



Warriewood Valley Roads Masterplan

2018



northern
beaches
council

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1. Introduction

The Warriewood Valley Roads Masterplan (2018) documents the technical requirements for road cross sections, traffic calming and management measures for implementation in the Warriewood Valley Urban Release Area. Pedestrian and cycle routes are also documented for the area.

This document must be read in conjunction with, and references the following documents:

- Pittwater 21 Development Control Plan,
- Warriewood Valley Landscape Masterplan & Design Guidelines (Public Domain),
- Warriewood Valley Urban Land Release Roads Masterplan (Jamieson Foley & Associates, 1999),
- NAT-SPEC 2 – Pittwater Council Edition,
- Warriewood Valley Water Management Specifications 2001,
- AUSTRROADS,
- Australian Standards.

This document has been prepared by Northern Beaches Council to reflect the updated land use data applicable to Warriewood Valley and the associated amended transport network requirements (only the outstanding works items from the current Warriewood Valley Contributions Plan are referred to).

2. Road Cross Sections

- Typical road cross sections are provided below for each of the road types in the road hierarchy:
 - Section 2.1 Sub-Arterial Streets
 - Section 2.2 Collector Streets
 - Section 2.3 Local Streets
 - Section 2.4 Access Street
 - Section 2.5 Laneway
 - Section 2.6 Sector Entry Street.
- The roads also include traffic calming and other related traffic devices, detailed in Section 3.0 and on the Roads Masterplan Drawing **Appendix H**. The roads should be designed to incorporate these devices.
- Barrier kerb or non-mountable kerb and gutter shall be provided in all roads (public or community title) except for Laneways.
- The use of a road cross section of a higher street classification (higher traffic volume) may be used on a street of lower classification (lower traffic volume).
- Community Title roads shall provide for unrestricted vehicular and pedestrian access to the public, all private dwellings (e.g. not be gated), public community recreation/ open space reserves, and shall have road cross sections as specified in this Roads Masterplan for the applicable traffic volume. The Traffic Acts applicable to public roads shall also apply to Community Title roads.
- Provided there is direct connection to public or private roads with traffic volumes less than 300 vehicles per day (vpd), vehicular access to a maximum of 6 dwellings may be accommodated via a short private driveway/car court directly off such roads. This is an acceptable alternative to an Access Street or Laneway. The private driveway/car court is to have a maximum length of 40 metres, be located on private land, provide safe pedestrian access, sight lines and passing areas.
- A Sector Entry Street is to be provided for the primary entry street to any Sector where this primary entry street directly connects onto a Sub Arterial Street or Collector Street – these are to generally include a roundabout controlled intersection.
- Streets providing access to industrial areas are to comply with the Sub Arterial Street cross section.
- All streets are to have a consistent type of titling for their entire length.
- All streets intended to be used as a thoroughfare may be public roads subject to Council's agreement is voluntary to Council free of charge.
- Vehicular connections are to be provided within the original or primary sectors/buffer areas in accordance with the original Roads Masterplan 1999 (for example Sectors 301, 302 and 303 are to have an internal network connecting all three sectors), or Pittwater 21 DCP e.g. Buffer Area 1a is to connect to Buffer Area 1b and 1c etc. but Sector 1 is not to connect to Sector 2.
- Laneways must not provide the primary street frontage to any development, any lot or dwelling.

2.1 Sub-Arterial Streets

The Sub-Arterial Streets in the Warriewood Valley Release Area are:

- Ponderosa Parade
- Macpherson Street
- Warriewood Road east of Macpherson Street
- Garden Street
- Streets serving industrial areas.

Sub-Arterial Street cross section guidelines are to be in accordance with the following:

- Typical plans and cross sections as shown in **Appendix A1**.
- A minimum of two clear traffic lanes with indented parking bays on both sides of the carriageway with landscape blister separations.
- Kerb extensions between parking bays are to be of a size to allow large trees to be planted (minimum 5.0 metres length along edge of traffic lane).
- Collector Streets are to connect to a Local or Sub-Arterial Street.
- Shared paths are to be located 600mm from the property boundary, subject to site constraints, except at bus bays and indented parking bays where shared paths should be directly adjacent to the kerb.
- Services are to be contained within a combined services trench under the shared path.
- Bicycle symbols are to be painted on shared paths.
- Bus stops on either side of the carriageway are to be staggered so that they are not directly opposite.
- Shared paths are to be in accordance with the Warriewood Valley Release Area Landscape Masterplan and Design Guidelines (Public Domain).
- Must cater for two way traffic.

Sub-Arterial Streets	
Traffic Volume	10,000 vehicles per day – approximate upper limit.
Design Speed	50km/h
Speed Limit	50km/h
*Traffic Lane Width	4.2m
Cycle Lane Width	Share roadway with vehicles.
Indented Parking Lane Width	2.1m
Indented Bus Bay Width	3.0m
Shared Path Width	2.1m – 2.5m shared path on both sides of the carriageway.
Total Road Reserve Width	20m minimum.

Note: A reduced 3.7m lane width may be permitted where existing traffic lanes in front of adjacent sites are 3.7m and off road shared paths exist. In such circumstances, the shared path is to increase to 2.5m width where practicable.

2.2 Collector Street

Collector Streets in the Warriewood Valley Urban Release area are:

- Foley Street
- Jubilee Avenue
- Orchard Street (not a bus route)
- Daydream Street (not a bus route)
- Boondah Road (not a regular bus route)

- Warriewood Road (North of Macpherson Street)
- Any new Roads with 2000 to 5000 vpd.

Collector Street cross section guidelines are to be in accordance with the following:

- Typical plans and cross sections as shown in **Appendix A2**.
- Minimum two traffic lanes with indented parking bays on both sides of the carriageway.
- Kerb extensions between parking bays are to be of a size to allow large trees to be planted (minimum 5.0 metres length along edge of traffic lane).
- Allow for the provision of a bus shelter in a footprint as shown in **Appendix C**.
- No more than 8 parallel parking spaces are to be provided between successive kerb extensions.
- Shared paths are to be located 600mm from the property boundary, subject to site constraints, except at bus bays and indented parking bays where footpaths should be directly adjacent to the kerb.
- Services are to be contained within a combined services trench under the shared path.
- Bus stops on either side of carriageway are to be staggered so that they are not directly opposite.
- Shared paths are to be in accordance with the Warriewood Valley Release Area Landscape Masterplan and Design Guidelines (Public Domain).
- For Boondah Road a shared path adjoining the STP is not proposed.
- Must cater for two way traffic.

Collector Streets	
Traffic Volume	5,000 vehicles per day – approximate upper limit.
Design Speed	50km/h
Speed Limit	50km/h
Traffic Lane Width	3.7m
Cycle Lane Width	Share roadway with vehicles.
Indented Parking Lane Width	2.1m
Indented Bus Bay Width	3.0m
Shared Path Width	2.1m shared path on both sides of the carriageway.
Total Road Reserve Width	20m minimum

2.3 Local Street

Local Streets cross section guidelines are to be in accordance with the following:

- Typical plans and cross sections as shown in **Appendix A3**.
- Local Streets to have two way traffic with on-street parking on one side of the street at any location along their length where it is legally permissible to do so.
- Cyclists are to share road pavement.
- A footpath is to be provided directly adjacent to the kerb, on the same side as services.
- Services are to be contained within a combined services trench under the shared path.
- All driveways entering on the street must be shared, and designed with sufficient width to allow for safe entry and exit onto the Local Street.

