APPENDIX 16B SUBDIVISION DESIGN ASSESSMENT CRITERIA (RESIDENTIAL 8A & 8B ZONES)

PURPOSE OF APPENDIX 16B (RESIDENTIAL 8A & 8B ZONES)

In the Residential 8A and 8B Zones, applications for Restricted Discretionary Activity subdivision resource consent will be assessed in terms of a series of matters, to which the Council will restrict the exercise of its discretion.

One of the matters which the Council will have regard to is:

> "Design and Layout"
>
> The extent to which the subdivision is in accordance with the relevant Subdivision Design Assessment Criteria in Appendix 16B".

The criteria will be considered for vacant lot subdivision and for subdivision in relation to a preceding or concurrent land use consent involving household units. In addition, the criteria will also be used as appropriate in the consideration of Discretionary Activity applications for subdivision.

Structure of Appendix 16B (Residential 8A & 8B Zones)

The Appendix sets out the assessment criteria under five "Design Elements", which are the design and layout matters to which the Council's discretion is restricted for Restricted Discretionary applications, namely:

- Road, Reserve and Access Networks
- Block Size and Lot Type
- Design of Roads and Access Routes
- Design of Reserves and Landscape Strip
- Design of Margins

The criteria listed under each Design Element are intended to give flexibility, enabling site responsive subdivision designs, while ensuring that the subdivision contributes to the efficient development and amenity of the Takanini Structure Plan Area.

The criteria are intended to guide development rather than prescribe exact design and layout. Most criteria are illustrated. The illustrations are intended to support the text and are representative of good design solutions, but are not necessarily intended to represent the only design solution.

Each Design Element includes an explanation which summarises the rationale for the particular Design Element, and expands on the individual criteria. The explanation may be used as further guidance in interpreting the intention of the criteria and assessing the extent to which the proposal accords with them.

Information Requirements

The applicant shall provide a written assessment describing how the criteria for each Design Element are addressed. Applicants will have to demonstrate that the provisions of the criteria have been acknowledged.

It is recognised that certain proposals will not achieve absolute accordance with all criteria. Where necessary, in regard to a criterion demonstrably not met, the applicant shall explain with reference to the explanation for the particular Design Element:

- whether site constraints inhibit the ability to address the criterion, and/or;
- how the intention of the criterion is met by the proposal, and/or ;
- whether the proposal represents a better design solution than that suggested by the criterion.

Note:

The Design Elements set out in Appendix 16B (Residential 8A & 8B zones) are as follows:

Design Element 1: Road, Reserve and Access Networks – Residential 8A Zone
Design Element 1: Road, Reserve and Access Networks – Residential 8B Zone
Design Element 2: Block Size and Lot Type – Residential 8A Zone
Design Element 2: Block Size and Lot Type – Residential 8B Zone
Design Element 3 - Design of Roads and Access Routes – Residential 8A Zone
Design Element 3: Design of Roads and Access Routes – Residential 8B Zone
Design Element 4: Design of Reserves – Residential 8A Zone
Design Element 4: Design of Reserves and Landscape Strip – Residential 8B Zone
Design Element 5: Design of Margins – Residential 8B Zone

Design Element 1: Road, Reserve and Access Networks – Residential 8A Zone

1. Subdivision design should achieve connectivity within and between neighbourhoods.

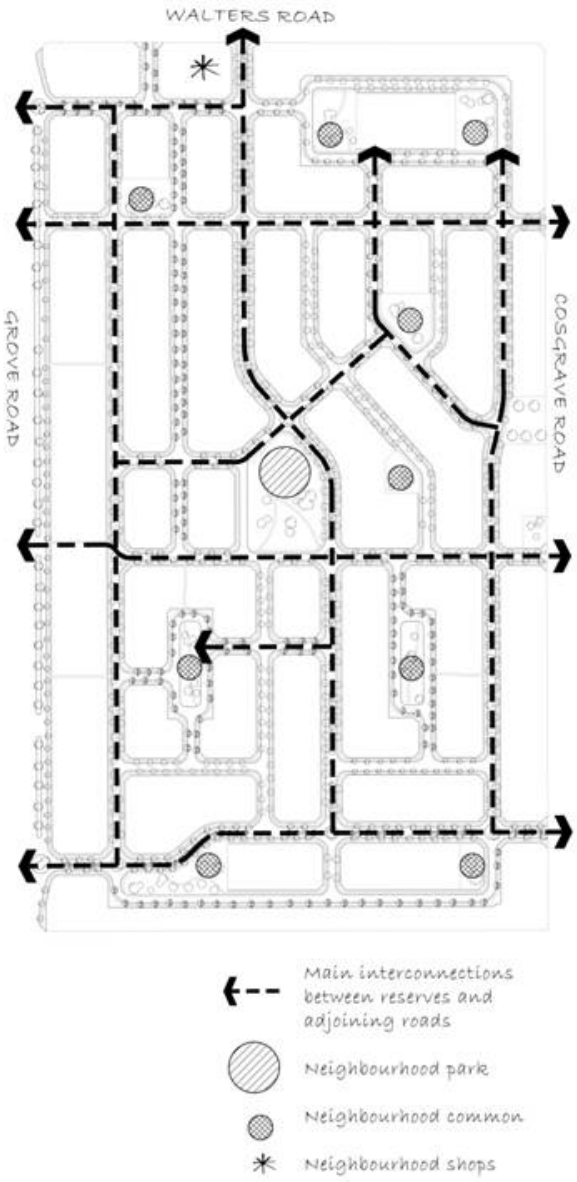
2. Street patterns and pedestrian/cycle networks should maximise convenient and direct access to passenger transport stops, reserves, community facilities and mixed use nodal areas.

3. Local Centres should be located on the local roading and access network so as to maximise proximity to public transport, and reinforce walking and cycling opportunities.

4. Street patterns and pedestrian/cycle networks should be logical and contribute to the legibility of the area.

5. Street patterns should include roads which front the edge of Bruce Pulman Park, particularly along the northern park boundary.

6. Roads and other public spaces which front Bruce Pulman Park or extend up to its boundary should be designed to recognise, incorporate and extend walking, running and cycling routes into and out of the park.



7. Street alignments should maximise opportunity for lots with good solar access.

8. Subdivision design should help achieve an interconnected open space network.

9. Safe pedestrian and cycle routes should be generally integrated with road and reserve design.

10. Layouts should retain any existing mature trees, preferably in road or reserve, where these contribute to existing site amenity.

11. Subdivision design shall ensure that new road connections between the Cosgrave Structure Plan Area and Grove Road avoid alignment of a new road with the existing entrance (Main Gate) to the Papakura Military Camp. Any new road connection shall be offset by at least 50 metres (centreline to centreline) from the existing entrance to the Camp.

Explanation:

Design Element 1 pertains to the general layout of the networks of roads, reserves and other access linkages that make up the public space of a subdivision. These public routes should be considered in an integrated fashion together with the development blocks they create.

Connectivity - i.e. multiple linkages between points - should be one of the key aims of any subdivision designed to achieve intensification, as it promotes convenience, energy efficiency, safety and social interaction. In general this will mean that most roads will be through routes. Provided that pedestrian and visual connectivity is generally maintained culs-de-sac may also be included, as they can minimise traffic movement and provide greater safety for children. If culs-de-sac are provided they should be straight and limited in length to 100m.

In considering the appropriate degree and nature of connections, regard should be had to probable destination.

On flat land, a road pattern that is logical and legible is likely to be best achieved by basing layouts upon simple alignments and geometries such as avenues, rectilinear and offset grids, crescents, ovals etc. A legible road pattern is one that is easily understandable for the people that use it. Consistent road designs and landscape themes can further emphasise the position of each street in the road hierarchy and in the wider area. Road patterns that are logical and easy to comprehend and navigate make a neighbourhood feel more comfortable and help provide a sense of identity for it. “Dead worm” or “spaghetti” road layouts and re-entrant layouts (i.e. roads turning back on themselves) will be generally discouraged unless it can be demonstrated that the layout still promotes connectivity or legibility, or is required for servicing or drainage purposes.

Design for good sunlight and daylight access will often have been predetermined by land use resource consents. However, where vacant lots are proposed, good sunlight and daylight access can usually be enabled by road alignments as close as possible to east-west and north-south, and by lot proportion (refer to Design Element 2).

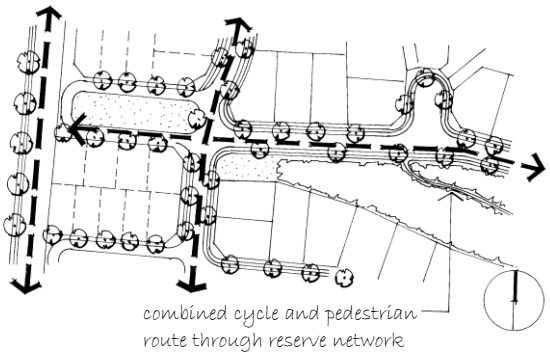
Routes should incorporate pedestrian and cycle facilities. Where these are provided separate from vehicular traffic routes they should be short, wide and direct (refer to Design Element 3). Layouts that are actively planned to incorporate existing mature trees can also ensure an “instant amenity” for the subdivision and so are encouraged.

Road connections from the Cosgrave Structure Plan Area to Grove Road are to avoid alignment of new roads with the existing entrance (Main Gate) at the Papakura Military Camp in response to the New Zealand Defence Force’s concerns regarding security and avoiding direct linkage to the Camp.

Design Element 1: Road, Reserve and Access Networks – Residential 8B Zone

1. Subdivision design should achieve connectivity within and between neighbourhoods.

2. Street patterns and pedestrian/cycle networks should maximise convenient and direct access to passenger transport stops, reserves, community facilities and mixed use nodal areas.



3. Street patterns and pedestrian/cycle networks should be logical and contribute to the legibility of the area.

4. Street alignments should maximise opportunity for lots with good solar access.

5. Subdivision design should help achieve an interconnected open space network.

6. Safe pedestrian and cycle routes should be generally integrated with road and reserve design.

7. Layouts should retain any existing mature trees, preferably in road or reserve, where these contribute to existing site amenity.

Explanation:

Design Element 1 pertains to the general layout of the networks of roads, reserves and other access linkages that make up the public space of a subdivision. These public routes should be considered in an integrated fashion together with the development blocks they create.

Connectivity - i.e. multiple linkages between points - should be one of the key aims of any subdivision as it promotes convenience, energy efficiency, safety and social interaction. In general this will mean that most roads will be through routes. Provided that pedestrian and visual connectivity is generally maintained culs-de-sac may also be included, as they can minimise traffic movement and provide greater safety for children. If culs-de-sac are provided they should generally be straight and limited in length to 100m. Depending on the topography, it may on occasion be necessary or desirable to provide culs-de-sac longer than 100m. However, excessively long examples, or those that give the appearance of a through road will not be approved. Culs-de-sac where used, should extend from the local road network and not from Principal Roads.

