INTRODUCTION	L101
MASTER LANDSCAPE DESIGN	L102
CONCEPT LANDSCAPE PLAN AREA 1-4	L103-106
PLANTING PLAN AREA 1-4	L107-110
PLANTING STRATEGY & SCHEDULE	L111
FENCING & RETAINING WALL PLAN	L112
FENCING DETAILS	L113-115
PLANTING DETAILS	L116
IMPLEMENTATION & MAINTENANCE PLAN	L117



3 Pigeon Mountain Road is new residential development within the heart of Half Moon Bay and straddles the Half Moon Bay Marina. It is accessed via three streets including Ara-Tai Road, Pigeon Mountain Road and Compass Point Way. (see Figure below) the site is located within the Mixed Housing Suburban Zone of the Auckland Unitary Plan - Operative in Part (AUP - OiP).

The site is situated close to Pigeon Mountain also known as Ōhuiarangi. Its a is a highly modified and prominent volcanic cone situated within a 12 ha reserve. Ōhuiarangi is predominantly covered by an Auckland Council Outstanding Natural Features Overlay (Pigeon Mountain scoria cone, ID 156). Ōhuiarangi holds cultural significance for the local iwi and is considered wāhi tapu (sacred place).

The site has ample connections to public transport access with bus stops along Ara-tai Road Road including the Half Moon Bay Ferry which provides easy access to the CBD. The area is also known for its recreational opportunities including several parks, coastal walkways and reserves such as Pigeon Mountain Domain.

The site is bounded by large stand alone residential housing on the western, southern and eastern edges with a open carpark and commercial activities to the north linked to the Half Moon Bay Marina. The topography of the site is sloping from the high point of the site at the south west corner along Compass Point Way and falls in a north-eastern direction to Ara-Tai Road.

The site is comparatively large within an urbanised location measuring approximately 14070m2. The site presently contains car-parking and playgrounds, offices, class rooms and ancillary structures for the purposes of children's wellbeing services. All of these buildings will be demolished to enable re-development of this residentially zoned parcel.

Existing retaining walls and a existing vegetation in the eastern street frontage to provides privacy and separation to the pedestrian path and marina. Existing vegetation in the Road reserve bounding the site include grouped Pohutukawa trees in the eastern corner of Pigeon Mountain Road, and few mature palms along Compass Point Way.





**EXISTING VEGETATION** 

NATURAL SLOP

#### Landscape Design Strategy:

The Landscape Design Strategy has been produced to "secure the overall quality of development and reinforce identified neighbourhood character areas, creating a distinctive sense of place on the coastal edge of Half Moon Bay. The landscape design ensures consistency of urban form and character, and sets out controls for private yard spaces, private access ways and common green spaces. The landscape design controls landscape and development quality, including front yard landscaping. It interprets and gives effect to the design, providing a degree of certainty for the 'look and feel' of the development, while also encouraging variety and interest within the built form and landscape.

The landscape design aims to provide a harmonious and functional outdoor environment that is aesthetically pleasing, and well-suited to the needs and preferences of the future residents, while considering the site's unique characteristics and available resources. it has the following feature:

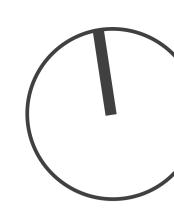
-Green Vista: A key vista that runs north / south within the site linking to the marina views and across to the wider coastal environment. The restraint in the use of fencing in the each units also reduce visual disruption in the landscaping. Furthermore visually appealing outdoor spaces that are in harmony with the natural surroundings and the architecture. By adding tall specimen trees and palms along the driveway and pedestrian path to provide height and structure to the space and helps to draw your eye through the space.

-Activated semi-public interfaces: The frontages to the street are clearly identified with individual unit access that gives a quality activated street frontage. Common pedestrian access though to all the three streets provides permeability into the site for easy access. Each unit has a individualised frontage garden, letterbox and low fence. Planting has been designed to create layers of height, texture and colour.

- Legible order: the landscape design aims to create outdoor spaces that are functional and practical for their intended use. Each unit will have a usable decking space that surrounded by lush planted frontage and dense hedging to provide privacy and indoor-outdoor flow. the preference for native plants such as titoki, puka, pohutukawa trees that are adapted to the local climate, soil and ecologically significant, as well as exotic planting such as ornamental pear, cherry and upright hornbeam to provide diversity and balanced landscape that offers both solar access benefits and aesthetic appeal.



PERMISSION OF SOLA LANDSCAPE ARCHITECTS



## KEY

- ACCESSWAY WITH DIFFERING SURFACE FINISHES
- COMMON BIN BAY
- RESIDENTS' COMMON SPACE WITH SEATING
- © GROUPED TREES WITH MASS UNDERPLANTING
- © RAISED TABLE TO SLOW VEHICLES AND PRIORITISE PEDS
- BIKE STORAGE AREA FOR RESIDENTS AND VISITORS
- G CARPARK WITH WHEEL STOP
- ① 1.8M WIDE MAIN AXIS PATH
- SERVICE LANE
- K EXISTING POHUTUKAWA TREES WITHIN ROAD RESERVE
- EXISTING PIGEON MOUNTAIN ROAD CARPARK



NOTES:

-LAYOUT IS PRELIMINARY, AND FURTHER COORDINATION IS REQUIRED WITH CIVIL/TRAFFIC/LIGHTING/GEO-TECHNICAL -RETAINING WALLS AND EARTHWORKS REFER TO ASC ARCHITECTS FOR TERRACE/DUPLEX LAYOUT -REFER TO CIVIL FRO RETAINING/GRADING BY ENGINEERING -REFER TO AIREY CIVIL ENGINEERING FOR ROADING LAYOUT -REFER TO LIGHTING DESIGN



PERMISSION OF SOLA LANDSCAPE ARCHITECTS

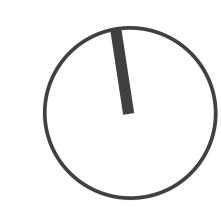
02.07.2024





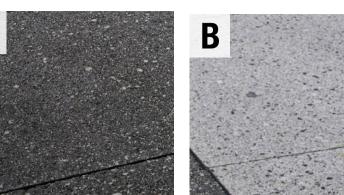












EXPOSED AGGREGATED TO MIX



MEDIUM TROWEL CONCRETE WITH CONCRETE DRIVEWAY WITH
NO OXIDES, SHELL ADDED
PETERFELL PASSIONFRUIT OXIDE, ADDITIONAL DECORATIVE CUTS



DECKING



THRESHOLD PAVING GROUPED TREES AND UNDERPLANTING PERMEABLE PAVERS



KEYSTONE RETAINING TIMBER RETAINING WALL (HEIGHT AND WALL PAINTED TO TRANSPARENT FENCE

TO ARCHITECTURAL

LOCATION REFER TO BLACK COLOR, HEIGHT WITH 25% VISUAL ARCHITECTURAL SET) AND LOCATION REFER PERMEABILITY



TRANSPARENT FENCE





1.2M ALUMINIUM SEMI

CLOSEBOARD FENCE.

BENCH SEATING IN COMMON SPACE



COVERED BIKE STAND

### LEGEND

L LETTER BOX RUBBISH BINS (SURFACE UNDER BINS TO BE PERMEABLE PAVER) BIKE LOCATION



02.07.2024

RAISED TABLE TO





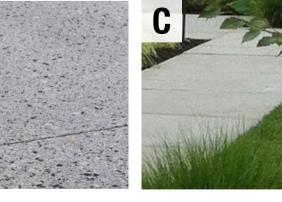
MATERIAL PALETTE



EXPOSED AGGREGATED CONCRETE DRIVEWAY WITH 3KG/M3 OXIDES. CARPARKS TO HAVE 7KG/M3 OXIDE.