Local Streets	
Traffic Volume	2000 vehicles per day – approximate upper limit.
Maximum Number of Dwellings	200
Design Speed	40km/h
Speed Limit	50km/h
Traffic Lane Width	Total 7.5m carriageway to cater for traffic, parking, cyclists.
Cycle Lane Width	Share roadway with vehicles.
Parking Lane Width	No parking lane marked, park adjacent to kerb.
Bus Bay Width	N/A
Verge Width	4.25m on both sides of carriageway to cater for street tree planting.
Footpath Width	1.5m footpath one side of carriageway.
Total Road Reserve Width	16.0m minimum

2.4 Access Street

Access Streets cross section guidelines are to be in accordance with the following:

- Typical plans and cross sections as shown in **Appendix A4**.
- Access Streets are to have two way traffic with on-street parking on one side of the street at any location along their length where it is legally permitted to do so.
- Cyclists are to share road pavement.
- A footpath is to be provided directly adjacent to the kerb on the same side as services.
- Services are to be contained within a combined services trench under the shared path.
- Driveways entering on the street are to be shared, and designed to have sufficient width that allows for safe entry and exit on to the Access Street.

Access Streets	
Traffic Volume	<300 vehicles per day – approximate upper limit.
Maximum Number of Dwellings	30
Design Speed	30km/h
Speed Limit	50km/h
Traffic Lane Width	Total 7.5m carriageway to cater for traffic, parking, cyclists.
Cycle Lane Width	Share roadway with vehicles.
Bus Bay Width	N/A
Verge Width	2.5m on both sides
Footpath Width	1.5m on one side of the carriageway.
Total Road Reserve Width	12.5m minimum

2.5 Laneway (for rear vehicular access only)

Laneway cross section guidelines are to be in accordance with the following:

- Typical plans and cross sections as shown in **Appendix A5**.
- Laneways are not suitable for single frontage lots and must not form the primary street frontage for any buildings.
- Maximum length of 80 metres as a Shared Zone to cater for two way traffic, pedestrians and cyclists.
- No parking is permitted along the Laneway.
- No services, with the exception of garbage collection areas, are to be located in the Laneway (All other services are to be located in the primary street).
- It must be constructed as a Shared Zone in accordance with the RMS standards.
- Driveways entering on the Laneway are to be designed with sufficient width to allow for safe entry and exit.
- One way traffic Laneways may be considered on merit subject to the Laneway having a maximum length of 40m, for up to 6 dwellings, and have demonstrated efficiency and safe circulation for up to the 6 dwellings including safe and convenient entry and exit from driveways.

Laneway	
Traffic Volume	<300 vehicles per day – approximate upper limit.
Maximum Number of Dwellings	30 for two way traffic lanes (noting maximum length for Laneway is 80 metres)
Design Speed	10km/h
Speed Limit	10km/h/Shared Zone.
Traffic Lane Width	5.5m
Cycle Lane Width	Share roadway with vehicles.
Bus Bay Width	N/A
Verge Width	0.75m on both sides.
Total Road Reserve Width	7m

2.6 Sector Entry Street

A Sector Entry Street is to be provided for the primary entry street to any Sector where the primary entry street, not privately owned, directly connects onto a Sub Arterial Street or Collector Street.

Sector Entry Street cross section guidelines are to be in accordance with the following:

- Typical plans and cross sections as shown in **Appendix A6**.
- A minimum two clear traffic lanes on both sides of carriageway.
- Shared paths are to be located 600mm from the property boundary, subject to site constraints, except at bus bays and indented parking bays where footpaths should be directly adjacent to the kerb.
- Bicycle symbols are to be painted on shared paths.
- Must be a minimum length of 50m before transitioning to road cross section applicable to the traffic volumes.
- Parking bays and bus bays are to be set back a minimum of 20 metres from the intersection of the Sector Entry Street with a Collector or Sub Arterial Road.
- 2.1m wide on street parking bays may be provided similar to the Sub Arterial Street cross sections.

Sector Entry Street	
Design Speed	50km/h
Speed Limit	50km/h
Traffic Lane Width	4.2m (includes 1.2 m cycle lane provision)
Cycle Lane Width	Share roadway with vehicles.
Parking Lane Width	2.1m
Bus Bay Width	3.0 m
Shared Path Width	As per Footpath/Bike Plan
Total Road Reserve Width	Variable – refer to cross section

3. Traffic Calming and Management

Traffic calming and management measures required for the Warriewood Valley Release Area are identified in the Warriewood Valley Contributions Plan and are described below.

3.1 General Road Principles

- Parking bays are to be indented on Local Sub-Arterial, Collector Streets and Sector Entry Streets, and physically separated from bus bays to prevent parked cars encroaching into bus stop areas.
- All traffic facilities on bus routes are to be designed to cater for the maximum length State Transit Authority articulated buses so buses can stop without any part of the bus protruding into the traffic lane.
- The kerb extensions that separate indented parking provide opportunities for pedestrian crossing points and landscaping.
- Non mountable kerbing or kerb and guttering is to be provided on all roads (except Laneways).
- Mountable kerb is to be provided for traffic islands only (no provision for pedestrians).
- A 10km/h speed limit applies in shared zones. Approval is to be obtained from the RMS by the applicant.
- Pedestrian access ramps in kerbs are not to align with any traffic control device (other than refuges) or areas of textured/coloured road pavement.

Parking Facility Dimensions

Component	Dimension
Run-in	45° to 30°
Run-out	45° to 30°

3.2 Pedestrian/Cycle Refuges

3.2.1 List of Facilities

Refer to the most current version of the Warriewood Valley Contributions Plan.

3.2.2 Design

- Refuges should comply with all relevant RMS Design Guidelines and be of similar style to those shown in **Appendix B1** and **Appendix B2**.
- The dimensions of pedestrian/cycle refuges are dependent on pedestrian and cyclist crossing requirements.
- Landscaping to be provided in accordance with Council's current adopted Warriewood Valley Release Area Landscape Masterplan and Design Guidelines (Public Domain).

Dimensions

Component	Dimension
Minimum width of traffic island for pedestrian Refuge	2.0 metres

3.3 Thresholds/Gateways

Design

The threshold items are intended to discourage through traffic and are to incorporate significant narrowing and surrounding landscaping.

Thresholds between Entry Sector Streets and internal sector streets are to include a textured or distinctive pavement surface, carriageway narrowing of the side of the road and vertical deflection.

Pedestrian access ramps are not to be provided where the road pavement is textured or coloured and area is to be isolated from pedestrians on the nature strips by a physical barrier.

The design is to comply with all relevant RMS Design Guidelines.

3.4 Bus Bays

3.4.1 Locations

Bus bays are to be provided at the location of all existing bus stops or at alternate locations approved in writing by Sydney Buses.

3.4.2 Design

- Bus bays are to be designed to allow the provision of a bus shelter with the footprint dimensions as shown in **Appendix C**.
- Bus bays are to be separated from parking to prevent encroachment into the bus stop areas.
- The location of the shelter is to be directly adjacent to where the bus will stop with signage in accordance with Transport for NSW requirements.
- Kerb extensions associated with bus bay facilities are to provide opportunities for pedestrian crossing points and landscaping.
- Bus stops on either side of the carriageway are to be staggered so that they are not directly opposite each other.
- Bus bays to be designed to cater for articulated buses used by Sydney Buses.

3.5 Pedestrian Facilities

Pedestrian facilities are to be provided in accordance with the street cross sections.

- Standard footpaths are to be 1.5 metres wide and shared paths are to be a minimum of 2.1 metres wide.
- Shared paths adjacent to bus bays and parking bays are to be directly next to the kerb.

3.6 Cycling Facilities

Council is a strong advocate for active transport and the importance of reasonable infrastructure to support walking and cycling activities, which in turn promotes a healthy and active community.

Given the existing road reservation width constraints for Sub-Arterial and Collector Streets (generally 20m existing width), the need to match with existing segments of road completed to date and the need to accommodate streetscape landscaping, the majority of the road related

cycling infrastructure for Warriewood Valley is via shared paths on both sides of the carriageway within the road verges. The use of these shared paths is encouraged with appropriate cycling etiquette; however this does not preclude the use of the road traffic lanes for cycling.

The use of shared paths also recognises that to have intermittent variable widths of road pavement with or without cycle lanes, may present problems for cyclists, particularly at transition points where an on road cycle lane may terminate.

In addition to the cycling network within road reserves there is a network of shared paths along creekline corridors that provide alternate/additional cycle connections.

