

AMENDMENTS

AMENDMENT PART 10 - RESERVES, STREETSCAPE AND OPEN SPACES			
Date	Part or Section Number	Description	Comment
Sep 2017	Part 10 – All Sections	Complete review of Part 10	Where reference is made to Part 10 in other Parts of the Code, these references will no longer relate, until other Parts are reviewed / updated in due course.

PART 10: RESERVES, STREETSCAPE AND OPEN SPACES

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10.1 REFERENCED DOCUMENTS

10.1.1 Planning and Policy

- Selwyn District Plan (District Plan) www.selwyn.govt.nz/services/planning
- Resource Management Act (RMA) (1991)
- Local Government Act (2002)
- Reserves Act (1977)
- Building Act (2004)
- Fencing Act (1978)
- Heritage New Zealand Pouhere Taonga Act (2014)
- Health and Safety at Work Act (2015); (including Arboriculture Approved Code of Practice for Safety and Health in Tree Work)
- Selwyn District Council *Development Contributions Policy* (2016)
http://www.selwyn.govt.nz/_data/assets/pdf_file/0009/196371/Development-Contributions-Policy.pdf
- Selwyn District Council *Trees & Vegetation in Selwyn District: Management Policy Manual* (2010) http://www.selwyn.govt.nz/_data/assets/pdf_file/0010/25588/FINAL-Trees-and-Vegetation-Policy.2109.pdf
- Selwyn District Council *Open Spaces Strategy* (2015)
http://www.selwyn.govt.nz/_data/assets/pdf_file/0009/175905/Selwyn-District-Council-Open-Space-Strategy_reduced.pdf
- Selwyn District Council *Walking and Cycling Strategy* (2015)
http://www.selwyn.govt.nz/_data/assets/pdf_file/0018/11556/Microsoft-Word---Walking-and-Cycling-Strategy-Action-Plan-final-09.pdf
- Selwyn District Council *Community Facilities Activity Management Plan* (2015)
<http://www.selwyn.govt.nz/council/plans/community-facilities-activity-management-plan>
- Environment Canterbury *Canterbury Biodiversity Strategy* (2008)
<http://ecan.govt.nz/publications/Plans/BiodiversityStrategyFinalFeb08.pdf>
- Environment Canterbury *Canterbury Regional Pest Management Strategy*
<http://ecan.govt.nz/publications/Plans/canterbury-regional-pest-management-strategy-2011-2015.pdf>

10.1.2 Design

- Selwyn District Council *Guide to Urban Fencing* (2014)
http://www.selwyn.govt.nz/_data/assets/pdf_file/0009/139878/140630.gw.Fencingguide.pdf
- Selwyn District Council *Subdivision Design Guide* (2009)
http://www.selwyn.govt.nz/_data/assets/pdf_file/0016/15163/ADOPTED-SDC-Subdivision-Design-Guide.pdf
- Canterbury Safety Working Party *Crime Prevention Through Safer Environmental Design* (2004)

<https://www.ccc.govt.nz/assets/Documents/Culture-Community/Community-Safety/CPTEDFull-docs.pdf>

- Christchurch City Council *Parks and Waterways Access Policy (PWAP)* (2002)
<https://www.ccc.govt.nz/assets/Documents/The-Council/Plans-Strategies-Policies-Bylaws/Policies/ParksAndWaterwaysAccessPolicy2002.pdf>
- Christchurch City Council *Waterways, Wetlands and Drainage Guide, Ko Te Anga Whakaora mō Ngā Arawai Rēpo (WWDG)* (2003)
<https://www.ccc.govt.nz/environment/water/policy-and-strategy/waterways-wetlands-and-drainage-guide/>
- Christchurch City Council *Streamside Planting Guide* (2005)
<https://www.ccc.govt.nz/assets/Documents/Environment/Water/StreamsidePlantingGuide-streamsideplanting.pdf>
- Christchurch City Council *Parks Sign Manual*
- NZS 5828: 2004 *Playground equipment and surfacing*
- NZS/AS 1657: 1992 *Fixed platforms, walkways, stairways and ladders. Design, construction and installation*
- NZS 8603:2005 *Design and application of outdoor recreation symbols*
- SNZ HB 8630: 2004 *Tracks and outdoor visitor structures*
- NZTA *Landscape Guidelines* (2014)
<http://www.nzta.govt.nz/assets/resources/nzta-landscape-guidelines/docs/nzta-landscape-guidelines-20140911.pdf>
- NZTA *Bridging the Gap; NZTA Urban Design Guidelines* (2013)
<http://www.nzta.govt.nz/assets/resources/bridging-the-gap/docs/bridging-the-gap.pdf>

10.1.3 Construction

- Christchurch City Council Civil Engineering Construction Standard Specifications Parts 1-7 (CSS).

Where a conflict exists between any Standard and the specific requirements outlined in the Engineering Code of Practice (COP), the COP takes preference (at the discretion of the Council).

10.1.4 Source Documents

This Part of the Code of Practice is based on Parts 7 and 8 of NZS 4404: 2004 *Land development and subdivision engineering*, by agreement, and with the consent of Standards New Zealand. It has been modified to fit within the context of the Selwyn District.

10.2 DESIGN STANDARD

10.2.1 General

This standard applies to the design of all landscaping and associated facilities, structures and furniture as part of new, or enhancements to existing, streetscape, reserve and public open space developments.

The following shall apply:

- a) Landscape design for streetscapes, reserves and public open space is required at all levels of the subdivision and development process.
- b) Landscape design is considered important in the overall context of development and shall be integrated into the engineering design to **optimise long-term community and environmental benefits** whilst **minimising ongoing maintenance costs**, in order to provide for the **safe use and enjoyment** of public assets.
- c) As housing densities and/or commercial/industrial development increases, there is more reliance on streetscapes and reserves to provide public open space and amenity values, which contrast with the built environment, improve quality of life and contribute to the natural environment. These spaces also provide opportunities for recreation, social interaction, public access and increased biodiversity.
- d) In a more rural residential environment, the landscape elements are primarily located within private property along road frontages, or the public space tends toward a more natural character and low key environment. The rural character shall be reflected through the simplicity of the design and a less structured approach.
- e) Consider the application of urban design principles in all development projects with a landscape component. The standard and quality of tree planting and landscaping play an important role in establishing and maintaining the identity, visual interest, safety and character of both existing neighbourhoods and new subdivisions.
- f) Please refer to the following documents for further information on subdivision and urban design principles;
 - Selwyn District Council *Subdivision Design Guide* (2009).

10.2.2 Minimum Requirements

- a) All landscape proposals for subdivision development shall:
 - i. Comply with the Selwyn District Plan and Engineering Code of Practice.
 - ii. Comply with all Regional Council (Environment Canterbury) requirements.
 - iii. Be acceptable to landscaping, urban design, safe environmental design (CPTED) and engineering methods.

- iv. Minimise, isolate or eliminate health and safety hazards during both its construction and future utilisation.
 - v. Minimise, isolate or eliminate any adverse ecological and environmental effects.
- b) A 'Subdivision Process Guide' for streetscapes, and reserves is included in Appendix 1 of this Document. This outlines the basic procedure and key steps in the planning, design and construction of streetscapes, reserves and public open space, as part of subdivision development. It also serves to highlight when it may be necessary to meet with council staff prior to preparing and lodging applications for Resource Consent or Engineering Approval.
- c) It is recommended that the Applicant engage a suitably qualified Landscape Architect and arrange a pre-application meeting with Council staff at the earliest stages of the subdivision planning and design process. This meeting will give opportunity to seek advice, and help to identify and resolve any potential issues. The inclusion of Council in the planning and consideration of alternative design solutions prior to submitting an application will have the added benefit of reducing any uncertainty and subsequent delay in the processing and approval of applications.
- d) Ensure the overall objectives for the landscape design are established at the outset and incorporated into the initial concept for the overall development. This might include the early identification of opportunities such as wildlife corridors and habitat linkages, the provision of reserves and pedestrian connections along and between open spaces, access to and location of watercourses and wetlands and protection of existing valued vegetation. Associated engineering design and works should be compatible with these objectives.
- e) The Consent Holder must demonstrate to the Council that the general design principles (listed in Sections 10.2.5 and 10.2.6) for reserves and streetscapes have been considered, being evident through the proposed landscape plans and wider subdivision design. Not all of the principles will be applicable for each subdivision and the importance of some principles may also vary depending upon the scale and complexity of the subdivision. This will be factored in when assessing if a subdivision application is in accordance with these principles.

10.2.3 Documentation

- a) Detailed Landscape Plans and construction specifications are required at the time of applying for general Engineering Approval (refer to 'Subdivision Process Guide' in Appendix 1). Plans shall be submitted as a complete package, along with plans for other infrastructure developments (e.g. roading, utilities etc.). Where no Engineering Approval is required, Council approval shall be obtained before any landscape construction works begin.
- b) All drawings and documentation must be of sufficient detail and accuracy to ensure understanding of all aspects of the development proposal and assessment of the maintenance implications of the works.
- c) Drawings must show all streetscape and reserve planting and all facilities, structures and furniture that the Consent Holder proposes to install, including existing features to be

retained. Include the location of all existing and proposed above and underground services, irrigation systems and streetlights. Cross sections through typical road corridors are a useful means of detailing tree locations and offset from boundaries and infrastructure (e.g. kerb, footpaths, underground services).

- d) Drawings shall specifically include planting plans and associated plant schedule. This should detail both botanical and common names, PB size / grade at planting, quantity of individual species, plant spacing, staking method, planting medium and any other special planting requirements. The source of plant stock shall be recorded for any identified revegetation planting. Refer to Part 2: General Requirements - Appendix 1, of the Code of Practice, for further information relating to drafting, layout and format requirements.
- e) Full construction specifications are required in conjunction with landscape plans for any structures or specific built items. This is to ensure sufficient detail is provided to allow Council to accurately assess construction method and standard, and avoid future inheritance of faulty items or features that require removal, replacement, repair or ongoing high levels of maintenance.
- f) Wherever the Consent Holder is proposing to carry out landscape development works on behalf of the Council in-lieu of the relevant Development Contribution, a schedule of prices and rates is required to be submitted for approval, along with the corresponding set of landscape plans. Council's Development Contributions Policy for new subdivisions is detailed in the Council's Long Term Plan 2015 - 2025 (p. 243). See link to document below; http://www.selwyn.govt.nz/data/assets/pdf_file/0020/170831/7.-Policies.pdf

10.2.4 Existing Features

Careful consideration should be given to the preservation, incorporation and enhancement of existing landscape features, such as vegetation, natural watercourses and landforms, and features of historic, ecological and geographical significance. Such features can add value to the subdivision and help with the degree to which it is able to be integrated with the existing surrounding landscape, including its natural character, elements, patterns and processes.

The following shall apply:

- a) Discuss the layout of potential developments and any associations with existing features, with Council at the earliest opportunity (e.g. at a pre-application meeting).
- b) Particular attention needs to be given to the retention, integration and enhancement of the following key landscape features, where these may pre-exist in an area proposed for development:

Existing waterways and wetlands

- c) The retention, protection and enhancement of natural waterways and wetlands, and associated biodiversity value, shall be an integral part of any development. Design proposals shall include mechanisms that aim to protect water flows, and enhance water quality and habitat values, e.g. erosion and sediment control, stormwater management, the protection or creation of riparian margins and vegetative buffers.

- d) Create Local Purpose (Esplanade) Reserves around significant natural waterways.
- e) Maximise opportunities to showcase waterways and wetlands as an integral part of a subdivision, by making such areas visible and accessible where appropriate. Allow for their inclusion in newly established reserves, providing walkways and cycleways along margins, designing streetscapes that feature them, and ensuring that all boundary fencing is designed to enable clear visibility from neighbouring properties.
- f) Ensure sufficient space is provided near waterway and wetland areas to enable ease of access for pedestrians, cyclists and maintenance machinery. Consideration should also be given for adequate drainage of paths and grassed areas in these wet environments.

Existing vegetation

- g) Existing vegetation can give 'instant' maturity to a subdivision. The Council may undertake an inspection of existing vegetation on land to be subdivided at the time of the application for subdivision consent, and may require that some trees and other existing vegetation deemed to be of ecological importance or significant amenity value (i.e. vegetation that provides a visual screen), be protected and retained. Existing vegetation to be retained shall be clearly identified on the engineering and landscape drawings, including the extent of all tree canopies, out to their drip-lines. All trees and vegetation must be in a safe, healthy and undamaged condition when accepted by the Council.
- h) Carefully investigate opportunities for the retention of native vegetation and biodiversity values, in particular vegetation associated with sensitive riparian habitats e.g. waterways and wetlands.
- i) Protect and retain all notable/historic trees protected under the *District Plan* or by other legal means, as per the *Selwyn Tree & Vegetation Policy*. *CSS: Part 1* clause 16 – Protection of Natural Assets and Habitats details particular measures to be taken during construction to protect vegetation.
- j) Any pruning, removing or working (e.g. trenching, excavation, filling) near a protected tree will require a resource consent from Council.

Historic & cultural features

- k) Protect and retain culturally significant areas, historic areas (including Ecological Heritage Sites), objects and buildings protected under the *District Plan* or by other formal/legal means, those features of importance to the community, monuments and memorials. The treatment of archaeological remains must be in accordance with the requirements of the *Heritage New Zealand Pouhere Taonga Act* (2014) and any accidental discovery protocol.

Natural landforms

- l) Where practicable, protect natural landforms as they not only convey the natural heritage of the site, but also provide landscape features that add to the sense of place and local identity. See also Sections; 2.5.4 Balancing Landform (General Requirements); 4.4.1 Existing Landforms and 4.6.1 Suitability of Landform (Geotechnical Requirements) of the Code of Practice.

Existing soils

- m) Protect the structural and functional integrity of the soil system. If soils are degraded, their ability to support the range of living organisms declines and their contribution to their own and associated ecosystems will be compromised.
- n) Preserve topsoil in its existing state in reserve areas unless its removal is specifically necessary to allow the construction of infrastructure.

10.2.5 Streetscape Design

10.2.5.1 General

This section sets out the landscape requirements for the design and layout of grassed berms, planting, furniture and structures, located within the street / road corridor. Opportunities for landscaping within streetscapes are diverse, ranging from specimen tree planting within a standard road berm, to planting associated with traffic calming devices and specific landscape features within a development.

The following shall apply:

10.2.5.2 Requirements

- a) Streetscape design is to be considered as part of the design of every development and street redevelopment. The street verge should be more than a means to accommodate utility services.
- b) Designs shall provide for maximum long term benefit with minimum ongoing maintenance requirements for Council and shall not compromise the safe use of the road corridor or affect its structural integrity.
- c) The Consent Holder is encouraged to engage a qualified Landscape Architect early in the subdivision design process, to allow for careful planning of the streetscape and a considered approach to include urban design and landscape principles. Doing so will likely result in a quality streetscape that is both attractive and functional, protecting essential utility services and road user safety.
- d) As part of the Engineering Approval process, the Consent Holder shall enter into negotiations with the Council to reach agreement on the following;
 - i. An approved landscape plan and specifications.
 - ii. What elements of the landscape plan the Consent Holder will implement.
 - iii. The level of development to which completed works are carried out.
 - iv. The standard of finish to which completed works are carried out.
 - v. Future maintenance requirements.
- e) Streetscape assets will be vested in Council once developed to the agreed level and the s224(c) certificate is signed off, although maintenance responsibilities will not be transferred to Council until after the specified maintenance and defects period.

10.2.5.3 Design

The following considerations shall apply when undertaking streetscape design:

General

- a) Well designed and coordinated landscaping and other streetscape elements can contribute to the quality of the street environment in the following ways:

Aesthetically	Functionally
Provide visual amenity, connectivity and cohesion to the street environment	Provide shade, shelter and privacy
Provide continuity and containment to the streetscape	Reduce glare and reflection, traffic noise and air pollution
Provide colour, form and texture	Provide separation between traffic and pedestrians / property
Contain vistas and screen unsightly outlooks	Define boundaries
Reduce the visual impact of hard surfaces and built forms	Provide habitat for fauna
Create a sense of place, define character and strengthen local identity	Give legibility and assists driver recognition of road bends, junctions and road hierarchy

Table 1: Qualities of well-designed and landscaped streetscapes.