That said, because the lot sizes in the Residential 8B zone are greater than those in the Residential 8A Zone, the intensity of roading will decrease. The Residential 8B areas are

located further away from public passenger transport, shops, community facilities etc. and are likely to be located on other than flat land. Accordingly the importance of connectivity is less in this zone.

Generally road patterns and reserve locations in the Residential 8B zone will also be determined by contour and location of the major road access points. A good design is one that is responsive to site conditions and constraints, while still providing a recognition of matters 1 to 7 above.

Design Element 2: Block Size and Lot Type – Residential 8A Zone

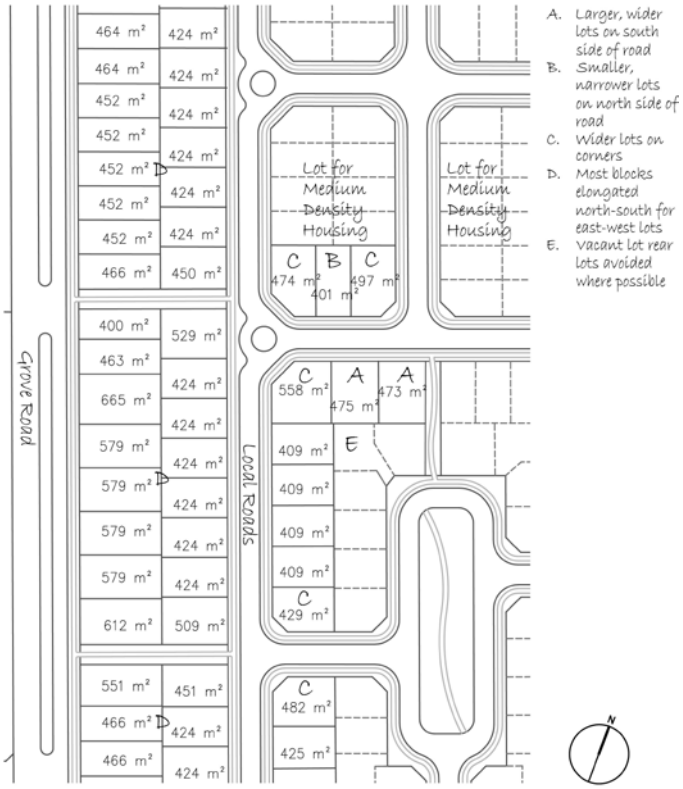
1. Blocks should be of a scale and shape to achieve a permeable street layout.

2. Blocks and lots should be designed to enable dwellings with good solar access.

3. As many lots as possible should front onto and be accessed directly from a legal road. Rear lots should generally be avoided.

4. Through lots (lots with dual road frontage) should be avoided and corner lots should be designed to maximise opportunities to create private outdoor space on site without the need for high front fences.

5. A variety of lot sizes should be provided, although vacant residential lots with areas of between 525m² and 700m² should be avoided.



Explanation:

Design Element 2 describes principles for consideration in the layout of blocks and lots within a subdivision, and is mostly relevant to vacant lot subdivision. Where residential subdivision applications are accompanied or preceded by a land use consent application the house designs and layout will determine lot size and shape.

In general, blocks should be not more than two lots deep (i.e. lots fronting roads only) and not more than 250m long to achieve permeability. Elongating blocks in a north-south direction minimises the number of “south-facing” lots and so is encouraged where house design is not known. Vacant lots intended for single dwellings accessed from the south or east should generally be narrow and deep to enable sunny and private space to the rear. Vacant lots accessed from the north or west should be wider and shallower.

Maximising the potential number of dwellings that can front the road and minimising the use of rear lots adds to safety, orientation and streetscape amenity, so as a guide subdivisions should be designed such that not less than 80% of potential complying dwellings in a subdivision will be located on existing or future front lots. In this regard it should also be noted that for Restricted

Discretionary Activity subdivisions, performance standards require~~s~~ that any rear lots proposed must gain access to the road by a jointly owned access lot or combined rights of way, with a legal width of 8m and 4.5m carriageway. In general, Discretionary Activity resource consent applications to infringe performance standards are unlikely to be granted particularly for vacant lot subdivisions.

Lots with dual road frontage should be avoided because of interface issues where a rear area intended for private use abuts a second road. The size and proportion of corner lots should be carefully considered in the light of road frontage interface controls potentially affecting the ability to achieve houses with private open space on site.

For vacant lot proposals a variety of lot sizes and shapes, (including larger lots of over 700m2 for future more intensive development and subdivision, and development blocks of over 1400m2, enabling "Medium Density Housing Developments") should be provided to avoid monotony and ensure efficient land use.

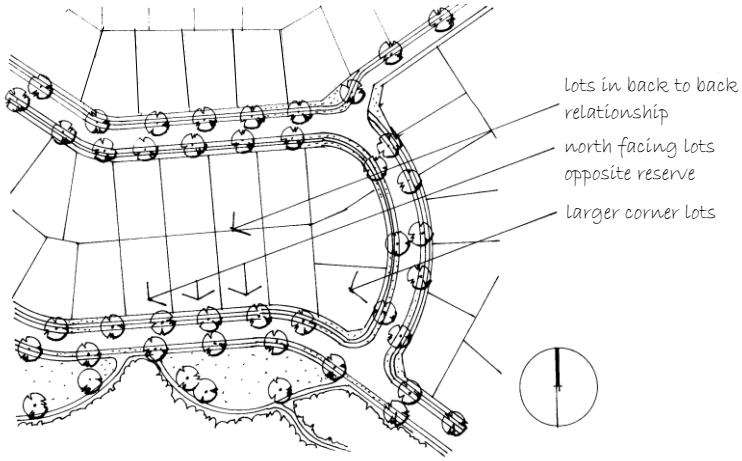
However, in practice, because of household density thresholds established by land use rules, vacant lot subdivision proposals could only proceed as Restricted Discretionary Activities in Residential 8A zone if single dwelling lots were between 400m2 and 525m2 in net site area, and lots for two or more dwellings were greater than 700m2. Where a lot proposed is between 525m2 and 700m2 in net site area the Council will generally require the applicant to seek concurrent Restricted Discretionary Activity land use consent for two or more dwellings. Where vacant lots of between 700m2 and 1400m2 are proposed the Council will generally require the applicant to demonstrate the way in which the lot will accommodate future permitted development and Restricted Discretionary Activity subdivision.

Design Element 2: Block Size and Lot Type – Residential 8B Zone

1. Blocks should be of a scale and shape to achieve a reasonably permeable street layout.

2. Blocks and lots should be designed to enable dwellings with good solar access.

3. As many lots as possible should front onto and be accessed directly from a legal road. Rear lots should generally be avoided.



4. Through lots (lots with dual road frontage) should be avoided and corner lots should be designed to maximise opportunities to create private outdoor space on site without the need for high front fences.

5. A variety of lot sizes should be provided to reflect topography and locational context.

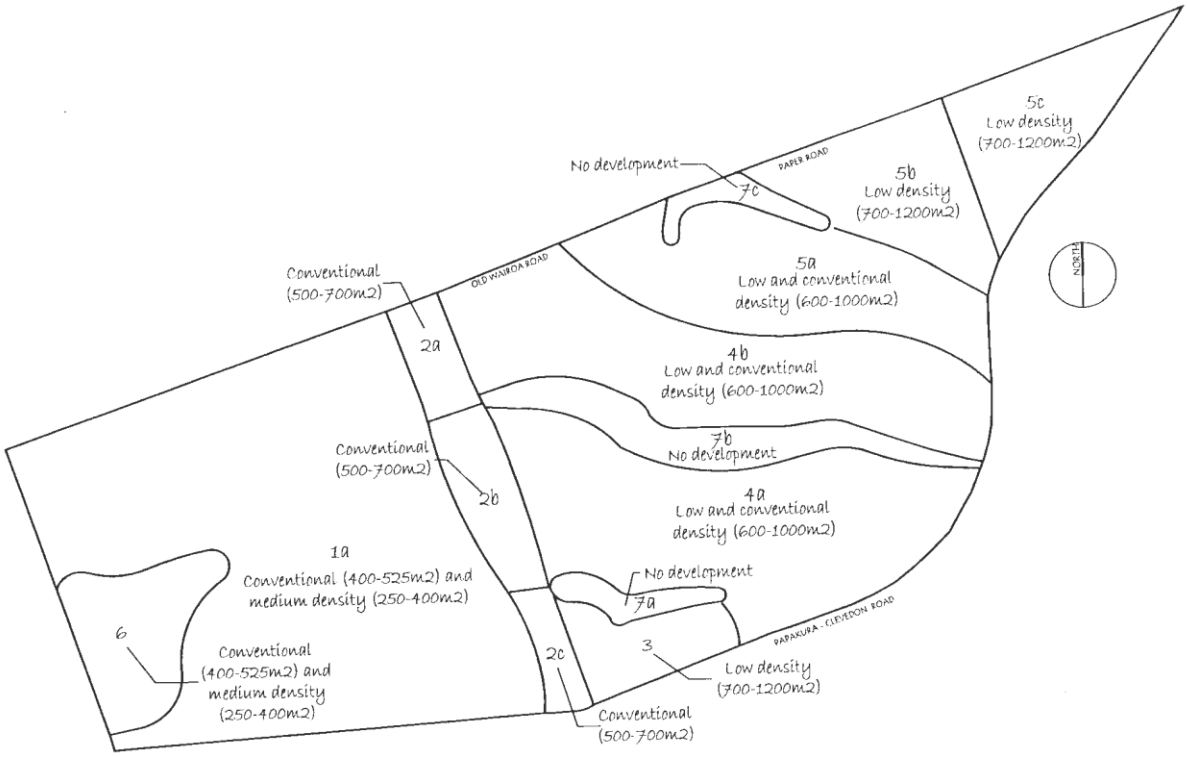
Explanation:

Design Element 2 describes principles for consideration in the layout of blocks and lots within a vacant lot subdivision.

In general, blocks should be not more than two lots deep where possible (i.e lots fronting roads only). However, topographical considerations in much of the Residential 8B zone will likely result in departures from this. In this zone, block lengths should not be longer than 350 metres.

Vacant lots with duel road frontage at the front and rear should be generally be avoided because of interface issues where a rear area intended for private use abuts a second road. An exception to this exisits in the Kirikiri and Dominion Road Structure Plan areas where vehicle access for lots abutting Papakura Clevedon Road and Dominion Road (where indicated on the respective Structure Pans), will be discouraged and as a result through lots might be an outcome.