In the case of Sub-Arterial roads, where on road bike lanes are not practical, the road pavement width can be reduced to 7.4m, and in lieu, the shared path width is to be increased from 2.1m to 2.5m.

The developer of the development is to directly provide the cycle infrastructure as part of the half road reconstruction.

The Warriewood Valley Contributions Plan will fund those remaining locations not directly provided as identified in the Plan.

On road and off road cycling facilities are to be provided in locations shown on the street cross sections and Warriewood Valley Release Area Landscape Masterplan and Design Guidelines (Public Domain).

- All off-road share paths are to be line-marked and signposted in accordance with AUSTRROADS Guide to Road Design Part 6A: Paths for walking and cycling (2017 Edition)
- Shared paths adjacent to bus bays and parking bays are to be directly next to the kerb.

3.7 Priority Intersection Controls

3.7.1 List of Controls

Location
Warriewood Road and Alameda Way (East)
Warriewood Road and Manooka Place
Jubilee Avenue at bend west of Daydream Street
Jacksons Road and Boondah Road

3.7.2 Design

The layout of each of the priority intersections are shown in the Roads Masterplan Drawing **Appendix G**. Where pedestrian refuges are shown as part of the intersection, refer to Section 3.2 – Pedestrian Refuges for design guidelines.

3.8 Roundabouts

3.8.1 List of Facilities

Refer to most current version of the Warriewood Valley Contributions Plan.

Location

Warriewood Road and Macpherson Street
 Jubilee Avenue and Ponderosa Parade Roundabout (Stage 1 Complete - Lights)
 Jubilee Avenue and Warriewood Road
 Macpherson Street and Brands Lane
 Macpherson Street and Garden Street
 Orchard Street and Fern Creek Road
 Warriewood Road and Hill Street

3.8.2 Design

All roundabouts are to comply with the relevant RMS Design Guidelines and expected vehicle sizes.

For roundabouts on sub arterial roads and collector roads, land acquisition may be required from adjacent properties to provide for splay corners.

The central roundabout island is to be of concrete construction to Council's specification. Landscaping features are to be incorporated within the roundabout, where safe and practical.

3.9 Traffic Signals

3.9.1 List of Facilities

Location

Upgrade Traffic Signals – Pittwater Road and Warriewood Road
 New Traffic Signals – Mona Vale Road and Ponderosa Parade
 Upgrade Traffic Signals – Pittwater Road and Jacksons Road

Concept designs for the Pittwater Road/Warriewood Road is in **Appendix D**

4. Road Construction

The items listed in this section are required as roads in the Warriewood Valley that are to be constructed or re-constructed as development occurs.

Refer to most current version of the Warriewood Valley Contributions Plan.

Location

Warriewood Road pavement correction and strengthening
 Macpherson Street reconstruction
 Boondah Road upgrade (staged)
 Orchard Street reconstruction
 Warriewood Road (outside 12 Apollo Street) – road widening
 Garden Street road widening (Sector 12A to Mullet Creek)

- The following shall be adopted as design ESA's for the appropriate street types:
 - Sub-arterial: 4×10^6
 - Collector: 2×10^6
 - Local: 6×10^5
 - Access: 1×10^5
- All pavement design is to comply with [AUS-SPEC 1 – Former Pittwater Council Edition](#), (Contact Council to purchase this document) and relevant Australian Standards, and the ESA's identified above.
- The developer is to provide kerb and guttering and half road reconstruction for existing roads for all street frontages of the development site.
- Shared trenching for services is to be used as detailed in AMCORD.

Item 26 – Boondah Road Upgrading

Where the road adjoins new land release development - Boondah Road is to be widened and raised as a collector road along its existing alignment (unless an acceptable alternate road alignment is agreed to by Council) and is to be above the flood planning level and must provide a floodway for overbank flows. The reconstruction is to be undertaken in stages as adjacent developments proceed.

Where the road passes through existing zoned land and public open space – The road upgrade is to include road widening and pavement strengthening generally on top of existing road levels where feasible but not necessarily above flood levels.

5. Bridges

The items listed in this section are the bridges which will require construction or reconstruction as development occurs and roads that are reconstructed.

Location

Macpherson Street – Bridge at Narrabeen Creek between Boondah and Warriewood Roads

Boondah Road – Bridge over Narrabeen Creek near Jacksons Road

Macpherson Street – Bridge at Narrabeen Creek between Boondah and Warriewood Roads

A two lane bridge plus approaches and shared paths on both sides of the road are to be provided.

Boondah Road – Bridge over Narrabeen Creek near Jacksons Road

A two lane bridge plus shared paths on both sides of the road are to be provided.

6. Other Design Items

A number of additional items are required which are listed below.

Street Name Signs

- Council standard to be used as shown in **Appendix E**. Note that the current Council logo is to be used.

Services

- Services are to be contained within a combined services trench under the shared path.
- Street lights are to be provided in accordance with current Australian Standards.
- Lighting of pathways between properties is to be provided in accordance with the current Australian Standards.
- Lighting poles are to be a current style which Ausgrid will maintain. The style to be similar to that in **Appendix F**.

Driveways

- Driveways are to conform to Council specifications in the Pittwater 21 Development Control Plan.

Drainage Swales on Roads

- Drainage swales are not permitted on any road.

Pedestrian Fences

- Construction of pedestrian fencing related to traffic facilities is to be in accordance with the RMS standards.
- Fences are to be 1.2 metres high.
- Fences are to be of a dark and earthy tone approved by Council.

Landscaping

- Landscaping is to be in accordance with the most recent version of the Warriewood Valley Release Area Landscape Masterplan and Design Guidelines (Public Domain).
- Turf is to be of Couch variety.

Retaining Walls

- Retaining walls are to be constructed to a size, function material and at a location that is to the satisfaction of Council.