- b) Streetscape design shall support road function and hierarchy and provide a safe environment for users and maintenance personal. Ensure specified 'clear zones' for arterial and collector roads as specified in Section 8.17.10 (Roads and Transport) are adhered to when locating streetscape elements e.g., street furniture and large trees (trunk diameter over 100mm).
- c) Give consideration to the allocation of sufficient dimensions to street verges, to allow equal provision of site specific requirements, services and landscape elements (e.g. street furniture, vegetation, lighting, surface treatments and signage), so as to maintain functional requirements, avoid physical and visual clutter, and conflicts between infrastructure and landscaping.
- d) Alternative proposals for landscape and street layouts that demonstrate how planting may support road hierarchy and function shall be considered. For example:
 - i. A central tree lined median (see Fig 1). Appropriate only where access function to the opposing lane is not prioritised.

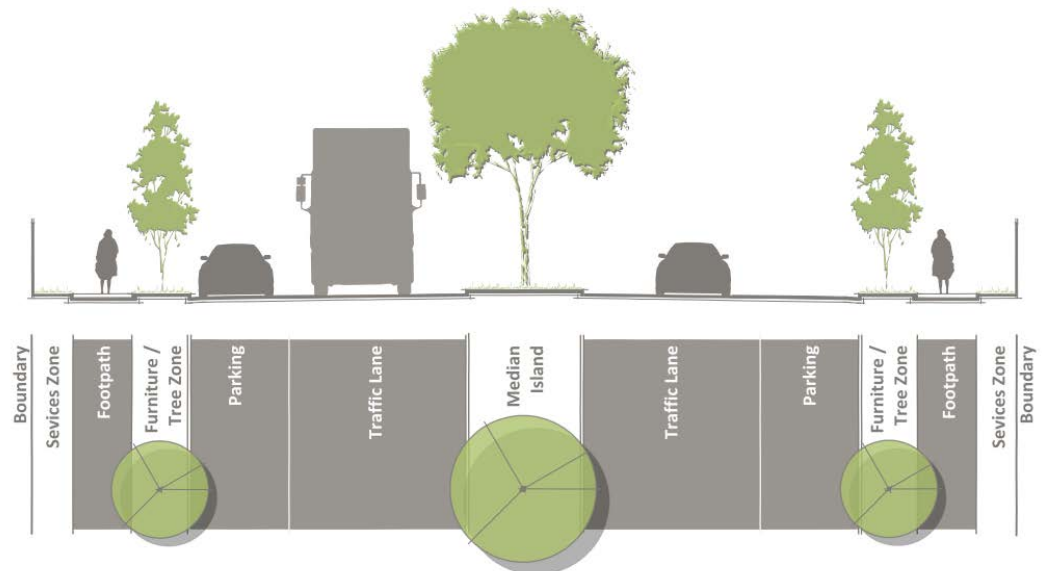


Figure 1: Street layout with central median and boulevard tree planting.

- ii. The provision of trees in a dedicated "non-services" berm either side of a straight or meandering footpath (see Fig 2). Give consideration (e.g. proximity to dwellings and species selection) to street trees planted against residential boundaries in terms of future negative effects.

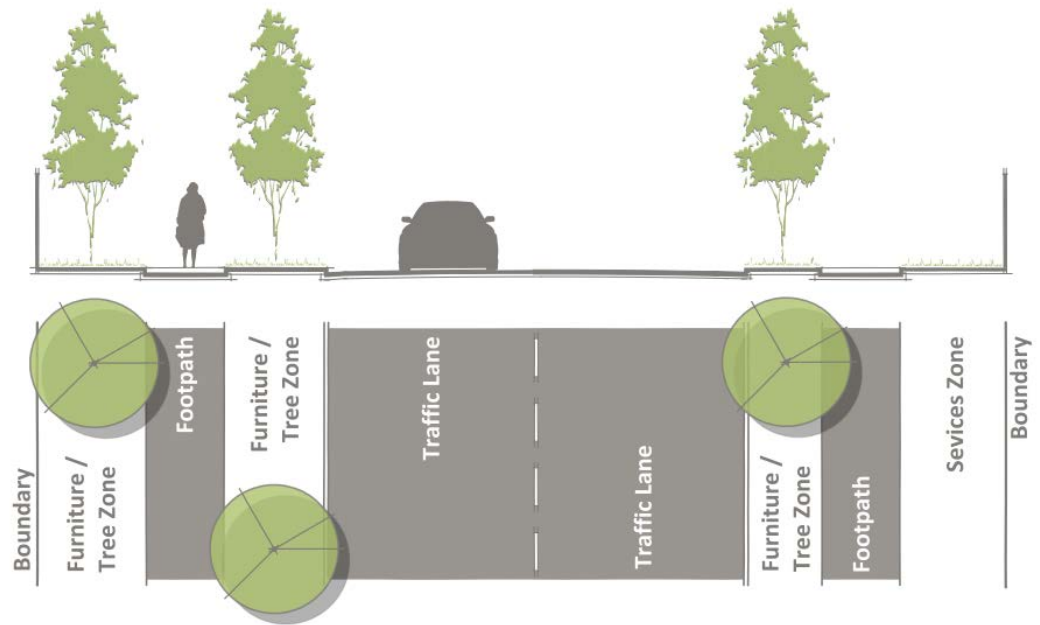


Figure 2: Dedicated non-services berm allowing for avenue planting either side of a footpath.

- iii. The provision of designated parking bays and trees within the carriageway, but outside the live lane (see Fig 3). May be effective as a traffic calming measure where required for local roads with low traffic volumes or minimal through traffic.

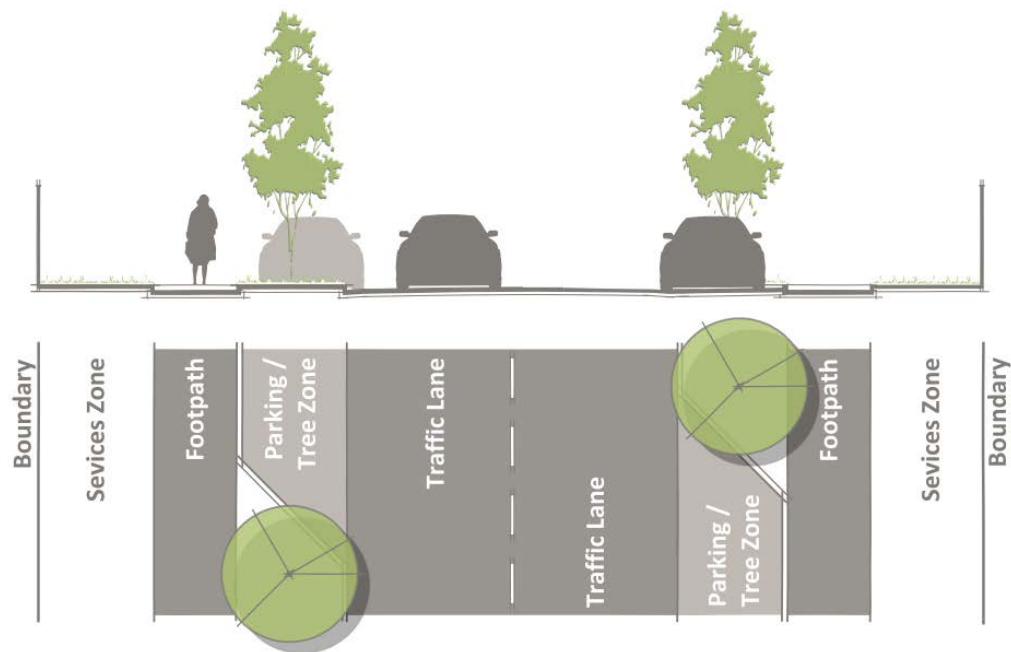


Figure 3: Designated parking bays and tree planting within the carriageway.

- iv. Varying boundary lines along streets to create space for groupings of trees, which may help accentuate road perception or have more impact than individual trees placed at regular spacing (see Fig 4). More appropriate to rural residential or subdivisions with larger sections, where an informal street tree layout might be more reflective of the rural environment, complementing plantings along private property boundaries.

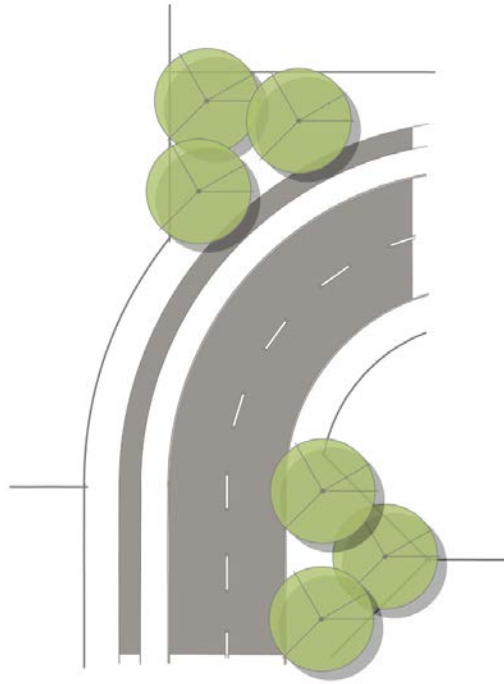


Figure 4: Subdivision layout with varied boundary lines to allow for groupings of street trees.

For more information reference should be made to Council's Subdivision Design Guide.

- e) Future maintenance requirements shall be considered early in the design process to identify landscape treatments that may facilitate the ease and efficiency of ongoing maintenance and to avoid landscape features where operational and maintenance costs could become prohibitive to Council. Council encourages innovative design applications that result in increased infrastructure quality, amenity value, operational and maintenance cost benefits.
- f) Crime Prevention through Environmental Design (CPTED) principals shall be considered and applied.

Landscape Planting

- g) The design and placement of street trees and gardens shall be in accordance with the *Selwyn Tree & Vegetation Policy* and shall not affect the safe functionality of the street as a transport corridor for pedestrians, cyclists and vehicles.

- h) Street trees shall ideally be located within the 'furniture' zone (between the footpath and kerb / parking zone) and set back no less than 0.7m from the back of the kerb (as per Fig. 5). Planting within this zone helps to increase the physical separation between vehicles and pedestrians and reduces the effects of shading and leaf fall on adjoining properties.
- i) In local, low speed environments with low traffic volumes, street trees may be located within the parking zone itself, i.e. alternating parking with landscaped bays (as per Fig. 3). Trees planted in this manner require specialised planting pits (structural soils), with adequate protection (tree guards).
- j) Options for street tree planting configurations may include:
 - i. **Formal avenues** – Single species symmetrically spaced
 - ii. **Informal avenues** – Asymmetrically arranged single species.
 - iii. **Patterned planting** – Multiple species in a patterned avenue or group planting.
 - iv. **Focal or landmark planting** – Street trees used to highlight presence of an entry, community focus or precinct by use of contrasting species.
- k) Generally, street trees shall be spaced to achieve a consistent visual presentation, through symmetry and repetition. Carefully consider species choice and the scale of street trees at maturity, in relation to road corridor width and planting layout / spacing. Trees are to be planted with sufficient space between them to allow healthy development of full mature canopies. Generally, a spacing of one tree per residential section is considered appropriate to achieve the above design intent.
- l) Street trees planted within clear zones (as per condition b above) should have frangible trunks (mature width of less than 100mm diameter).
- m) Priority shall be given to ensuring street trees are planted within berms of adequate width, soil volume and quality, to avoid future damage to utility services and street infrastructure. Trees shall not be planted in berms of less than 1.5m width, including where underground utilities may restrict the 'available' berm width to less than 1.5m. Where the berm is under 2.0m wide, carefully consider species choice and growth characteristics of the tree e.g., mature tree trunk size, surface rooting. Proper tree selection within a street corridor is critical to long-term success. See general guidelines in table 2 below.

Grassed Berm Width	Mature Tree Height (m)
1.5m	3 – 9m
1.5 – 2m	9 – 12m
2 – 3m	12 – 15m
3 m+	15 m+

Table 2: Required ratio of berm width to mature tree height.

- n) The installation of a root barrier is not a guaranteed method of containment and should only be used as an option of last resort. See table 3 and Fig. 5 below for requirements relating to the installation of tree root control barriers to protect adjacent services / infrastructure.
- o) Tree species selection shall provide for a clear trunk to a high canopy so as to not impede visibility or movement within the road and footpath corridor.

- p) Where road alignment runs east to west, carefully consider planting proposals on the southern berm to avoid excessive shading of properties.
- q) Generally, street gardens shall be limited to subdivision entrances, points of interest or intersections with arterial or collector roads only and shall have strong regard to ongoing maintenance costs and safety of maintenance Contractors.
- r) Where appropriate, consider integration of streetscape plantings with stormwater management systems.
- s) Street gardens are an acceptable treatment for medians, traffic islands and other places where grass mowing would be difficult and too large to apply hard surfacing.
- t) Street gardens of less than 50m² in area or less than 600mm in width are not permitted, unless specifically required for the treatment of medians or traffic islands, as per condition q) above.
- u) All planting within street gardens shall be designed to comply with the safe intersection sight distance (SIFD) requirements and sight distance standards at vehicle crossings as specified in Part 8: Roading Transportation and the *District Plan, Appendix 10 Rural and Appendix 13 Townships*. Plant height shall not exceed 450mm within the specified sight triangles of intersections and vehicle crossings, and not more than 100mm high in front of low intersection signboards.
- v) All plantings shall have densities that achieve 100% coverage of soil within 2 years.
- w) Street gardens placed in private right-of-way's, roads or lanes will not be maintained by Council.
- x) Plants with strappy / drooping stems or leaves that pose a trip hazard to pedestrians should be positioned so that the leaves of mature plants will not hang over any footpath or accessway.
- y) Passengers must be able to exit parked vehicles without traversing a planted area. The front / rear of vehicles must be able to extend over kerbs without damaging planting.
- z) Where it is proposed to provide an increased level of landscaping, tree or shrub planting, this shall be permitted where the whole of life costs for the landscaping is acceptable to Council. In establishing the whole of life cost, consideration may be given to any agreements in place with Council, e.g., extended maintenance or defects terms.

Topsoil and Grassing

- aa) As a minimum standard, all berms within the road corridor not covered by the carriageway, entranceways or footpath network, or provided for elsewhere in the Code of Practice, shall be levelled, topsoiled and grassed (as per Condition 10.3.4). This is required irrespective of where a Resource Consent Condition or Engineering Approval exempts the need for any landscaping, tree or shrub planting.
- bb) Areas which are prone to erosion or where stability problems may occur are required to be planted or hydro-seeded, as specified by Council.

Compatibility with Engineering Design and Utility Services

- cc) Landscape plans shall be associated with engineering and network utilities plans to ensure that landscape works are compatible and do not compromise the integrity and efficient operation of above or below ground infrastructural services. Refer to Part 9 (Utilities) of the Code of Practice for further criteria in relation to the location, layout and required clearances of typical utility services.
- dd) To ensure compatibility with engineering and network utilities, all planting plans submitted for Council approval shall include detail of all above or below ground infrastructural services.
- ee) Locate street trees to ensure that they will not affect street lighting (minimum 6m offset from poles), create dark spots or create shaded areas that could lead to icing of carriageways in winter.
- ff) Where overhead power or communication lines occur, consider the size and growth / branching habit of trees and tolerance to severe pruning. See the *Selwyn Tree & Vegetation Policy* for further guidance on species selection and required clearances.
- gg) Consider the expected location of future entranceways and proximity to these when positioning street trees and gardens.
- hh) Precedence shall be given to the allocation of sufficient berm width dedicated for tree planting and appropriate species selection, without the need for reliance on root control barriers (as highlighted red in Table 3. below). Where this is not possible, all trees planted within the required clearance distances (as specified in table 3) from electricity cables, utility services and street infrastructure will need to have a root control barrier installed. The barrier is to be no closer to the utility/infrastructure than the clearances shown.
- ii) Root barrier is to be Amoco 4550 or equivalent, extending for a length of 3m parallel to the service trench (1.5m either side of the centre of the tree) and to a depth of 0.9m. There shall be a minimum 0.7m clearance between the tree and barrier. See Fig. 5 for further explanation.

Utility Service / Infrastructure	Minimum tree clearance without barrier (m)	Minimum tree clearance with barrier (m)	Minimum clearance between barrier and cable / pipeline (m)
66kv Cable	5.0	2.5	2.0
33kv Cable	5.0	2.5	2.0
11kv Cable	3.0	1.0	0.3
0.4kv Cable	2.0	1.0	0.3
Water Pipeline	2.0	1.0	0.3
Sewer Pipeline / Lateral	2.0	1.0	0.3
Footpath	1.5	0.7	-
Road Kerb	1.0	0.7	-

Table 3: Required minimum clearances from utility services for trees with and without root control barriers installed.