EXPOSED AGGREGATED CONCRETE DRIVEWAY WITH NO OXIDES, SHELL ADDED PETERFELL PASSIONFRUIT TO MIX



MEDIUM TROWEL CONCRETE WITH OXIDE, ADDITIONAL













SERVICE JOAL WITH





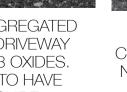


TURNING BAY OR









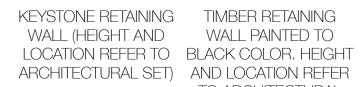
DECORATIVE CUTS

DECKING

THRESHOLD PAVING

UNDERPLANTING

PAVED PATH PERMEABLE PAVERS



WALL PAINTED TO TO ARCHITECTURAL



1.2M ALUMINIUM SEMI TRANSPARENT FENCE TRANSPARENT SAFETY





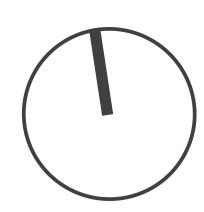




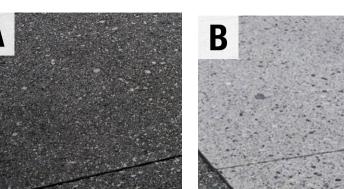
RUBBISH BINS (SURFACE

PERMEABLE PAVER)





# MATERIAL PALETTE



7KG/M3 OXIDE.





TO MIX



CONCRETE WITH

OXIDE, ADDITIONAL DECORATIVE CUTS





DECKING

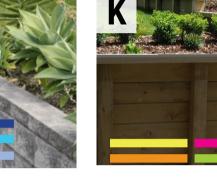
UNDERPLANTING PERMEABLE PAVERS



WITH 25% VISUAL PERMEABILITY







KEYSTONE RETAINING TIMBER RETAINING WALL WALL (HEIGHT AND PAINTED TO BLACK COLOR. LOCATION REFER TO HEIGHT AND LOCATION ARCHITECTURAL SET) REFER TO ARCHITECTURAL





**FENCE** 



STREET FRONT

WHERE LOCATED ALONG A

CLOSEBOARD FENCE

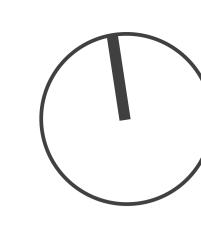
LEGEND

L LETTER BOX

RUBBISH BINS ( SURFACE UNDER BINS TO BE PERMEABLE PAVER)

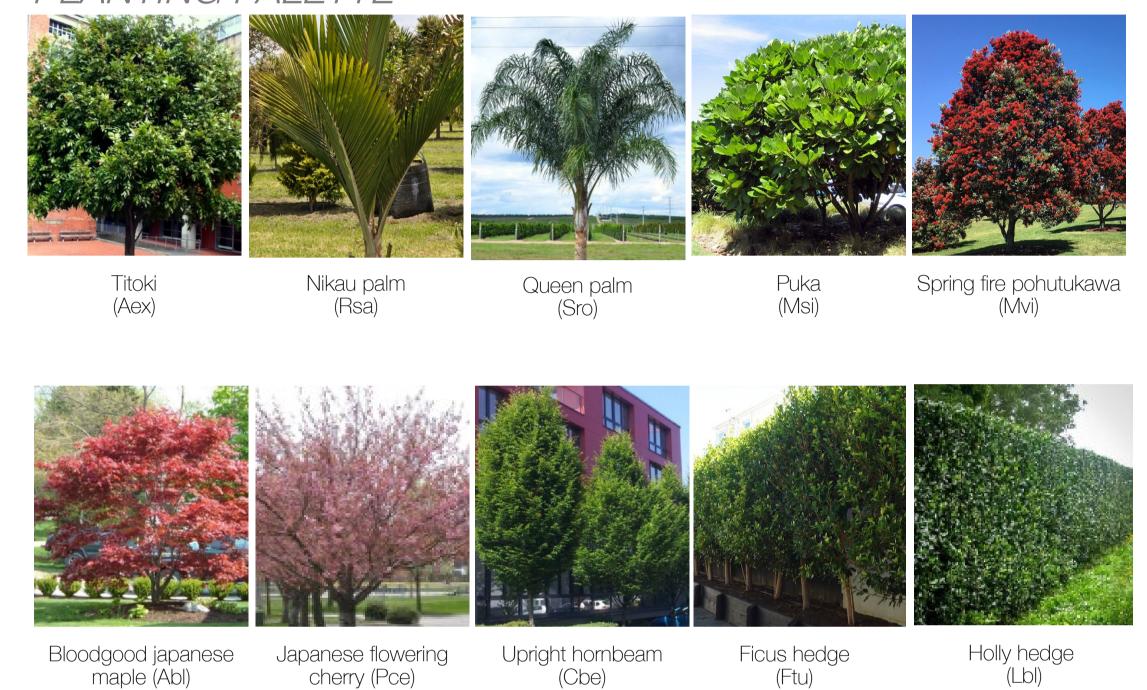
BIKE LOCATION





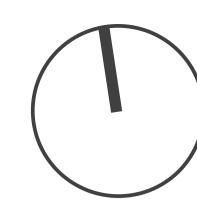


# PLANTING PALETTE



- 1. IF TREES SPECIES ARE NOT AVAILABLE, SIMILAR SPECIES MAY BE USED (CHANGES TO SPECIES MUST BE ACCEPTED BY SOLA LANDSCAPE ARCHITECT).
- ALL GARDEN AREAS TO HAVE 300MM DEPTH QUALITY 2. TOPSOIL AND 100MM DECORATIVE BARK MULCH UNLESS OTHERWISE STATED.
- 36 MONTH MAINTENANCE TO BE INCLUDED FOR ALL 3. COMMON LANDSCAPE AREAS AT THE COMPLETION OF LANDSCAPE CONSTRUCTION.





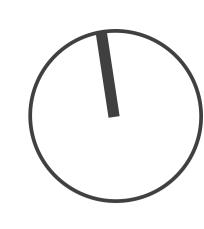


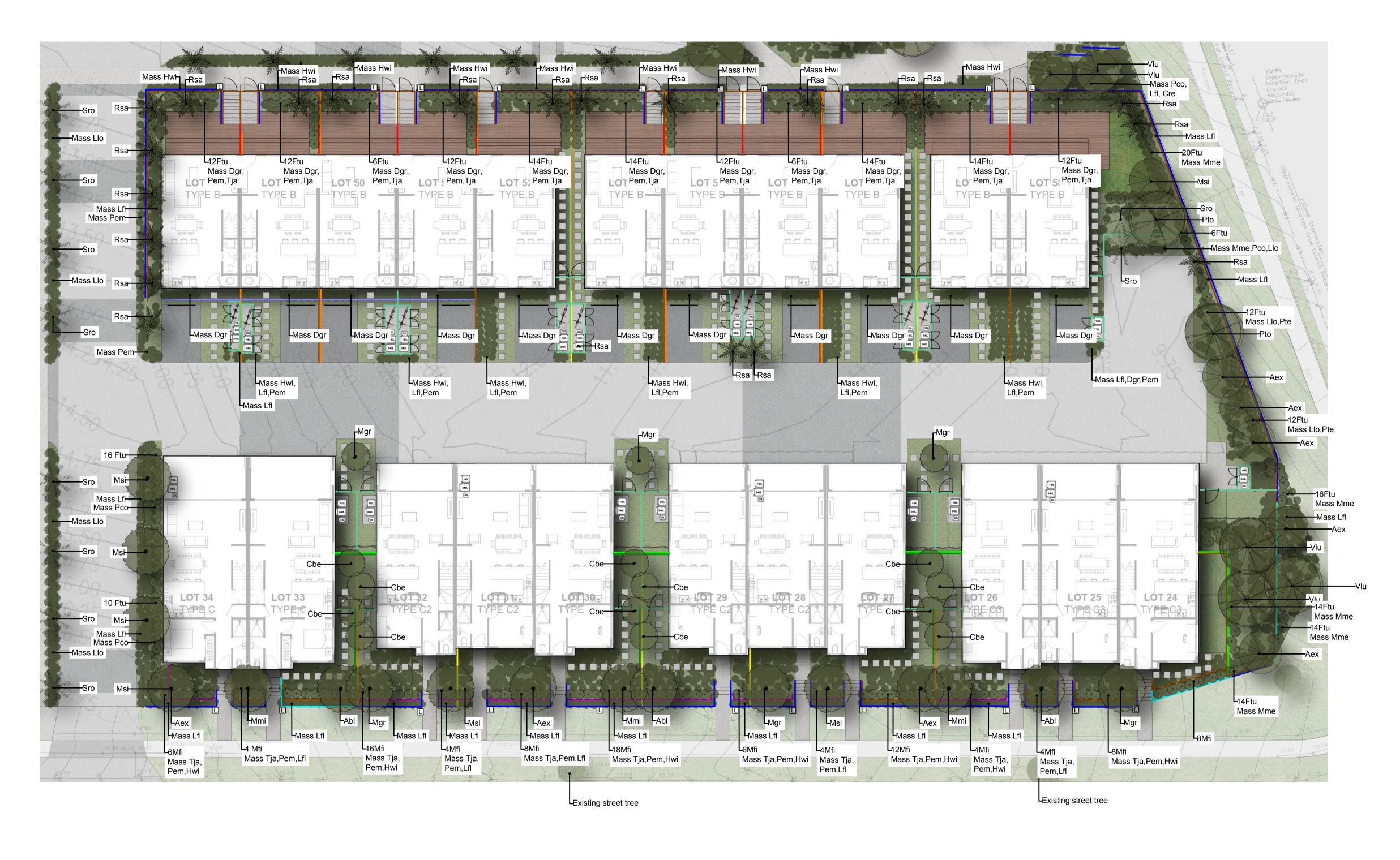
### NOTES:

