

**CHAPTER 3**

**ROADING**



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**PART 1 DESIGN**

**3.1.1 INTRODUCTION**

This chapter provides standards for one means of compliance for roading works in terms of engineering design and construction.

Other means of compliance will be considered for engineering design but must be supported by detailed design philosophy and calculations.

**3.1.2 APPLICATION**

The minimum requirements for the various types of streets, service lanes and accessways are set out in the tables below.

Standard Drawing R 02 gives the standard location of services within the berm. Street trees and landscaping requirements are in addition to the area of berm taken up by the service locations. Such requirements are to be provided in areas of road reserve clear of all services.

Arterial, commercial and industrial roads will be subject to specific approval. (Refer to definitions of Streets, (Clause 1.1.4.2).

**3.1.2.1 Urban Road Requirements**

The minimum standards for urban roads in Residential 1 (Urban Living), Business 1, 2, 3 and 4 and Rural 4 (Settlement) Zones shall be as shown in Table 3.1 below.

**Table 3.1 - Urban Road Requirements**

Road Characteristics			Road Standards				
Class	Type	Main land Use	Road Reserve Width (m)	Carriageway Width (m)	Berm Width (m)	Footpath	Streetlight
Local Road	Cul-de sac Up to 12 lots	Residential Activity	16.5	7.5	4.5 & 4.5	One side	Yes
Local Road	Cul-de sac 13 to 40 lots	Residential Activity	17.5	8.5	4.5 & 4.5	Both sides	Yes
Local Road	Through/Loop Road up to 150 lots	Residential Activity	20.0	8.5	5.75 & 5.75	Both sides	Yes
Local Road	Through/Loop Road 150 -450 lots	Residential Activity	20.0	11.0	4.5 & 4.5	Both sides	Yes
Local Road	All	Business Activity	20.0	11.0	4.5 & 4.5	One side	Yes
Local Road	Cul-de sac	Business Activity	Specific design depending on number of lots				
Local Road	Service Lane	Business Activity	7.0	6.0	1.0	NA	Yes
Collector Road	All	Residential Activity	20.0	11.0	4.5 & 4.5	Both sides	Yes

**Note:**

1. Arterial roads of all types and all land uses shall be subject to Specific Design
2. Bridges shall have a minimum width of 8 metres between kerbs and shall have a design loading of HN-HO 72.
3. A separate pedestrian footbridge at least 1.4 metres wide, or a footpath constructed as a part of the bridge will be required where pedestrian traffic is expected.
4. All private roads shall be formed to the standards set out above for public roads.

**3.1.2.2 Urban Private Accessways**

The minimum standards for urban private accessways in Residential 1 (Urban Living), Business 1, 2, 3 and 4 and Rural 4 (Settlement) Zones shall be as shown in Table 3.2 below

**Table 3.2 - Urban Private Accessway Requirements**

No of Lots or Dwellings Served	Land Use	Min. Width of Access (m)	Max. Length of Access (m)	Min. Width of Carriageway (m)	Berms (m)	Surface Standard
1	Residential activity	3.0	60	2.5	0.5	Table 2 S.D. R 13-
1	Business Activity	6.0	60	5.0	0.5 & 0.5	Specific Design
2 or 3	Residential activity	4.0	60	3.0	0.5 & 0.5	Table 2 S.D. R 13
2 or 3	Business Activity	8.0	120	6.0	0.5 & 1.5	Specific Design
4 - 6	Residential activity	6.0	60	5.0	0.5 & 0.5	Table 2 S.D. R 13
4 – 6	Business Activity	12.0	150	8.0	2.0 & 2.0	Specific Design

**Note:**

1. For subdivisions of seven or more lots, the road standards as set out in Table 3.1 above, shall apply.
2. Where the subdivision is of seven or more lots, the acceptance of the road as a private way if required by the Developer, shall be at Council's discretion.
3. For subdivisions of up to six lots where the land use is for commercial or industrial activities, the accessway and carriageway widths will be subject to specific approval by the Engineer.
4. Streetlights may be required on private accessways at the discretion of the Engineer, subject to length and layout.
5. Urban private accessways shall be constructed in accordance with the details shown on Standard Drawing R13.
6. Where Option A or B is used for surfacing as set out on Standard Drawing R14, a pavement design in accordance with Austroads may be required depending on the in-situ sub-base material.
7. Bridges shall have a minimum width of 3.5 metres between kerbs and shall have a design loading of 0.85 HN 72.
8. The maximum length of an accessway as set out in Table 3.2 may only be exceeded with the specific approval of Council.
9. Accessway width shall be determined by the greater of the number of lots or the number of dwellings to be served.

### 3.1.2.3 Rural Roads

The minimum requirements for rural roads shall be as shown in Table 3.3 below.

**Note:** *Applies to Rural 1, 2 and 3 Zones*

**Table 3.3 - Rural Road Requirements**

Road Characteristics		Road Standards			
Class	Type	Road Reserve Width (m)	Seal Width (m)	Carriageway Width (m)	Berm Width Minimum (m)
Local	All	20.0	6.0	6.2	3.0
Collector	All	20.0	7.0	7.2	3.0
District Arterial	All	20.0	8.5	8.7	3.0

**Note:**

- 1 Bridges shall have a minimum width of 8 metres between kerbs and shall have a design loading of HN-HO 72

### 3.1.2.4 Rural Private Accessways

The minimum requirements for rural private accessways shall be as shown in Table 3.4 below.