- jj) Similarly, new services need to provide these distances (as listed above) from semi-mature and mature trees that are required to be retained. The protection of trees, vegetation and landscape features from any damage that may result from construction operations, shall be in accordance with the Selwyn District Council *Trees & Vegetation in Selwyn District: Management Policy Manual* and the Christchurch City Council Civil Engineering Construction Standard Specification (2014) Part 1 Section 19.3 to 19.6.
- kk) Ensure plantings in swales do not obscure or obstruct the access to structures or access for maintenance machinery, or compromise the hydraulic functionality of the system over time.

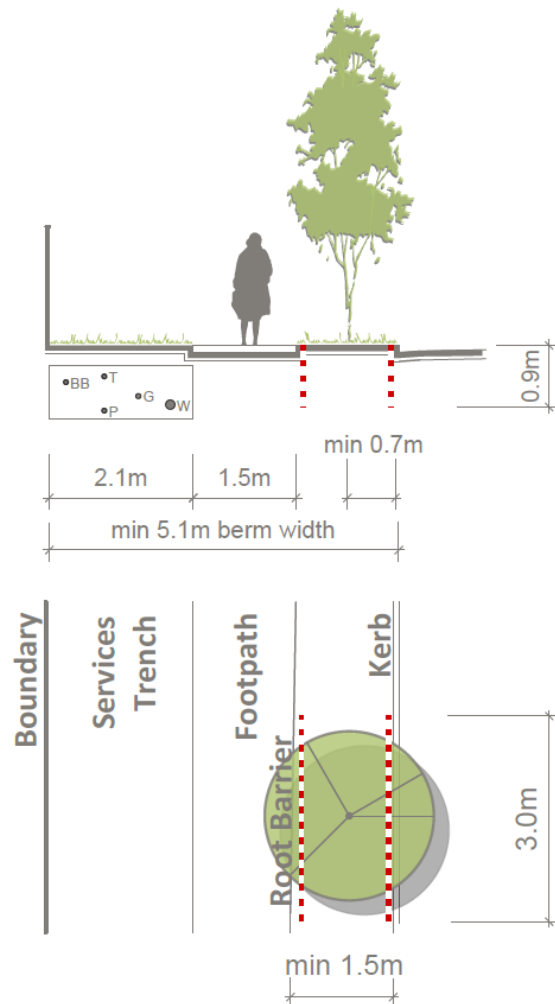


Figure 5: Requirements for root control barrier installation to street trees.

10.2.6 Reserve Design

10.2.6.1 General

This section sets out the requirements for the provision, planning and design of reserves, as part of subdivision development.

Well designed and located reserves can add a high level of amenity and value to a development, and contribute to the wider health and wellbeing of the District's environment and its people. Open space generally, can serve a range of functions, including; providing settings for recreation and physical activity; facilitating public access; improving amenity values; preservation of significant landscapes and ecological values; providing community focal points for local neighbourhoods and allowing opportunities for social and cultural connections.

The following shall apply:

- a) The Council gives priority to the allocation and integration of reserves and associated recreation opportunities into developments and their equitable distribution throughout the District and within each area of urban expansion.
- b) As applicable to the situation and size of each development, the placement, type and integration of reserves shall form part of the early planning of a development, and not based on 'left-over' space following the allocation of residential sections.
- c) The location of the reserve within the subdivision should be consistent with the Outline Development Plan for the area (if available) as recorded in the Selwyn District Plan and/or meet the distribution criteria adopted by Council of 500 metres from residences (easy walking distance).
- d) The size/area of the reserve to be provided should be guided by Council's level of service standard for provision (1.2 hectares per 1,000 population) and the preferred sizes outlined in the Council's Development Contributions Policy (refer section 7.5).

10.2.6.2 Requirements

- a) A Consent Holder who wishes to contribute to the early development of recreation facilities and/or landscape features on a proposed reserve to be vested, should enter into negotiations with the Council to reach agreement on:
 - vi. The planned future use of the reserve as determined by Council.
 - vii. An approved landscape plan, costings and specifications for the reserve.
 - viii. What elements of the landscape plan the Consent Holder will implement.
 - ix. The level of development and standard of finish to which completed works are carried out.
 - x. The improvements to be undertaken by the Consent Holder and their value that will be accepted by Council as credits towards reserve contributions.
 - xi. The balance of reserve contribution owing to the Council in cash (if applicable).
 - xii. Future maintenance requirements.

- b) The requirements for each reserve area may be specific and will depend on what has generally been agreed between the Council and the Consent Holder.
- c) The Applicant / Consent Holder is expected to consider the community's needs and aspirations, environmental criteria, existing features and vegetation of the development site, and the direct and indirect economic implications when locating, planning and designing each reserve. To assist with this, the Applicant / Consent Holder is encouraged to engage a qualified Landscape Architect and discuss reserve concepts with the Council, to ensure that the provision of reserves will satisfy all of these requirements. It is preferable for this to begin early in the subdivision design process; i) before applying for resource consent, in terms of reaching an agreement on the total provision of reserve area, and ii) prior to applying for engineering approval to discuss reserve design concepts. Refer to the 'Subdivision Process Guide' in Appendix 1 for further guidance on the need for pre-application meetings.
- d) Each reserve must be classified in accordance with its primary purpose e.g. recreation or local purpose (utility, esplanade etc.), and this must be recorded on the subdivision consent layout plan. Discussions must be held with Council at an early stage to confirm reserve land classification.
- e) The s224(c) certificate will only be signed off once the reserve is developed to the agreed level. The reserve will be vested in Council once the s224(c) is issued, however maintenance responsibilities will not be transferred to Council until the defects / maintenance period is completed.
- f) The Council will if necessary, carry out further landscape development as and when capital funding becomes available.

10.2.6.3 Design

The following considerations shall apply when undertaking reserve design:

General

- a) Consider the relationship of one reserve to another, in terms of reasonable proximity, how it contributes to a linked network of reserves, corridors and other public facilities, and avoids duplication of similar facilities nearby. Reserves which are positioned strategically within a subdivision, are well integrated into the local landscape and are easily accessible, are generally well utilised and serve a purpose as an integral part of the community.
- b) Reserves should be positioned and designed so as to be visible and accessible, encouraging community appreciation, enjoyment of amenity values and sense of community wellbeing. Provide opportunity for passive surveillance from adjoining land uses to increase perceived safety, and ensure this visibility is maintained when landscaped, i.e. by specifying low or open fencing and planting.

- c) Well designed and coordinated landscaping can make a positive contribution to the reserve, surrounding community and environment in one or more of the following ways;

Aesthetically	Functionally
Frame views	Provide shade, shelter and privacy
Emphasise landforms, soil types and landscape features	Reduce noise and air pollution
Structure spaces	Control erosion
Reduce the visual impact of roads and hard surfaces	Protect and improve water quality
Screen unsightly outlooks	Create physical barriers
Provide colour, form and texture	Provide recreation and amenity value
Extend and enhance the District's heritage and image	Protect and enhance indigenous biodiversity
Provide a legible and imaginative planting framework for the District	Protect and restore cultural and historical resources and values

Table 4: Qualities of well-designed and landscaped reserves.

- d) Proposed recreational assets shall cater for the needs of the surrounding community, as identified by Council in their *Activity Management Plan* and through analysis of local demographics, residential densities, and activity and leisure trends. Reserves shall be designed to provide a degree of flexibility in terms of both passive and active activities for users, while reflecting the needs of the local community.
- e) Consider the suitability of the site for its intended purpose and how proposed landscape features will be matched to the purpose of the reserve and be of an acceptable maintenance schedule. This shall also apply to any existing natural features being retained.
- f) Consider opportunities for shared use of the land for both recreational and infrastructural purposes, such as drainage easements and stormwater retention, provided the main purpose of the reserve is not unduly compromised.
- g) Future maintenance requirements shall be considered early in the design process to identify landscape treatments that may facilitate the ease and efficiency of ongoing maintenance and to avoid landscape features where operational and maintenance costs could become prohibitive to Council. Council encourages innovative design applications that result in increased infrastructure quality and amenity value, but with operational and maintenance cost benefits.
- h) Consider the potential for a reduction in building material waste, i.e. reusing excavated material elsewhere in the development or using materials with a high recycled content (see: <http://www.branz.co.nz/REBRI> for further information).
- i) Crime Prevention through Environmental Design (CPTED) principals shall be considered and applied.

Existing Features

- j) Existing natural features shall be retained unless they do not fit with the proposed use of the reserve, as determined by the Council.

- k) Suitable healthy trees shall be retained where practicable. Discussion and agreement with Council's Parks Manager / Landscape Architect shall take place prior to lodging infrastructure development plans for engineering approval.
- l) All existing trees that are affected by the proposed works shall be shown on infrastructure development and landscape plans. This includes any intrusion within the drip-line and/or root system, access to site or other potential risks to a tree by nature of the works occurring.
- m) Reserves shall be free from noxious and invasive weeds, tree stumps, old shelter belts, buildings and foundations, aggregates and any other material/s that inhibits the reserves intended use, unless otherwise approved by Council.
- n) Before diverting or altering, in any form, an existing water race, a water race relocation application must be applied for and approved by Council prior to any work being undertaken.

Landform, Contouring and Drainage

- o) The final landform of the reserve shall be designed to be appropriate for the intended use, allow provision of any existing or future underground services and, as far as possible, align with the adjoining landform.
- p) Except where dictated by a natural feature (e.g. an open watercourse) no batter of lawn areas shall be greater than a 1 in 5 gradient to allow for mowing by tractor mounted equipment. On mounds, or where there is a significant change in gradient, design and construct lawns to avoid potential for mowers scalping the ground surface.
- q) Reserve areas shall allow for adequate drainage to permit year-round use with no part of the reserve being affected by excessive ponding under normal conditions. Lawn areas shall generally be graded to ensure that surface water drains to a suitable area or outlet. Wherever gradients are flat, the subsurface must have sufficient free drainage to ensure that water does not pond or settle.

Landscape Planting

- r) Plantings shall be appropriately designed and located for the scale and character of the development. Consider the particular requirements of the reserve, including possible future requirements to avoid restricting future use or development opportunities.
- s) The planting design shall principally be guided by; public safety, effects on neighbouring properties, compatibility with infrastructural services, and, access and maintenance costs. The proximity of existing or future; houses, buildings, services, footpaths, cycleways and accessways should be considered when selecting plant species and their location.
- t) Locate trees and shrub plantings to minimise ongoing maintenance costs, i.e., group shrubs and groundcovers together in mulched plant beds, and avoid plantings that require removal, pruning or thinning in the short to medium term. Consider installing fewer gardens of larger size as opposed to numerous small garden plots.
- u) All plantings shall have densities that achieve 100% coverage of soil within 2 years.

- v) Consider placement and required offsets of plants with drooping stems or leaves that may pose a trip hazard to pedestrians, so that the leaves of mature plants will not hang over any footpath or accessway.
- w) All planting must comply with Council's *Tree and Vegetation Policy* and guidelines for safe environmental design outlined in *CPTED*.
- x) Design and implement all planting around riparian areas (including stormwater swales, detention ponds and rain gardens) in accordance with the Christchurch City Council *Waterways, Wetlands and Drainage Guide*. Riparian areas shall generally be planted to the waters edge, except where access is required and the slope is appropriate to allow a maintained grass edge.
- y) Where it is proposed to provide an increased level of landscaping, tree or shrub planting, this shall be permitted where the whole of life costs for the landscaping is acceptable to Council. In establishing the whole of life cost, consideration may be given to any agreements in place with Council, e.g., extended maintenance or defects terms.

Topsoil and Grassing

- z) As a minimum standard, all reserve areas shall be levelled, topsoiled and grassed (as per Condition 10.3.4), irrespective of where a Resource Consent Condition or Engineering Approval exempts the need for any landscaping, tree or shrub planting.

Access and Parking

- aa) Allow for the provision of logical, safe and attractive public access (pedestrians and cyclists), in accordance with CPTED principles. Ensure good linkages to access points and activity areas, within and between reserves and other community facilities.
- bb) Public access shall be direct, as short as possible, and have good sightlines to allow casual surveillance and increase user safety.
- cc) Formed, classified pedestrian-only footpaths should be between 1.5m and 2.0m wide. Paths that are required to be shared by both pedestrians and cyclists should be at least 2.5m wide. Increase the path width to 3.0m in situations where a high level of use is expected. All sealed surfaces shall have an ideal crossfall of 1.5%. Refer to Section 8.5 – Off Road Linkages (Part 8: Roads and Transport) and Christchurch City Council *Parks and Waterways Access Policy* (2002) for further information on the design and layout of footpaths and cycleways.
- dd) Acceptable surface treatments for footpath and cycleways within reserves are asphaltic concrete, concrete with broom or exposed aggregate finish, profile decking timber or paving bricks with abrasive finish. Chipseal may be permitted in more natural reserve areas on level gradients (i.e. where there is reduced potential for slipping underfoot). Details of proposed surface finishes, other than asphalt, shall be specified within landscape plans / construction specifications, and submitted to Council for approval.
- ee) Boardwalks may be required as part of the path or walkway/track network to allow the area to be accessible to disabled people and to protect sensitive areas such as wetlands

and the root zones of protected trees. These must be durable and slip resistant, with necessary Engineering approvals (PS1, PS4), and building or resource consent approval as applicable.

- ff) Bollard fencing is required on all reserve road frontages, to prevent unauthorised vehicular access from damaging the reserve or posing a safety risk to reserve users. The design of barriers shall be consistent with other design elements in the reserve and be located to best achieve their purpose in coordination with other elements such as garden beds and tree planting.
- gg) Access roadways and off-street parking may be required for some reserves such as; sporting, heritage and regional parks; destination parks with playground and youth facilities; and the starting points of walking tracks and cycleways. Consult with Council to ensure that adequate access and parking is provided.
- hh) Provide for restricted access to reserves that is suitable for heavy maintenance and emergency vehicles. Consider the location of access points as part of the overall reserve design.
- ii) Provide access for mowers to all lawn areas within reserves. Position trees, garden beds and other elements so that there is a minimum width clearance of 2.5 metres to all grassed areas to allow mowing by tractor-mounted or ride-on mowers typically used by maintenance staff.

Compatibility with Engineering Design and Utility Services

- jj) Landscape plans shall be associated with engineering and earthworks plans to ensure that all development works are compatible.
- kk) The location of specimen trees and reserve gardens must not compromise the efficient operation of existing and future infrastructural services.
- ll) Plant locations must comply with the legal overhead and underground clearance requirements of network operators, with allowance made for the natural growth of the plants to maturity. Planting offsets from utilities services, kerbs and footpaths shall be as prescribed above for trees and gardens within streetscapes (see Section 10.2.5.3 - Compatibility with Engineering Design and Utility Services).
- mm) Similarly, new services need to provide these distances (as listed above) from semi-mature and mature trees that are required to be retained. The protection of trees, vegetation and landscape features from any damage that may result from construction operations, shall be in accordance with the Selwyn District Council *Trees & Vegetation in Selwyn District: Management Policy Manual* and the Christchurch City Council Civil Engineering Construction Standard Specification (2014) Part 1 Section 19.3 to 19.6.
- nn) Ensure plantings in swales do not obscure or obstruct the access to structures or access for maintenance machinery, or compromise the hydraulic functionality of the system over time.

10.2.6.5 Utilities

The following shall apply:

- a) The Council must approve the location of any utility service (above or underground) to be installed in any reserve. The utility service needs to be shown accurately and to scale on the landscape plans.
- b) Any above or below ground utilities located on or that have alignment through reserve land which is or is to be vested in Council shall require an easement in gross over that asset. The only exception to this is for stormwater assets on a drainage reserve.
- c) Above ground structures should be of appropriate scale and location so as to not limit the provision and use of the reserve for its prime purpose or interfere with pedestrian and cycle paths.
- d) Where there may be potential hazards created by the placement of utilities on reserves (e.g. gas storage), these will have adequate physical separation from recreation reserves.
- e) Where a reserve is to be provided, the Consent Holder shall supply a water connection, as specified in the resource consent conditions, installed over the legal boundary into the reserve. The location of supply needs to be clearly shown on the appropriate engineering drawings and landscape plans to allow Council to determine suitability for future requirements.
- f) Refer to Part 9 (Utilities) of the Code of Practice for further criteria in relation to the location, layout and required clearances of typical utility services.