- 1. IF TREES SPECIES ARE NOT AVAILABLE, SIMILAR SPECIES MAY BE USED (CHANGES TO SPECIES MUST BE ACCEPTED BY SOLA LANDSCAPE ARCHITECT).
- ALL GARDEN AREAS TO HAVE 300MM DEPTH QUALITY 2. TOPSOIL AND 100MM DECORATIVE BARK MULCH UNLESS OTHERWISE STATED.
- 36 MONTH MAINTENANCE TO BE INCLUDED FOR ALL 3. COMMON LANDSCAPE AREAS AT THE COMPLETION OF LANDSCAPE CONSTRUCTION.



PERMISSION OF SOLA LANDSCAPE ARCHITECTS



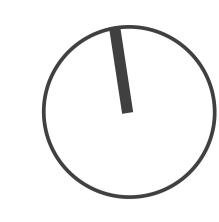


# PLANTING PALETTE



- 1. IF TREES SPECIES ARE NOT AVAILABLE, SIMILAR SPECIES MAY BE USED (CHANGES TO SPECIES MUST BE ACCEPTED BY SOLA LANDSCAPE ARCHITECT).
- ALL GARDEN AREAS TO HAVE 300MM DEPTH QUALITY 2. TOPSOIL AND 100MM DECORATIVE BARK MULCH UNLESS OTHERWISE STATED.
- 36 MONTH MAINTENANCE TO BE INCLUDED FOR ALL 3. COMMON LANDSCAPE AREAS AT THE COMPLETION OF LANDSCAPE CONSTRUCTION.







# PLANTING PALETTE







Magnolia 'Teddy bear'

Puriri (VIu)

Ornamental crabapple

(Mla)







Upright hornbeam

Ficus hedge (Ftu)

Holly hedge (Lbl)





Michelia (Myu)

Port wine magnolia Pittosporum 'Stephens İsland' (Pst)



Totara (Pto)

- 1. IF TREES SPECIES ARE NOT AVAILABLE, SIMILAR SPECIES MAY BE USED (CHANGES TO SPECIES MUST BE ACCEPTED BY SOLA LANDSCAPE ARCHITECT).
- ALL GARDEN AREAS TO HAVE 300MM DEPTH QUALITY 2. TOPSOIL AND 100MM DECORATIVE BARK MULCH UNLESS OTHERWISE STATED.
- 36 MONTH MAINTENANCE TO BE INCLUDED FOR ALL 3. COMMON LANDSCAPE AREAS AT THE COMPLETION OF LANDSCAPE CONSTRUCTION.



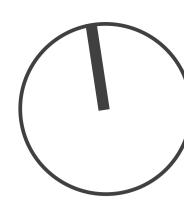
# PLANTING STRATEGY & SCHEDULE

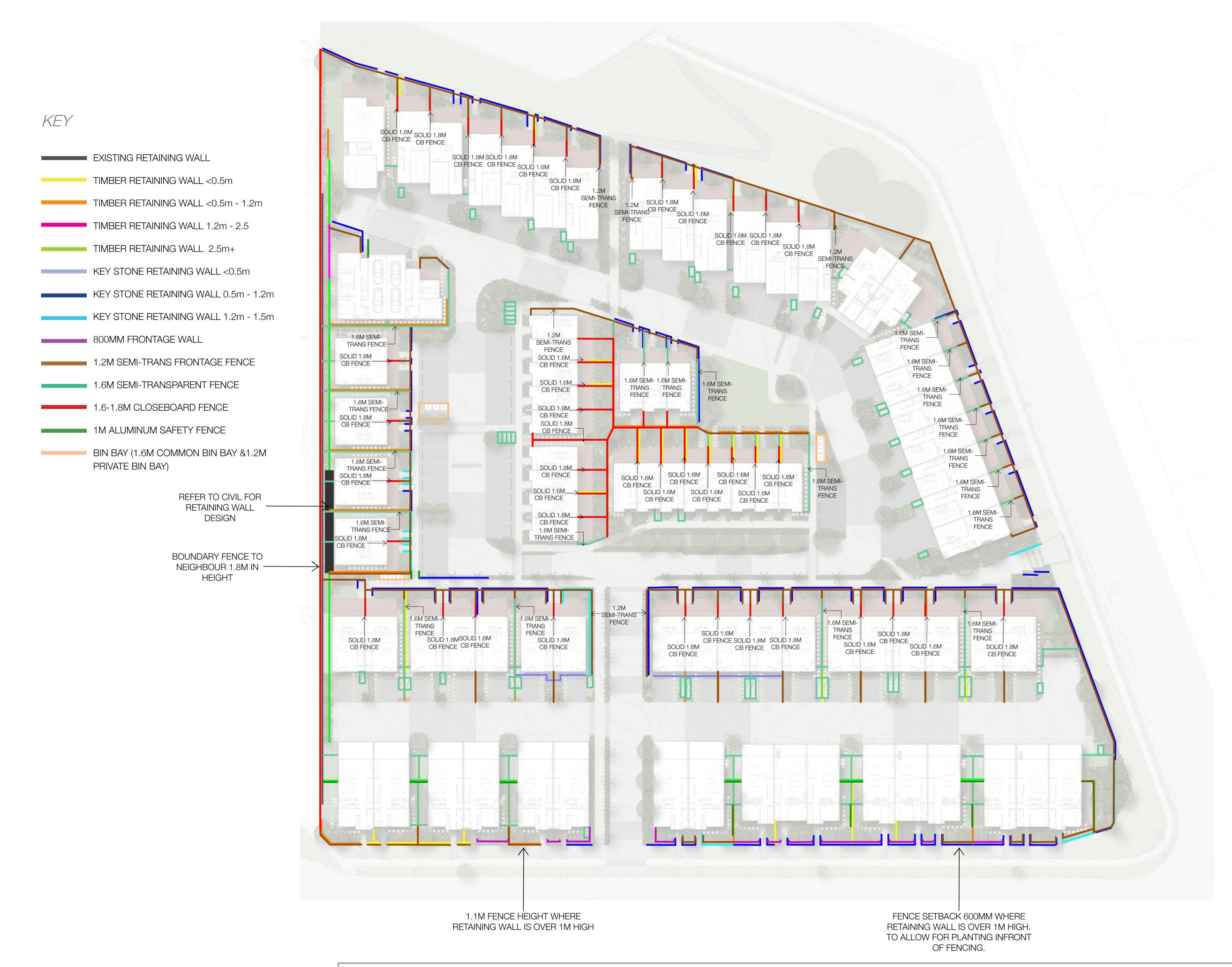


- 1. IF TREES SPECIES ARE NOT AVAILABLE, SIMILAR SPECIES MAY BE USED (CHANGES TO SPECIES MUST BE ACCEPTED BY SOLA LANDSCAPE ARCHITECT).
- 2. ALL GARDEN AREAS TO HAVE 300MM DEPTH QUALITY TOPSOIL AND 100MM DECORATIVE BARK MULCH UNLESS OTHERWISE STATED.
- 3. 36 MONTH MAINTENANCE TO BE INCLUDED FOR ALL COMMON LANDSCAPE AREAS AT THE COMPLETION OF LANDSCAPE CONSTRUCTION.