A variety of lot sizes should be provided both to avoid monotony and reflect particular topographical and visual context issues. In some areas this might result in a requirement for lots considerably larger than the 600m^2 minimum vacant lot size in order to, for example, provide a transition to long-term rural areas at the edge of the zone, help maintain a more spacious semi-rural character for roads along this edge (for example Papakura - Clevedon Road), or retain large mature trees within lots. For example, a detailed landscape assessment for the Kirikiri Structure Plan area recommended lot ranges based on visual catchment areas as shown in the diagram below. Subdivision proposals should generally accord with these recommendations.


5c
Low density
(700-1200m2)
No development
PAPER ROAD
7c
5b
Low density
(700-1200m2)
NORTH
Conventional
(500-700m2)
OLD WAIROA ROAD
2a
5a
Low and conventional
density (600-1000m2)
4b
Low and conventional
density (600-1000m2)
7b
No development
Conventional
(500-700m2)
2b
4a
Low and conventional
density (600-1000m2)
1a
Conventional (400-525m2) and
medium density (250-400m2)
No development
7a
PAPAKURA - CLEVEDON ROAD
6
Conventional
(400-525m2) and
medium density
(250-400m2)
2c
3
Low density
(700-1200m2)
Conventional
(500-700m2)

Design Element 3 - Design of Roads and Access Routes – Residential 8A Zone

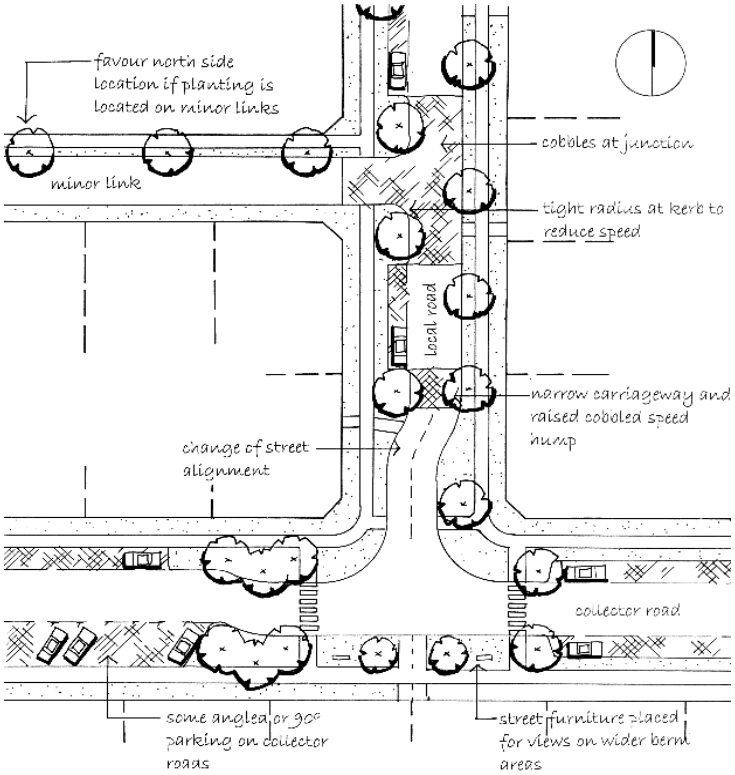
1. Road cross-sections should be appropriate to the nature of the service they provide.

2. Parking should be provided on both sides of residential collector streets, and at least one side of local residential roads.

3. A footpath with provision for cycling should be provided on at least one side of a principal or collector road.

4. Local traffic management measures should be applied to limit the speed of vehicles in local residential roads and minor links, and to enhance safety, movement and amenity for pedestrians and cyclists.

5. Generous avenue planting should be provided on principal or arterial roads, and some planting should be provided on all roads except minor links.



6. Minor Link Roads and Short Residential Culs de Sac/Minor Residential Streets should:
   - have a maximum length of 130m,
   - have a minimum carriageway width of 6m,
   - only be used where:
     - there is a low demand for on-street parking
     - traffic volumes are likely to be less than 500 vehicle movements per day
     - there is a practical alternative in the roading network of the overall subdivision design whereby the road does not form a principal through - traffic route, and
   - form T intersections where they intersect with other roads.

   Cycleways may also be required when they form part of a wider cycleway network.

7. Minor Link Roads should not be used to provide access to properties or to serve activities with high parking demand and should not provide on-street parking. Generally Minor Link Roads should have footpaths and service berms on one side only, but in some circumstances these may be required on both sides.

8. Short Residential Culs de Sac/Minor Residential Streets should serve no more than 30 residential units and should make on-street provision for parking (including visitor parking) on one side of the road only. Generally Short Residential Culs de Sac/Minor Residential Streets should have footpaths and service berms on both sides, but in some circumstances these may be required on one side only.

9. Stormwater management requirements may require modified road cross-sections to accommodate a swale or related stormwater management system.

10. Road connections between the Cosgrave Structure Plan Area and Grove Road shall avoid aligning with the existing gate to the Papakura Military Camp, any connection shall be offset by at least 40m (centreline to centreline).

11. Subdivision design shall ensure that the future widening and upgrading of Grove Road, including incorporation of the desired Grove Road layout and cross section design below, is not compromised.

12. Design of roads and intersections connecting with Grove Road must include the installation of:

    a. a raised table and traffic islands within the connecting road, and

    b. protection design treatment, such as barriers or bollards, that will stop vehicles travelling onto and/or past the verge opposite the intersection;

    as shown on the Grove Road cross-sections below. These measures are required to provide protection to the Papakura Military Camp perimeter.

Explanation:

Design Element 3 pertains to principles for the design of roads and other access routes within subdivisions. Road and road design should be appropriate to function and provide practical widths for vehicles, planting, and services. The Plan does not specify minimum widths as performance standards for the Residential 8A Zone. Drawings on subsequent pages identify suggested cross section treatments, and will be used only as a guide in assessment of proposals. Road swales may be appropriate for some streets for stormwater management purposes depending on the requirements of an approved Catchment Management Plan or Discharge Consent. The following illustrative road cross-sections do not specify the location or extent of road swales, however this requirement may be a servicing matter at time of subdivision application. Useful dimensions to have regard to in assembling a suitable road cross section are:

• two lanes of traffic on a residential collector road (to cater for buses or trucks)	6.0 metres
• two lanes of traffic on a local street	5.5 metres
• cycle path or cycle lane	1.5 metres
• parallel parking lane	2.5 metres
• service strip	2.0 metres
• footpath	1.5 metres
• kerbside verge	1.0 metres
• planting strip	1.5 metres

Indicative locations for arterial, principal and residential collector roads are shown on the respective Structure Plans. Most remaining roads should be regarded as local roads , minor residential streets or similar.

The use of parallel kerbside parking is efficient in using the road as circulation area and reducing the need for on-site visitor parking. Kerbside parking lanes may be defined and delineated with planting bays if desired.

Pedestrian and cycle paths should generally be integrated with road and reserve design. Paths which are separate from vehicle routes should be designed to ensure personal security for users. Where paths are not part of an open reserve they should generally be short (not more than 50 metres in length), and wide (not less than 6 metres legal width) and there should be clear visibility from one end to the other, and street lighting at both ends.

Grassed service strips (separate from planting strips) are generally required along any road boundaries where properties are accessed, (though other solutions for services location may be considered, for example a single service strip with connections under the carriageway on lanes).

Tree planting in the road reserve should be regarded as a requirement, as it provides character and, particularly in more intensive subdivisions, may be the only place for trees to grow to maturity. Grassed service strips (separate from planting strips) are generally required along any road boundaries where properties are accessed, (though other solutions for services location may be considered, for example a single service strip with connections under the carriageway on minor links and lanes).

Suggested spacings for street trees are:

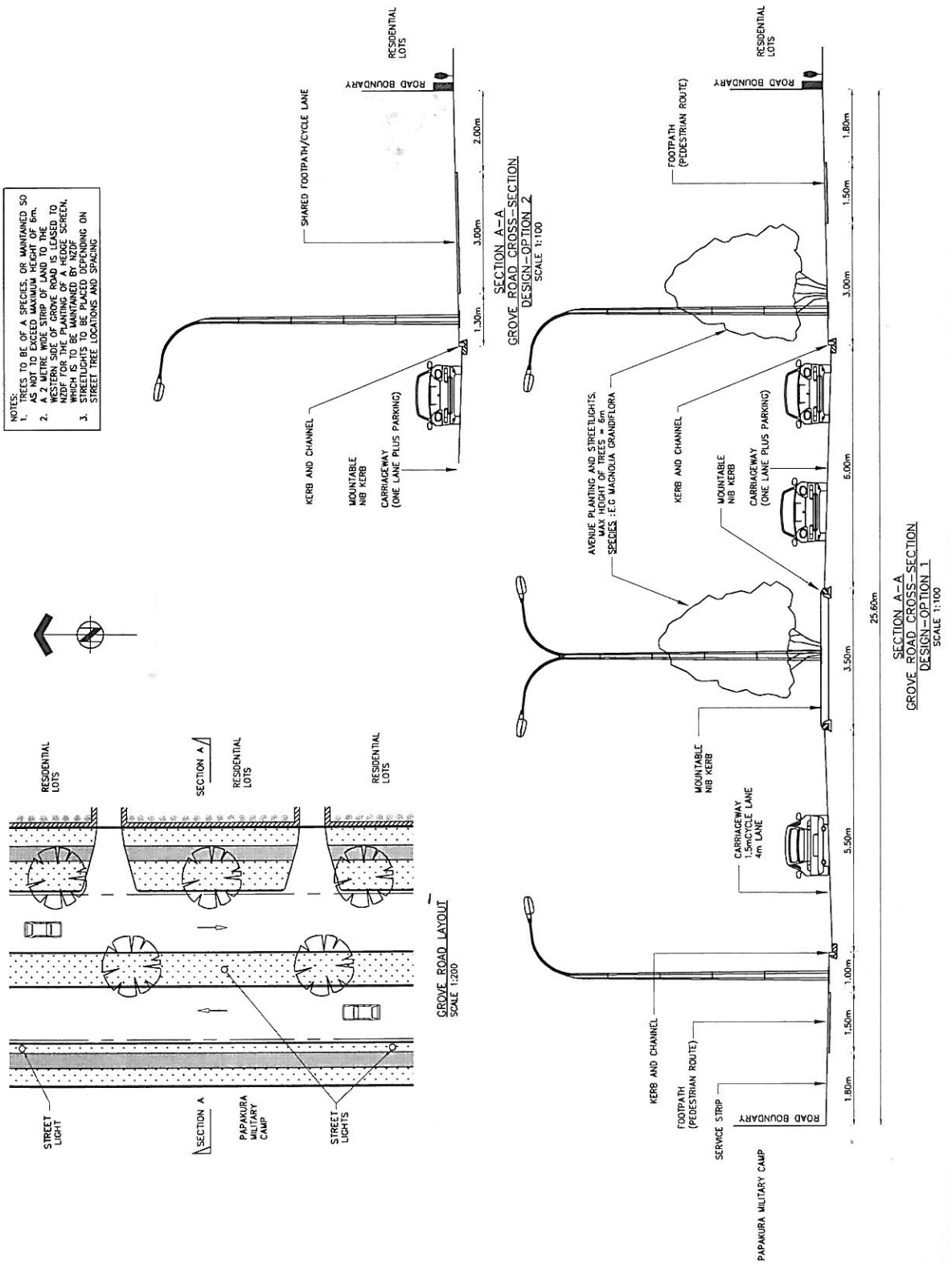
• Principal or collector road - outer berm planting strip	One tree per lot frontage
• Principal or collector road - central median planting strip	Trees spaced at 12-20 metre intervals (ideally 12 metres)
• Local road - other berm planting strip	One tree per lot frontage
• Minor Link	One tree per lot frontage (one side only)
• Access Lot	No trees required
• Pedestrian / Cycle Link	No trees required