**Note:** *Applies to Rural 1, 2 and 3 Zones*

**Table 3.4 - Rural Private Access Requirements**

No of Lots Served	Land Use	Min. Width of Access (m)	Max. Length of Access (m) *	Min. Width of Carriageway (m)	Surface Standard
1	Residential activity only where area is 1ha or less	5.0	750	3.5	All weather metal.
1	Other activities and in all cases where area > 1ha	8.0	750	3.5	All weather metal.
2 – 4	All	9.0	750	5.0	All weather metal
5 - 8	All	10.0	750	5.0	Seal coat

**Note:**

1. For subdivisions of nine or more lots, the road standards as set out in Table 3.3 above, shall apply.
- \*2 Applies in Rural 1 (Plains) Zone only
3. A seal coat is recommended for private access strips serving 2 – 4 lots.
4. Bridges shall have a minimum width of 3.5 metres between kerbs and shall have a design loading of 0.85 HN HO 72

### 3.1.2.5 Rural Private Accessway Construction

Construction shall be carried out in accordance with Standard Drawing R 26 and the following conditions:

**3.1.2.5a Passing Bays:** Shall be provided outside the minimum carriageway width at not more than 200 metre intervals.

Passing bays shall be large enough to enable a 90 percentile two axled truck to enter, park and exit in one manoeuvre. If all the lots that the access serves are smaller than 1 hectare in size, then the passing bay shall be constructed for the 90 percentile car.

**3.1.2.5b Visibility:** Minimum sight distances for entranceways shall be in accordance with Clause 3.1.3.9.

**3.1.2.5c Dimensions:** Minimum dimensions shall be as shown in Table 3.4. A grassed berm at least 2.5m wide shall be provided on one side of the carriageway for the provision of underground services.

**3.1.2.5d Access and Gradient:** The maximum carriageway gradient shall be 1 in 6 with the first 6 metres from the edge of the road of seal/metal at a gradient of no more than 1 in 12. All lots depending on the access strip shall have a safe and practical access point to the carriageway to meet criteria herein.

**3.1.2.5e Subgrade:** Subgrade shall exclude all organic or wet material and shall be trimmed and compacted. The minimum CBR shall be 7.0, or 33mm per blow with Scala penetrometer.

**3.1.2.5f Basecourse:** Shall be GAP 40 or AP 40 compacted to a dense state, with a Clegg Impact Hammer reading of 33 or better. Minimum compacted thickness shall be 75mm for an unsealed access or 125mm for a sealed access.

**3.1.2.5g Stormwater:** Provision shall be made for the collection and disposal of stormwater. All upstream catchment areas shall be provided for. Consideration shall be given to scour and/or silting. All culverts shall be at least 300mm diameter and installed to the manufacturers recommendations.

**3.1.2.5h Surface Finish:** Shall be 2 coat chip seal with grade 3 first coat and grade 5 second coat. Asphaltic concrete and precast paving will be permitted subject to specific approval of the details by the Engineer.

**3.1.2.5i Curve Dimensions:** The minimum inside radius of all curves shall be nine metres.

**3.1.2.5j Accessway Width:** The legal boundary of the accessway shall include all cut and fill batters and passing bays, and if necessary to accommodate these, the minimum dimensions as required by Table 3.4 shall be increased.

### **3.1.3 ROADING GEOMETRY**

#### **3.1.3.1 Design Criteria**

All roads shall be designed in accordance with Austroads “Urban Road Design” - Guide to the Geometric Design of Major Urban Roads and “Rural Road Design” - A Guide to the Geometric Design of Rural Roads.

Off street and on street parking shall be designed in accordance with Austroads “Guide to Traffic Engineering Practice Part II –Parking”

In addition, the requirements as set out in the remainder of this section shall be complied with.

#### **3.1.3.2 Longitudinal Gradients**

The choice of a longitudinal gradient will depend principally on the type of terrain.

The volume and extent of earthworks in new subdivisions is influenced by the maximum and minimum gradients adopted. The minimum acceptable gradient will normally be 0.5%, but in exceptional conditions, a flatter minimum gradient may be necessary. Residential street gradients should not be steeper than 12.5%. On all routes likely to carry significant volumes of public transport or heavy vehicles, the maximum gradient should not be more than 8%.

The Engineer may approve gradients which are greater than these maximum values. For cul-de-sacs heads, the maximum longitudinal gradient shall be three percent (3%), to prevent surface run-off water escaping from channels at vehicle crossings.

Where gradients steeper than those recommended above are unavoidable, they should be restricted to those sections of the street where the alignment is straight, and should be kept as short as possible.

#### **3.1.3.3 Carriageway Crossfall**

Normal crossfall of three percent (3%) in both directions from the crown shall be developed on all standard carriageways. However, in exceptional circumstances, this may be waived with special approval, but in no case shall be less than two percent (2%) or greater than five percent (5%) from the crown coupled with a lateral shift in the crown of up to one-quarter of the road width.

Where a uniform crossfall is developed from kerb to kerb, this shall not exceed two percent (2%) unless on a curve, where super-elevation may be permitted.

#### **3.1.3.4 Super Elevation**

Super-elevation is not necessary in 50 km/h zones, or in areas that in the opinion of the Engineer, are likely to become 50 km/h zones. Super-elevation may however be employed where it suits boundary levels up to the allowable design maximum crossfall. However, certain main routes may in the future, have an increased speed limit. If this development is a possibility, the Engineer may require super-elevation to be constructed to a speed value nominated at the time of the request.

Under any circumstances, the maximum crossfall should not exceed ten percent (10%) where uniform crossfall is developed. Super-elevation shall be calculated from Austroads design guides.

### 3.1.3.5 Grades at Intersections

Centre line grades at major intersections should be kept below three percent (3%) wherever possible.

At an intersection of two streets of differing classifications, the grade of the street having the higher classification should be carried through the intersection, adjusting the grades of the lower classified street accordingly. Generally with the centre line grade of the lower classified street intersecting the crossfall of the main street, the distances from the main road centre line are as given in Table 3.5 below.

**Table 3.5 - Distance from the main road centreline for different width roads**

Road Width (m)	Distance from main road centre line (m)
13.0	3.5
11.0	3.0
8.5	2.5

### 3.1.3.6 Kerb Lines

Generally, kerbs will be at the same level on both sides of the street. However, in special circumstances, the left hand and right hand kerb line may be better graded individually in conjunction with centreline levels, footpath levels and boundary levels. Under such circumstances, at a given cross-section the left hand and right hand kerbs may differ from each other in level provided the following standard design tolerances are not exceeded. The maximum difference in kerb line height from one side of the carriageway to the other is shown in Table 3.6 below.