<u> </u>			N AND PRIVATE A			
Code	Botanical Name	Common Name	Notes	Spacing	Quantity/ Percentage mix	Size
			Trees			
Aex	Alextryon excelsus	Titoki	Specimen	As Shown	25	25L
Rsa	Rhopalostylis sapida	Nikau	Specimen palm tree	As Shown	59	25L
Mvi	Metrosideros villosa 'Spring fire'	Spring fire pohutukawa	Specimen tree	As shown	6	65L
Vlu	Vitex lucens	Puriri	Specimen tree	As shown	7	65L
Msi	Meryta sinclairii	Puka	Specimen tree	As shown	20	25L
Mgr	Magnolia grandiflora 'Teddy bear'	Magonolia teddy bear	Specimen tree	As Shown	28	25L
Pce	Prunus serrulata	Japanese cherry	Specimen tree	As shown	7	45L
Sro	Syagrus romanzoffiana	Queen palm	Specimen palm tree	As shown	29	25L
Myu	Michellia yunnanensis	michelia	Specimen tree	As shown	9	25L
Pca	Pyrus calleryana 'Aristocrat'	Ornamental pear	Specimen tree	As shown	6	65L
Cbe	Carpinus betulus' Fastigiata'	Upright hornbeam	Specimen tree	As shown	22	45L
Abl	Acer palmatum 'Bloodgood'	Japanese maple	Specimen tree	As shown	11	25L
Mgo	Malus gorgeous	Crabapple	Specimen tree	As shown	5	25L
Pto	Podocarpus totara	Totara	Specimen tree	As shown	2	65L
Mmi	Metrosideros 'Mistral'	Mistral pohutukawa	Specimen tree	As shown	19	65L
			Hedge Plants			
Ftu	Ficus Tuffy	Ficus Tuffy	Formalised Hedging	500	459	10L
Mfi	Michelia figo	port wine magnolia	1-1.5m hedge planting	1000	246	10L
Pst	Pittosporum 'Stephens Island'	NZ pittosporum	2m hedge planting	1000	163	10L
lla	llex 'Largo'	largo holly	1-1.8m hedge planting	1000	216	10L
Pcr	Pittosporum crassiflolium	Karo	1.2m hedge planting	1000	186	10L
		Unde	rstory Planting (2445.2m2)		·	
Asi	Apodasmia simillis	oioi	Mass planting	1000	5%	1L
Hwi	Hebe 'Wiri cloud'	'Wiri cloud' hebe	Mass underplanting	500	5%	1L
Pem	Phormium cookianum 'emerald green'	Dwarf Flax	Group planting	500	10%	1L
Mme	Macropiper melchior	Three kings kawakawa	Group planting	800	8%	1L
Lfl	Lomandra fluviatilis Shara	Lomandra Shara	Ground cover	1000	15%	1L
Pte	Phormium tenax	NZ Flax	Group planting	2000	15%	1L
Llo	Lomandra longifolia 'Taniki'	Lomandra taniki	Mass underplanting	2000	15%	1L
Dgr	Dietes grandiflora	Fairy Iris	Group planting	500	10%	1L
Lmu	Lirope muscari 'Monroe white'	Lirope 'Monroe white'	Group planting	300	7%	1L
Tja	Trachelospermum jasminoides	Star Jasmine	Ground cover	600	5%	0.5L
Cre	Coprosma repens 'Poor Knights'	Coproosma	Ground cover	300	5%	0.5L