Road connections from the Cosgrave Structure Plan Area to Grove Road are to avoid aligning with the existing gate facility at the Papakura Military Camp in response to the New Zealand Defence Force's concerns regarding physical security and potential vehicular attacks (direct ramming manoeuvres at speed).

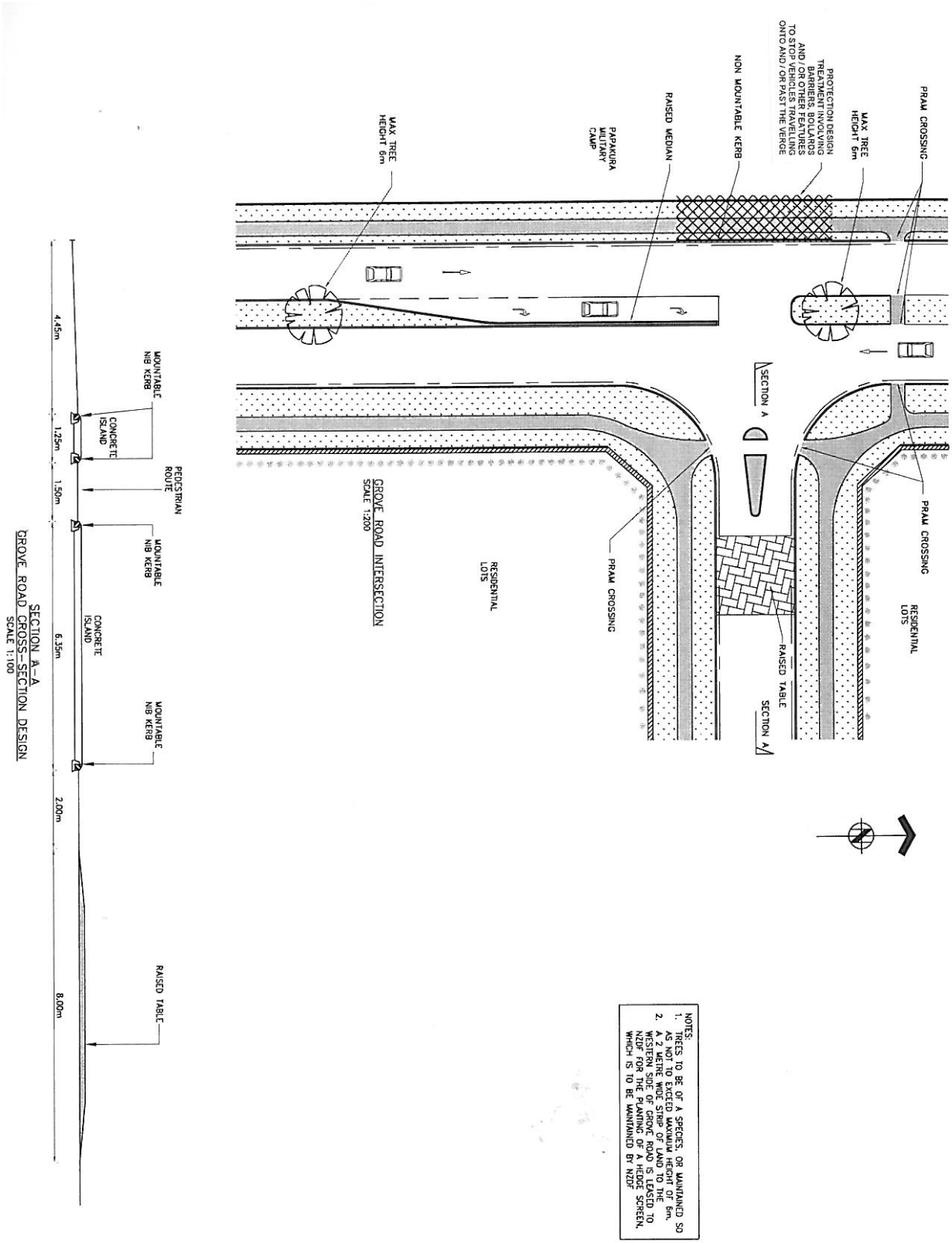
Grove Road will need to be widened and upgraded in the future in order to accommodate additional traffic generated by growth at Takanini. Council has identified the upgrade requirements for Grove Road and these are detailed in the Grove Road layout and cross section below. Furthermore, Council has also identified the need for specific landscape treatment along that part of Grove Road adjacent to the Papakura Military Camp, and for specific intersection design where new access roads from the Cosgrave Structure Plan Area intersect with Grove Road opposite the Papakura Military Camp (detailed in the layout, cross section and intersection diagrams below).

The specific intersection design and landscape treatment will minimise the potential reverse sensitivity effects (including overlooking and security effects) of residential development in close proximity to the Papakura Military Camp. Future subdivision design within the Cosgrave Structure Plan area will need to ensure that Council's road layout, cross section, and intersection design and landscape treatment for Grove Road can be achieved.

Grove Road Cross Section Design



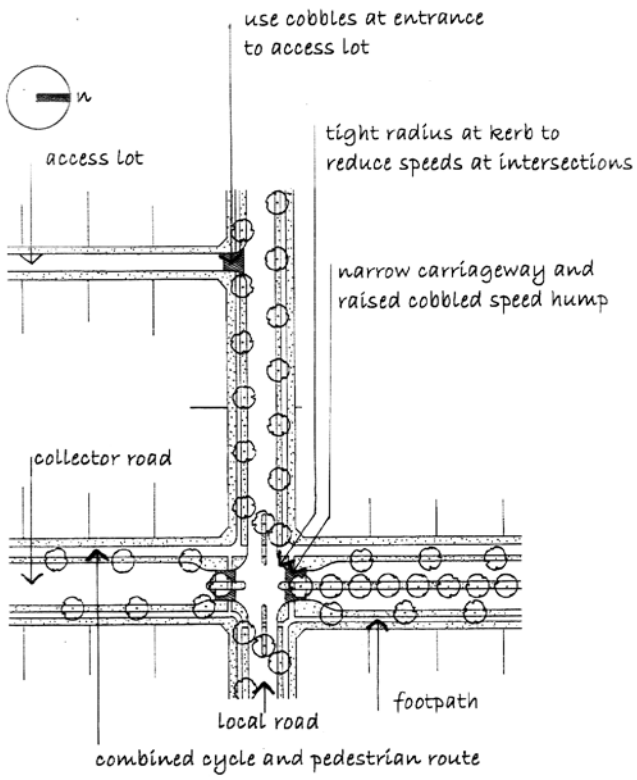
Grove Road – Specific Design Requirements
(also refer to Part 16.2.3.5 and Cosgrave Structure Plan in Appendix 16A)



Grove Road – Specific Design Requirements
(also refer to Part 16.2.3.5 and Cosgrave Structure Plan in Appendix 16A)

Design Element 3: Design of Roads and Access Routes – Residential 8B Zone

1. Road cross-sections should be appropriate to the nature of the service they provide.
2. Parking should be provided on both sides of residential collector streets, and at least one side of local residential roads.
3. A footpath with provision for cycling should be provided on at least one side of a principal or collector road.



4. Local traffic management measures should be applied to limit the speed of vehicles in local residential roads and minor links, and to enhance safety, movement and amenity for pedestrians and cyclists.
5. Generous avenue planting should be provided on principal or arterial roads, and some planting should be provided on all roads except minor links.

6. Minor Link Roads and Short Residential Culs de Sac/Minor Residential Streets should:
   - have a maximum length of 130m
   - have a minimum carriageway width of 6m
   - only be used where:
     - there is a low demand for on-street parking
     - traffic volumes are likely to be less than 500 vehicle movements per day
     - there is a practical alternative in the roading network of the overall subdivision design whereby the road does not form a principal through-traffic route, and
   - form T intersections where they intersect with other roads

   Cycleways may also be required when they form part of a wider cycleway network.

7. Minor Link Roads should not be used to provide access to properties or to serve activities with high parking demand and should not provide on-street parking. Generally Minor Link Roads should have footpaths and service berms on one side only, but in some circumstances these may be required on both sides.

8. Short Residential Culs de Sac/Minor Residential Streets should serve no more than 30 residential units and should make on-street provision for parking (including visitor parking) on

one side of the road only. Generally Short Residential Culs de Sac/Minor Residential Streets should have footpaths and service berms on both sides, but in some circumstances these may be required on one side only.

9. Stormwater management requirements may require modified road cross-sections to accommodate a swale or related stormwater management system and shall include consideration of overland flowpaths.

Explanation:

Design Element 3 pertains to principles for the design of roads and other access routes within subdivisions.The Plan does not specify minimum widths as performance standards for the Residential 8B Zone. Road and road design should be appropriate to function and provide practical widths for vehicles, stormwater management, planting, and services. Drawings on subsequent pages identify suggested cross section treatments, and will be used only as a guide in assessment of proposals. Road swales may be appropriate for some streets for stormwater management purposes depending on the requirements of an approved Catchment Management Plan or Discharge Consent. The following illustrative road cross-sections do not specify the location or extent of road swales, however this requirement may be a servicing matter at time of subdivision application. Useful dimensions to have regard to in assembling a suitable road cross section are:

- two lanes of traffic on a residential collector road (to cater for buses or trucks) 6.0m
- two lanes of traffic on a local street 5.5m
- cycle path or cycle lane 1.5m
- parallel parking lane 2.5m
- service strip 2.0m
- footpath 1.5m
- kerbside verge 1.0m
- planting strip 1.5m

Indicative locations for arterial, principal and residential collector roads are shown on the respective Structure Plans. Most remaining roads should be regarded as local roads, minor residential streets or similar.