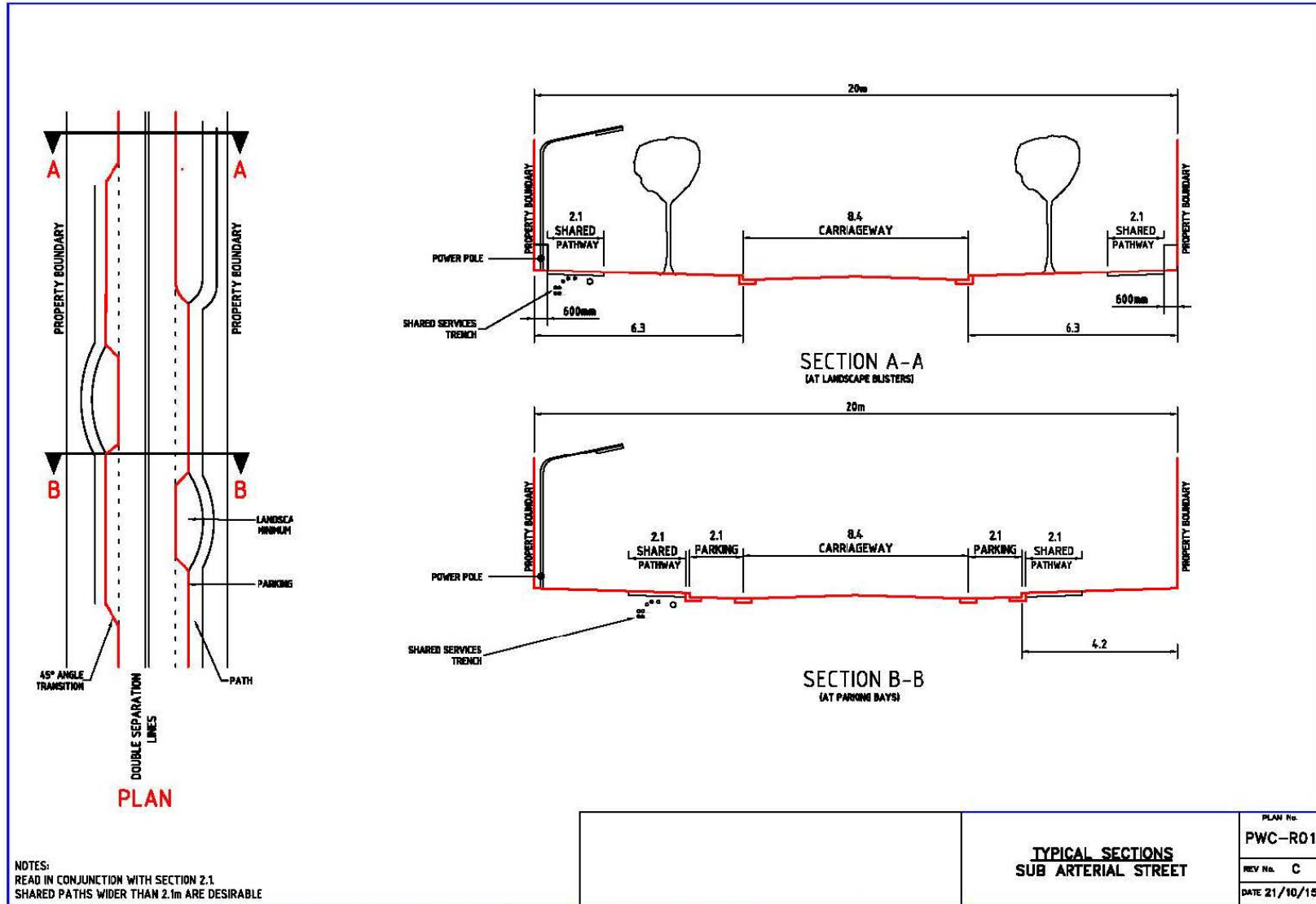
Street Furniture

- Street furniture is to be provided in accordance with a style, quantity and location that is to the satisfaction of Council.

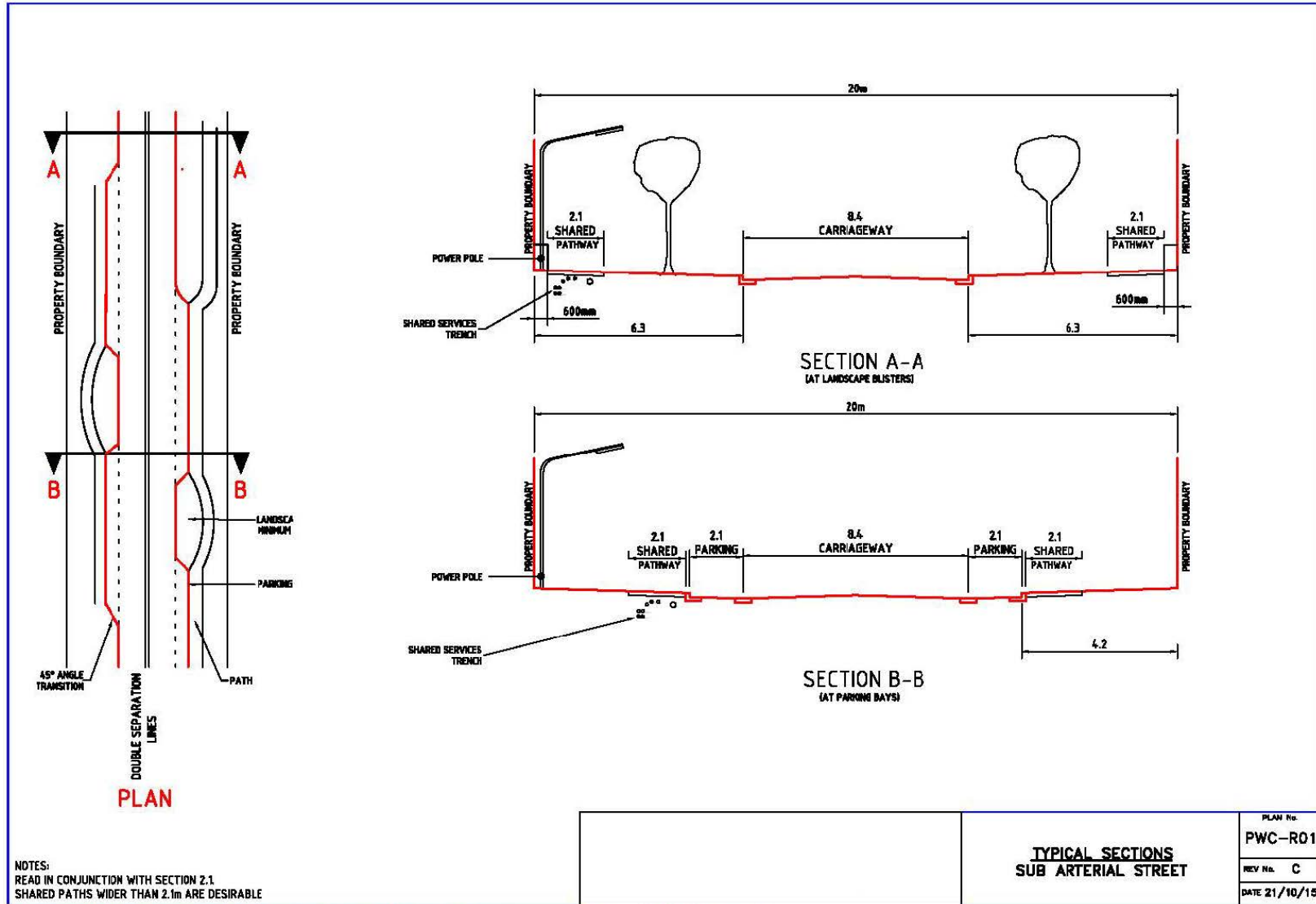
Accessible Pram Ramps

- An accessible pram ramp is to be provided at each intersection and pedestrian refuge and finished in the standard coloured concrete used in Pittwater.

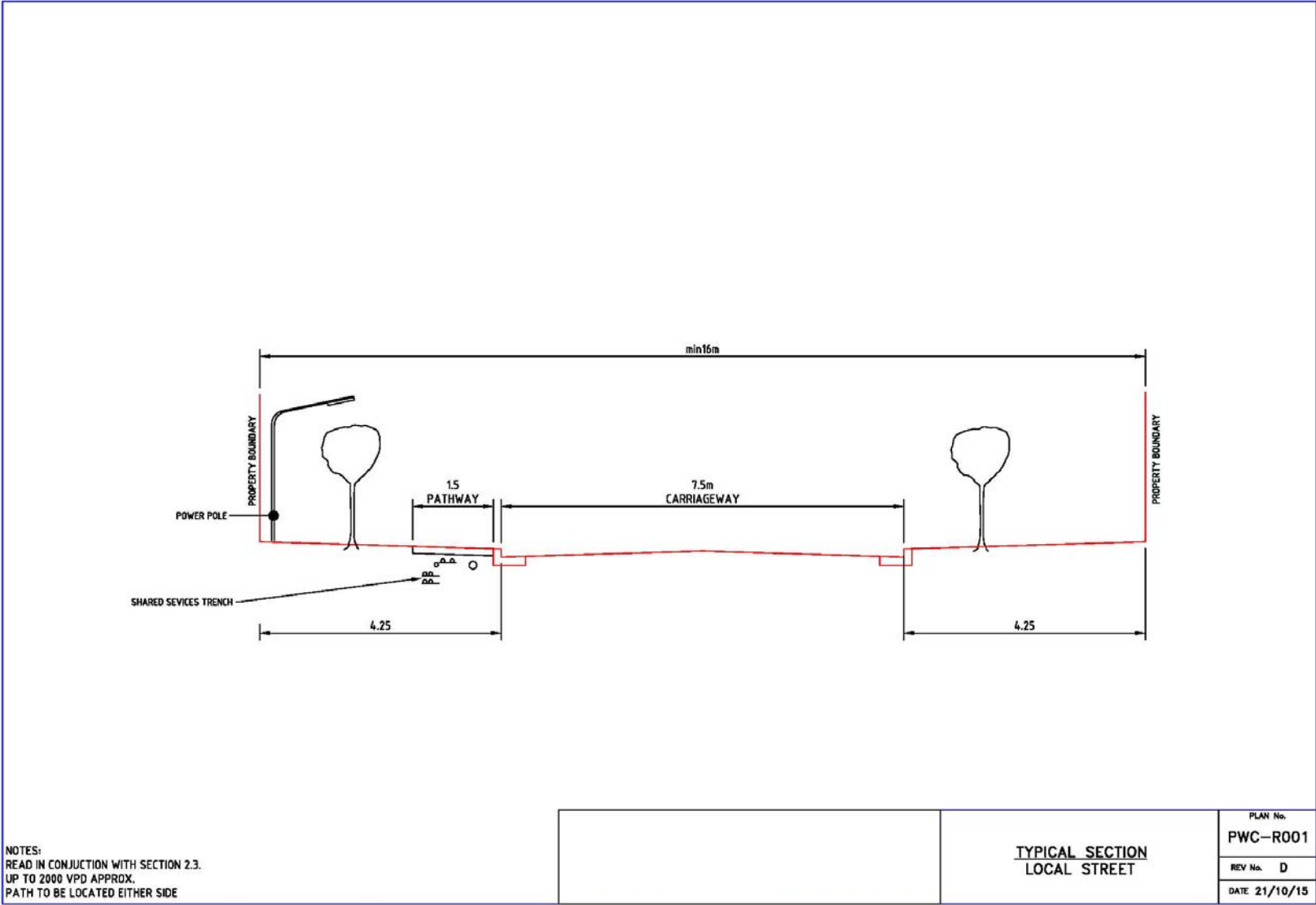
Appendix A1 - Typical Road Plans and Cross Sections Sub-Arterial Streets