10.2.6.6 Restoration – Revegetation and Ecological Restoration

There may be opportunities to further enhance or restore biodiversity values within a reserve as part of subdivision development, for example:

- i. To carry out infill planting in identified remnant native plant associations.
- ii. The rehabilitation or reestablishment of degraded or lost plant associations as a result of site disturbance (e.g. subdivision).
- iii. Protection of waterways through riparian planting and buffer zones.
- iv. Creation of habitat through stormwater management and associated planting (e.g. rain gardens, swales, soakage basins and created wetlands).

Such opportunities should be identified at the earliest stage of planning a development.

The following shall apply:

- a) Revegetation plantings shall be based on ecological principles. Plants should generally be endemic to the area and eco-sourced where possible. Eco-sourcing means that the plants are grown from seeds which have been collected from old naturally established plants (e.g. forest remnants) that are as close as possible to the revegetation site. There are nurseries that specialise in supplying eco-sourced plants.

- b) Take into account existing and future variations in micro-topography and microclimate. For example, in stormwater basin and swale plantings, consider the use of species that will tolerate inundation and variations in the groundwater and surface water levels.
- c) Group plants informally or space them individually to produce a natural appearance. Plant spacings must be between 1.5m and 0.75m centres, dependent on the species. In some circumstances (e.g. steep slopes or unstable ground) it may be necessary to reduce spacings to less than 0.75m centres to ensure quick coverage, promote bank stability and lessen maintenance costs. The selection and placement of plants should reflect natural succession processes.

10.2.6.7 Amenity floral beds

- a) Amenity floral beds are gardens that contain plants which require significant horticultural management. The high cost of establishment and maintenance of such gardens may make them unsuitable for most streetscapes and reserves.
- b) Approval for any amenity floral bed proposal will be given under extenuating circumstances only.

10.2.6.8 Wild flower planting

- a) Wildflower plantings are traditionally incorporated into managed lawn areas. Such plantings are found to be transitory, i.e., maintain a neat appearance for a short period before undesirable weeds gradually phase out desired species. The nature of such plantings and specific management regimes generally make them unsuitable for public reserves and streetscapes.
- b) Approval for proposals to integrate wildflower species within lawn managed areas will be given under extenuating circumstances only.

10.2.7 Facilities, Structures and Furniture Design

10.2.7.1 General

This section sets out the requirements for the provision, planning and design of facilities, structures and furniture, located within reserves and streetscapes as part of subdivision development.

Facilities, structures and furniture include (but are not limited to) street furniture, play equipment, sculptures, pergolas, walls, fences, screens, bridges, bollards, entranceways, posts, etc. and may be of materials such as concrete, brick, stone, rock, steel and timber.

The following shall apply:

- a) Any proposed furniture or structure needs to be robust, fit for purpose, safe for public use, function efficiently, have high aesthetic appeal, and shall not cause unjustified nuisance for adjoining landowners.
- b) Durability, ongoing maintenance requirements and the expected life span of proposed furniture and structures shall be considered, to reduce the frequency of renewing or replacing such assets in future and causing a disproportionate burden on Council resources.
- c) Structures shall not obstruct signs, sightlines at intersections and pedestrian crossings. Separation distances must be considered together with trees and other landscaping features.
- d) The Consent Holder is responsible for gaining all necessary Resource Consents, Engineering Producer Statements, Building Consents and Code of Compliance Certificates as required under various legislation. These will be applied for and granted to the Consent Holder as the applicant and owner of the asset prior to construction / installation.

10.2.7.2 Subdivision Entrance Structures, Features and Signage

- a) Structures, features or signage associated with subdivision entranceways will not be permitted in new subdivisions, unless they comply with Clause 10.2.7.2 b) below. It is Council's view that features associated with subdivision entranceways are intended to personalise and enhance developments and increase their market appeal. Any value they add in terms of community benefit, amenity or quality of life is grossly disproportionate to the high replacement cost and ongoing maintenance burden these structures place on Council as they age.
- b) Structures, features or signage associated with a subdivision entranceway shall be located within private lots and form, or be incorporated into the boundary fencing of that lot. The certificate of title shall include legal mechanisms setting out protection measures and the maintenance requirements to be undertaken by the lot owner, or a body corporate established to maintain the entranceway.

10.2.7.3 Playgrounds and Play Structures

- a) The Council's objective is to provide and develop interesting and exciting playgrounds that meet the needs of the local community and, in the case of district facilities, the needs and aspirations of the wider community.
- b) Approval shall be obtained from the Council for the installation of any play equipment within a reserve, including the type and style of equipment and target user age group. This prevents oversupply or duplication of play facilities in other reserves nearby and allows a coordinated approach to the delivery of Council's Play Space Strategy and its network of play facilities. Discuss opportunities for the inclusion of play equipment within a reserve at a pre application meeting, prior to submitting resource consent (See Appendix 1 - 'Subdivision Process Guide').
- c) Specific design plans of proposed playground areas shall be submitted for Council approval in conjunction with landscape plans and documentation. Drawings shall demonstrate compliance with NZS5828:2015 and clearly identify the following;
 - All equipment by type and manufacturer.
 - Suggested user age range.
 - Free space/fall zone requirements.
 - Safety surface material.
 - Edge treatment to contain safety surfacing.
 - Drainage treatment.
 - Any associated amenities (e.g. paved access, shelter, seating).
- d) It is important to consider the entire landscape design for the reserve and the use of natural features to promote opportunities for informal play, and to use these in conjunction with formal play equipment or structures.
- e) Provide play opportunities and equipment which cater for a wide range of ages and abilities, which are challenging and provide learning opportunities for children.
- f) All play facilities must comply with:
 - NZS 5828:2015 *Playground equipment and surfacing*
 - Selwyn District Council *Playspace Strategy* (Draft)
 - Selwyn District Council *Community Facilities Activity Management Plan*
- g) If a loose softfall material is proposed for safety surfacing, this shall be contained within a timber surround, sufficient level change or other means to prevent migration of material outside of the play area.

10.2.7.4 Reserve Boundary Fencing

- a) All common boundaries of any reserve (including esplanade and accessway reserves), shall be permanently fenced according to the following requirements:

Fence Type	Maximum Height
Solid Fence	1.2m
Permeable Fence	1.8m

Table 5: Restrictions on boundary fencing adjoining reserves.

- b) Permeable fencing shall be at least 50% visually permeable. Council encourages the use of open frontages onto reserves. For further information see; *A guide to urban fencing in the Selwyn District* (2015) and the *Urban Fencing in the Selwyn District* (2015) pamphlet.
- c) Fencing associated with subdivisions zoned as rural residential shall be open and semi transparent such as post and wire or post and rail, in a style that compliments the surrounding rural landscape.
- d) So as to establish a consistent character, the Consent Holder should co-ordinate fence design (as per above conditions) and complete installation of all reserve fencing before the subdivision is completed and sections are sold. Covenants may be used in this regard to control style and appearance of fencing, in keeping with District Plan Rules.
- e) Council may specify that a fencing covenant be registered against all titles of properties with a common boundary to reserve land, indemnifying Council against all costs for the construction and maintenance of fences on common boundaries.

10.2.7.5 Street Furniture

- a) Street Furniture is a collective term given to common elements within reserve and streetscape settings, such as seating, drinking fountains, bollards and litter bins. To avoid duplication of facilities and avoid ongoing maintenance burden, Council approval (via approval of submitted landscape plans) must be given for the installation of any furniture item.
- b) To ensure functionality and quality of furniture installed and to give some consistency and certainty to maintenance and replacement programmes, all furniture items shall generally be products known to Council and sourced from trusted suppliers. Council approval (at the landscape engineering plan approval stage) is required in terms of product type / design and supplier.
- c) Alternative furniture product designs or styles will be considered by Council on a case by case basis, for example; where it is considered necessary to fit with the character of a streetscape or reserve and no suitable 'off the shelf' option exists; where a higher standard of appearance or finish is required or it is considered necessary for a custom built product (e.g. high profile premier parks or town centre developments).
- d) Consult with Council early in the design process where it is intended to use alternative products or furniture items. Product items are required to meet certain criteria, including; of robust construction, fit for purpose, safe for public use and require minimal maintenance.
- e) Where street furniture is proposed as part of a development it shall have a design life of no less than 20 years.

10.2.7.6 Lighting

- a) The Council prefers to light only those paths and cycleways that are designated safe routes, as identified through the *CPTED* process. Although lighting can be beneficial,

areas that are lit are not necessarily safe and can give an undesirable message that it is safe to use an area or accessway after dark.

- b) The *CPTED* guidelines explain how to use lighting appropriately. Refer to Part 11 (Lighting) of the Code of Practice for more detail on required lighting categories and implementation for footpaths and shared cycleways in reserves.

10.2.7.7 Irrigation

- a) The Council's long-term goal is efficient and sustainable use of the District's water supply. The reliance on irrigation should therefore be minimised as much as possible by matching plant species to the local site conditions.
- b) Generally, the provision of permanent automatic irrigation will be necessary in order to overcome difficulties with local site conditions that could prevent the reasonable establishment and growth of specimen trees in streetscapes and reserves, particularly in areas of the District that feature drier, free draining soils.
- c) Council approval is required before the installation of any irrigation system. Proposals shall be assessed on a case by case basis.
- d) The provision of a semi-permanent or temporary irrigation system may be beneficial during the establishment of garden beds and/or planted borders within reserves. Selected plant species shall be suited to local growing conditions without dependence on irrigation, allowing the irrigation system to be removed once planting is established or at the end of the landscape maintenance period.
- e) At the end of the maintenance period, the Council may either negotiate to take over irrigation systems at no cost, or request the water supply to be disconnected and the irrigation pipes removed.
- f) The installation of irrigation systems within street gardens will generally not be permitted because:
 - i. Plants shall be of a type suited to the site conditions that require minimum maintenance.
 - ii. The high cost associated with the upkeep of irrigation systems within road berms.
- g) Irrigation of lawn areas within reserves and streetscapes via permanent automated systems is generally not permitted, unless the reserve is to be classed as a 'premier amenity' park or park of high profile and is to be maintained as such. Proposals shall be assessed on a case by case basis.
- h) All irrigation systems shall be designed by qualified irrigation designers and must have an approved backflow device installed.

10.2.7.8 Signs

- a) Reserve signage will be installed by the Council following vesting of the reserve.
- b) See section 10.2.7.2 for rules pertaining to subdivision entrance signage.

- c) Proposals for interpretive or information type signage specific to a site will be approved by Council on a case by case basis.

10.2.7.9 Recreational Hard Surfaces and Ball Courts

- a) Generally Council would discourage the installation of recreation hard courts and ball courts on reserves unless they fit with the recreation provision requirements within the locality. This is to avoid a proliferation of these facilities that can be costly to maintain and renew and to ensure an appropriate level of provision.
- b) To prevent oversupply or duplication of facilities, approval must be obtained from Council for the development of any recreational hard surfaces, including ball courts and skateboard or scooter facilities, within a reserve.
- c) Note that, if approval is given for the installation of recreational hard surfaces, a special rate may be imposed on the households within the subdivision to meet future costs of maintenance and renewal.

10.2.7.10 Structures

- a) Structures where desired, will only be approved at the discretion of Council. These may include: pergolas, bridges, jetties, boardwalks, barbeques, screens and internal walls.
- b) The design of structures must fulfil both functional and aesthetic requirements, be durable and vandal resistant and not require a high level of maintenance.

10.2.7.11 Artworks and Sculptures

- a) The Council will consider on a case by case basis, any requests to install artworks, such as sculptures within a reserve. The Council will only accept artworks that are durable and which require minimal ongoing maintenance.
- b) Any artwork must be acceptable to the majority of the public, appropriate to the character of its setting and other structural features. Integrated or functional artworks are preferred, such as bridges, light standards and seats.

10.2.8 Species Selection

The following shall apply:

- a) Species are to be selected with regard to overall composition, low maintenance and longevity and shall comply with Council's *Trees & Vegetation in Selwyn District Management Policy* and the current *Canterbury Regional Pest Management Strategy*.
- b) The following matters are to be considered in species selection:
 - Environmental conditions (e.g. ground moisture, wind, etc.)
 - Tolerance to amenity situation

- Effect of leaf / fruiting debris (e.g. above footpaths or on drainage systems)
 - Pest and disease resistance
 - Non-suckering habit
 - Longevity
 - Shading issues
 - Minimum maintenance requirements
 - Ability to maintain true form
- c) Species choice must be appropriate for the conditions at the planting site, such as soil type, drainage and local climate, to ensure healthy, attractive, well-formed mature plants, with good duration of life.
- d) Planting around riparian areas (including stormwater swales, detention ponds and rain gardens) shall largely consist of New Zealand native species, which are district sourced, and appropriate to and tolerant of the particular site condition (i.e. both dry and waterlogged soils).
- e) Carefully consider the mature size and growth characteristics of selected tree species and the scale of the surrounding, permitted or anticipated adjacent environment. Trees need to be allowed to grow healthily to maturity without unduly compromising services, infrastructure, safety or amenities, or causing unacceptable shading. Proper tree selection within a street corridor is critical to long-term success.
- f) Shrub and groundcover species shall be selected to achieve good form and coverage of the planted site within 2-3 years and to grow healthily for a design life of 10 to 15 years without unduly compromising services, safety or amenities. Planting must not result in congestion that requires removal, pruning or thinning in the short to medium term.
- g) The number of species used shall be consistent to ensure a unified result. An over-reliance on any one species should be avoided.
- h) A list of inappropriate or undesirable species has been included in Appendix 3 - Inappropriate Tree and Plant Species List. Undesirable characteristics may include:
- Known potential to become weeds
 - Invasive root systems and potential to sucker
 - Heavy production of fruit or seeds and quick germination
 - Heavy production of pollen and/or allergenic pollen
 - Poor form and weak branch structure
 - Susceptibility to disease and pests
 - Poisonous bark, leaves, seeds or fruit
 - Variation from true form (e.g. tree suckers, watersprouts or reversion)

There may be species other than those listed in Appendix 3 that may be unacceptable to Council. Designers are encouraged to consult with the Council regarding acceptable tree and plant species before submission of landscape plans.

- i) No plant shall be used which is identified as a National Surveillance Plant Pest or is listed by Environment Canterbury as a plant pest.

10.3 CONSTRUCTION STANDARD

10.3.1 General

This standard applies to the construction of all landscaping and associated facilities, structures and furniture as part of new, or enhancements to existing, streetscapes, reserves and public open space, and sets out the minimum standards that are to be used as contract specifications for all construction works.

10.3.2 Minimum Requirements

The following shall apply:

- a) Landscape Engineering Approval is required before commencement of any landscape construction or planting onsite. Failure to receive prior approval may result in Council not accepting assets for vesting upon application of s224(c). Refer to the 'Subdivision Process Guide' in Appendix 1 for further guidance on required process.
- b) The Landscape Architect, appointed to undertake the design, shall be required to oversee all landscape construction works and may include acting as the Engineer to landscape construction contracts and / or being nominated as the Consent Holder's representative. This is to ensure minimum construction standards are met and compliance with approved plans and specifications. This position is referred to hereon as the 'Consent Holder's representative'.
- c) Any variation to the design plans approved as part of engineering approval requires Council's acceptance in accordance with the non-conformance process set out in clause 3.7.1 – Control of non-conforming work (Part 3: Quality Assurance) of the Code of Practice.
- d) Council encourages innovative construction techniques that result in increased infrastructure quality, amenity value, operational and maintenance cost benefits.
- e) All Construction works are to be carried out according to best trade practice, by experienced, competent persons, who are approved or authorised to undertake that type of work, using the appropriate equipment.
- f) All construction works must operate under a Health and Safety programme in accordance with the Health and Safety at Work Act (2015) and the requirements in clause 3.8.1 – Health and Safety (Part 3: Quality Assurance) of the Code of Practice.
- g) The Engineer/Consent Holder's Representative and/or the Contractor shall ensure all notifiable works are reported to the Department of Labour as required. It is a requirement of the New Zealand Health and Safety in Employment Regulations (1995) that certain works are notifiable. It is expected that the Engineer or Consent Holder's Representative and the Contractor possess a thorough knowledge of the Regulations.

- h) The presence of underground services shall be assessed prior to any excavation, including tree planting.
- i) All construction works must operate under a formal environmental management programme in accordance with the Resource Management Act 1991. Specific activities relating to landscape construction where a resource consent may be required include; the management of stockpiled material; noise and dust nuisance; the use of chemical sprays and fertiliser; control of silt, contaminants and stormwater runoff; the alteration of, or taking water from waterways; and work around protected trees. Refer to the requirements in clause 3.8.2 – Environmental Management (Part 3: Quality Assurance) of the Code of Practice for further requirements relating to Environmental Management responsibilities.
- j) Also see Section 4.8 - Erosion, Sediment and Dust Control (Part 4: Geotechnical Requirements) of the Code of Practice for particular requirements relating to management of the above during construction.

