'	Taupata | mirror plant		x	x	x										1.2	19	0.5	clip	clip		
	Ficus 'Tuffi'	Tuffy fig		x									x			1.2	19	0.5	clip	clip		
	Lonicera nitida	Box honeysuckle		x					x	x	x	x				0.2	3	0.4	clip	clip		
	Pittosporum 'Stephens Island'	Kōhūhū | Stephens Island		x	x	x										1.2	19	0.5	clip	cip		
Climbers					As per plan																	
	Clematis paniculata	Puawanaga			x					x				x		0.2	3	-	clip to support		x	x
	Trachelospermum jasminoides	Star jasmine							x	x	x	x				0.2	3	-	clip to support			
Trees native					p = potted (smaller grade)											As per plan						
	Agathis australis	Kauri		x	x											3.5	160	-	4.5	7		
	Alectryon excelsa	Tītoki		x	x											3	300	-	4	6		
	Carpodetus serratus	Putaputawētā		x	x											1.2	45	-	2	5	x	x
	Cordyline australis	Tī kouka		x	x											1	45	-	1.5	6	x	x
	Cyathea dealbata	Ponta | Silver fern		x	x											var.	45	-	2	6		
	Cyathea medullaris	Mamaku | Black ponga		x	x											var.	45	-	2	6	x	
	Knightia excelsa	Rewarewa		x	x											1.8	160	-	2.5	4		
	Metrosideros excelsa	Pōhutukawa		x	x	x										3	300	-	5	8	x	x
	Myrsine australis	Māpou / Matipo		x	x											0.5	3	-	2	5	x	
	Phyllocladus trichomanoides	Tanekaha | celery pine		x	x											1.5	160	-	2.5	6	x	
	Pseudopanax crassifolius	Horoeka		x	x	x		p								0.8	45	-	1.2	4	x	
	Pseudopanax lessonii	Houpara		x	x											0.5	3	-	2	6	x	
	Rhopalostylis sapida	Nīkau		x	x								x			1.5	160	-	2.5	5		
	Sophora chathamica	Kōwhai	x	x	x	x		p		p						2	80	-	3	5	x	x
	Vitex lucens	Pūriri		x	x											3	300	-	4	8		
Trees exotic					p = potted (smaller grade)											As per plan						
	Acer spp.	Japanese maple	x						x	x	x	x	x			var.	160-300	-	var.	var.		
	Cercis 'Forest Pansy'	Redbud 'Forest Pansy'	x						x		x	x				2	160	-	3	5		

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	Cercis 'Hearts of Gold'	Redbud 'Hearts of Gold'	x						x	x		x	x			2	160	-	3	5		
	Cupressus sempevirens	Pencil pine | Italian cypress		x				p		p						2	45	-	3	5		
	Gordonia yunnanensis	Fried egg tree		x								x				1.5	160	-	3	5		
	Juniperus chinensis 'Kaizuka'	Hollywood juniper		x					p							1.5	80	-	cloud prune	cloud prune		
	Laurus nobilis	Bay laurel		x						p						1.4	45	-	prune	prune		
	Liquidambar styraciflua 'Worplesdon'	Liquidambar	x										x			2.5	160	-	4	7		
	Magnolia denudata var.	Yulan Magnolia	x									x				2.5	300	-	3	5 prune		
	Magnolia 'Little Gem'	Evergreen Magnolia		x					x							2	160	-	3	4		
	Michelia spp.	Michelia		x						p	x	p	x			var.	45	-	var.	var.		
	Nerium oleander	Oleander		x						x						1	80	-	2	3		
	Olea europa 'El Greco'	Olive		x						x/p						2	160	-	3	3		
	Podocarpus macrophyllus	Yew pine		x					p	p						2	85	-	2.5	prune		
	Pyrus calleryana 'Aristocrat'	Ornamental pear	x									x				3	160	-	4	7		
	Pyrus salicifolia 'Pendula'	Weeping pear	x							x	x	x				2	160	-	2.5	4		
Trees fruit					p = potted (smaller grade)											As per plan						
	Acca sellowiana 'Apollo'	Feijoa		x									x			1.5	45	-	2	4		
	Citrus spp.	Lemon, Lime, Orange		x						p			x			var.	45	-	var.	var.		
	Ficus carica sp.	Fig	x							p			x			var.	45	-	var.	var.		
	Malus spp.	Apple	x										x			var.	80	-	var.	var.		
	Prunus spp.	Plum	x										x			var.	80	-	var.	var.		