**Table 3.6 - Maximum difference in kerb lines for different widths of carriageways**

Width of Carriageway (m)	Maximum Difference in Kerb Line (mm)
7.5	140
8.0	150
8.5	160
11.0	175
13.0	200

### 3.1.3.7 Horizontal Curves

Curves in 50 km/h areas may be circular with a minimum radius of 50m on the centreline. In areas that may have a higher speed limit in the future, the Engineer may require transition curves with a specified speed value. Transition curves shall be computed in accordance with Austroads Design Tables. Widening is not required on circular curves.



### **3.1.3.8 Vertical Curves**

Vertical curves shall be designed as set out in Austroads, for a minimum speed value of 50 km/h, and shall have a minimum sight distance of 60m. In areas that may have a higher speed value in the future, the minimum speed value and sight distance to be used shall be determined by the Engineer.

### **3.1.3.9 Visibility at Intersections and Vehicle Entrances**

Visibility at all urban intersections and at rural intersections and vehicle entrances shall be in accordance with Austroads "Urban Road Design", Clause 8.3.5.3 and Table 8.4.

Adequate sight distance both up and down the major route is to be provided to enable traffic to emerge safely from the side street or vehicle entrance.

Rural vehicle entrances shall be designed in accordance with Standard Drawings R 28, R 29 and R 30, so that a vehicle can be parked in the accessway clear of the road carriageway while the gate to the property is opened.

### **3.1.3.10 Cul-de Sac Heads**

Cul-de-sac heads shall be provided generally in accordance with the alternatives shown on Standard Drawing R 04, except that Type C heads shall only be used where six lots or less are to be serviced, or with the specific approval of the Engineer. A radius of the turning head shall be in accordance with the dimensions shown on Standard Drawing R 04.

The number of parking spaces to be provided within the cul-de-sac head shall be calculated as follows;

Where the number of lots with frontage or access off the cul-de-sac head (ie from the point where the road exceeds the standard width) is equal to or less than ten, four parking spaces shall be provided.

For every additional three lots or part thereof with access from the cul-de-sac head, one extra parking space.

### **3.1.3.11 Berms**

Berms shall accommodate footpath, road lighting, underground services, landscaping and grass areas.

The width of the berm shall be as set out in tables 3.1 and 3.3 of this section.

The normal slope of the grass berm from kerb to boundary shall be four percent (4%). This slope shall not be less than three percent (3%), nor more than ten percent (10%).

Where it becomes necessary to employ a berm steeper than eight percent (8%), it will be necessary to produce design gradients for each individual property access to show that these may be satisfactorily negotiated by a vehicle with clearance at sag or summit crossings, in accordance with Clause 2.5.3 of AS/NZS 2890.1 : 2004 – "Parking Facilities Part 1 – Off Street Car Parking".

### 3.1.3.12 Batters

Fill batters shall not be steeper than four horizontal to one vertical, except where lesser slopes are specifically approved by the Engineer. Cut batters shall be dependent on the type of soil being cut, and in all cases shall be approved by the Engineer.

The top edge of a fill batter or the toe of a cut batter shall be at least 600mm beyond the street boundary. Where cut and fill affects excessively large areas, or in rural areas, the Engineer may approve steeper cut and fill batters, but these will only be permitted where no other practicable alternative exists.

### 3.1.3.13 Formation Width

The formation width shall be the full width of the street plus 1.2m and all batters shall be in private property. Where a subdivision abuts an existing street that will require earthworks in the course of future upgrading, then provision must be made in the subdivision for 3m wide batter easements on the new subdivision sections. If a batter is not practicable, then the full cost of a retaining structure, to the approval of the Engineer, shall be met by the Developer.

## 3.1.4 PAVEMENT DESIGN

### 3.1.4.1 General Requirements

Secondary and District arterial roads shall be designed in accordance with Austroads-“Pavement Design – A Guide to the Structural Design of Road Pavements”, the “New Zealand Supplement to the Pavement Design Guide”, and Austroads-“ A Guide to the Design of Pavements for Light Traffic”, as appropriate.

All other pavements shall be designed for a minimum life of 25 years.

All roads shall comply with the design requirements as set out in Table 3.7 below.

**Table 3.7 - Rooding Design Requirements**

Road type	Min. basecourse Depth mm	Max allowable Deflection mm
Cul-de-sac <150 m long	125	2.0
Cul-de-sac >150 m long	125	1.0
Through Road	150	1.0
Industrial Road	200	0.75
Principal/Arterial Road	Design to Austroads standards	

### 3.1.4.2 Test and Design Data

The following information shall be submitted for approval:

- The engineering design drawings
- All soil test information obtained to provide a basis for pavement design, with a reference to the origin of the design method
- A copy of the design calculations used to determine pavement thickness

- If a stabilising agent is to be used, the designer shall submit a range of relevant test results, and calculations, including the percentage use of the stabilising agent and an indication of the likely CBR value to be achieved by the stabilisation
- Any additional information that may be needed to evaluate the design.

#### **3.1.4.3 Subgrade**

The subgrade shall be constructed in accordance with TNZ Specification F/1.

The subgrade shall be tested for compliance with the CBR and other properties required by the applicable design method. Testing shall be in accordance with the methods described in Part 3 of this Section.

Subgrade compliance shall be subject to approval by Council before construction of the pavement layer.

Where a low bearing value is obtained for the subgrade, it may be advantageous to employ a stabilised sub-base, rather than excavate to a greater depth. Specific design of a stabilised subgrade shall be to the satisfaction of the Engineer.

#### **3.1.4.4 Pavement**

The basecourse shall be constructed in accordance with TNZ Specification B/2.

The finished pavement shall be tested as set out in Clause 3.3.2 of this Chapter.

#### **3.1.4.5 Pavement Layer Construction**

Pavement construction below the kerb and channel shall extend 500mm behind the kerb face.

### **3.1.5 SURFACE SEALING**

Urban roads may be surfaced with asphaltic concrete, a two stage seal coat, interlocking concrete paving or other surfacing subject to the Engineer's approval.