10.3.3 Landscape Planting

This section sets out the requirements for the selection of plant material, site preparation, planting and mulching of tree, shrub and groundcover planting within streetscapes and reserves as part of subdivision development.

The following shall apply:

10.3.3.1 Plant Material

- a) The Landscape Contractor shall make every effort to supply plant material at the heights, caliper and grade specified in the approved planting plans and schedules. Where this is not possible, the Consent Holders Representative shall in turn inform the Council prior to sourcing or planting. Substitutions shall not be permitted unless approved by Council.
- b) Generally, landscape plans shall specify juvenile trees with a minimum grade of PB95, and minimum height of 2.5m (once planted), with good proportion (stem caliper to tree height). Any known exceptions due to species availability or site conditions shall be identified at the time plans are submitted to Council for Engineering Approval.
- c) Shrub and groundcover plantings shall generally be specified as PB5 grade. Smaller sizes e.g. root trainers may be used in certain applications, with Council approval.
- d) Bare root stock will be accepted only in special circumstances, at the discretion of Council. Whips or trees grown on canes will not be accepted.
- e) All plant material shall be sound, healthy, vigorous and free of any defects which may be detrimental to plant growth and development. Defects may include but are not limited to the following:

- Pests
- Diseases
- Abrasions, damage or wounds
- Cankers
- Excess dead leaf material
- Plants not hardened off
- Weed and parasites
- Frost damage
- Multi-leaders
- Form not consistent with species
- Dead wood
- Girdling roots
- Tree proportion (i.e., stem caliper to tree size)

- f) All plant material shall have roots extending to and touching the planter bag and shall not have been recently re-potted or 'bagged on'.
- g) The Consent Holders Representative is required to approve all plant material prior to planting as per Condition 10.3.6.2 – Prescribed Inspections. This shall include ensuring the root ball is well watered before stock leaves the nursery/depot and is kept moist prior to planting.
- h) Note that, if plant material is supplied and is deemed by Council Officers to not meet the specification outlined above, then Council reserves the right to reject this and have it replaced with suitable material.

10.3.3.2 Planting

General

- a) Planting shall not be undertaken during summer months (December to February) or during drought conditions, unless permitted by Council.
- b) The Contractor shall set out the positions of all trees and plants as detailed on the approved landscape plans. The Consent Holder's Representative shall be responsible for inspecting and confirming the layout prior to planting. Minor realignment of plant set out to meet the needs of the design is permitted without the need to seek re-approval from Council. Seek confirmation from Council where any substantial alterations to the approved plan is required.
- c) Planting location shall be assessed for the presence of services prior to excavation. If services are present, please refer to the recommended minimum offsets as per Clause 10.2.5.3 Design (Compatibility with Engineering Design and Utility Services).
- d) All planting works shall be in accordance with accepted horticultural practices, and shall be carried out by suitably qualified and experienced personal.

Specimen Tree Planting

- a) Specimen tree pit preparation, planting, irrigation pipe and staking shall be carried out as per Drawing 1 (Appendix 4) - Specimen Tree Planting Standard Specification.
- b) For a tree of PB95 grade, tree pit dimensions shall be a minimum of 1.2m wide x 1.0m deep, with a 2m diameter mulch circle. Seek clarification from Council for required planting dimensions for larger grade tree stock.

- c) A spade cut edge to the appropriate depth shall be provided to all tree pits to contain mulch and prevent turf encroachment.
- d) Timber edging on standard tree pits will not be accepted.
- e) Council reserves the right to impose specialised planting for higher profile areas (e.g. high density urban areas and town centres) or where a specific treatment is required (e.g. structural soils, tree guards).
- f) The Consent Holders Representative is required to approve tree pit preparation and the use of excavated material for backfilling of tree pits prior to planting specimen trees as per Condition 10.3.6.2 - Prescribed Inspections.
- g) Where an auger or similar method is used to excavate the tree pit, the sides of the excavation shall be scarified before planting to avoid smooth surfaces. Break through any impervious ground layers to allow drainage and root growth.
- h) A layer of imported soil shall be placed in the base of the tree pit and compacted appropriately creating a pedestal at the base of the pit.
- i) Trees shall be set upright in the centre of the pit at such a depth that the soil, when firmed down, is at the same height as the container soil level or nursery earth marks on the stem. The planting pit should be backfilled with existing soil if suitable, mixed with a 'soil amendment' at a ratio of 50/50. This 'soil amendment' is to contain 50 percent quality top soil and 50 percent compost. Contact the appropriate Council representative for information regarding preferred products or acceptable equivalent.
- j) Backfill shall be reinstated in 200mm layers with each layer compacted appropriately using hand tamping methods to provide stability.
- k) Slow release fertiliser tablets shall be placed to the minimum quantity of the manufacturers specifications, near the bottom of the root ball to reduce competition with surface weeds. Tablets should not be placed in contact with roots to avoid burning and root damage.
- l) All trees must be adequately watered within two hours of planting. Any displacement or slumping of soil must be reset to grade with additional topsoil as needed.
- m) Final planted depth is to be consistent with existing or proposed finished ground level and the tree root crown also set at grade. Any plantings that have slumped below finished ground level as a result of poorly consolidated backfill, shall be corrected at the earliest opportunity.
- n) Newly planted specimen trees shall be supported by stakes complying with Drawing 1 (Appendix 4). Stakes shall be set in line with the predominant wind, outside the line of the tree root ball and fixed into undisturbed / solid bearing soil to ensure maximum firmness.
- o) Generally, stakes shall be 50mm x 50mm dimension hardwood or untreated timber. Staking shall be of uniform height and visually consistent throughout the subdivision. As a guide, stakes shall be one third the height of the tree. Ties are to be jute (hessian) or rubber to allow minor movement only. Use of any alternative staking materials requires prior approval from Council.

Shrub and Groundcover Planting

- p) An approved contractor shall undertake spraying out of planting sites according to manufacturer's instructions and at least 14 days before cultivation, with Glyphosate, plus a selective herbicide for broadleaf control if present. Confirm with Council before using herbicides near waterways or stormwater treatment areas.
- q) Prepare a suitable garden bed for all shrub and groundcover plantings. Heavily compacted soils shall be ripped, preferably during the summer period, to a depth of 300mm before overlaying with any topsoil. Topsoil shall be applied to a minimum depth of 400mm. Topsoil shall be approved as suitable by the Consent Holders Representative prior to use within garden beds. A mix of 50:50 topsoil and treated organic matter shall be applied where soils are considered overly light or heavy, or to garden beds where a higher amenity grade is specified.
- r) The finished surface (top 50mm) of gardens beds shall contain no stone larger than 12mm.
- s) All planted areas shall have a maintained edge, typically a timber or spade cut edging to the appropriate depth, to contain mulch and prevent turf encroachment. Timber edging shall be flush with adjoining turf. All curved edges shall be smooth and regular. A string line must be used on straight edges.
- t) Planting holes shall be 2 x root ball diameter in width and 1.5 x root ball height. The bottom of each hole shall be pierced to a depth of 200mm with the tines of a fork or similar implement to ensure root penetration and free drainage. The sides of planting holes shall be roughened to also encourage root movement into surrounding soil. Soil removed from the planting hole shall be amended with 30% compost before backfilling.
- u) Plants shall be set slightly lower to the surrounding soil to avoid wicking, and the planting hole backfilled in 150mm layers and consolidated so as to remove air pockets. The soil level after settlement, shall match the original soil mark on the stem of the plant. Surplus soil from planting holes shall be spread evenly over the surface area (but leaving no soil on the surface of the mulch layer).
- v) All plants shall have an application of slow release fertiliser applied to each plant during the planting process.
- w) Ensure all plants are thoroughly watered (to the full depth of the root ball) within two hours of planting, to settle soil around roots, prevent slumping and aid survival.
- x) Where required, shrubs shall be staked after planting to provide support during their establishment. Refer to staking requirements for specimen tree planting above.
- y) The Consent Holders Representative shall ensure that all plantings are protected during further development of the subdivision.

10.3.3.3 Mulch

- a) All garden beds (except annual beds) and tree pits shall be mulched to suppress weed growth and maintain soil moisture levels. All specimen trees shall be radially mulched.

- b) Mulch type shall be a cambium grade bark or approved arboricultural mulch (tree chip), of a consistent grade (30-100mm size) and type not prone to being scattered or blown about i.e. consolidates and binds together well (e.g. Intelligro 'Super scree').
- c) Alternative mulching materials, such as washed or crushed gravels, will be accepted only in special circumstances, at the discretion of Council. Planting areas not suitable for loose mulching materials are to be lined with suitable coconut/fibre or similar weed matting. This may include very steep slopes or areas that are periodically immersed in water (e.g., stormwater basins).
- d) Unless specified otherwise, mulch shall be placed to 100mm depth and maintained to a minimum consolidated depth of 75mm. The Contractor is to ensure that mulch is retained within garden areas and does not spill out over adjacent kerbs, grassed or paved surfaces.
- e) Mulch shall not touch the stems of plants. A small circle shall be cleared (diameter of 50mm minimum) around the stem to avoid stem rot. Mulch shall be pulled back to 100mm off the trunk of any tree to prevent collar rot.
- f) Topsoil shall not be mixed into mulch during placement.

10.3.4 Topsoil and Grassing

The specifications in this section apply generally to the preparation and sowing of all areas that are to be grassed as part of any development, including any reinstatement of grassed areas damaged as a result of an infrastructure development contract.

The following shall apply:

10.3.4.1 Preparation

- a) All rubbish, vegetation, debris etc. must be removed from site prior to topsoil stripping.
- b) All topsoil removed to permit development or contract works to be carried out shall be stockpiled for reuse. Topsoil imported from sources external to the site may be used where there is an insufficient onsite supply. The Consent Holders Representative is responsible for approving the suitability of all onsite and imported topsoil for use in grassed areas.
- c) Areas of excessive compaction of the subsoil shall be relieved by subsoiling, ripping or similar as required to achieve satisfactory drainage and long term growing conditions.
- d) A minimum 150mm layer of clean, friable topsoil free of all perennial weeds, stones and rubbish shall be spread to a uniform layer thickness over the subgrade. The topsoil shall not be spread when the ground or the topsoil is excessively wet or otherwise in a condition detrimental to soil structure or successful construction of the work.
- e) Ensure that any organic material, refuse, debris or areas of old uncompacted fill are not overlain by other soils. The burying of any waste materials, refuse or debris within a reserve (or future reserve) will not be permitted.

- f) Finished levels shall be presented in a level uniform manner, free from hollows and humps, and shall either;
 - Neatly follow the contour of land, and/or
 - Be level with a maximum gradient of 10° to assist with water run-off and/or drainage.
- g) Finished levels shall blend seamlessly into surrounding grassed areas and be left proud of adjoining features (such as kerb and channel, path, crossings, etc.) by not more than 25mm to allow for settlement, provided that it does not cause water to pond.
- h) Suitable silt traps should be placed at utility grates and inspection portals to avoid silt blockage until turf cover is established.
- i) Bank battering shall be formed within a maximum gradient of 1:5 allowing easy / safe mowing, and which is of even contour to reduce the potential for mower scalping.
- j) Weeds shall be sprayed (by an approved handler) according to manufacturer's instructions and at least 14 days before cultivation with Glyphosate, plus a selective herbicide for broadleaf control if present. Confirm with Council before using herbicides near stormwater treatment or waterways, or in applications where a catcher is to be used to remove future lawn clippings from site.
- k) All stones, rubbish and foreign materials shall be removed from the areas to be grassed and the whole area rotary hoed to the depth of the topsoil or 150mm whichever is the lesser.
- l) Finished surfaces shall be lightly compacted or consolidated, and of smooth, even grade. The top 25mm of topsoil shall have a loose tilth ready for seed sowing.
- m) Note: The Consent Holders Representative is required to approve the condition of the seed bed prior to seeding, as per Condition 10.3.6.2 - Prescribed Inspections.

10.3.4.2 Sowing

- a) Use grass species mixes appropriate to the site, climatic and soil conditions, and purpose e.g. sports turf ryegrass in playing field areas.
- b) Seed mix shall contain no less than 70% High Endophyte Turf Rye, with the balance 30% made up of 25% Chewings Type Red Fescue and 5% NZ Browntop.
- c) With the exception of the New Zealand Browntop component, all seed shall be certified and less than 12 months old at the time of sowing. Ryegrass component to be certified as having greater than 80% live endophyte content.
- d) On large areas, the seed shall be "check" sown in at least two directions to ensure an even distribution of seed, and covered by brush harrowing. The surface shall then be lightly consolidated / rolled with a suitable flat roller to ensure good soil / seed contact.

- e) On small areas, grass seed shall be evenly applied to the prepared surface and raked thoroughly into the soil so that minimal seed remains exposed.
- f) Slow release fertiliser shall be applied as specified before or during sowing at the manufacturer's specified application rates. Fertiliser shall not be applied within waterway or stormwater treatment areas.
- g) Hydroseeding is encouraged as a means of improved grass establishment, providing uniform coverage, increased moisture retention and enhanced protection against soil loss. All existing site features, such as paths and fences, shall be protected during mulch application. Any overspray shall be removed promptly.
- h) See Section 10.6.2.2 for grass establishment and maintenance requirements.

10.3.5 Facilities, Structures and Furniture Construction

This section sets out the requirements for the supply, installation or construction of landscape facilities, structures and furniture within streetscapes and reserves, as part of subdivision development.

The following shall apply:

10.3.5.1 General

- a) The Consent Holder is responsible for gaining all necessary Resource Consents, Engineering Producer Statements, Building Consents and Code of Compliance Certificates as required under various legislation. These will be applied for and granted to the Consent Holder as the applicant and owner of the asset prior to construction/installation.
- b) Any proposed facility, structure or item of street furniture shall be fully constructed / installed and fully functional before hand over to Council.

10.3.5.2 Sealed Roads, Car Parks, Footpaths and Cycleways

- a) Refer to Part 8 – Roads and Transport and CSS: Part 6 – Roads, for conditions relating to the construction of sealed (asphalt or chipseal) internal roads, car parks, footpaths and cycleways within reserves.

10.3.5.3 Playgrounds and Play Structures

- a) All equipment shall be installed as per approved plans and in accordance with equipment manufacturers instructions and the New Zealand Standard for Playground Equipment and Surfacing NZS5828:2015.
- b) All equipment that is installed shall be permanently marked and include details of:
 - Manufacturer or authorised agent
 - Year of manufacture
 - Equipment reference

- Basic level mark
 - Number and date of NZS5828:2015 certification
- c) All impact absorbing or safety surfacing products used shall be certified to NZS5828:2015 and installed in accordance with this standard and the specified free height of fall of play equipment beneath which it is placed.
 - d) Safety surfacing can be either synthetic rubber matting or loose softfall. Documentation is required for all synthetic surfaces, detailing the free height of fall that it has been tested and approved to, and instructions for maintenance and inspection procedures. All loose softfall shall be 'Safe-Fall Playground Chip' as supplied by Intelligro, or equivalent. Manufactured wood chip has a longer useful life than bark nuggets.
 - e) Where loose softfall is used under areas of high traffic or wear (e.g. beneath swings or around carousels), synthetic 'scuff' matting shall be installed to limit the displacement of material and resulting maintenance costs.
 - f) Ensure adequate drainage is provided within playground areas, particularly where loose soft fall is used, as wood material that remains wet will decompose quickly and have a reduced viable life.
 - g) Loose softfall shall be free from any sharp edged parts or any hazardous projections.
 - h) Loose softfall shall be contained within a timber surround, sufficient level change or other to prevent migration outside of the play area, as specified through approved landscape plans or construction details.
 - i) The Contractor shall take all necessary measures to protect public safety during playground construction and until such time that equipment has been signed off by Council staff (as per condition j) below). As a minimum, this shall include the installation of a 2m high security fence surrounding playground equipment and display of applicable signage.
 - j) It is advisable to schedule installation of play equipment towards the end of a project, to avoid public pressure to utilise a play area prematurely while surrounding landscape works are still under construction or incomplete.
 - k) Immediately upon installation of any play equipment (playground), a detailed joint inspection between the Consent Holder's representative and Council staff shall be undertaken to assess the installation of equipment and safety surfacing against NZS5828:2015.
 - l) Once the installation of play equipment and safety surfacing has been assessed as compliant to NZS5828:2015 and passed Council inspection (as per condition 'j' above), and surrounding site works suitably complete, security fencing may be removed and the playground made available for public use.
 - m) All operational inspections, maintenance and servicing of playground equipment and safety surfacing shall remain the responsibility of the Consent Holder for the full duration of the defects liability period. See Section 10.6.2.3 for further detail of maintenance and inspection requirements pertaining to playgrounds.