The use of parallel kerbside parking is efficient in using the road as circulation area and reducing the need for on-site visitor parking. Kerbside parking lanes may be defined and delineated with planting bays if desired.

Pedestrian and cycle paths should generally be integrated with road and reserve design. Paths which are separate from vehicle routes should be designed to ensure personal security for users. Where paths are not part of an open reserve they should generally be short (not more than 70m in length), and wide (not less than 6m legal width) and there should be clear visibility from one end to the other, and street lighting at both ends.

Grassed service strips (separate from planting strips) are generally required along any road boundaries where properties are accessed, (though other solutions for services location may be considered, for example a single service strip with connections under the carriageway on lanes).

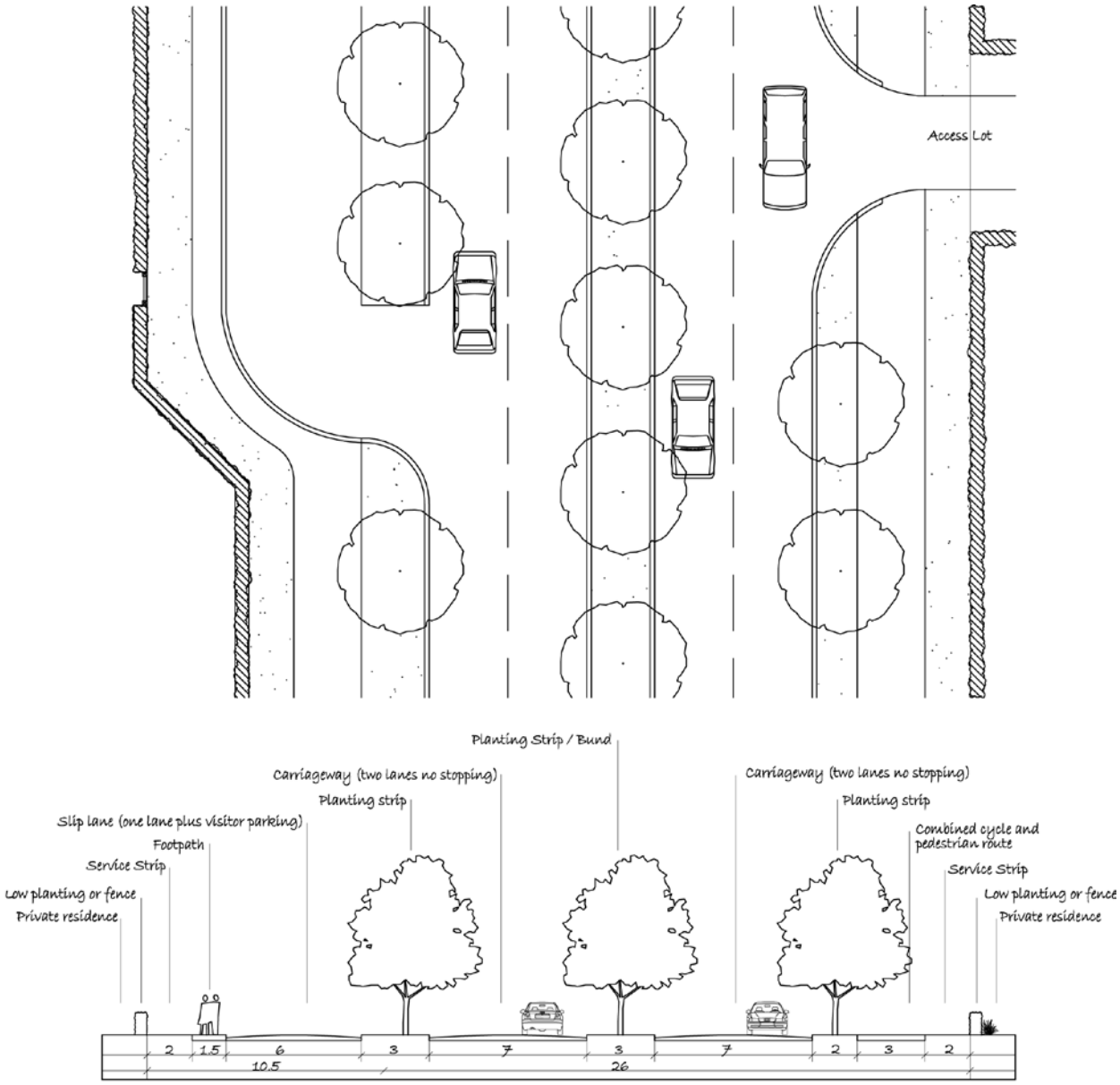
Tree planting in the road reserve should be regarded as a requirement, as it provides character and, particularly in more intensive subdivisions, may be the only place for trees to grow to maturity. Due consideration of street lights should be given, and may result in reducing street tree numbers.

Suggested spacings for street trees are:

- Principal or collector road – outer berm planting strip One tree per lot frontage
- Principal or collector road – central median planting strip
- Trees spaced at 12-20metre intervals (ideally 12 metre)
- Local road – other berm planting strip One tree per lot frontage
- Minor Link One tree per lot frontage (one side only)
- Access Lot No trees required
- Pedestrian / Cycle Link No trees required

For roads on or close to the principal ridgelines and spurs of the Kirikiri Structure Plan area species should be selected that grow to considerate heights at spacings closer than the above suggestions, in order to establish in due course skyline planting which will usually identify the general ridgeline position and act as a 'backdrop' to the edge of urban Papakura.

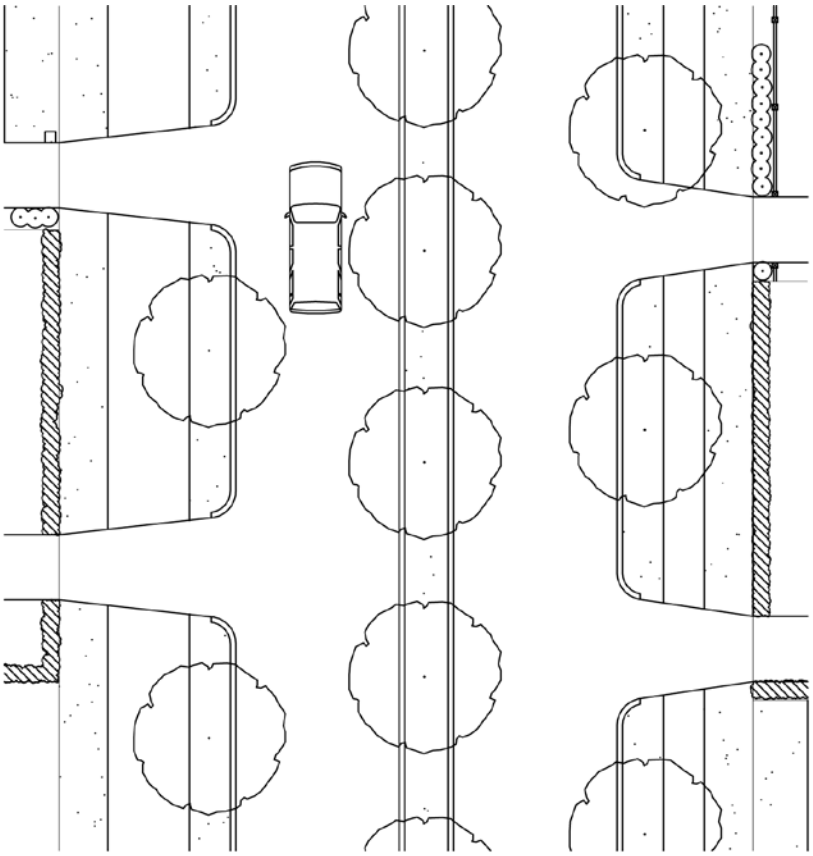
In this area also, existing hedges along the alignment of Old Wairoa Road should be retained if possible until land to the north is urbanised.

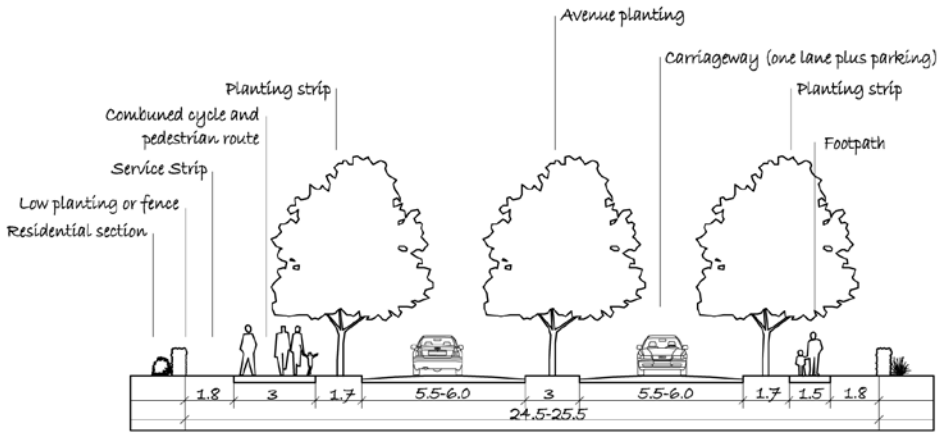


Arterial Road with Central Median (Mill/Dominion Road Link)

Suggested Road Cross Sections for the Residential 8A and 8B Zones

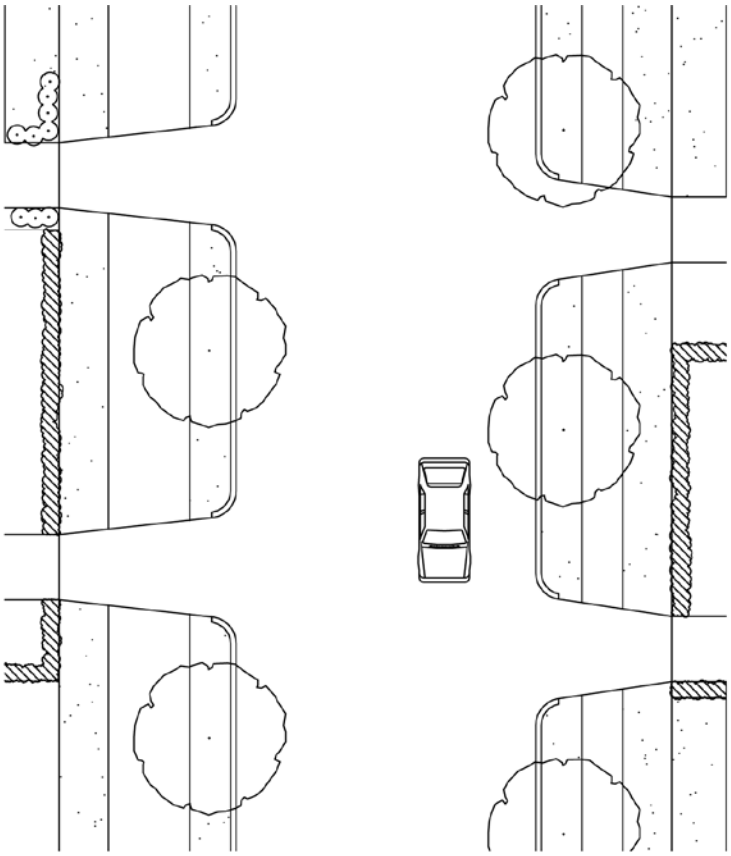
Note: Example shows slip lane on one side and no access on the other. Either treatment could be used on either side (or both sides).