The following locations shall to be surfaced with asphaltic concrete:

- All roundabouts, including the central circular area and to at least the tangent point in the kerb where it abuts the straight section of carriageway.
- The heads of all cul-de sacs including all manoeuvring areas and to at least the tangent point as for roundabouts above.

The following requirements shall be adhered to when surfacing roads:

#### **a) Asphaltic Concrete**

- For normal carriageway sections, a minimum thickness of 25mm of Mix 10.
- For roundabouts and cul-de-sac heads, a minimum thickness of 35mm of Mix15.

All asphaltic concrete shall be applied in accordance with TNZ Specifications M/10 and P/9 (and notes).

**b) Chip Seal Coat**

A two coat seal system shall be applied comprising a first coat of Grade 3 chip wet locked with a second coat of Grade 5 chip. All chips shall comply with TNZ Specification M/6.

The design of the system shall be in accordance with the TNZ Bituminous Sealing Manual and TNZ Specification P/3.

**c) Concrete Block Paving**

- The subdivider may surface the road carriageway with interlocking paving blocks subject to specific approval from the Engineer.
- The concrete blocks shall comply with, and laying shall be in accordance with, NZS 3116 : 2002 - "Concrete Segmental Paving".

Pavements as set out in NZS 3116 : 2002 - "Light Vehicular" are not acceptable.

**3.1.6 ROAD DRAINAGE**

**3.1.6.1 Sub Soil Drains**

In some cases, where topography dictates or where soils are not free draining it may be necessary to lay a subsoil drainage system of perforated pipes.

In such cases subsoil drains will be required behind the kerb and channel as follows:

- Minimum subsoil pipe size                      90mm
- Minimum depth to invert                        500mm

**3.1.6.2 Batter Drains**

Where a road is constructed in a cutting and moisture appears on the face of the cutting, a porous drain shall be constructed at the toe of the batter.

**3.1.6.3 Drain Outlet Levels**

Subsoil and batter drain outlets shall be connected to the nearest downstream cesspit or manholes.

**3.1.6.4 Wet Spots**

Any permanent wet spot in the subgrade below the line of the longitudinal porous drains, or any area undercut below the level of the longitudinal drains shall be connected to the nearest enclosed stormwater system by a suitably sized porous drain.

In areas where soils are not free draining, a porous drain shall be constructed under both channels. The invert level of the drain shall be a minimum of 500 mm below subgrade level.

### **3.1.7 KERB AND CHANNEL**

Kerb and channel as shown on Standard Drawing R 11 shall be provided on both sides of the carriageway in all urban subdivisions. In roads with a single crossfall, kerb and channel on one side and a concrete edging strip on the other side will be permitted.

Mountable kerbing, as detailed on Standard Drawing R 11, shall be used on street islands, and may be used on private accessways or where specifically approved by the Engineer.

### **3.1.8 DISH CHANNEL**

Refer to profile on Standard Drawing R 11.

### **3.1.9 CESSPITS**

Cesspits shall be provided in the following locations:

- At intervals of all channels in such a position that the maximum "run" of water in any channel is 100m for single carriageways and 60m for dual carriageways
- A intersections, located at the uphill kerb line tangent points
- At any low spot in a channel
- At changes of gradients and/or direction in the channel where there could be a tendency for water to leave the channel in the absence of a cesspit
- Where it is necessary to prevent water discharging across a berm, eg from a kerbed and sealed right of way, accessway, or private driveway.

A double cesspit must be provided in the following locations:

- At low points to minimise the risk of ponding due to the grating of a single cesspit becoming blocked
- At the ends of cul-de-sacs
- In all channels where the gradient is steeper than five percent (5%)

Cesspits shall be connected to a stormwater manhole by a 225mm diameter pipe for single cesspits with leads less than 15m in length, otherwise the pipe size shall be 300mm diameter.

For double cesspits, the pipe size shall be 375mm diameter, unless specifically designed for the pipe flows, and shall be connected directly into a manhole.

### **3.1.10 FOOTPATHS**

All urban roads shall have footpaths to the extent shown in Table 3.1

Footpaths shall be 1.4m wide. Where, under special circumstances, the footpath is located adjacent to the kerb, the width of the footpath shall be 1.4m measured from the back of the kerb. In shopping areas, the footpath width may be increased as required by the Engineer.

Crossfall on footpaths shall not vary outside the limits of two percent (2%) to four percent (4%).

### **3.1.11 PRAM CROSSINGS**

A pram crossing as detailed on Standard Drawing R 07 shall be provided in the kerb line at all road intersections.

Preferably the pram crossing should be located immediately "downstream" of a cesspit or at the high spot in the kerb and channel so that there is a minimum flow of water in the channel past the crossing.

### **3.1.12 VEHICLE CROSSINGS**

There shall be three types of crossings; residential, commercial/industrial and rural.

As a part of the development, the appropriate crossing as detailed on the Standard Drawings shall be provided at the entrance to all accessways to rear lots, private accessways and service lanes, heavy vehicle entrances and all frequently used entrances.

For front lots, where the location of the crossing cannot be determined reasonably from the contour of the section and the proposed siting of the building, the crossing shall be installed at the time of the erection of the building on the lot, in accordance with the Council By-Laws.

#### **3.1.12.1 Vehicle Crossings for Residential Vehicles**

A residential crossing serving one lot shall be 115mm thick unreinforced 17.5 MPa concrete on a compacted subgrade in accordance with Standard Drawing R 08. Where an existing concrete footpath is in position, the section of footpath shall be saw cut and removed, and the new concrete crossing shall be poured from the kerb line to the boundary, except where the retention of the existing footpath has been approved by the Engineer.

Where an existing vehicle crossing is required to be widened to meet a standard access width, then the whole of the existing crossing shall be removed and replaced to the correct width and standard.

A residential crossing serving more than one lot shall comply with the conditions set out above, but shall be 150mm thick and shall be reinforced with HRC 665 mesh.