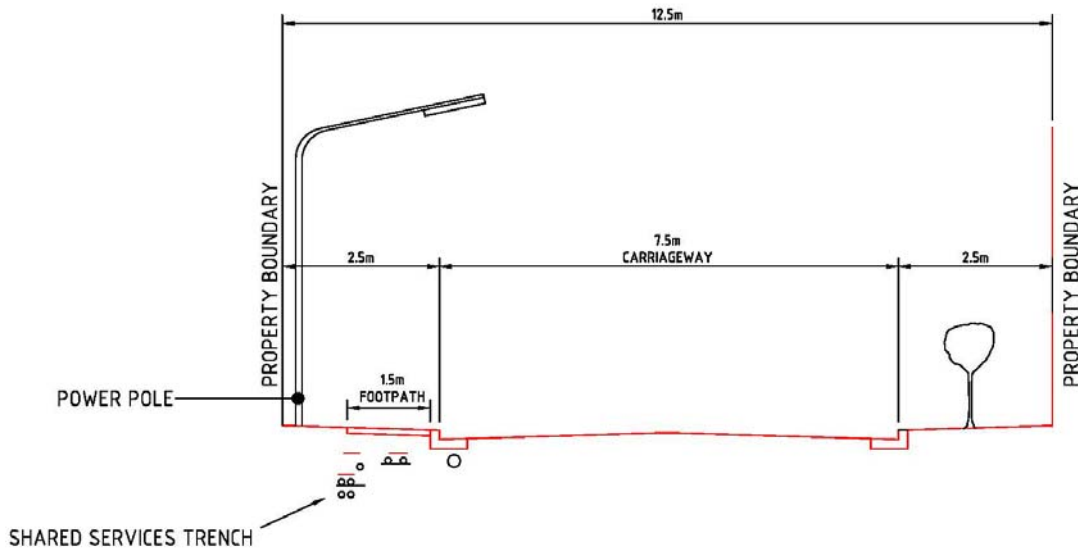
Appendix A2 - Typical Road Plans and Cross Sections Collector Streets



Appendix A3 - Typical Road Plans and Cross Sections Local Streets



Appendix A4 - Typical Road Plans and Cross Sections Access Street



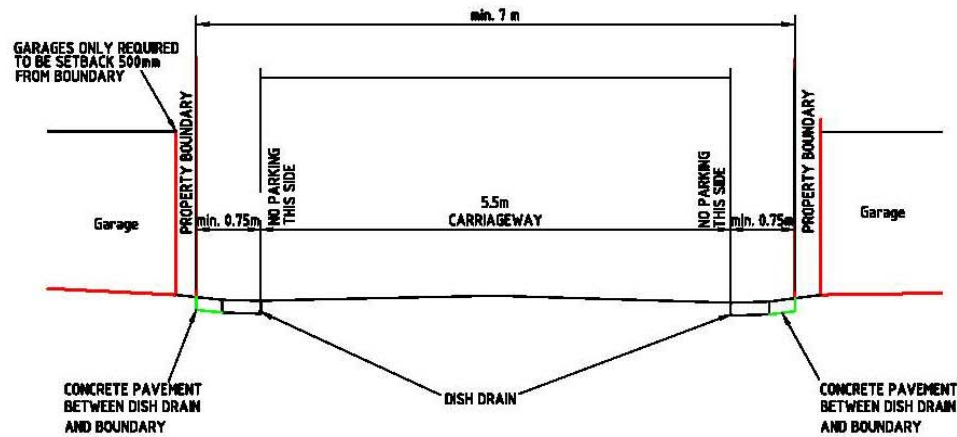
NOTES:
 READ IN CONJUNCTION WITH SECTION 2.4
 SERVICES LOCATED ON ONE SIDE OF ROAD ONLY UNDER FOOTPATH.
 PARKING CAN BE PROVIDED FOR FULL LENGTH OF STREET,
 FOR UP TO APPROX. 300VPD.
 LOCATE SERVICES AS REQUIRED BY UTILITY AUTHORITIES IN SHARED TRENCH UNDER PATHWAY



TYPICAL SECTIONS
 ACCESS STREET

PLAN No.	PWC-R04
REV No.	C
DATE	21/10/15

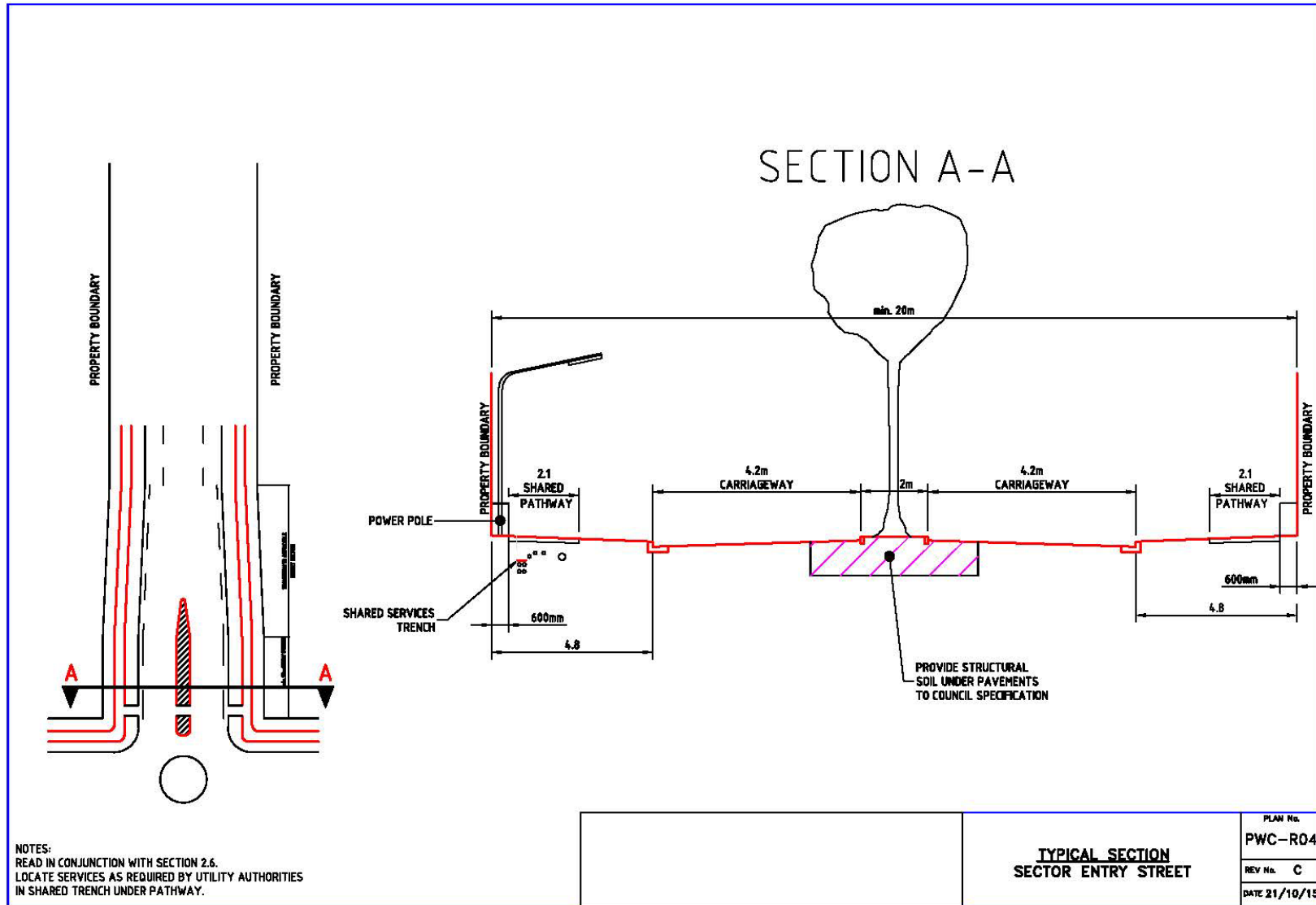
Appendix A5 - Typical Road Plans and Cross Sections Laneway