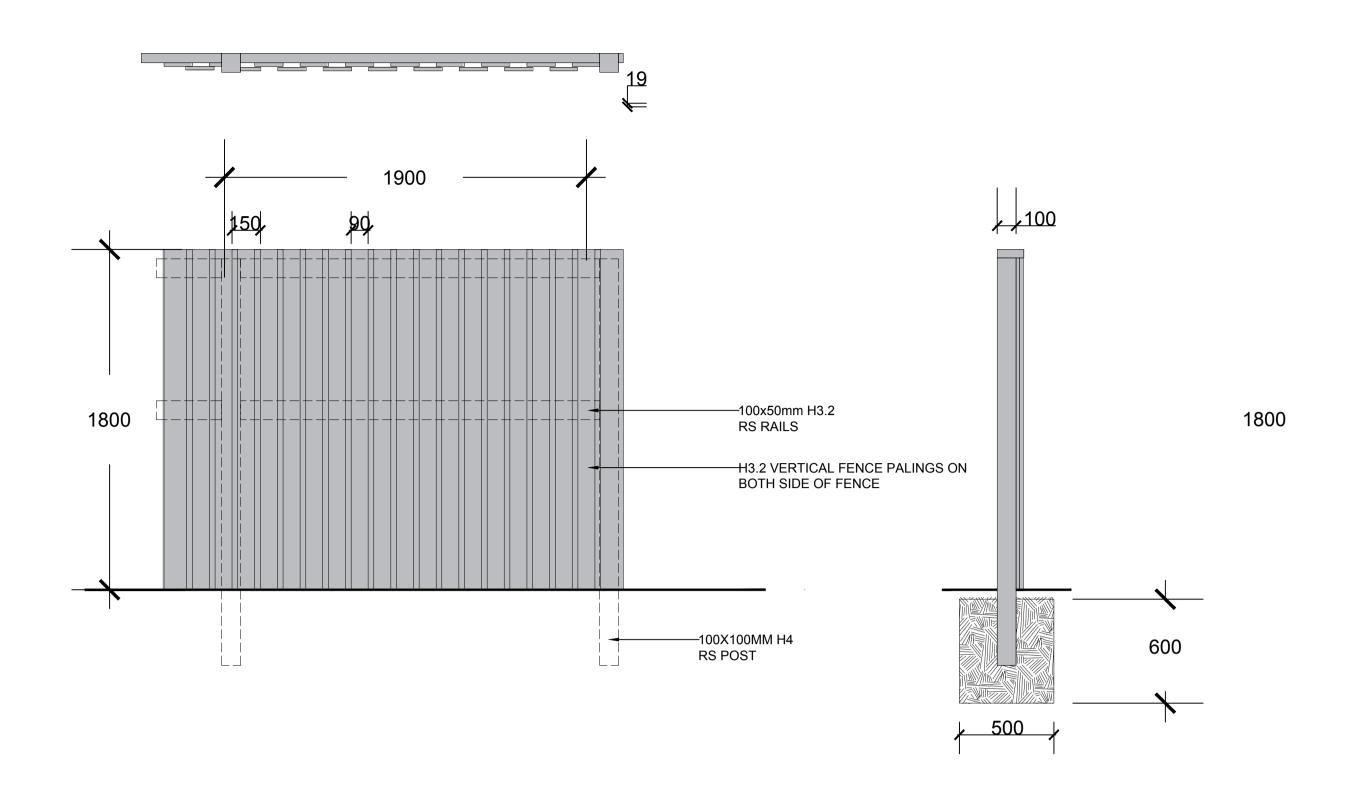




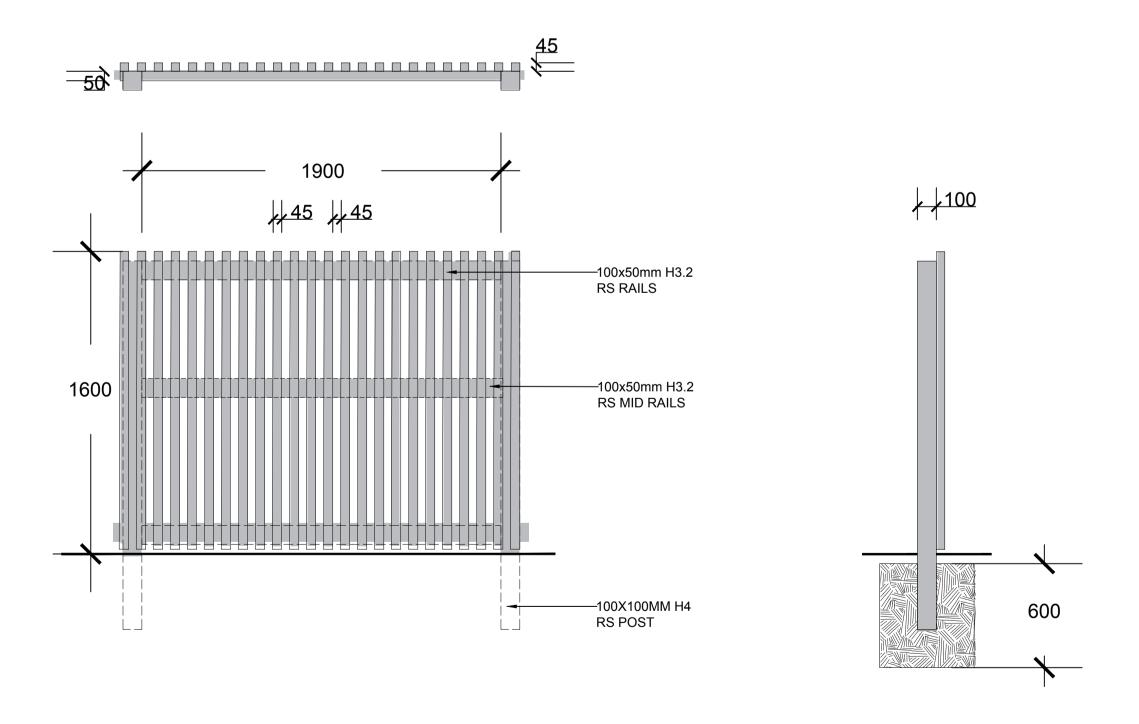


PERMISSION OF SOLA LANDSCAPE ARCHITECTS

CHECKED\_MR

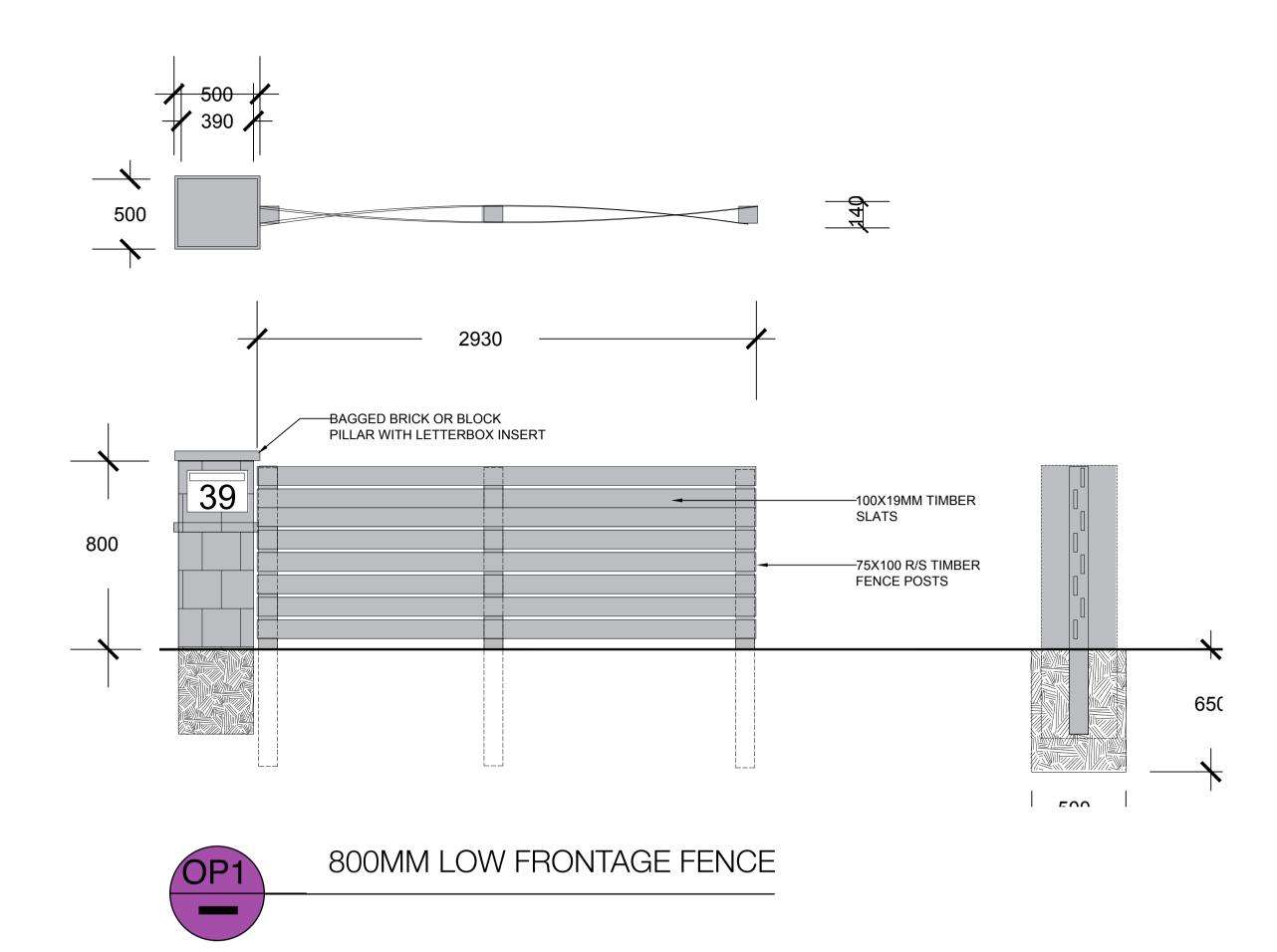




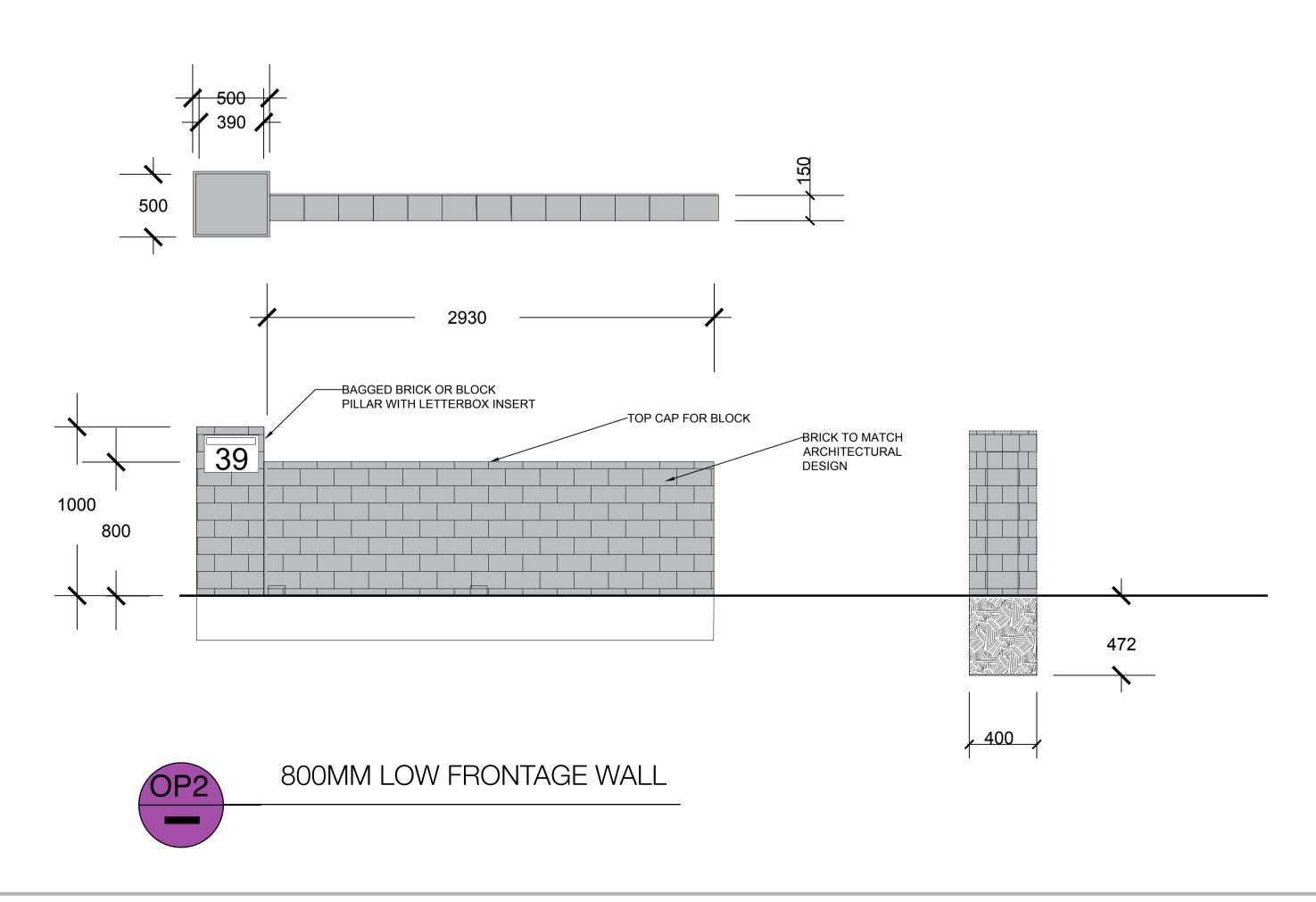






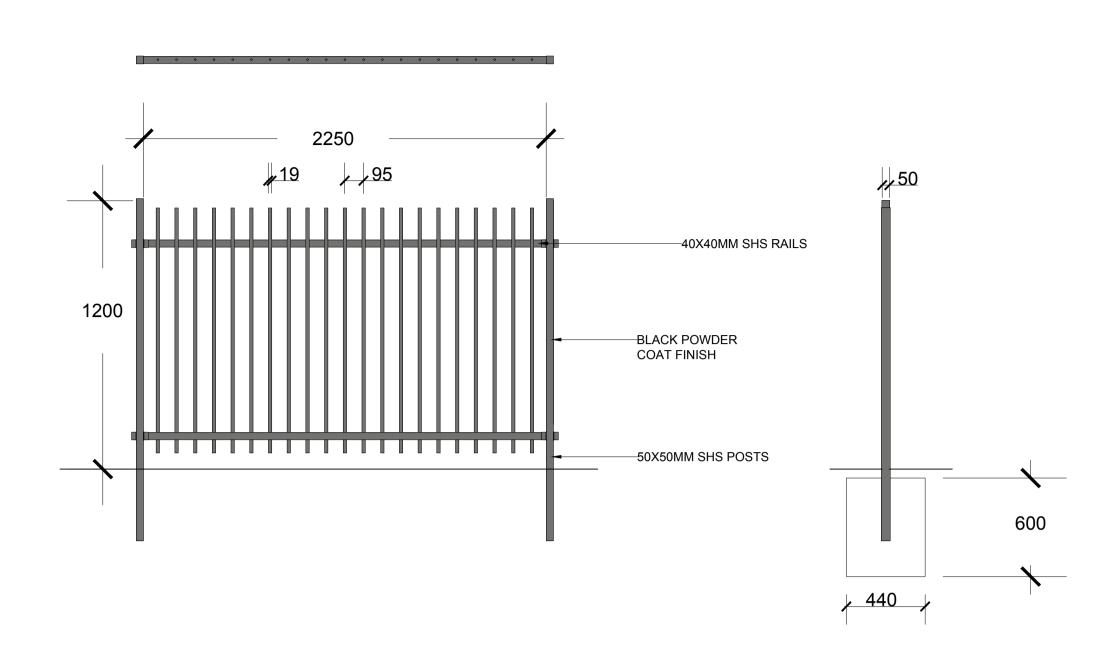


OPTION 2





OPTION 1



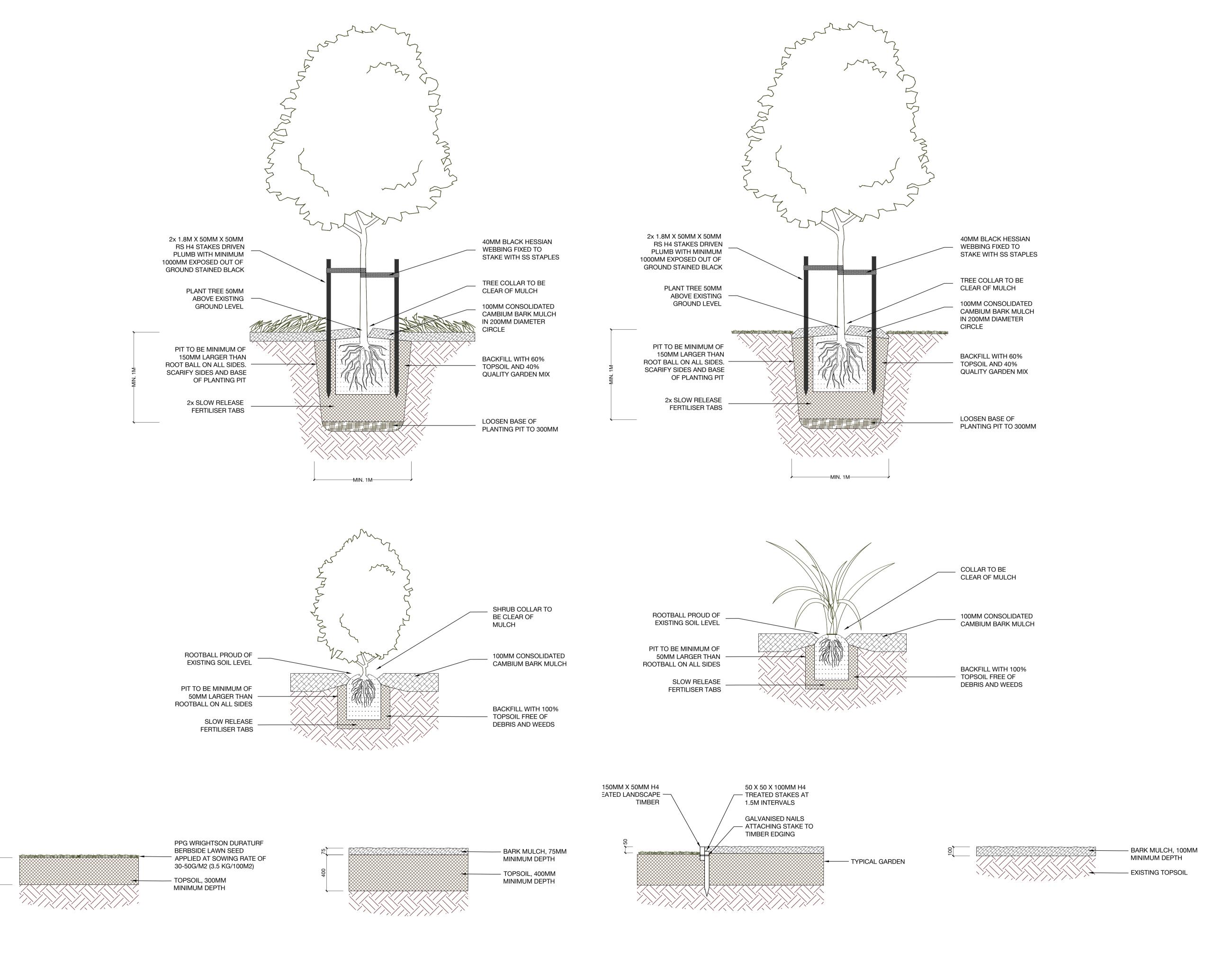


1.2M ALUMINIUM SEMI-TRANSPARENT FRONTAGE FENCE



PERMISSION OF SOLA LANDSCAPE ARCHITECTS

02.07.2024





### (1) Preliminary and General

#### Interpretation/Familiarisation

The Contractor shall fully familiarise themselves with the site and satisfy themselves as to the nature of site access, the planting conditions and any other conditions required to ensure the successful execution of the works and establishment of plants.

The Contractor is responsible for advising the Engineer, in writing at time of tender, of any conditions which are likely to impair successful execution of works and establishment of plants, in order that they may take steps to rectify such conditions. Should the Contractor fail to do so, no allowances for additional costs as consequence of any misunderstanding, incorrect information or insufficient information shall be allowed.

The Contractor shall provide everything necessary for the proper execution of the works according to the true intent and the meaning of the drawings, specification and schedule, whether the same may or may not be particularly shown on the drawings or described in the specification and the schedules, provided that the same is reasonably to be inferred therefrom.

Any inconsistencies between the drawings and the specification shall be brought to the attention of the Engineer for resolution before proceeding.

#### Workmanship

All Materials and construction shall be to a high standard, and workmanship shall be that of appropriately qualified tradesmen performing all labours in the best trade practice.

### (2) Site Preparation

#### Workmanship

Plant and equipment shall only be operated by licensed, experienced operators. Only registered 'Growsafe' certified applicators shall be responsible for the application of herbicides.

The Landscape Contractor shall engage suitably qualified personnel and experienced workers who are familiar with the materials and the techniques specified to undertake this work. The Landscape contractor shall provide evidence of experience and competence of key personnel engaged in undertaking this work.

#### Preparation of Planted and Grassed Areas

Remove existing excess clay and erroneous material from planting areas and dispose off site. This shall include all necessary excavation and trimming to allow for the spreading of topsoil to the specified depth of 150mm for grassed areas. Surplus excavated material is to be removed from the site. Any spillage of materials onto roads etc., shall be immediately cleared up by the Contractor. During preparatory work the Contractor must notify the Engineer of any areas which have drainage issues which may affect plant establishment so that a suitable solution can be implemented. Failure to do so will result in the Contractor having carry out necessary remedial works, reparation and drainage works at their own cost