No residential crossing shall be located closer than 15 metres from the intersection of the two kerb lines at any adjacent intersection, unless specific approval is granted by the Engineer. In all cases, adequate visibility must be provided in accordance with Clause 3.1.3.9.

#### **3.1.12.2 Vehicle Crossings for Industrial/Commercial Vehicles**

Crossings to all industrial and commercial lots, and to all private ways and service lanes serving more than two lots, shall be of minimum 150mm thick, 20 MPa concrete. The crossing and the kerb and channel shall be reinforced as shown on Standard Drawing R 09. Any existing footpath and kerb and channel is to be replaced and recast as part of the new crossing.

No commercial or industrial crossing shall be located closer than 30 metres from the intersection of the two kerb lines at any adjacent intersection unless specific approval is granted by the Engineer. In all cases, adequate visibility must be provided in accordance with Clause 3.1.3.9.

### **3.1.12.3 Rural Vehicle Crossings**

Rural crossings shall be surfaced with a two coat seal on a compacted basecourse on subgrade, all as for normal carriageway construction, in accordance with Standard Drawings R 28, R29 and R 30.

The primary purpose of rural crossings is to protect the edge of the existing seal. The crossing must therefore be formed to cover the anticipated or (in the case of existing unsealed crossings) the existing vehicle swept path area, with the full area of the vehicle exit and entry from the carriageway to the legal boundary being covered. In situations where the legal boundary is either very close to, or a considerable distance away from the edge of the carriageway, the minimum length of the crossing from the edge of the carriageway shall be 7.0m.

Rural crossings shall be culverted as necessary to allow the passage of water in any roadside drain or swale.

No rural crossing shall be located closer than 50 metres from the intersection of the two carriageway edgelines at any adjacent intersection unless specific approval is granted by the Engineer. In all cases, adequate visibility must be provided in accordance with Clause 3.1.3.9.

### **3.1.13 STREET LIGHTING**

Street lighting shall be installed in all new subdivisions and developments.

The Developer shall design and submit a street lighting proposal to the Engineer for approval.

The design shall be in accordance AS/NZS 1158.3.1 : 2005 - "Performance and Installation Design Requirements".

Street lights are generally to be located at the joint property boundary position on the street frontage.

Where it is deemed by the Engineer that the proposed light pole or fitting is not a common type to the district, it will be necessary for the subdivider to show to the Council that replacement lights and poles are readily available in the event of failure or damage occurring. The type of pole and fitting to be installed shall be subject to specific approval by the Engineer.

### **3.1.14 SIGNS AND ROAD MARKING**

Street name signs shall be supplied and erected in accordance with Standard Drawing R 12.

Where a subdivider requires an alternative name plaque or subdivisional entrance feature to be installed, this shall be subject to specific approval, and notwithstanding this approval the standard sign shall also be erected.

Where road marking and signs are required as an integral part of the roading function, it is the developer's responsibility to provide these facilities at his cost. All road marking and signage installation shall be in accordance with the requirements of the TNZ Manual of Road Signs and Markings. In all cases edgelines shall be 100mm wide and all paint used shall be reflectorised waterborne paint complying with TNZ Specification M/7.

As part of the engineering plan approval, satisfactory design drawings of signs and road marking are to be prepared.

### 3.1.15 SERVICE LANES

Where required and dimensioned by the resource consent, the subdivider shall provide and form a service lane to facilitate delivery of supplies.

The service lane shall have a commercial/industrial vehicle crossing in accordance with Standard Drawing R 09 at the entrance, and must have adequate stormwater disposal. The service lane shall be kerbed on both sides, or shall have concrete edging strips and a central dish channel, or a single crossfall to a kerb, with a concrete edging strip on the high side. Surfacing to all service lanes shall be asphaltic concrete.

Layout, pavement design and surfacing will be subject to the approval of the Engineer.

Where the service lane crosses an existing footpath, a commercial/industrial crossing shall be installed at the Developer's expense.

### 3.1.16 PRIVATE ACCESSWAYS

Private accessways shall be formed to the dimensions and specification as shown on Standard Drawings R 13 and R 26.

The following clauses shall apply to urban private accessways.

**3.1.16.1 Gradient:** The maximum carriageway gradient shall be 1 in 5.

**3.1.16.2 Stormwater Drainage:** Stormwater drainage shall be provided so that the maximum "run of water" does not exceed 60m, with all stormwater shall be collected and discharged to an approved system. Stormwater shall be controlled so that it does not run over the street berm or vehicle crossing, in accordance with Clause 3.1.9.

**3.1.16.3 Surfacing:** An accessway serving a single lot shall be surfaced with roading metal to ensure all weather access. Accessways serving more than one lot shall have a concrete, interlocking paver or asphaltic concrete surface provided on the accessway and to all designated car parking areas in accordance with Standard Drawing R 13.

**3.1.16.4 Vehicular Access:** Where vehicular access is across any berm on the legal road reserve, a vehicular crossing shall be provided at the Developer's expense in accordance with Standard Drawing R 08 or R 10



**3.1.16.5**      **Lighting:** Where required by Table 3.1, or where an accessway serves more than three lots, a street light in accordance with Clause 3.1.13 shall be placed opposite the new accessway in a position approved by the Engineer.

**3.1.16.6**      **Private Services:** Utility services for each individual dwelling shall be installed in the accessway, of sufficient length and capacity to serve all building sites utilising the accessway for frontage to the public road.

### **3.1.17**      **PARKING BAYS**

All parking spaces, where required, shall be designed in accordance with the requirements of the Austroads "Guide to Traffic Engineering Practice, Part 11 – Parking". On-road parking bays where required, shall be constructed to the same standard as the adjoining road and shall continue the road crossfall.

Where required, provision shall be made for parking and access for disabled persons in accordance with the requirements of NZS 4121: 2001 – Design for Access and Mobility: Buildings and Associated Facilities.

### **3.1.18**      **FENCING**

Fencing will be required at the sides of any road, street, reserve or accessway, if in the opinion of the Council such fencing is necessary to ensure the safety of the public, or to avoid, remedy or mitigate any adverse effect on the environment.