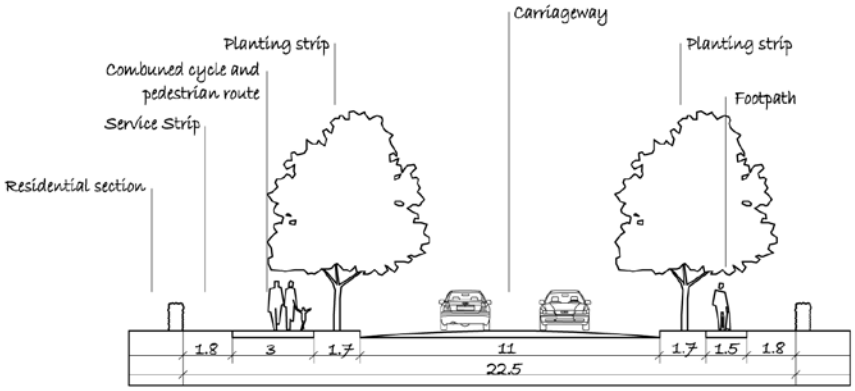




Principal or Collector Road with Central Median or Flush Median

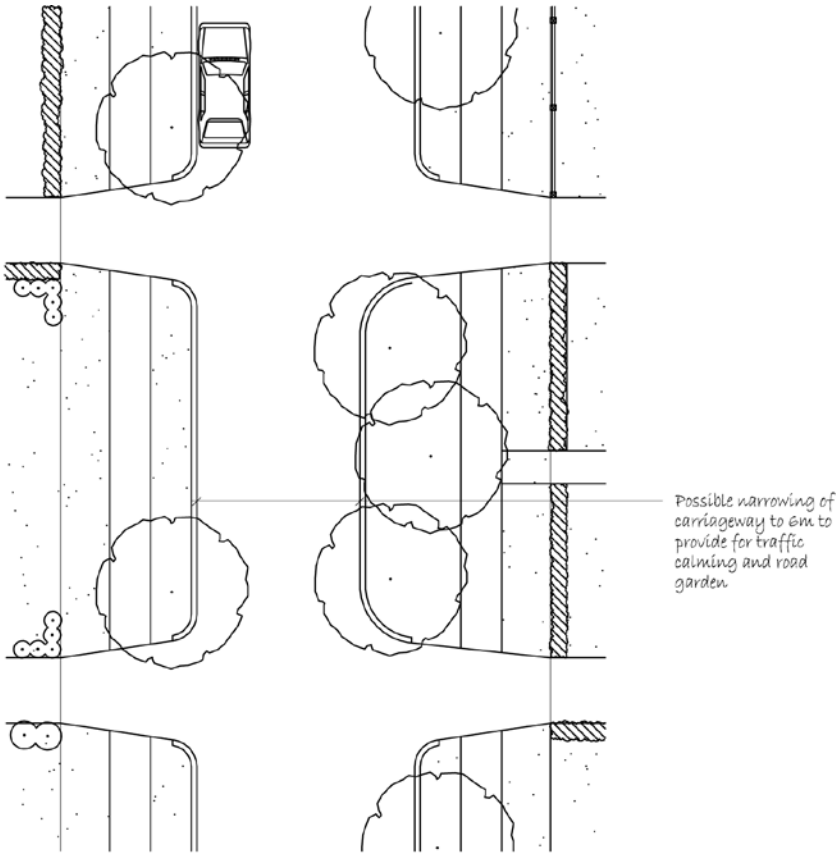
Suggested Road Cross Sections for the Residential 8A and 8B Zones

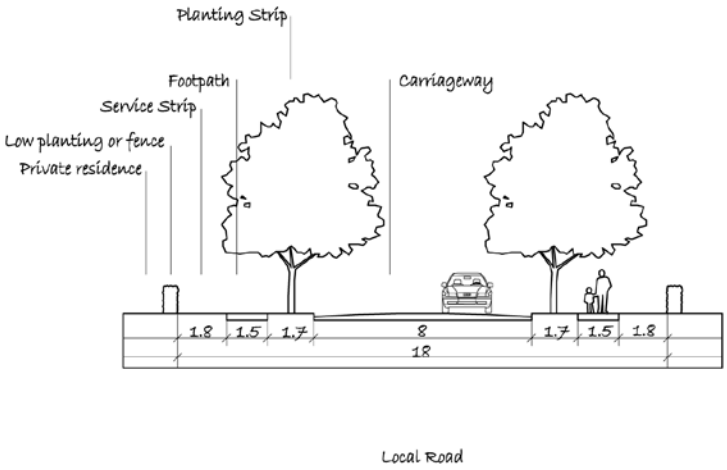




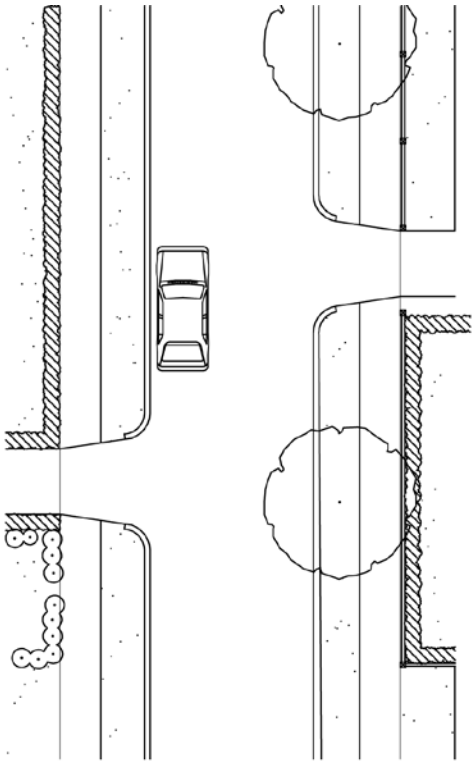
Residential Collector Road with Combined Cycle & Pedestrian Route (one side)

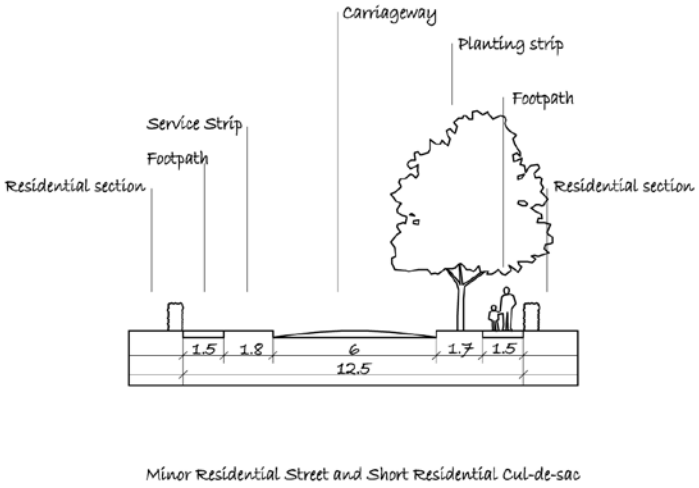
Suggested Road Cross Sections for the Residential 8A and 8B Zones



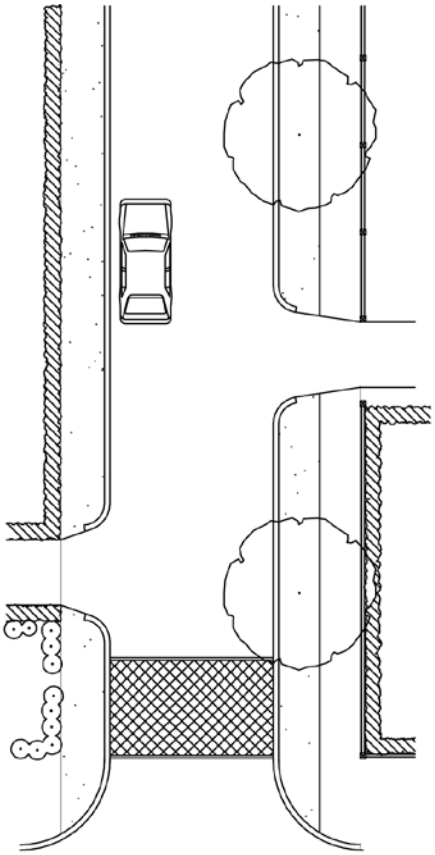


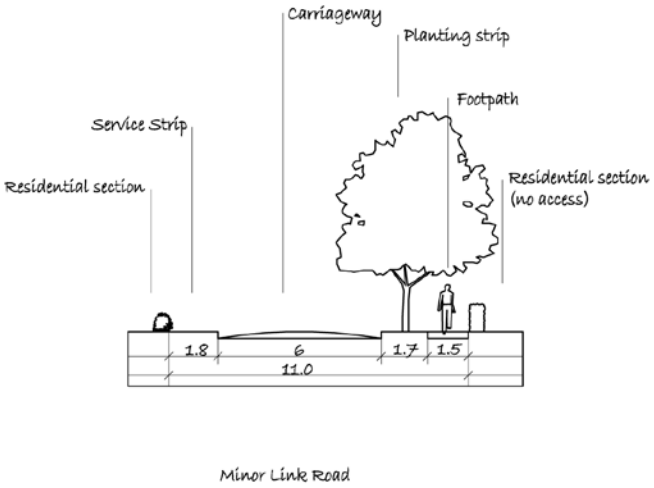
Suggested Road Cross Sections for the Residential 8A and 8B Zones