NOTES:
 READ IN CONJUNCTION WITH SECTION 2.5
 NO ON STREET PARKING.
 FOR UP TO APPROX. 300VPD.
 LANEWAY TO BE 10kph SHARED ZONE.
 MIN. 7m BETWEEN GARAGE AND OPPOSITE KERB TO ALLOW VEHICLE TURNING.
 UTILITY SERVICES NOT TO BE PROVIDED IN THIS SHEET

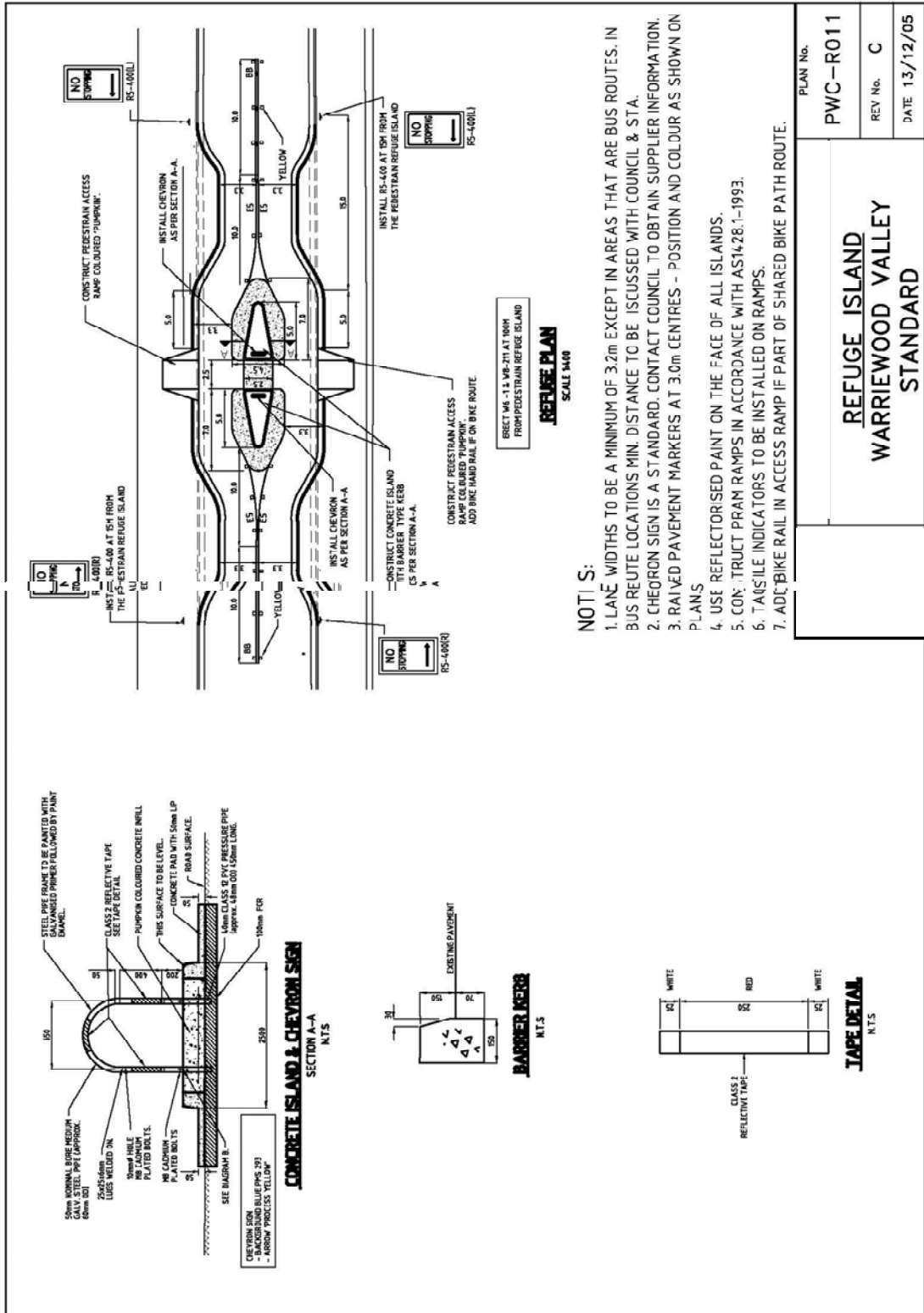
	TYPICAL SECTIONS LANEWAY (Not Primary Street Frontage)	PLAN No. PWC-R002
		REV No. C
		DATE 21/10/15