Fences shall be required on both sides of a pedestrian accessway in accordance with Standard Drawing R 14.

Other fences to be erected will be specified by the Council and must be constructed in accordance with Standard Drawing R 14 or as approved by the Engineer.

Temporary fencing shall be erected by the subdivider to protect the general public, particularly children, from all danger areas in the subdivision during the construction of the works. Signs shall be erected warning persons of the dangerous areas. The use of barbed wire is prohibited.

Fencing covenants in favour of Council will be required over all lots fronting land, other than roads, vested in Council. Covenants shall be prepared by the Council's solicitor at the expense of the Developer.

### **3.1.19**      **TRAFFIC CALMING**

#### **3.1.19.1**      **General**

This clause sets out recommended standards for traffic calming features relating to local streets. These standards are referenced from "*The Street Where You Live*" by M L Gladd 1995. Traffic calming is a shorter and more descriptive term than Local Area Traffic Management (or LATM) as it is known and is the introduction of changes to the street to slow down and reduce the flow of traffic and/or to divert heavy and large vehicles to roads designed to take them.

Developers are encouraged to provide these features to enhance the local environment of the streetscape.

Traffic calming has the following advantages:

- Speed reduction
- Reduction in accidents
- Streetscape improved by increasing planting areas
- Noise - reduced due to slower speed
- Quality of life - reduced noise and stress and increased streetscaping (cobblestones, shrubs, trees and grass, etc), results in a better quality environment and this can be reflected in the status of the area and property values.

### 3.1.19.2 Traffic Calming Devices and Uses

There is a wide choice of traffic calming devices for residential streets from very mild to severe, including outright closure. Some common types are listed in Table 3.8 below.

**Table 3.8 - Types of Devices for Residential Street Traffic Calming**

Degree of Severity	Threshold or Peripheral	En Route Changes
1. Mild Restraints	1.1 Threshold Type B	1.4 Change of alignment
	1.2 Threshold Type C	1.5 Traffic islands in street
	1.3 Splitter islands ("fish tail" or short median)	
2. Moderate Restraints	2.1 Threshold Type A	2.2 Two lane angled slow point (with divider)
		2.3 Two lane speed hump
		2.4 Cushion (hump) to only affect narrow vehicles
		2.5 Platform, minor intersection.
		2.6 Roundabout, minor intersection.
3. Strong Restraint		3.1 Single lane slow point.
		3.2 Single lane speed hump
		3.3 Combined slow point with hump.
4. Very Strong Restraints		4.1 Diagonal closure of intersection
		4.2 Complete closure of road (at end or en route)
		4.3 Meandering restraint zone or "Woonerf" (usually with supplementary devices)

How "tough" a measure is needed depends on the severity of the problem, the target maximum traffic flow or speed, the needs to reduce the use of the road by through traffic and heavy vehicles, and the type of property served.

Materials and landscaping should enhance the streetscape and be both durable and easy to maintain. In general, where there is a vertical action (eg a "platform" type of restraint) and the area is reasonably large, coloured interlocking paving blocks are the preferred material. Planting of grass, shrubs and larger trees can usually be achieved on areas of road removed from the trafficable area.

#### **3.1.19.3 Design**

The Standard Drawings R 19, R 20, R 21 and R 22 indicate various traffic calming devices. All designs will be subject to final approval by the Engineer.

#### **3.1.19.4 Construction**

All costs associated with the construction of traffic calming devices shall be borne by the subdivider.

## **PART 2 MATERIALS**

### **3.2.1 GENERAL**

The following specifications or requirements apply to materials to be incorporated into the works.

### **3.2.2 SUB BASE METAL**

Sub base metal shall be GAP 65 complying with TNZ Specification M/4.

### **3.2.3 BASECOURSE METAL**

Basecourse metal shall be AP40 complying with TNZ Specification M/4

### **3.2.4 CEMENT**

Cement shall comply with NZS 3122 : 1995 - "Specification for Portland and Blended Cements"

### **3.2.5 SEALING CHIPS**

Sealing chips shall conform to TNZ Specification M/6 for all applications in the works.

### **3.2.6 ASPHALTIC BITUMEN**

Asphaltic bitumen in pavement tack coats and sealing shall conform to TNZ Specification M/1 and shall generally be 180/200 penetration grade.

### **3.2.7 ASPHALTIC CONCRETE**

Asphaltic concrete shall conform to TNZ specification M/10 –Specification for Asphaltic Concrete.

### **3.2.8 CONCRETE**

Cement, aggregates and water shall be of the qualities specified in NZS 3109 : 1997 - "Concrete Construction".

The following specification shall apply to the production of the concrete:

NZS 3104 : 1991 - "Specification for Concrete Production-High Grade and Special Grade".

### **3.2.9 TOPSOIL**

Topsoil for berms and gardens shall be of a suitable medium for growing the ordinary range of cultivated trees, shrubs, grasses and herbaceous plants under satisfactory conditions of management.

It shall be free from the following:

- Persistent weed and plant pests
- Roots in excess of 25mm in diameter or 300mm long
- Clay lumps
- Brick, concrete or other building materials
- Any contamination which in the opinion of the Engineer, may be detrimental to plant growth
- Turf sods of a size which interfere with subsequent cultivation or use.

The Developer shall inform the Engineer of the intended source of all topsoil to be brought on to the site and shall provide a reasonable sample for approval before commencing topsoiling operations.

#### **3.2.10 GRASS SEED**

The seed mixture shall be certified free of all pests and diseases. The seed mixture and proportions of each variety to be used is as follows:

- Turf type – Perennial Rye Grass (Drought tolerant)
- The total sowing rate shall be 350kg/hectare or 35gm/m<sup>2</sup>

At the time of sowing, a compound pre-emergence fertiliser such as 4:12:15 NPK shall be applied on to the topsoil at a rate of 100kg/ha.

#### **3.2.11 TIMBER**

Timber for all edging and pegs shall be H4 treated timber. Timber for fencing shall be H4 treated for posts or any members in contact with the ground, and shall be H3 treated for all other components.