10.3.5.4 Streetscape Furniture and Structures

- a) All street furniture items or built structures shall be sourced and installed, or constructed in accordance with the drawings and specifications approved by Council, to best trade practice.
- b) Furniture items intended for public use (e.g. picnic tables, seats, litter bins, drinking fountains) not installed over hard/paved surfacing (e.g. within lawn or garden areas) shall be installed over a concrete base, or other suitable paved surface, for functional and maintenance purposes. Refer to Drawing 2 (Appendix 4) for required dimensions of base as applicable to various furniture items.
- c) Where possible, all litter bins, seats, picnic tables, signs and other high value items shall be treated with an approved graffiti guard.
- a) Copies of all warranties / guarantees are required to be supplied to Council for all commercially manufactured street furniture 10 full working days before the final practical completion inspection (s224(c) certificate).

10.3.5.5 Lighting

- a) All lighting shall be installed in accordance with the drawings and specifications approved by Council.

10.3.5.6 Irrigation

- a) Council approval is required prior to the installation of any irrigation system.
- b) Installation of irrigation systems is to be undertaken as per plans and specifications approved by Council. Any variations to these plans during construction will require signoff by Council prior to installation.
- c) The Contractor shall provide Council with an operating manual for the controller and operating instructions for the complete irrigation system, 10 full working days before the final practical completion inspection (s224(c) certificate).
- d) Water meter readings that are not reading zero at the time of s224(c) application shall be read and provided to Council along with the water meter numbers.

10.3.6 Inspection and Testing Requirements (Construction)

This section sets out the requirements for inspections and testing of construction works associated with the landscaping of streetscapes and reserves, as part of subdivision development.

The following shall apply:

10.3.6.1 Notification of Works and Informal Inspections

- a) The Consent Holder's representative shall notify Council of the commencement date of landscape construction works and supply to Council a copy of the Contractors construction programme. Council shall be advised of any significant updates to the programme that result during the course of the work.
- b) Council Representatives may undertake random inspections of all landscaping features throughout the construction period to ensure good industry practices are being followed and compliance with all requirements for the development.

10.3.6.2 Prescribed Inspections (Construction)

- a) Council shall be notified in writing (email) by the Consent Holder's representative at least 2 full working days before a prescribed inspection is required. Failure to provide this notification for the prescribed inspections, as listed in Conditions c) and d) below, may result in Council not accepting the asset for vesting, or the requirement for an extended defects liability period for the contract works.
- b) The request for a prescribed inspection shall be made to the appropriate Council Representative. Council will not respond to any request for inspection from any party other than the nominated Consent Holder's representative.
- c) Prescribed Individual Inspections – The following prescribed inspections shall be undertaken by a suitably qualified representative of the Consent Holder (e.g. Landscape Architect), as necessary during the contract works, with onsite observations / instructions accurately documented and a copy of these forwarded to the Council (NOTE: Although notification shall be given, it may not be necessary for a Council representative to attend these inspections):
 - i. Approval of all plant material prior to commencement of planting. All plant material shall satisfy the requirements of Conditions listed in 10.3.3.1 in terms of condition and form, and meet grade as specified in approved planting plans or schedules.
 - ii. Tree pit construction and quality of backfill material (immediately prior to planting) – to be assessed against Condition 10.3.3.2 and standards specified in the approved project specifications.
 - iii. Condition of topsoiled reserves and berms prior to seeding – to be assessed against Condition 10.3.4 and standards specified in the approved project specifications.

- d) Prescribed Joint Inspections – The following prescribed inspections shall be undertaken jointly with Council's Representative:
 - i. **Playgrounds/play equipment** – Immediately upon completion of installation.
 - ii. **Final Practical Completion Inspection** (prior to s224c approval) – A final inspection and walkover with as-built plans shall be undertaken once all works are deemed complete. Prior to requesting final inspection, the certifying Engineer or Consent Holder's representative shall ensure the site is ready for inspection by pre-inspecting all physical works and ensuring that all testing has been successfully completed.
- e) Should inspection of other streetscape / reserve features be required, Council shall advise in writing what inspections are required.
- f) The Consent Holder's representative shall send to Council a copy of the Practical Completion Certificate issued to the Landscape Contractor, confirming that all work has been carried out to the approved plans and specifications.

10.3.6.3 Testing

- a) **Lighting** - Refer to SDC Engineering Code of Practice clause 11.5.1 – Checking, inspection, testing and recording (Part 11: Lighting), for the testing requirements for lighting.
- b) **Footpaths** - Refer to SDC Engineering Code of Practice clause 8.18.3 – Pavement materials (Part 8: Roading Transportation), for the testing requirements for footpaths.
- c) **Irrigation systems** - Prior to handover of ownership and maintenance of the system (at final defects inspection).
- d) Should testing of other reserve features be required, Council shall advise in writing what test method/s shall be used.

10.3.7 Presentation at Practical Completion

This section sets out the required minimum standard for the presentation of landscape construction works at the point of practical completion, prior to release of the s224(c) certificate or completion works bond (if held in lieu of completion as per 10.3.8 below).

The following shall apply:

- a) Landscape works shall be fully complete, as set out in approved landscape engineering plans and specifications, and to the satisfaction of Council
- b) Any variation to the design plans requires Council's acceptance in accordance with the non-conformance process set out in clause 3.7.1 – Control of non-conforming work (Part 3: Quality Assurance) of the Code of Practice.

- c) At the time of practical completion, all landscaping associated with streetscapes, and reserves must have met the minimum standards and specifications for installation (as identified in Section 10.3 – Construction Standard) and be presented in a tidy condition. As a minimum, landscaped areas shall meet the following identified requirements:
- i. Grassed areas shall be level, free of stones and vehicle damage, able to be mown, and showing a minimum 95% strike rate.
 - ii. Be free of tree stumps (above and below ground) and other specified, unwanted vegetation.
 - iii. Be free of surplus, unwanted construction materials, debris, waste (liquid or solid) and rubbish.
- d) The Council will inspect all new assets (as per condition 10.3.6 – Inspection and Testing Requirements) prior to the release of the s224(c) certificate to ensure that the minimum standards and specifications set out in this document are met before the Council will accept ownership. This will include the functioning of assets such as irrigation systems, playground equipment, drinking fountains, and lighting to ensure their operational fitness and compliance to relevant standards.
- e) Following completion of works and release of the s224(c) certificate, the Consent Holder shall be responsible for maintaining all planting, lawns and associated landscaping works, covered by this part of the Code of Practice, as per 10.6 - Establishment, Maintenance and Defects Period.

10.4 BONDS

The following is expanded from Section 2.12 – Bonds (Part 2: General Requirements) of the Code of Practice, to include further information specific to the requirements for the landscaping of streetscapes and reserves. Refer to Section 2.12 – Bonds for general information relating to bonds and Appendix 4 (Part 2: General Requirements) for required Bond Form.

10.4.1 Completion Works Bond

Where a subdivision or development has been substantially completed, bonds to cover specific minor uncompleted works will be permitted at the discretion of Council, to allow for the issue of an s224(c) certificate.

The following shall apply:

- a) A Completion Bond may be requested as a form of surety in circumstances where a Consent Holder is wanting to obtain s224(c) certification to enable titles to be issued, but has not yet completed all works required under their consent.
- b) Acceptance of a Completion Bond shall be at the discretion of Council. Situations where a Bond may be accepted will generally include factors outside the control of the Consent Holder, such as not being able to complete landscaping due to seasonal issues or adverse weather conditions.
- c) Each application for a Completion Bond will be considered by Council on a case by case basis. The terms of the Completion Bond will specify what works need to be completed and by when, and will have a monetary value assigned which covers the cost of completing the specified works.
- d) To determine the monetary value of the works to be bonded, the Consent Holder shall submit as part of their Bond application a schedule of estimated costings for review and approval by Council. A 15% contingency will also need to be added to these costings to cover any additional costs which may arise and to minimise risk to Council in the event of default by the Consent Holder to complete bonded works.
- e) The term or timeframe assigned to a Completion Works Bond shall be set by agreement with Council on a case by case basis.
- f) On completion of bonded works, (Practical Completion), the Consent Holder may apply (in writing) to Council requesting the release of the Bond. An inspection (as per Condition 10.3.6.2 (d) – Final Practical Completion Inspection) shall be undertaken by Council staff and a decision made as to whether the Consent Holder's obligations have been met and the Bond be released.
- g) In the event that Council does not accept that the Consent Holder's obligations have been met, the Consent Holder will be advised of any remedial works that are required to be undertaken and timeframes for doing so. Should there be further default, the enforcement provisions of the Bond will be invoked.

10.4.2 Maintenance Bond

Council reserves the right to request a maintenance bond be held, where there are assets to be vested in Council as part of subdivision development, for the duration in which the Consent Holder is responsible for maintaining these assets in accordance with the agreed maintenance and defects period (See Section 10.6).

The following shall apply:

- a) The monetary value of the maintenance works to be bonded shall be set by agreement with Council. A schedule of estimated costings will need to be submitted by the Consent Holder or their nominated representative for this purpose. The minimum basis for bonding evaluations shall be a cash bond for the actual costs of the contractor who is undertaking the maintenance for a period of 24 months (or as agreed otherwise).
- b) Maintenance bonds shall include the labour, materials / product costs used for undertaking the maintenance, including at least 10% for the replacement of plant losses and costs associated with the maintenance of areas of turf.
- c) A 15% contingency will also need to be added to these costings to cover any additional costs which may arise and to minimise risk to Council in the event of default by the Consent Holder to undertake maintenance works to the required standards.
- d) On expiry of the term of the bond (point of handover / end of maintenance and defects period), the Consent Holder may apply (in writing) to Council requesting the release of the Bond. An inspection (as per Condition 10.6.3.2 (b) – Final Defects Inspection) shall be undertaken by Council staff and a decision made as to whether the Consent Holder's obligations have been met and the Bond be released.
- e) In the event that Council does not accept that the Consent Holder's obligations have been met, the Consent Holder will be advised of any remedial works that are required to be undertaken. Should there be further default, the enforcement provisions of the Bond will be invoked.

10.5 REQUIREMENTS FOR AS-BUILT DATA AND ADDITIONAL INFORMATION

10.5.1 General

Council requires as-built information to be supplied for all infrastructural development or improvement works. Council uses this information to update its plans and asset management systems (geographic information system). Improving knowledge of its assets allows Council to manage these efficiently and also provides the community with quality information.

10.5.2 Requirements for As-Built Data

The following shall apply.

- a) All as-built data, plans, additional information and documentation shall be supplied to Council, as a complete package, ten full working days before the Final Practical Completion Inspection (prior to s224(c) approval). Failure to supply as-built data and any additional information requested may result in the release of the s224(c) certificate being withheld. Refer to the 'Subdivision Process Guide' in Appendix 1 for further guidance on process and required timing for supply of as-built data.
- b) Electronic as-built plans shall be provided to Council in both a workable format, (that is compatible with Council's GIS (ARC GIS) and Asset Management Systems (AMS)), as well as in pdf format. Accepted workable formats are;
 - i. ArcGIS software – file geodatabase or shapefile (.shp)
 - ii. AutoCAD – .dwg or .dxf
- c) Please ensure that all data is spatially referenced (i.e. has x y coordinates) and is provided in the correct projection. Council uses the standard data projection (coordinate system) NZGD2000 New Zealand Transverse Mercator, also called NZTM.
- d) When transforming data from CAD formats, attribute data for each feature is lost and the output is a homogenous set of points, lines, and/or polygons. To help fully define each layer, please split assets into separate layers, ensuring that only one type of geometry is provided per layer. Drawing layers shall be formatted and named as per the suggested system prescribed in Table 6 below.

Layer:	Format:	Suggested Layer Name:
Street Trees	Points	Gisdb.DBO.Trees_pt_Street
Reserve Trees	Points	Gisdb.DBO.Trees_pt_Reserve
Gardens	Polygons	Gisdb.DBO.HortOperation_py_Garden
Streetscape Gardens	Polygons	Gisdb.DBO.HortOperation_py_Garden_Stre
Grass	Polygons	Gisdb.DBO.HortOperation_py_Grass
Streetscape Grass	Polygons	Gisdb.DBO.HortOperation_py_Grass_Stre
Footpaths in Reserves	Polygons	Gisdb.DBO.OpenSpace_py_Path
Irrigation	Lines	Gisdb.DBO.Irrigation_line
Street Furniture	Points	Gisdb.DBO.Furniture_pt

Table 6: Requirements for formatting as-built drawing layers.

e) Key problem areas include:

- i. **Polygons** - Please ensure all polygon areas are closed polygons rather than lines around the perimeter.
- ii. **Blocks** - Please do not use blocks, as they are a group of nested items that do not convert well. Use points as an alternative.
- iii. **Text** – Keep text / annotations to a minimum. Multiple text items will be converted into multiple fragments when converting into ARC.

f) Detailing additional information, such as type, material and finish, will help to further describe the asset and how it is used and maintained by SDC. To ensure a match with Council's Asset Management System, all asset attribute data shall be formatted and presented as per the below schema example (see Table 7 below).

Category:	Asset:	Types:	Material:	Finish:	Geometry:
Utilities	Irrigation Controller	Toro 4 Station (Battery)	N/A	N/A	Point
Structures	Foot Bridge	Boardwalk	Timber (pine)	N/A	Point
	Retaining Wall	N/A	Stone	N/A	Point / Line
Equipment	Drinking Fountain	EM210w (Tap Water Wells)	Stainless / Timber (Kwila)	Oil stain	Point
	Picnic Table	Portland (FelGroup)	Timber (Kwila)	Oil stain	Point
	Play Equipment	Modular small Swings (x4) Seesaw Spinner	Timber / Steel	Powder Coat (Colour)	N/A
Surfaces	Hard Sports Surface	Tennis Court	Asphalt	N/A	Polygon
	Hard Surface	Paving	Exposed Aggregate	Protective Sealer	Polygon
	Hard Surface	Footpath	Asphalt	N/A	Polygon
	Safety Surfacing	Playground	Wood Chip	N/A	Polygon

Table 7: Requirements for documenting and presenting streetscape and reserves asset data.

Note: There is no requirement to record horticultural elements (soft landscape features). This will be captured directly off landscape plans and plant species lists.

g) Corresponding plans provided in pdf format should detail all general streetscape and reserve information including:

- i. Roading layout.
- ii. All footpaths (including streetscape).
- iii. Location of trees.
- iv. Location of gardens (outside edge of garden).
- v. Location of all lawn areas.
- vi. Location and detail of structures e.g., play equipment, street furniture, bollards, fences, signs.

- vii. Common names, botanical names, grades, quantities and mature height of all plant species clearly represented (i.e., by use of a key).
 - viii. Location and type of all street and reserve lighting.
 - ix. Location of all irrigation systems (where applicable).
 - x. Layout of playground equipment, detailing softfall and free / falling space requirements (as provided by the play equipment supplier) for each individual piece of equipment.
- h) Where any issues arise regarding uploading electronic as-builts to Council's GIS (ARC GIS) and Asset Management Systems (AMS) these shall be rectified at the cost to the submitter, i.e., incompatibility of formats. Actual costs involved in provision and delivery of this data to Council shall be borne by the Consent Holder.
- i) All electronic as-builts must be verified as accurate via review by Council staff and acceptable for Council databases. Where supplied as-built information is incorrect, the Consent Holder's representative shall be given two full working days to rectify.
- j) Council reserves the right to arrange for the correction of as-built information and to recover associated costs from the Consent Holder, should no action be taken by their representative to rectify as-builts within the two full working days given.