Appendix A6 - Typical Road Plans and Cross Sections Sector Entry Street



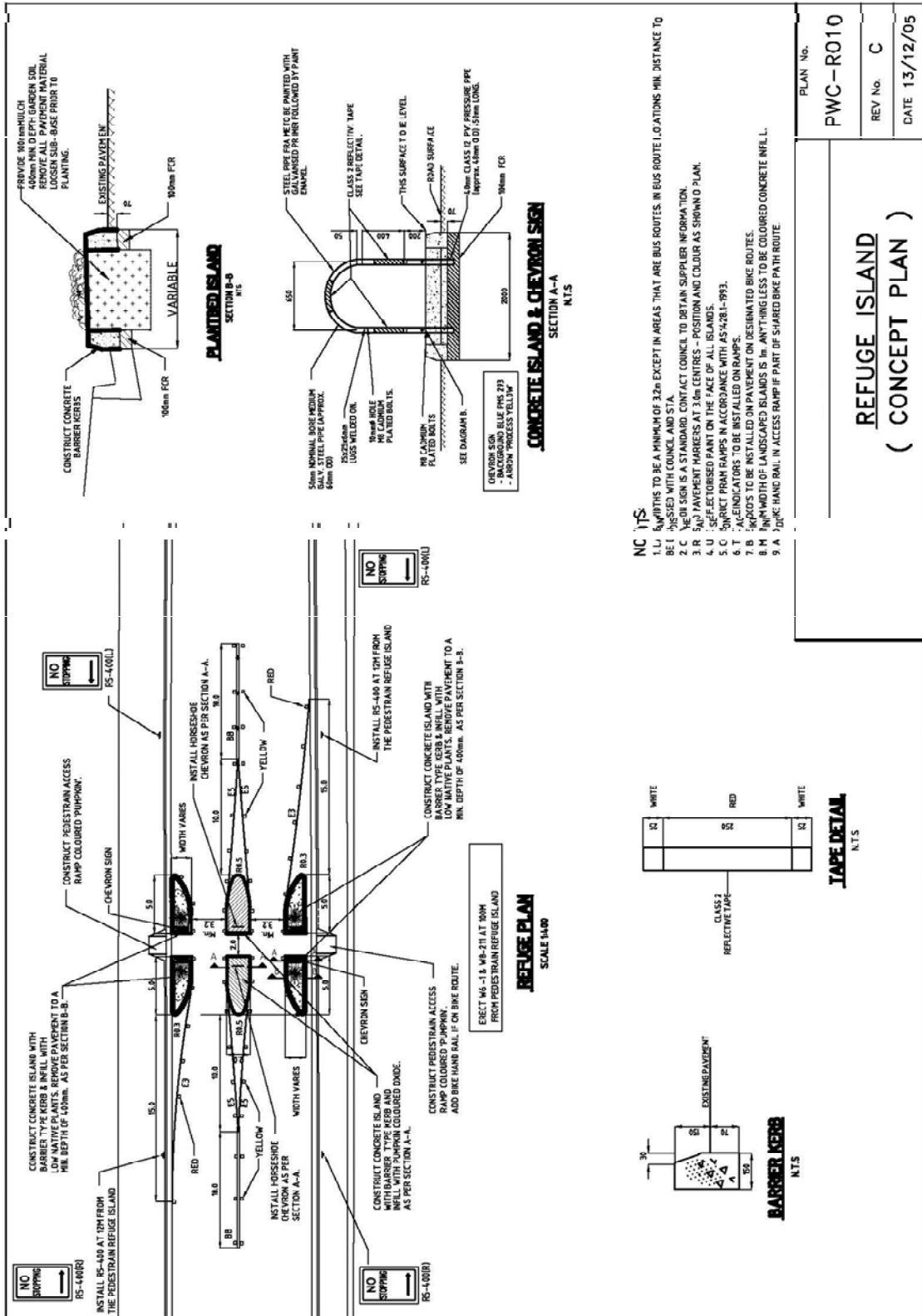
Appendix B1

Sub-Arterial Street Pedestrian Refuge Standard Concept Design



Appendix B2

Collector Street Pedestrian Refuge Standard Concept Design



- NOTES:**
1. ALL DISTANCES TO BE A MINIMUM OF 32m EXCEPT IN AREAS THAT ARE BUS ROUTES IN BUS ROUTE LOCATIONS MIN. DISTANCE TO BE 10m.
 2. CEYRON SIGN IS A STANDARD CONTACT CONSOLE TO OBTAIN SUPPLIER INFORMATION.
 3. RAMP PAVEMENT BARRIERS AT 300mm CENTRES - POSITION AND COLOUR AS SHOWN ON PLAN.
 4. U - REFLECTORISED PAINT ON THE FACE OF ALL BARRIERS.
 5. C - SYNCHRONISED PAVEMENT IN ACCORDANCE WITH AS 1728.1-1993.
 6. T - INDICATORS TO BE INSTALLED ON PAVEMENT ON DESIGNATED BIKE ROUTES.
 7. B - INDICATORS TO BE INSTALLED ON PAVEMENT ON DESIGNATED BIKE ROUTES.
 8. MINIMUM WIDTH OF LANDSCAPED ISLANDS IS 10m. ANYTHING LESS TO BE COLOURED CONCRETE INWELL.
 9. A - TYPE: TYPIC RAMP IN ACCESS RAMP IF PART OF SHARED BIKE PATH ROUTE.

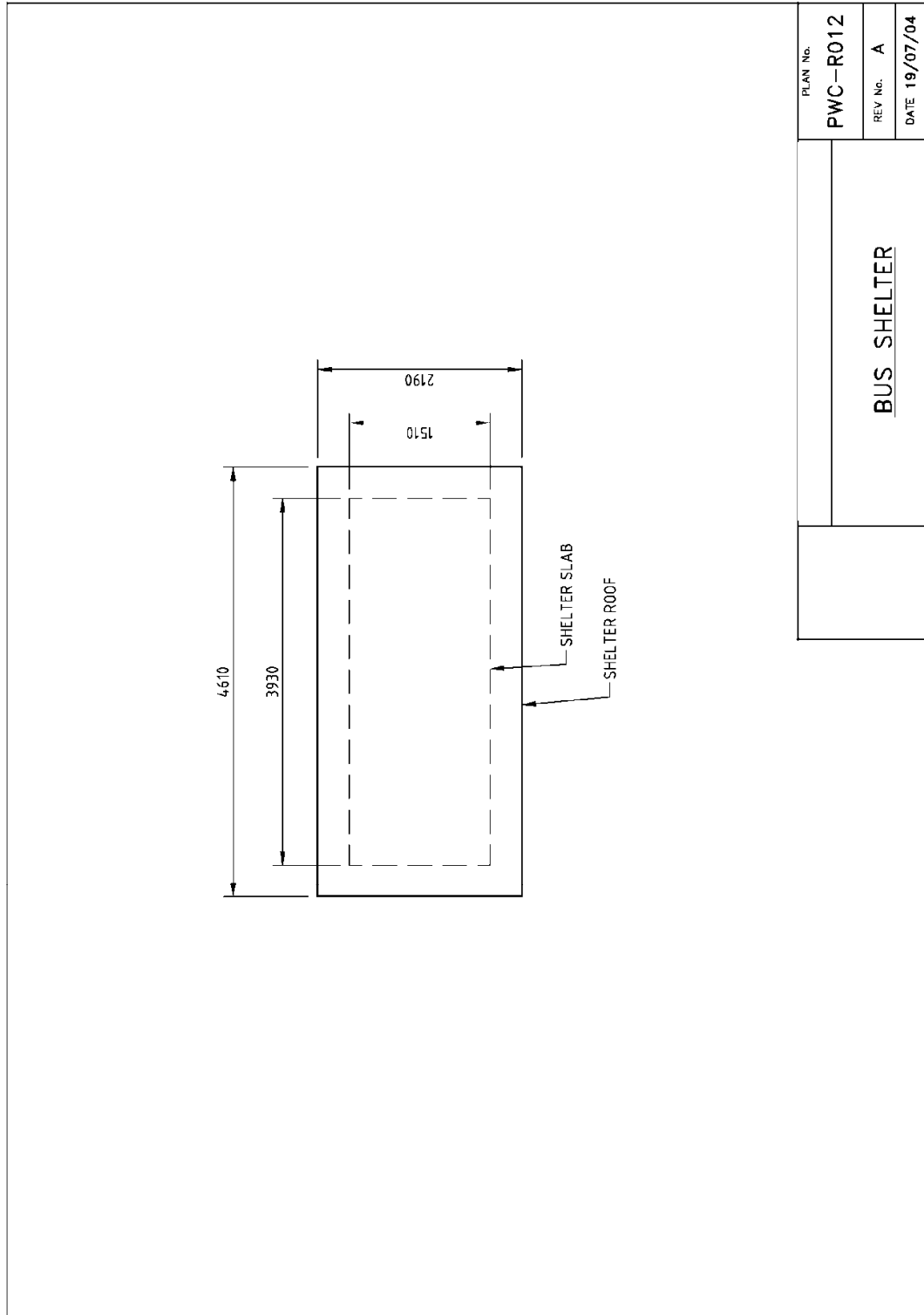
PLAN No.	PWC-R010
REV No.	C
DATE	13/12/05

REFUGE ISLAND
(CONCEPT PLAN)