#### **3.2.12 CONCRETE BLOCK PAVING**

Concrete blocks shall comply with NZS 3116 : 2002 - "Concrete Segmental Paving".

#### **3.2.13 REINFORCING**

Reinforcing bars shall comply with AS/NZS 4671 : 2001 - "Steel Reinforcing Materials"

#### **3.2.14 ROAD MARKING PAINT**

Road marking paint shall comply with TNZ Specification M/7 - "Specification for Road Marking Paints".

#### **3.2.15 SIGNS**

Signs shall comply with NZS 5414 : 1977 - "Specification for the Construction of Traffic Signs" and the current TNZ "Manual of Traffic Signs and Marking". The sign font shall be as noted on Standard Drawing R 12.

## **PART 3      TESTING**

### **3.3.1      SCALA PENETROMETER**

The Scala Penetrometer shall only be used where a significant part of the subgrade passes a 9.5mm sieve.

On carriageways Scala tests shall be taken at the following locations and frequency:

Carriageway 4.0m wide and less	Along centreline
Carriageway between 4.0m and 8.0m	Along kerbside wheel tracks
Carriageway 8.0m and wider	Along centreline and kerbside wheel tracks.

The test sites are to be at a maximum of 15m centres for each line, or where 2 or 3 lines are required these may be staggered at 10m intervals, giving a spacing of 20m or 30m for each line.

### **3.3.2      BENKLEMAN BEAM**

The Contactor shall test the surface to be sealed with a standard Benkleman Beam test apparatus. This shall be carried out immediately prior to surfacing and shall be witnessed by Council.

The beam test shall be as per TNZ Specification T/1.

The test axle shall be a dual tyred single axle of 8.2 tonnes. Readings shall be taken at the kerbside wheel track on both sides of the carriageway at a maximum interval of 15m on each side. Where the carriageway is 8.0m or wider, tests at 15m intervals shall also be taken on the centreline.

A section of road shall be accepted as complying with the deflection requirements based on the following criteria:

- not more than 5% of the tests shall exceed the maximum as set out in Table 3.7
- no single result shall exceed the maximum allowable by more than 50%
- any area of excessive deflection shall not exceed 5m<sup>2</sup>.

If the section of road fails to achieve the above required standard of deflection, the subdivider shall carry out additional tests on the sub-base and basecourse and confirm that:

- the actual thickness of pavement agrees with the design thickness as determined by the CBR tests
- the grading and quality parameters of metal conforms to requirements
- the pavement is of suitable density.

Any subsequent beam or laboratory tests shall be arranged and paid for by the subdivider.

If beam readings are within 25% of design criteria and all the requirements above have been met, Council may permit the subdivider to surface the road provided that agreement has first been reached on a suitable bond, pending final acceptance.

## **PART 4      CONSTRUCTION**

### **3.4.1      GENERAL**

This part covers new road pavement and includes all pavement layers between the finished natural subgrade level up to and including the finished basecourse.

### **3.4.2      IMPORTED SUBGRADE LAYER**

Any imported subgrade material for the pavement shall be “run of pit” sand, unless otherwise specified or approved by the Engineer. The suitability of alternatives will need to be demonstrated.

The material shall be placed in layers not exceeding 150mm [compacted thickness] and at optimum moisture content.

The material shall be compacted to the specified California Bearing Ratio [CBR]. The standard of compaction shall be not less than 95% of the optimum dry density of the material as specified in Test 4.1.1 of NZS 4402 : 1986 - “New Zealand Standard Compaction Test“, or Test 4.1.3 “New Zealand Vibrating Hammer Compaction Test”.

Scala Penetrometer tests shall be carried out as detailed in Section 3 “Testing”.

### **3.4.3      SUB-BASE LAYER**

Material contained in this layer shall be GAP65 unless otherwise specified.

No sub-base layer material shall be placed until the subgrade has been satisfactorily completed and approved by the Engineer.

The sub-base layer shall be compacted in accordance with TNZ Specification B/2.

Compaction of the subgrade shall be tested according to Section 3 - “Testing” in this chapter and shall comply with the specified criteria.

### **3.4.4      BASECOURSE LAYER**

Material contained in this layer shall consist of AP40, to TNZ M/4.

No basecourse layer material shall be placed until all previous pavement layers have been satisfactorily completed and approved.

The basecourse layer shall be compacted in accordance with TNZ Specification B/2.

In addition to the requirements of TNZ Specification B/2 and any preceding requirements of this specification, approval of the basecourse and the pavement as a whole shall be subject to testing with a Benkleman beam, as set out in Section 3 - “Testing” in this Chapter.

### **3.4.5 CONCRETE WORK**

#### **3.4.5.1 General**

This specification covers all concrete work for footpaths, vehicle crossings, kerb and channel and other works. These shall be formed to the dimensions shown in the Standard Drawings and to the details shown on the plans.

The strength of concrete shall be as shown on the Standard Drawings.

#### **3.4.5.2 Formwork**

Formwork shall comply with the requirements of NZS 3109 : 1977.-"Concrete Construction"

#### **3.4.5.3 Concrete Mix**

Concrete shall be either ordinary grade, high grade or special grade as defined in NZS 3109 : 1977 - "Concrete Construction".

Concrete production shall be in accordance with the following standards:

NZS 3104 : 1991 - "Specification for Concrete Production-High Grade and Special Grade"

NZS 3108 : 1983 - "Specification for Concrete Production-Ordinary Grade".

#### **3.4.5.4 Concrete Placing**

Concrete shall not be placed in any unfavourable conditions which may be detrimental to its quality and finish. Unfavourable conditions shall include low temperatures, excessively hot dry conditions, excessively wet conditions or any situations where it becomes impractical to work and finish the concrete adequately.

#### **3.4.5.5 Reinforcement**

All reinforcement other than ties and stirrups shall be deformed unless otherwise detailed.

At the time concrete is placed the reinforcement shall be free from loose flaky rust, mud, oil or other coatings which will destroy or reduce the bond.