Prior to spreading of topsoil mix, in areas designated for planting, the clay base shall be scarified/ripped to loosen compaction and ensure there are no hard pans.

For new grassed areas supply and spread 150mm of approved topsoil mix.

Earthworks shall be carried out in accordance with the local Council's Erosion and Sediment Control Guidelines for Earthworks.

#### Imported topsoil Mix

Topsoil shall be sourced from an original surface layer of grassland or cultivated land. Soil arising from reclaimed land, industrial sites, or which has been used for the disposal of any industrial, domestic or agricultural wastes shall not be

Topsoil shall exhibit the presence of biological activity as evidenced by adequate aggregation and organic matter content. The material shall be acceptable for growing all trees, plants and turf grass species given adequate management. Topsoil mix supply volumes are based on provisional quantities. The Contractor shall provide proof of quantities of material spread on site with supporting documentation such as invoices dispatch or receipts and delivery. Supporting documentation shall be submitted as required.

Gypsum to be applied to all clay soils in accordance with manufacturer guidelines.

Great care shall be taken to avoid contamination of topsoil with subsoil layers.

Where applicable ensure the surface of completed formation earthworks are suitably roughened to allow the topsoil layer to key sufficiently and allow root penetration.

Spreading of all soil shall coincide with dry weather to minimise impact on soil structure. Failure to adhere to this clause may result in the Engineer instructing the Contractor to remove spread topsoil and replace it with freshly supplied dry topsoil when conditions are more suitable. To avoid this occurring, clarification should be sought from the Engineer Spread soil to ensure an even covering not less than the following minimum depths following settlement:

- Garden Beds: 300mm (minimum)
- Tree Pits: 1000mm (minimum)
- Lawn Areas: 150mm (minimum)

Care shall be taken in spreading to minimise overworking and tracking of machinery which may lead to over compaction.

### Supply and Spreading of Mulch

Mulch shall be spread to all the planting areas.

Spread mulch to a depth of 100mm with grade 4 bark chip of equivelant over the appropriate planting area (minimum/ settled) prior to planting.

All mulch shall be free from all other matter, organic or inorganic, including; soil, rock and debris, refuse, phytotoxins and pathogens, weed species, including chip from willow, poplar or any other adventive weeds.