Appendix C

Bus Shelter Dimensions

Based on standard Adshel bus shelter dimensions

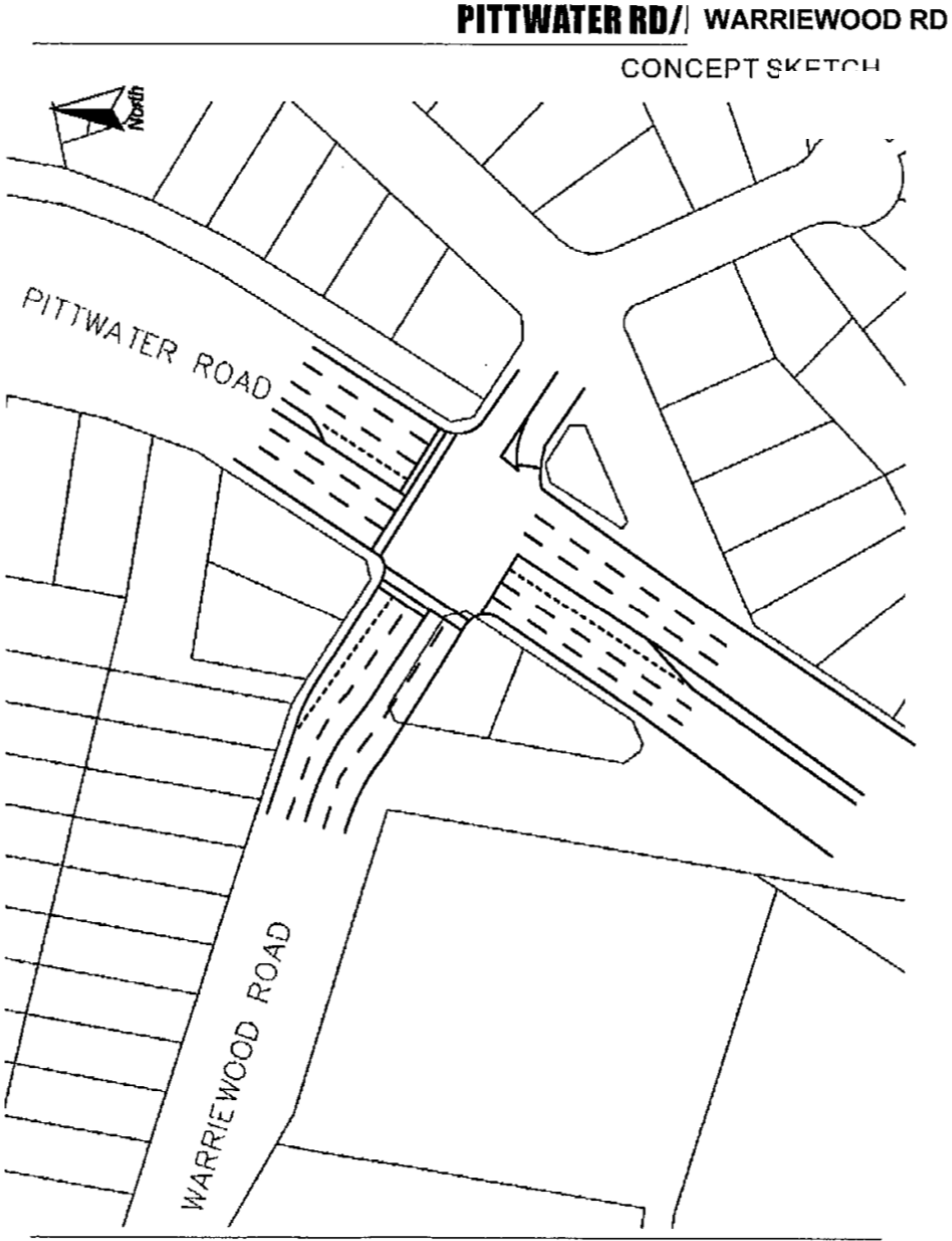


BUS SHELTER	PLAN No.	PWC-R012
	REV No.	A
	DATE	19/07/04

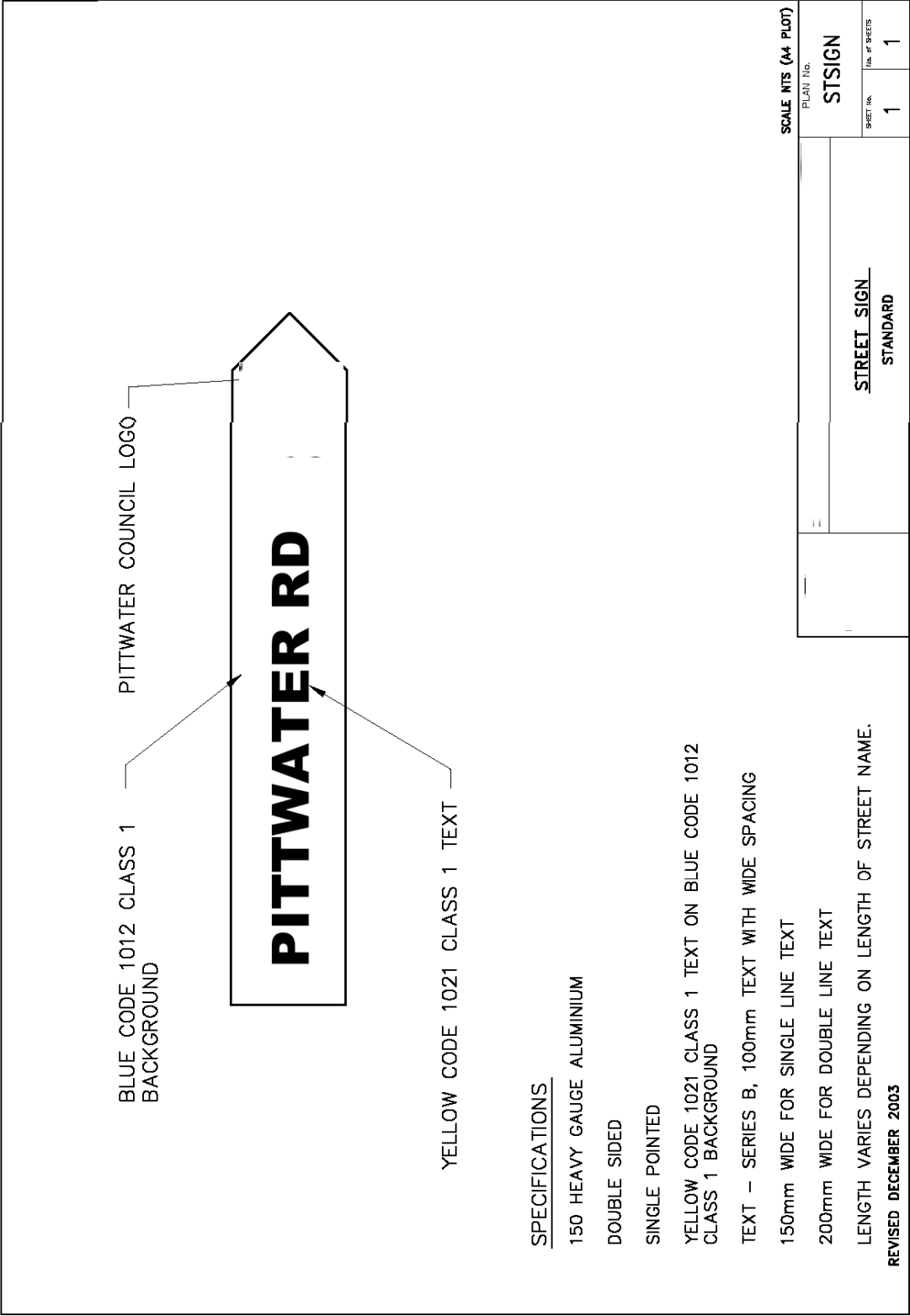
Plot Date: 02 August, 2004 - 9:22 AM

End File No: P:\Urban\Drawings - Current\Blocks & Standards\Standards\Roads\ PWC-R012.dwg

Appendix D
Concept designs for Traffic Signals



Appendix E
Council Standard Street Signs



Appendix F

Lighting Poles



LIGHTING COLUMN

PLAN No.	PWC-R013
REV No.	A
DATE	19/07/04

Appendix G Roads Masterplan Drawing