10.5.3 Requirements for Additional Information

- a) The following information or documentation shall be supplied to Council as a complete package, along with all as-built data (as per 10.5.2 above), ten full working days before the Final Practical Completion Inspection (prior to s224(c) approval):
- i. Completed Building Consent / Code of Compliance certification – where required.
 - ii. Completed Resource Consent certification – where required.
 - iii. Certification of Compliance to NZS5828 for all play equipment and its installation as supplied by the manufacturer.
 - iv. Certification of Compliance to NZS5828 for all playground safety surfacing, softfall or artificial matting as supplied by the manufacturer.
 - v. Written manufacturers warranties or product guarantees for play equipment, street furniture and any other products where available/applicable.
 - vi. Any tools, equipment or manuals (post installation / servicing instructions or inspection and maintenance instructions) specific to the equipment or necessary for maintenance purposes, including spare parts lists.
 - vii. Certificates of Compliance and Producer Statements for other works covered by legislative requirements.

10.6 MAINTENANCE, ESTABLISHMENT, AND DEFECTS PERIOD

10.6.1 General

The purpose of the defects liability period is to demonstrate that the constructed landscape is well established, healthy and fit for purpose, prior to the handover of assets to Council.

The following section outlines the minimum establishment and maintenance standards required, and procedures to be followed, to ensure that optimum conditions are provided and the constructed landscape is maintained at an acceptable standard for the duration of the defects liability period, and upon presentation at final inspection.

10.6.2 Maintenance and Establishment (Defects Liability Period)

The following shall apply:

- a) It is the Consent Holder's responsibility to maintain any assets and landscaping associated with such assets that are to vest in Council, following issue of s224(c) certification.
- b) Council may request that a bond be held for the duration of the defects liability period, as per Clause 10.4.2.
- c) The period of defects liability will be for a minimum of 24 months, unless agreed otherwise with Council. Where landscaping consists of a minimum standard of grassed road berms or reserves only, and no specimen trees, planted areas or built structures, the defects liability period may be reduced to a minimum of 12 months, at the discretion of Council.
- d) The defects liability period shall include the establishment, routine maintenance and any replacement, as it may relate to any of the following works:
 - i. Landscaping (includes hard and soft landscaping and irrigation)
 - ii. Street and reserve trees
 - iii. Landscaping associated with stormwater systems (generally includes maintenance of planting and grass turf)
 - iv. Footpaths within reserves and public open space
 - v. Lighting within reserves and public open space
 - vi. Facilities and structures relating to and built as part of the landscape development
 - vii. Playground equipment (including routine service inspections)
 - viii. Sports equipment / recreational hard surfaces
 - ix. Streetscape furniture

10.6.2.1 Landscape Planting – Maintenance and Establishment

- a) Maintenance shall include all works to be undertaken by the Contractor to provide optimum conditions to establish landscape plantings, over the defects liability period. This shall include barricading, watering, weed control, control of pests and diseases, mulching, removal of litter, checking of stakes and ties, pruning and other accepted horticultural operations necessary to ensure normal and healthy plant establishment and growth.

- b) The two most important factors are adequate moisture and eliminating competition from other vegetation. Throughout the defects period, the Contractor shall visit the site on a regular basis to ensure that plant establishment is not limited by drought stress or competition from other plants.
- c) All garden beds and tree pits shall be returned to a 100% weed free condition before weed growth exceeds 10% coverage of each area or 100mm in height. All weeds over 100mm in height shall be maintained by hand pulling.
- d) All plantings, including trees, shall receive sufficient moisture for the species planted throughout the defects period to maintain healthy condition and ensure plant establishment is not limited by drought stress. Watering shall be done by either manually or by automatic irrigation systems, in accordance with good horticultural practice.
- e) Maintain a minimum consolidated mulch level of 75mm within all tree pits and garden beds. Mulch type used shall be as per approved during initial construction.
- f) All garden edging shall be maintained in a sharp, neat and vertical condition with all cuttings removed off site on the day of undertaking maintenance.
- g) All dead, dying, diseased or damaged trees and plants (damage includes inappropriate pruning, mower damage, vandalism, theft and acts of God), or those trees and plants that do not conform to the standards as provided shall be replaced at the Consent Holder's cost as required to maintain the original numbers, grade and species as per the approved plans.
- h) Replacement planting shall take place as soon as possible, during favourable planting conditions. Replacement trees shall be subject to a further 12 month defects period from date of replacement.
- i) Maintenance of specimen trees shall include regular checking of ties and stakes to maintain proper form and support.
- j) Pruning of trees and shrubs shall be undertaken to recognised arboricultural practices, to maintain plant health and a high standard of presentation. All tree pruning shall be undertaken by a qualified arborist. All garden / shrub pruning shall be undertaken by a qualified horticulturalist or arborist.
- k) Pruning shall be carried out to maintain the desired form and size of plants, remove excess growth and keep paths, roads, accessways and signage free from obstruction. All weak, dead, diseased and damaged growth shall be removed, including spent flower heads. Pruning shall not be carried out during leaf burst or leaf fall.
- l) Hedges, that are to be maintained as such, shall have had growing tips pruned on planting and been regularly trimmed to encourage bushy, compact growth, to the desired width and height.
- m) Type of fertiliser and application rates will vary according to site conditions, and size and species of plants. Generally, where plants are showing signs of fertility deficiency a

proprietary fertiliser suited to the species shall be applied to ensure maximum health and growth. Wetland plants shall not be fertilised.

10.6.2.2 Grassing and Turfing – Maintenance and Establishment

- a) Maintenance shall include all works to be undertaken by the Contractor to provide optimum conditions for turf establishment over the defects liability period. This shall include barricading, mowing, watering, application of fertilisers, weed control, control of pests and diseases, removal of litter and other accepted horticultural operations necessary to ensure normal and healthy turf establishment.
- b) Maintenance and mowing operations shall be carried out in accordance with accepted turf management practices, to ensure maintenance of good soil structure, minimum deformation of ground surfaces and ongoing establishment of the grass sward.
- c) Irrigation may need to be provided via temporary systems, to achieve good seed germination and maintain satisfactory growth throughout the defects period. This shall be at the discretion of the Consent Holder and/or their nominated representative or Contractor.
- d) A first mow shall be undertaken using a rotary mower when 50% of new grass coverage has reached a height of 80mm, cutting off no more than 20mm. Mowing shall continue throughout the defects period as governed by the growth rate to maintain the grass at a reasonable height. A final cut shall be made at the end of the defects period prior to handover to a height of 30-50mm.
- e) The Contractor shall ensure that at all times the machinery used for mowing is properly guarded, maintained and operated in a manner that presents no danger to the operator or any person in the vicinity of operations.
- f) Any cuttings that fall onto footpaths or other surfaces (including garden beds and mulch beds) other than the grassed area, shall be removed prior to leaving the site. Grass clippings are to be evenly distributed over the grass area.
- g) All lawn edges shall be maintained and presented in a neat and tidy form, with grass trimmings removed from site. Chemical edges are not permitted as an appropriate edging means.
- h) Within two months of sowing, the specified grasses shall be evenly distributed across the lawn in an even sward of vegetation and at a uniform height. At least 90% of the ground surface shall be covered, with no bare area greater than 30mm in diameter.
- i) If conditions are not appropriate for good growth within the contract or defects period, then arrangements shall be made with the Council to maintain the berms until an acceptable standard is reached.
- j) The grass sward shall be maintained at no less than 90% weed free (i.e. have less than 10% of its area in non-specified grasses and weeds), unless otherwise specified and permitted by Council.

- k) The lawn shall have a healthy colour throughout. Where grass is showing signs of fertility deficiency a suitable proprietary fertiliser shall be applied to ensure maximum health and growth.
- l) A concerted effort between the Consent Holder, their representative and the Contractor is required to ensure establishing grass and berms are protected from damage by pedestrian and vehicular traffic, particularly during the construction of private residential developments. Where appropriate, the Contractor shall install temporary fencing that is easily visible and does not obstruct road and footpath users. The fencing shall be removed at the end of the maintenance period, or earlier, once established to the required standard.
- m) Any defective areas of lawn/berm are to be made good including; poor growth, visible stones/debris, excessive weed growth, scalping, wheel rutting, including damage caused by third party contractors. Areas where grass coverage does not exceed 70% shall be required to be re-sown.

10.6.2.3 Facilities, Structures and Furniture – Maintenance and Establishment

- a) Maintenance shall include inspections and works to be undertaken by the Contractor as necessary to ensure facilities, structures and furniture remain functional and fit for purpose over the course of the defects liability period. This shall include, but is not limited to; carrying out necessary repairs or upkeep, cleaning, graffiti removal, control of weeds on hard / paved surfaces and removal of litter.
- b) Any vandalism, breakages, faulty or damaged items shall be identified and repairs carried out as soon as possible, as per best industry practice, replacing like for like and in accordance with manufacturer's specifications (where applicable). The Contractor shall take immediate and necessary measures to protect public safety by the removal of the damaged structure / equipment or through the use of barriers or signs, whichever is appropriate, and until repairs are fully complete.
- c) It is the Consent Holders responsibility to ensure the requirements of NZS5828:2015 Playground Equipment and Surfacing and the requirements of the Health & Safety Act 2015 are complied with for the duration of the defects liability period. Specifically, this includes the operational servicing, maintenance and routine inspections of all playground equipment, safety surfacing and surrounds once installed and signed off, as per clause 10.3.5.3 (n). The Consent Holder shall ensure a suitably qualified Contractor undertakes the following inspection schedule of play equipment and surrounds, as specified under NZS5828:2015:
 - i. Routine visual inspections – Weekly safety check (identification of hazards from vandalism, damage, obstructions, use or weather conditions).
 - ii. Operational Inspections – Monthly maintenance and repair (check operation, stability, wear and undertake servicing as required).
- d) The Contractor shall ensure play equipment and surrounds are well maintained, and in a safe, clean and fully operational condition following inspection.
- e) To ensure the playground is being managed and maintained in accordance with NZS5828:2015, the Consent Holder / Contractor shall keep a written record of all routine

and operational inspections, as well as any necessary repairs, for the duration of the defects period. The inspection sheet shall record details such as:

- i. The condition of equipment.
- ii. Defects found.
- iii. Major repairs.
- iv. Specific maintenance items that have been undertaken.
- v. Any recommendations for future improvement or defects observed.

A copy of this document shall be made available to Council upon request.

- f) Regular maintenance, servicing and any identified repairs shall be carried out as per manufacturer's specification and as per 10.6.2.3 (b) above.
- g) Graffiti is to be removed with appropriate methods without causing damage to surfaces and finishes.

10.6.3 Inspection and Testing Requirements (Defects Liability Period)

The following shall apply:

10.6.3.1 General

- a) Council reserves the right to inspect the works at any time during the defects liability period and may direct a recommencement of, or extension to, the defects period in the event that any major issues are identified.

10.6.3.2 Prescribed Inspections

- a) **12 Month Defects Inspection** - A joint inspection between the Consent Holder's representative and Council representatives may be requested at 12 months into the defects liability period. This inspection may be necessary to determine the acceptability of ongoing maintenance works and to ensure defective works previously identified by Council staff have been satisfactorily repaired.
- b) **21 Month Defects Inspection** - A joint inspection between the Consent Holder's representative and Council representatives is required at 21 months into the defects liability period (or 3 months prior to the expiration of any defects liability period), unless agreed otherwise. This inspection is necessary to ensure the acceptability of ongoing maintenance works, identify defective works for remediation prior to handover and to ensure defective works previously identified by Council staff have been satisfactorily repaired.
- c) **Final Defects Inspection** - A joint inspection between the Consent Holder's representative and Council representatives is required within one month of the expiration of any defects liability period, unless agreed otherwise, to approve standard of maintenance and to ensure defective works previously identified by Council staff have

been satisfactorily repaired prior to final handover and release of the maintenance bond (if a bond was required).

- d) Should the final defects inspection not meet the requirements of all parties, the Consent Holder's representative will be required to organise correction of all outstanding items and continue maintaining the works until a further joint inspection has been undertaken, the works deemed acceptable by all parties, and approval for handover issued.
- e) All defects shall be remedied within two weeks of instruction given. Notice by the Consent Holder's representative, that the defects have been satisfactorily completed, shall be provided to Council within seven working days of completion of the Works.
- f) Irrigation systems - The Consent Holder's representative or Contractor shall demonstrate to Council the successful, fault free operation of installed irrigation systems (if applicable), prior to handover of ownership and maintenance of the system.

10.6.4 Presentation at End of Defects Liability Period / Point of Handover

The following shall apply:

- a) As part of the handover process (upon expiry of the defects liability period), Council will inspect all new assets (as per condition 10.6.3 – Inspection and Testing Requirements) prior to issuing Final Completion and release of the Maintenance Bond. This is to ensure that the minimum standards and specifications set out in this document are met before the Council will accept responsibility of vested assets. This will include the functioning of assets such as irrigation systems, drinking fountains, and lighting to ensure their operational fitness.
- b) Landscape works shall be fully complete, as set out in approved landscape engineering plans and specifications.
- c) Any variation to the approved design plans as a result of defective items or necessary replacements, requires Council's acceptance in accordance with the non-conformance process set out in clause 3.7.1 – Control of non-conforming work (part 3: Quality Assurance).
- d) The maintained condition of all landscaping associated with streetscapes and reserves must meet the minimum standards and specifications for maintenance (as identified in Section 10.6.2 – Maintenance and Establishment), be presented in a tidy condition and meet the following identified minimum requirements:
 - i. Grassed street berms and reserves shall present an established cover of grass complying with condition 10.6.2.2 – Grassing and Turfing, and which is free of any defects including; poor growth, visible stones/debris, excessive weed growth, scalping, wheel rutting, including damage caused by third party contractors.
 - ii. Any dead, dying, diseased or damaged trees and plants shall have been replaced as necessary to maintain the original numbers, grade and species as per the approved plans, and to have allowed sufficient time for establishment before handover.
 - iii. All garden beds and tree pits shall be free of weeds (unless classified as a revegetation planting).
 - iv. All hard / paved surfaces shall be free of weeds, with no visible encroachment of turf (lawn edges trimmed).
 - v. Mulch to all tree pits and garden beds shall be maintained at a consolidated depth of 75mm or as specified at Practical Completion. Mulch shall be contained and not spread onto paved surfaces or onto lawn.
 - vi. Be free of tree stumps (above and below ground) and other specified vegetation.
 - vii. Be free of surplus, unwanted construction materials, debris, waste (liquid or solid) and rubbish.
 - viii. Be free of any defect, damage, defacement or vandalism to any landscape surface or component.
 - ix. All functioning assets (e.g. irrigation systems, drinking fountains, and lighting) shall be demonstrated to be fully operational and fit for purpose.

- x. All playgrounds (including equipment, safety surfacing and surrounds) shall have been maintained and be presented in a condition that complies with NZS5828:2015.

GLOSSARY

This section contains the definitions of terms and phrases used in this Part of the Code of Practice.

Accessway

Any area of land the primary purpose of which is to provide access between the body of any allotment(s) or site(s) and any road and includes any rights of way, access lot, access leg or private road.

Amenity

Amenity can be defined as those values, being natural or physical qualities and characteristics of an area, that contribute to people's appreciation of their pleasantness, aesthetic coherence, and cultural and recreational attributes. This is a subjective quality.

Applicant

The person or body corporate applying to carry out development, which may require a Resource Consent.

Arboriculture

The management of individual trees or groups of trees primarily for their amenity value.

As-built

Plan or drawing of what has been constructed.

Berm (Road Berm)

The edge of a road reserve between the kerb or surface water channel and the property boundary, exclusive of footpath.

Best Practice

A technique, method, or process that is most effective at delivering a particular outcome, or multiple outcomes, based on repeatable procedures that can be proven over time.

Biodiversity

The variability among living organisms in an environment.

Canopy

The crown of a tree, comprising of all the foliage and small branches out to the drip line.

Consent Holder

Person(s) or body corporate who have been granted Council approval to undertake the activities applied for.

Consent Holder's representative

Person or persons appointed by the Consent Holder, possessing the relevant skills, qualifications and suitable professional indemnity and public liability insurance cover to undertake the responsibilities of the Consent Holder's representative for the relevant project. They are responsible for all the processes needed to be undertaken to meet the requirements of the District Plan, this Code of Practice for Development, the Subdivision Consent conditions and the approved development design plans.

Council

Generally refers to the Selwyn District Council.

Central leader

The main stem of a tree.

Developer

Referred to as the Applicant or Consent Holder.

Development Contributions

Contributions able to be charged under the Local Government Act 2002 to fund the additional infrastructure that a local authority needs to provide as a direct result of new development.

Drip-line

Outer edge of tree canopy in a 360° aspect, or the extent of the crown of a tree projected to the ground plane.

Eco-sourced

Plants which are grown from seeds collected from naturally-occurring vegetation in a locality close to where they are to be replanted.