Prior to laying mulches, spread nitrogen fertilizer (e.g. urea) at a rate of 25gm/m2 over the entire ground surface to counteract nitrogen draw down as mulch decomposes.

Lay mulch to all planting areas as soon as possible following successful weed control.

Spread mulch only when ground conditions are dry to minimize compaction and avoid damage to soil structure. Mulch trees in grassed areas with a 1m-diameter circle to a thickness of 100mm.

# (3) Plant Supply

#### Materials

All street trees, unless specified otherwise, shall be of a minimum grade of 45 litre and be first grade nursery specimens. Grades shall be supplied as follows;

1.5m - 2.5m specimens shall have a minimum calliper of 30 - 50mm; 2.5m - 3.5m specimens shall have a minimum calliper of 50 - 70mm; and 3.5m - 5m specimens shall have a minimum calliper of 70 - 100mm

No substitution of species or grade shall be made without the written approval of the Engineer

All plant material supplied shall be clearly labelled stating the plant's Latin name and the Supplier's name, (one label per plant group planted). These labels shall be removed on completion of planting.

#### All plants shall be:

- Of best stock, being healthy and vigorous and free from pests and disease
- Root systems shall be well developed and in balance with the amount of foliage growth of the plant
- All plants shall be well hardened in preparation of planting into open exposed sites
- Plants shall be well branched and symmetrically shaped of a normal habit for the species involved
- All plant material shall be of the highest quality nursery stock, true to name and type

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.

All trees shall be supplied with the central leader intact, whereby no pruning of the central leader shall have taken place. All torn or damaged roots shall be pruned before dispatch. All stock shall be well rooted but not root bound. All root balls and containers shall be free of all weeds. Plants shall be well 'hardened -off' prior to supply.

The Contractor shall ensure that all plants and their roots shall be maintained in a moist environment, protected from adverse conditions such as drying winds, frost or water logging.

Pots and other protective material shall not be removed prior to delivery. Roots shall not be left uncovered at any time. All plants shall be adequately watered prior to transporting and shall be protected from potential wind damage and sun scorch during transit.

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

In so far as is practicable, plant material shall be planted on the day of delivery. In the event this is not possible, the Contractor shall ensure that a suitable holding area is established to the satisfaction of the Engineer, with adequate facilities to protect the plants from drying out.