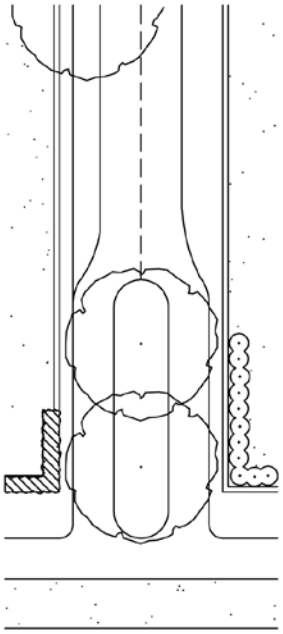


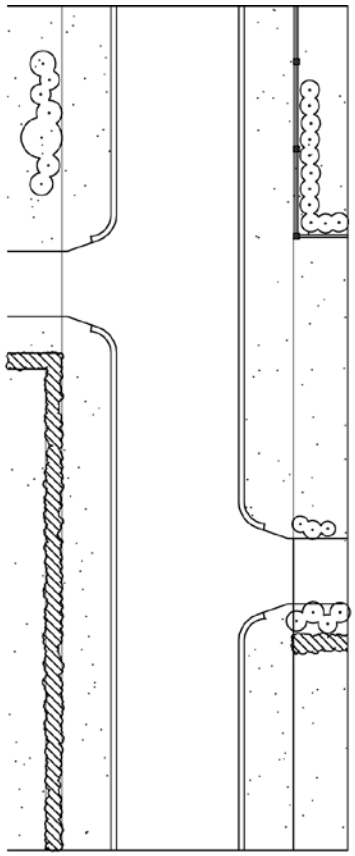
Suggested Road Cross Sections for the Residential 8A and 8B Zones

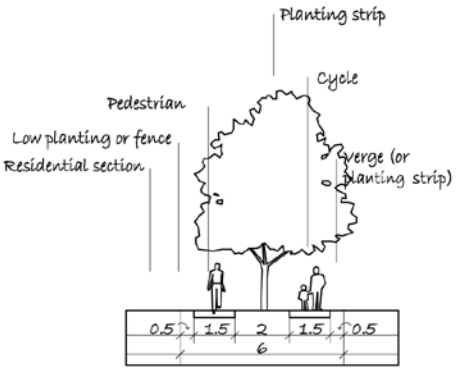




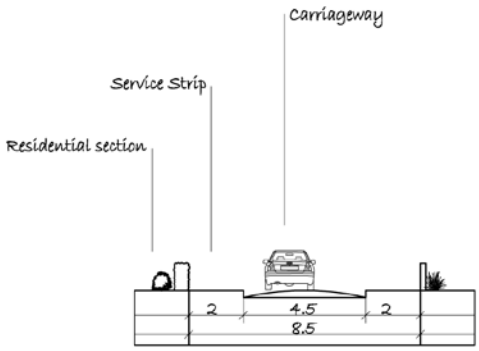
Suggested Road Cross Sections for the Residential 8A and 8B Zones







Pedestrian / Cycle Link



Access Lot or Combined Rights of Way

Suggested Road Cross Sections for the Residential 8A and 8B Zones

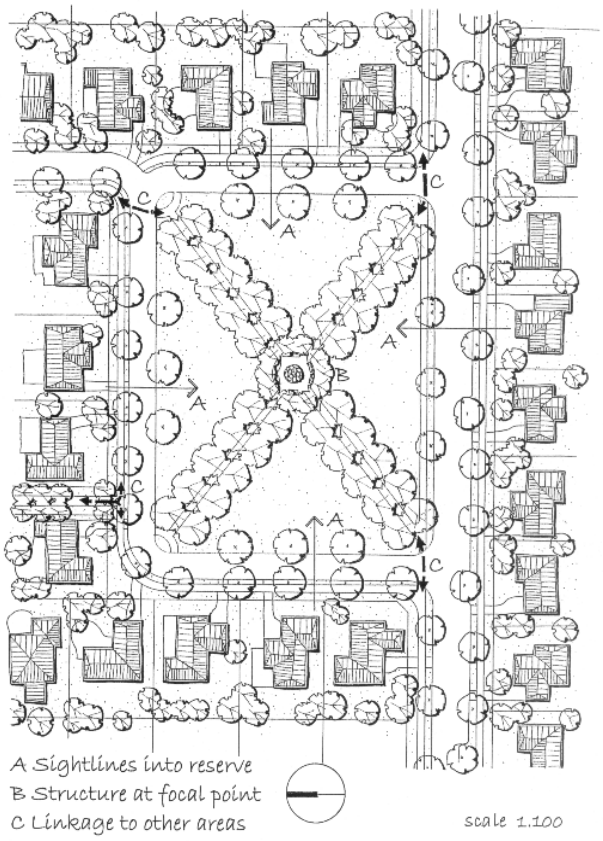
Design Element 4: Design of Reserves – Residential 8A Zone

1. Reserves should be located adjacent to public roads. Clear sight lines into all areas of reserves should be available from public roads and nearby dwellings and along cycle and pedestrian routes.

2. Reserves should be distributed throughout the Residential 8A Zone to provide a variety of recreation opportunities.

3. Reserves should be designed for a particular purpose and to provide a focal point for the neighbourhood, and be located such that as many lots as possible have a direct physical or visual connection with the reserve.

4. Trees and any structures should be positioned for winter shelter and summer shade, to maximise the focal qualities of any reserve, and to reinforce any linkages from the reserve to other areas.



Explanation:

Design Element 4 pertains to matters for consideration for locating, sizing and designing reserves within subdivisions.

Other than the Glenora Structure Plan, other Structure Plans for each area outline the broad distribution and size of reserves. The distribution, extent and location have been determined with reference to Council's Open Space Strategy commensurate with envisaged population and anticipated urban character for each area.

Reserves that are largely bounded by public roads are more secure, because of informal surveillance from the road and from the houses nearby, and are thus likely to discourage crimes

against the person, vandalism, burglary, dumping, and littering. In such locations, and clearly visible to as many properties as possible, they are likely to attract the maximum number of users and be more valued by the community. Ideally reserves should not directly adjoin residential lots, but as a guide, not less than half the total length of legal boundary of any reserve should adjoin legal road. Innovative design for roads to incorporate or define open space is also encouraged – for example a large cul-de-sac "head" in which the carriageway actually encircles a usable open space reserve is a good design solution and preferable to a conventional cul-de-sac head located in road reserve.

Reserves should be designed as "neighbourhood parks", with some capacity for local informal recreation (larger scale active recreation opportunities will be catered for at Bruce Pulman Park). A small, well proportioned flat reserve designed as focal point for a neighbourhood through the use of planting, shelters, pergolas etc will be more appropriate than a large area of "leftover" rolling rear land.

Design Element 4: Design of Reserves and Landscape Strip - Residential 8B Zone

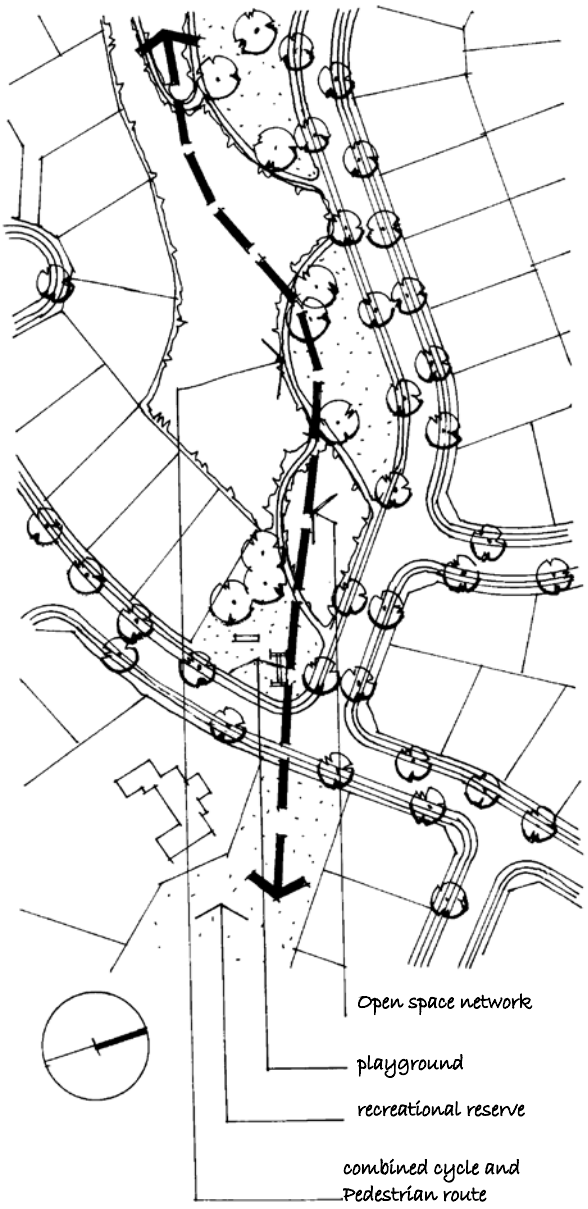
1. Reserves should be located adjacent to public roads and stream riparian margins. Clear sight lines into all areas of reserves should be available from public roads and nearby dwellings and along cycle and pedestrian routes.

   Public roads should provide at least 50% of the external boundaries of recreation reserves.

2. Reserves should be distributed throughout the Residential 8B Zone to provide a variety of recreation opportunities.

3. Reserves should be designed for a particular purpose and to provide a focal point for the neighbourhood, and be located such that as many lots as possible have a direct physical or visual connection with the reserve.

4. Trees and any structures should be positioned for winter shelter and summer shade, to maximise the focal qualities of any reserve, and to reinforce any linkages from the reserve to other areas.



5. Reserves should be located to include existing streams and to provide green linkages in accordance with the Kirikiri Structure Plan.

6. The reserve containing Kirikiri/Rings Redoubt as shown on the Kirikiri Structure Plan should be designed and located to include a sufficient sized buffer between the scheduled site and the adjoining residential development to protect the integrity of this cultural heritage site.

Explanation:

Design Element 4 pertains to matters for consideration for locating, sizing and designing reserves within subdivisions. Regard should also be had to Design Element 5 when designing reserves that include streams and riparian margins.

Other than the Glenora Structure Plan, other Structure Plans for each area outline the broad distribution and size of reserves. The distribution, extent and location have been determined with reference to Council's Open Space Strategy commensurate with envisaged population and the urban character for each area.

It is anticipated that the urban environment of the 8B Zone will be quite different from that in the 8A Zone. Lots in 8B will be generally more spacious. Reserves therefore will generally be fewer and larger than those expected in an 8A Zone.