Engineer

As defined in NZS 3910: 2003.

Frangible (Tree)

As defined in NZTA *Guidelines for Planting for Road Safety*, mature trees, not hardwoods, with a trunk diameter less than 100mm at 400mm above the ground.

Groundcover

Any vegetation that grows low to the ground or may be prostrate in habit.

Habit

The nature and appearance of the branching framework of a tree or plant.

Landscape Architect

Qualified designer of outdoor public areas, landmarks and structures to achieve environmental, social-behavioural, or aesthetic outcomes.

Micro-climate

The immediate climatic conditions of a location influenced by aspect, sun, shade, reflected heat, wind exposure, water bodies and so on.

Moisture retention

The capability of a soil material or growing media to hold moisture in pore space against the effects of gravity.

Mulch

Approved material that is spread over the surface of the soil to prevent erosion, reduce weed growth & retain soil moisture.

Open Space

The term 'open space' covers green space consisting of any vegetated land or structure, water or geological feature in an urban area and civic space consisting of squares, market places and other paved or hard landscaped areas with a civic function.

Private way

As defined by s.315 of the *Local Government Act 1974*.

Qualified Arborist

A person who is in possession of a recognised arboriculture degree, diploma or certificate, and on the job experience, is familiar with the equipment and hazards involved in arboriculture operations, has demonstrated proficiency in inspecting, analysing and treating hazardous trees and has demonstrated the ability to perform the tasks involved. A Certificate shall consist of a minimum of 240 credits of learning (i.e. Level 4).

Qualified Horticulturalist

A person who is in possession of a recognised horticulture degree, diploma or certificate, and on the job experience, is familiar with the equipment, hazards and techniques involved in horticulture operations, and has demonstrated the ability to perform the tasks involved. A Certificate shall be a minimum of Level 3 i.e. the equivalent to one year full time study.

Restoration

The active intervention and management of modified or degraded habitats, ecosystems, landforms and landscapes in order to restore indigenous natural character, ecological and physical processes and their cultural and visual qualities.

Riparian

Of, inhabiting, or situated on the bank of a stream, river or wetland.

Root control barrier

A material (usually in sheet form) inserted vertically through the soil profile to deflect root growth and avoid future damage to street infrastructure and utility services.

Stem caliper

The diameter of a trees stem or trunk.

Streetscape

The visual appeal of a street and its surrounds.

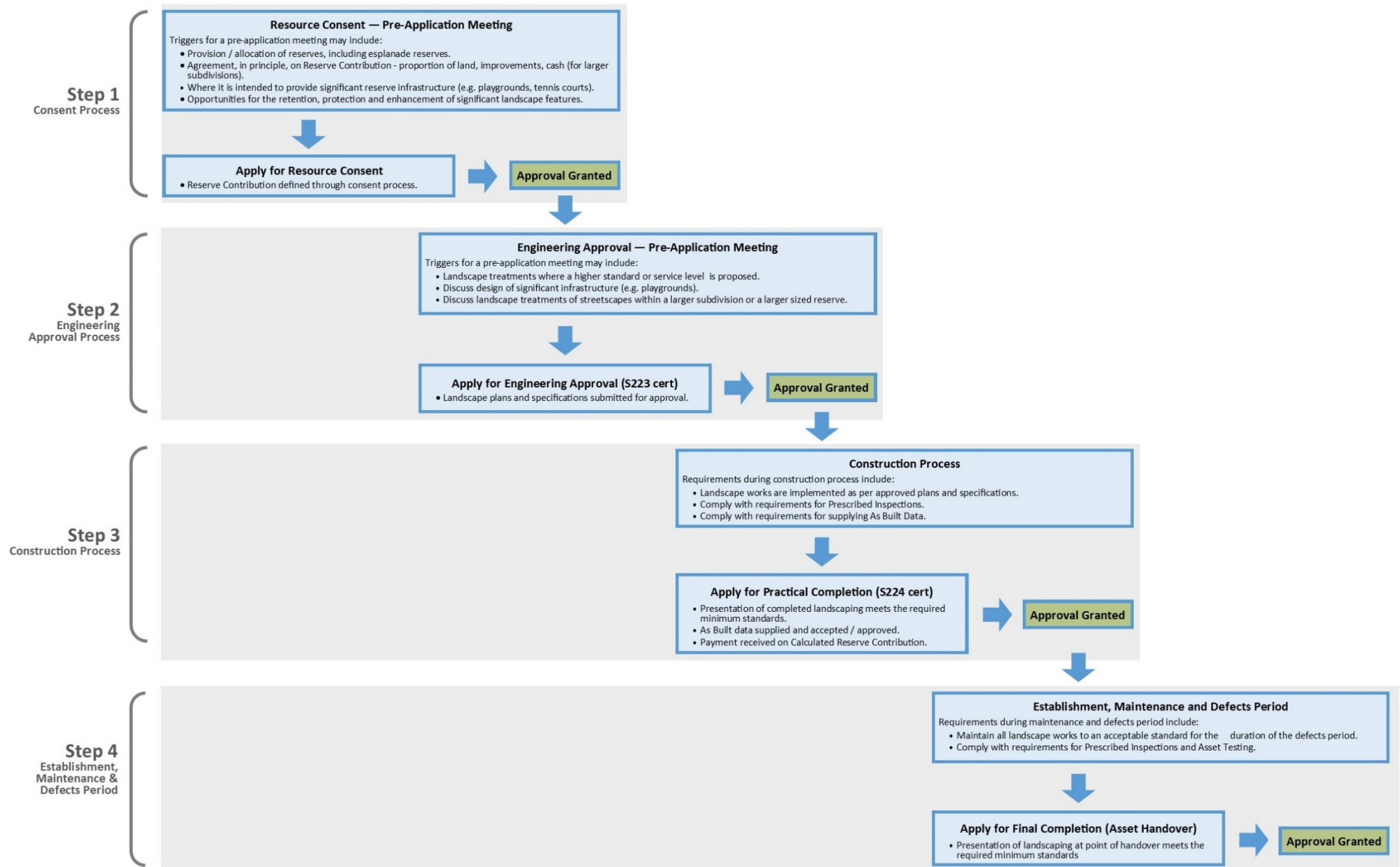
Street garden

Planting located within a road corridor or associated with a road, and usually within an urban locality.

Structural soils

A growing media for plants consisting of a mixture of materials designed to provide load bearing capacity for pavements whilst also providing basic requirements for root growth (aeration, moisture holding capacity & nutrients).

Subdivision Process Guide – Streetscapes and Reserves:



Schedule of Approved Street Tree Species:

In all circumstances, discuss tree species selection with the Council prior to submitting landscape designs. The below table is to be used as a guide when selecting street tree species. What is considered an appropriate species selection will be dependent on site specific factors such as; environmental conditions (e.g. ground moisture, drainage, wind) and whether species characteristics will become an issue in a particular location (e.g. leaf / fruit fall, shading, compatibility with utility services, form and required sight distances, maintenance requirements). Approval is at the discretion of Council.

Where the available berm width is less than 2.0m wide, carefully consider species choice and growth characteristics of the tree e.g., mature tree trunk size, surface rooting. As a general guide, trees classed as 'large' in size or which are prone to surface rooting shall not be planted in berms of less than 2.0m wide.

Note: small = <5m; medium = 5 - 9m; large = >9m.

Exotic Species:

Botanic Name / Cultivar	Common Name	Size	Comments
Acer autumn blaze	Autumn Blaze Maple	Medium	Upright form
Carpinus betulus	European Hornbeam	Medium	
Carpinus betulus 'Fastigate'	Upright Hornbeam	Medium	Upright columnar / pyramidal form
Fagus sylvatica	European Beech	Large	
Fraxinus americana	American Ash	Medium	
Fraxinus excelsior 'Green Glow'	English Ash (select form)	Medium	Upright columnar form
Fraxinus excelsior 'Purple Spire'	English Ash (select form)	Medium	Upright columnar form
Liriodendron tulipifera 'Fastigatum'	Upright Tulip Tree	Large	Upright columnar form
Prunus Sp.	Flowering Cherry		Low branching habit may cause obstructions
Pyrus calleryana	Ornamental Pear	Medium	Low branching habit may cause obstructions
Quercus robur fastigata	Upright Oak	Large	Very large upright columnar form, produces acorns

Botanic Name / Cultivar

Common Name

Size

Comments

Native Species:

Botanic Name / Cultivar	Common Name	Size	Comments
Plagianthus regius	Ribbonwood	Medium	
Podocarpus totara	Totara	Medium	
Pseudopanax crassifolius	Horoeka (Lancewood)	Small	Considered fragile / susceptible to damage in some environments.
Sophora microphylla	Kowhai	Small	

APPENDIX 3

Schedule of Inappropriate or Undesirable Tree & Plant Species:

Note: In all circumstances, discuss tree and plant selection with the Council prior to submitting landscape designs as approval is at the discretion of Council. There may be situations where plants listed below may be considered appropriate to plant.

Undesirable characteristics may include;

- i. Known potential to become weeds
- ii. Invasive root systems and potential to sucker.
- iii. Heavy production of seeds and quick germination.
- iv. Heavy production of pollen and/or allergenic pollen.
- v. Poor form and weak branch structure.
- vi. Susceptibility to disease and pests.
- vii. Poisonous bark, leaves, seeds or fruit.
- viii. Variation from true form, i.e., tree suckers, watersprouts or reversion

A cross (x) denotes as inappropriate in that location.

Botanic Name / Cultivar	Common Name	Tree	Shrub	Ground Cover	Undesirable Characteristic	Streetscape	Reserve	Riparian
<i>Acaena purpurea</i>	bidibidi			✓	Maintenance requirements	x	x	x
<i>Acer pseudoplatanus</i>	sycamore	✓			Weed species	x	x	x
<i>Aesculus hippocastanum</i>	horse chestnut	✓			Heavy fruiting (nuts)	x		x
<i>Betula pendula</i>	silver birch	✓			Allergenic health associations	x	x	x
<i>Cupressus</i>	cypress	✓			Debris / susceptible to disease (canker)	x		x
<i>Eucalyptus</i> spp	eucalyptus	✓			Debris / structural failure	x		x
<i>Fraxinus oxycarpa</i> var 'Raywoodii'	Claret ash	✓			Structural failure	x		x

Botanic Name / Cultivar	Common Name	Tree	Shrub	Ground Cover	Undesirable Characteristic	Streetscape	Reserve	Riparian
Fraxinus syriaca	Syrian ash	✓			Structural failure	x		x
Gleditsia triacanthos	Honey locust	✓			Structural failure	x		x
Ginkgo biloba (female)	Maidenhair tree	✓			Heavy fruiting	x		x
Hoheria populnea	lacebark	✓			Weed species	x	x	x
Juglans regia	Common walnut	✓			Debris	x		x
Liquidambar styraciflua	sweetgum	✓			Structural failure	x		x
Malus spp	Crab apple	✓			Maintenance requirements / debris	x		x
Maytenus boaria	Mayten tree	✓			Weed species / suckers	x	x	x
Melia azedarach	melia	✓			Poisonous fruit / debris / destructive roots	x		x
Nerium oleander	oleander		✓		Poisonous	x	x	x
Olea spp	olive	✓			Allergenic health associations	x		x
Phebalium spp	phebalium	✓			Allergenic health associations	x	x	x
* Phormium (cultivars)	ornamental flax		✓		Reversion / maintenance requirements	x	x	x
Phormium cookianum	Mountain flax		✓		Obstruction / maintenance requirements	x		
Phormium tenax	NZ flax		✓		Obstruction / maintenance requirements	x		
Pinus spp	pine	✓			Structural failure / debris	x		x
Platanus x acerifolia	london plane	✓			Susceptible to disease (anthracnose)	x	x	x
Populus spp	poplar	✓			Structural failure / destructive roots	x		x
Quercus spp	oak	✓			Large size / debris	x		

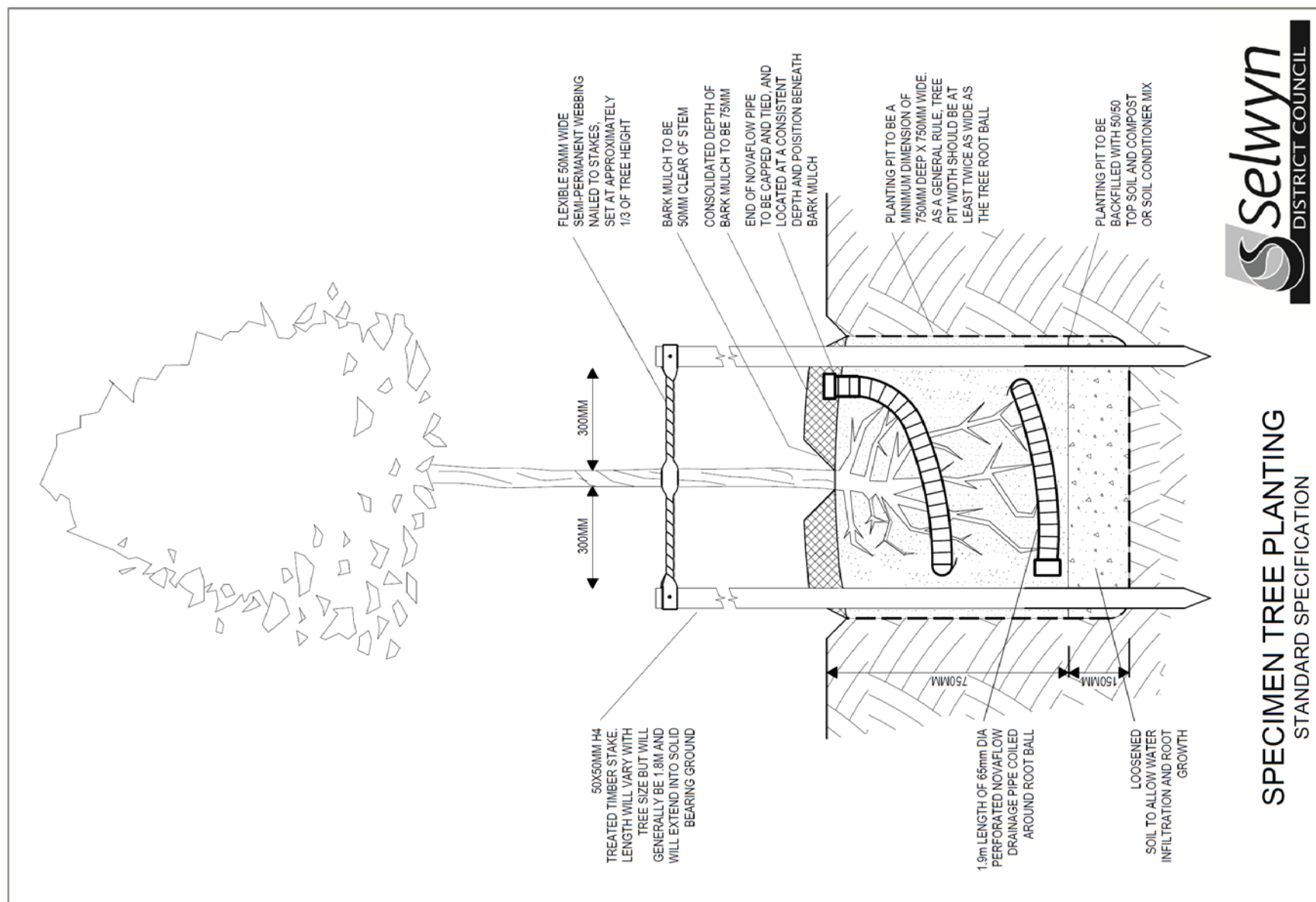
Botanic Name / Cultivar	Common Name	Tree	Shrub	Ground Cover	Undesirable Characteristic	Streetscape	Reserve	Riparian
Typha orientalis	raupo		✓		Weed species / invasive to stormwater	x	x	x
Ulmus spp	elm	✓			Disease / suckers	x		x

* Note: Some flax cultivars have a greater tendency to revert than others and there may be situations where certain cultivars may be considered appropriate to plant. Discuss cultivar selection with the Council prior to submitting landscape designs. Approval is at the discretion of Council.

In addition to the above, do not plant any tree or plant listed in the Canterbury Regional Pest Management Strategy 2005-2015 plus subsequent amendments. There may be other trees and plants which are not acceptable to Council and that are not listed above.

Drawings:

Drawing 1: Specimen Tree Planting Standard Specification



Drawing 2: Picnic Table & Bench Seat Surround Standard Specification