#### All plants stored on site shall be watered daily.

Plant material shall not be less than the heights and sizes stated herein.

The Engineer shall inspect the plants prior to delivery to confirm the plant materials meet the Contract requirements. This inspection shall be attended by the Contractor for them to confirm acceptance of the liability relating to the planting and ongoing survival of the plant materials.

Final inspection of plant materials by the Engineer shall be undertaken on shipment of the plants. All plant material to be healthy, in a weed free state, free of pests and diseases and true to name and size as per the Schedule. Any plants as required under the contract that are dead, dying, not true to name or size as specified, or not in satisfactory growth as determined by the Engineer or nominated representative shall be removed and replaced by the Contractor at their own expense.

### (4) Planting Implementation

Planting shall be implemented during the period May – September.

Planting Holes – Tree pits shall be 1m x 1m width x 1m depth minimum.

Prior to planting all plant rootballs shall be thoroughly soaked

Pots and other protective materials shall not be removed until immediately prior to planting, and shall be disposed of off the site after planting. Roots shall not be left uncovered at any time. Care shall be taken to ensure that the root ball is not unnecessarily disturbed during removal or planting.

Backfill material shall consist of the material from the planting hole, well cultivated prior to backfilling.

All planting shall be performed by experienced workers in accordance with the recognised best horticultural practice and under the supervision of the contractor's skilled foreman.

Fertiliser shall be applied to the base of the dug hole in accordance with clause below.

Trees shall be set in their final positions with main stem vertical and at such a depth that the soil, when firmed down is at the same height as the nursery earth marks on the stem or the container soil level. 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.

The base of the planting hole shall be forked to a minimum depth of 200mm and any stones over 50mm diameter or poor quality subsoil shall be removed from the hole.

The sides of the planting hole shall also be scarified to 150mm minimum to provide drainage, and the surrounding ground to two times the root ball diameter shall be 'forked' over to reduce compaction.

Where topsoil is unsuitable for backfilling the Contractor shall use imported or modified top soil for backfilling. The imported topsoil shall be a free draining loam of a quality and subject to inspection by the Engineer prior to placement.

All plants (excluding those partially submerged) shall be planted with controlled, slow release fertiliser such as 'Growtabs'/Agriform incorporated into the backfill. For larger grade specimens top- dress with controlled release fertilizer granules (e.g. Osmocote Plus or similar approved).

Fertiliser shall be applied in accordance with the following application rates.

Application Rates:

Trees – slow release fertiliser tablets

Controlled release fertiliser granules grams PB95/45lt 210g PB150 280g

All specimen trees of 45L+ grade to be staked with 1.8m x 50mm x 50mm ground-treated or durable timber stakes. Stakes shall be straight pointed H4 Pinus radiata stakes and extending above ground level. Use three (2) stakes per tree and hessian ties.

Prior to planting, position each stake close to the tree and drive vertically into the bottom of the pit until the top of the stake is 900mm above ground level. Consolidate material around the stake during back filling. The trees shall be held firmly, although not rigidly, by the staking to prevent

pocket forming around the stem and newly formed fibrous roots being broken by mechanical pulling as the tree rocks. Position top tie within 50mm of top of stake.

Climbers to be trained on solid fences using tensioned wire where required.

#### Watering

The Contractor may need to supply water to site using a water tanker.

Attention must be paid to watering during and after planting to ensure successful establishment. The Contractor is deemed totally responsible for making special arrangements as necessary to ensure regular and adequate watering of plants if required to ensure successful establishment.

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

#### Completion

During the maintenance and defects period a loss of 5% of plants is deemed to be an acceptable loss, provided the lost plants are evenly spread over the whole of the planted area and are not noticeable as a bare patch. In the event that loss occurs over a confined area, the Contractor shall replace such plants at their cost. The Engineer shall have sole discretion to determine if the plants are evenly spread or in a confined area.

Those plants lost during the maintenance and defects liability period and not notified to the Engineer as being vandalised shall be assumed to have died as a result of planting operations and shall be replaced at the Contractor's expense.

#### Grassing

Spread and trim topsoil and gently compact of a depth of a minimum of 300mm. Apply a mixture of three parts of sulphate of ammonia to one part superphosphate fertiliser at the rate of 1kg to 15 m2 thoroughly worked into top 50mm one week before sowing of grass seed. The topsoil is to be worked to a uniform fine tilth, raked and rolled to present a firm evenly graded surface. Use screeding board for final levelling. Allow for the removal of all stones and rubble over 20mm in diameter from the prepared surface. Rake to the required levels and to a smooth surface.

Grass seed shall consist of a mixture of 70% "Allstar Ryegrass, 20% Lobi Chewings Fescue, 10% Egmont Browntop sown at a rate of 25 –30g/Sqm. Seed shall be of the most recent seed crop available. All seed label analysis data shall comply with the trade standard. Germination tests must have occurred within the past six months. The germination capacity of each constituent of the mixture should be not less than 80% and the purity of the mixture not less than 90%.

When sowing the soil shall be moist with the surface loose and friable of a grain-like consistency to a depth of 20-30mm. Sow seed in two applications in different directions and follow with gentle raking to just cover the seed and light watering.

# (5) Effects Liability and Maintenance

The Contractor shall keep comprehensive records of maintenance activities carried out in all planting areas to assist in monitoring and refining maintenance practices. Within 7 days of undertaking a programmed maintenance visit the Contractor shall forward a copy of each Maintenance Record Sheet (https://www.dropbox.com/sh/vxq127folfswlx0/ AAD9thbZzCQ5GuGYjuyHj2lCa?dl=0) to the Engineer. The Engineer will undertake a maintenance inspection. The results of such inspections shall be used for the basis of approving maintenance payments.

Maintenance shall include any horticultural operations (including watering if necessary) to ensure normal and healthy plant establishment and growth. Weed control shall be carried out by a combination of hand and/or chemical methods. The appropriate method will be determined by the composition and level of weed infestation and the context in terms of existing habitat and vegetation. When in doubt the Contractor shall seek clarification from the Engineer

The Contractor shall be held responsible and be required to compensate for any damage to surrounding desirable vegetation or vegetation on neighbouring properties, contamination of waterways, or effects on the health of humans or animals that results from inappropriate use of herbicides.

At the end of the first growing season, all specimen trees shall be checked for any dead wood, broken or damaged branches, which shall be pruned in accordance with accepted arboricultural standards.

The mulch shall be contained within the planting areas in a tidy state and maintained to a depth of 100mm. The Contractor shall infill any holes and top-up any levels that have fallen below the specified level.

The Contractor shall ensure all tree stakes; ties and guys are in good repair and are not restricting plant growth. Any damaged stakes and ties shall be replaced. If wind conditions are damaging the tree then the number and location of stakes shall be reviewed and amended accordingly.

Slow release fertiliser shall be applied at planting time. Further applications of approved, NPK balanced, slow-release fertiliser shall be applied annually during September. Application rates shall be as recommended by the fertiliser manufacturer with regard to the size of plant

Repair all defects to the satisfaction of the Engineer and undertake all maintenance as required in accordance with the maintenance schedule:

Maintenance Task	Year 1	Year 2	Year 3
Water all landscape areas	As required	As required	-
Weed control - hand weeding and glyphosate spray	3-monthly	3-monthly	3-monthly
Prune hedges	6-monthly	6-monthly	6-monthly
Prune ground covers and shrubs		6-monthly	6-monthly
Train climbers onto fences and prune as necessary	6-monthly	6-monthly	6-monthly
Prune trees to remove dead branches and to increase canopy height	Annually	Annually	Annually
Check tree stakes and ties and replacer remove if necessary	6-monthly	6-monthly	6-monthly
Check for pests and diseases and treat appropriately	3-monthly	3-monthly	3-monthly
Replace dead or dying plants	Annually	Annually	Annually
Top up mulch to 100mm	Annually	Annually	-



REVIEWED \_MR

ISSUED TO COUNCIL