Stormwater treatment obligations together with landscape character may require the setting aside of extensive and linked open spaces. In these circumstances, these open spaces should be considered as part of the overall open space and pedestrian movement network.

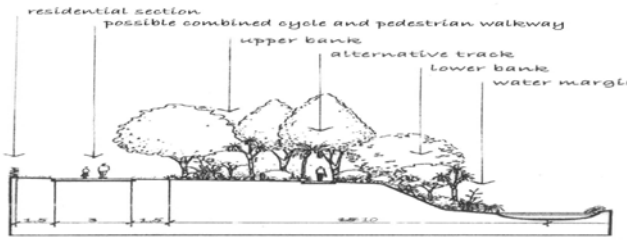
Reserves that are largely bounded by public roads enhance security, because of informal surveillance from the road and from the houses nearby, and are thus likely to discourage crimes against the person, vandalism, burglary, dumping, and littering. In such locations, and clearly visible to as many properties as possible, they are likely to attract the maximum number of users and be more valued by the community.

A landscape strip should be provided parallel and adjacent to Papakura-Clevedon Road. The purpose of this strip, together with fencing restrictions is to create a planted landscape buffer between the Residential 8B Zone along Papakura-Clevedon Road and the rural-residential land to the south-east. The landscape strip yard adjacent Papakura-Clevedon Road is intended to add amenity to the general area and will complement future reserves and open space areas. It is not envisaged that this strip will form part of the open space network. Specific assessment criteria for landscape strips and fences along the Papakura-Clevedon Road boundary that do not meet the standards are outlined in 16.2.5.1.3.

A sufficient buffer is required between the Kirikiri /Rings Redoubt site and the surrounding residential land to ensure the continued protection of this scheduled site. Adequate consideration should therefore be given to an appropriate distance between the edge of the Redoubt and a 'built-in' buffer within the reserve itself, in consultation with the New Zealand Historic Places Trust at the time of subdivision design.

Design Element 5: Design of Margins – Residential 8B Zone

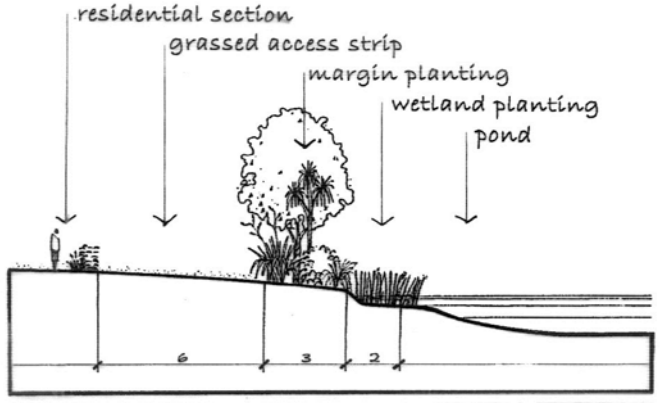
1. Where stream/drainage channels are identified for retention on the Kirikiri Structure Plan, a vegetated buffer should be provided on both sides of the channel to the widths indicated on the cross section.



Suggested Riparian Margin Cross Section - Streams

2. Vegetated buffers should also be provided on the margins of proposed wetlands**,** ponds and drainage channels (minimum width 5m).

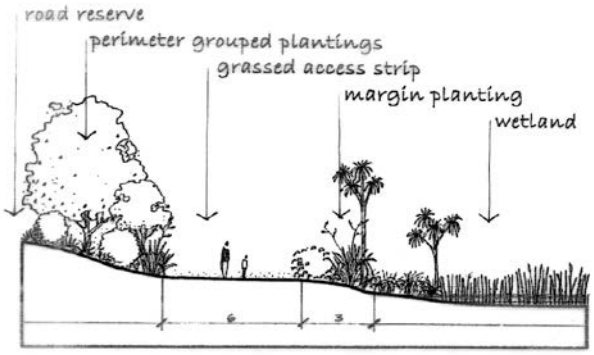
3. Vegetation adjacent to wetlands, ponds and streams should consist of appropriate native species. Non-invasive exotic specimen trees may be included if desired.



Suggested Riparian Margin Cross Section - Ponds

4. Walkways through buffer vegetation should be designed to minimise any impact on the ecological function of the margin.

5. Where public access is available, personal security should be a priority in walkway design.



Suggested Riparian Margin Cross Section – Wetlands

6. Vegetated buffers in close proximity to residential lots should be designed to minimise shading effects on probable living areas and to allow visual connection with any walkway passing through the buffer.

7. Where walkways are located in reserves, signage should be provided at primary entry points with information about walkway connections, destinations and walking times.
8. Constructed elements such as viewing platforms or wildlife refuge are encouraged within ponds and wetlands subject to high public use.

Explanation:

Criteria 1 through 8 of Design Element 5 pertain to the design of riparian margins, vegetation buffers and walkways within or adjacent to these margins. This Design Element applies to the margins of existing watercourses identified on the Kirikiri Structure Plan. Such margins will generally be required to be included within reserves.

The Design Element is also applicable to the margins of wetlands and ponds for stormwater detention (the locations of which are broadly identified on the Structure Plan for the area), established in accordance with the recommendations of an approved Catchment Management Plan for the area.

The principal purposes of vegetation buffers in riparian margins (around streams, drainage channels, lakes, ponds and wetlands) are to reduce the impact of land use activities on water quality and water flows, and to provide a habitat for native wildlife. However, riparian vegetation and margins should be detailed and implemented so as to provide a high level of amenity for the local community.

The Auckland Regional Council recommends a minimum width for riparian buffer zones of 10 metres on either side of a stream. A buffer strip of this size should support sustainable indigenous vegetation and assist with the necessary aquatic functions. In the case of constructed ponds, a 2.0m strip of wetland vegetation is recommended on all margins and at least a 3.0m strip of native shrub vegetation on at least 60% of margins. The remainder of the pond edge may be mown grass areas or viewing structures. A 5 metre mowable strip is recommended around all constructed wetlands and ponds to facilitate maintenance. Care should be taken with perimeter planting when adjacent to either residential sections or road reserves in respect of balancing security and amenity considerations.

Consent applications should be submitted with a detailed species schedule, a generalised planting plan and an overview of the implementation and maintenance programme, including weed control measures. The suggested species list on a subsequent page and cross section drawings on the previous page are intended to provide a guide in assessment of proposals but are not exhaustive or prescriptive.

Walkways through buffer vegetation should be located on one side of a stream only in order to minimise disruption of the vegetative cover. Connections can be provided across the stream to access points off the roading network. For paths within the buffer vegetation, - width should be limited to 1.5m to ensure that canopy closure is maintained and the path surface should be permeable (e.g. crushed gravel).
Walkways associated with the riparian margins of less than 10m width should generally be located on the outside of the vegetation buffer.

Walkways associated with riparian margins of greater than 10m width can either be included within the vegetation buffer or outside of it. Consideration of pedestrian safety requires that walkways within these vegetation buffers should generally have exit points to open areas every 100 to 200 metres.

Recommended Species for Riparian Margins:

Botanical Name	**Common Name**	**Use**		**Habitat**		**PB Size**
		Major Component	**Minor Component**	**Wetland**	**Stream Edge**	
SPECIMEN TREES						
Alectryon excelsus	Titoki	●			●	PB 40 - 150
Cordyline australis	Cabbage tree	●		●	●	
Corynocarpus laevigatus	Karaka		●		●	
Dacrycarpus dacrydioides	Kahikatea	●		●	●	
Dadrydium cupressinum	Rimu		●		●	
Knightia excelsa	Rewarewa		●		●	
Kunzea ericoides	Kanuka	●			●	
Laurelia novae-zealandiae	Pukatea		●	●		
Sophora microphylla	Kowhai	●			●	
Syzygium maire	Swamp maire		●	●		
Vitex lucens	Puriri		●		●	

Botanical Name	Common Name	Use		Habitat		PB Size
		Major Component	Minor Component	Wetland	Stream Edge	
TREES						
Alectryon excelsus	Titoki	•			•	PB 5-12
Corynocarpus laevigatus	Karaka		•		•	
Dacrycarpus dacrydioides	Kahikatea	•		•	•	
Dadrydium cupressinum	Rimu		•		•	
Knightia excelsa	Rewarewa		•		•	
Kunzea ericoides	Kanuka	•			•	
Laurelia novae-zealandiae	Pukatea		•	•		
Sophora microphylla	Kowhai	•			•	
Syzygium maire	Swamp maire		•	•		
Vitex lucens	Puriri		•		•	
SMALL TREES/SHRUBS						
Carpodetus serratus	Putaputaweta		•		•	PB ¾-3
Coprosma propinqua	Mingimingi		•		•	
Coprosma robusta	Karamua	•		•	•	
Cordyline australis	Cabbage tree	•		•	•	
Cyathea dealbata	Silver fern		•		•	
Cyathea medullaris	Mamaku		•		•	
Hebe stricta	Koromiko	•			•	
Geniostoma rupestre	Hangehange		•		•	

Leptospermum scoparium	Manuka	●		●	●	
Melicytus ramiflorus	Mahoe		●		●	
Myrsine australis	Mapou		●		●	
Pseudopanax lessonii	Houpara		●		●	
Schefflera digitata	Pate		●		●	
GROUNDCOVERS/GRASSES/SEDGES						
Blechnum capense	Kiokio		●		●	PB¾-2
Blechnum minus	Swamp kiokio		●	●		PB¾-2
Bolboschoenus fluviatalis	Marsh clubrush, kukuraho		●	●		OG-PB2
Carex secta	Niggerhead	●		●		OG-PB2
Carex lessioniana	Rautahi		●		●	PB¾-2
Carex maorica	Cyperus sedge		●		●	PB¾-2
Carex virgata	Small swamp sedge		●	●		OG-PB2
Cortaderia fulvida	Toetoe		●		●	PB¾-2
Cyperus ustulatus	Giant umbrella sedge		●	●		PB¾-2
Gahnia lacera	Cutty grass		●		●	PB¾-2
Gahnia setifolia	Cutty grass		●		●	PB¾-2
Phormium tenax	Flax	●		●	●	PB¾-2

Notes:

1. Where possible, native plants should be sourced from the local area and purpose grown for ecosystem restoration.

2. PB sizes are recommended only and are suitable for native revegetation plantings. Larger plant grades may be appropriate for amenity plantings.

3. PB equivalents: PB 95 = 45 litre; PB 150 = 130 litre ; PB ¾ = paper pots/root trainers; OG = open ground

4. Typically all general revegetation species should be planted at 1/m2 -1.5/m2 densities. Smaller grade species and wetland plants should be planted at 2/m2 density.