Reinforcement shall be accurately placed, adequately supported and secured against displacement prior to or during concrete placement.

The minimum cover to all main reinforcing bars shall be 50mm unless otherwise specified.

#### **3.4.5.6 Curing**

Strict attention shall be paid to adequate curing of the placed concrete.

From immediately after placement, concrete shall be protected from premature drying, excessively hot or cold temperatures and mechanical injury.



It shall be maintained with minimal moisture loss for the period necessary for hydration of the cement and hardening of the concrete.

In cold or wet weather, concrete shall be protected from the elements by suitable coverings during the curing period.

### 3.4.6 KERB AND CHANNEL

#### 3.4.6.1 Construction

All kerbing and channelling shall be constructed using an approved slip form or machine extruded method. Cast in situ methods against static form work shall be subject to specific approval by the Engineer.

“No Slump” concrete for machine placed kerb and channel shall have a minimum cement content of 240kg/m<sup>3</sup>.

Precast kerbing blocks shall not be used except with the specific approval of the Engineer.

#### 3.4.6.2 Subgrade Under Kerbing

The subgrade under kerbing and channelling shall be equivalent to the road subgrade. A minimum depth of 50mm of compacted basecourse shall be placed beneath the kerb and channel. Where the subgrade strength is less than CBR 7, a designed, compacted basecourse bedding shall be placed beneath the kerb and channel. The basecourse layer beneath the kerb and channel shall extend at least 200mm past the rear of the kerb. After the kerb is poured and before any road metal is placed on the channel (road) side, suitable filling shall be placed behind the kerb and channel. This shall not be done until the concrete has reached sufficient strength to accept the compactive efforts applied to the roading basecourse.

#### 3.4.6.3 Kerbing Standard and Tolerances

The line of the kerb shall be perfectly straight between tangent points and on curves shall sweep round without kinks, flats or angles in a true arc to the radius shown or directed. The levels shown on the approved drawings shall be strictly adhered to except at intersections where slight adjustments will be made, if necessary, to give perfect lines throughout. Where the kerb finishes against other structures, this shall be done in a neat and tradesman like manner to the approval of the Engineer.

**Table 3.9 - Kerbing Finishes and Tolerances.**

<b>Tolerances</b>	Horizontal straight sections	± 3mm over 5m straight edge
	Vertical curved sections	± 5mm from true radius line ± 5mm from design levels with no section holding water
<b>Finishes</b>	No visual blemishes or changes in surface texture	

#### **3.4.6.4 Construction Machine Damage**

The greatest care shall be exercised when rolling or grading adjacent to the kerb and channel and in particular, a grader blade must not be used to remove road metal from the channel.

No kerbing length shall have more than five percent (5%) in number of chips or otherwise this section of kerbing shall be removed and entirely repoured, eg 100m length of kerbing can only have up to 5 chips in its entire length.

All chips in channels and kerbs shall be repaired using an approved epoxy mortar system.

#### **3.4.6.5 Contraction Joints**

Contraction joints shall be cut by guillotine and spaced at not more than 4m centres. Cold joints in concrete more than two hours old shall be cut with a saw to provide a proper face on which to restart the extrusion.

Where kerbing and channelling is interrupted by precast elements, eg kerb returns, cesspits etc, the machine laid kerbing and concrete shall be sawn to a square face unless the precast elements have been set in place before the kerb laying commences.

#### **3.4.6.6. Testing**

Prior to final acceptance by Council, the effectiveness of the channels and cesspits is to be tested by flooding the channel from a fire hydrant or tanker. Any ponding of water in the channel shall render the work unacceptable.

#### **3.4.7 SUBGRADE DRAINAGE**

Subsoil drains shall comply with TNZ Specification F/2 "Pipe Subsoil Drain Construction".

Drainage pipes shall be perforated pipe with a minimum internal diameter of 100mm. Pipes shall be laid in a trench backfilled with an approved filter material at least 100mm thick on all sides of the pipe. The backfill material shall be brought up to subgrade level in all cases.

Backfill material shall consist of clean drainage metal graded between 20mm and 5mm.

The pipe shall have a minimum gradient of 1 in 200 to discharge into a cesspit or manhole.

The invert of subsoil drains at the cesspit or manhole shall be not less than 100mm above the invert of the receiving chamber.

#### **3.4.8 FOOTPATHS**

##### **3.4.8.1 Construction**

Footpaths shall be of concrete with a minimum 28 day strength of 20 MPa.

The following nominal thicknesses shall apply:

- In conjunction with vertical kerb and channel, 75mm
- In conjunction with mountable kerb and channel, 115mm
- In conjunction with turning circles of cu-de-sacs on all kerb types: 100mm reinforced with HRC 665 mesh
- In industrial and commercial subdivisions on all kerb types: 150 mm reinforced with HRC 665 mesh.

The footpath shall be constructed on subgrade with a minimum strength of CBR 7 and a compacted sub-base of at least 50mm of GAP20 basecourse.

The subgrade preparation for the footpath shall extend at least 100mm beyond the finished edges of the footpath.

### 3.4.8.2 Tolerances and Finishes

The tolerances and standards of finish as shown in Table 3.10 below shall apply to all footpaths.

**Table 3.10 - Footpath Tolerances and Finishes.**

<b>Tolerances</b>	Horizontal straight sections Curved sections	± 5mm over 3m straight edge ± 10mm from true radius line
<b>Finishes</b>	No visual blemishes or changes in surface texture. No cracks in surface. Minor hairline cracking associated with curing will be subject to specific inspection and approval by the Engineer. No visible signs of damage or vandalism. Surface finish shall be Class U5 (Shallow Textured by Bass broom) to NZS 3114 : 1987.	

### 3.4.9 BERMS

#### 3.4.9.1 Topsoiling

After the formation, footpath and kerb and channel works have been completed, the berms shall be spread with a 75mm loose depth (65mm depth after rolling) of topsoil. The topsoil shall be graded to the kerb top and footpath edges.

Finished berm tolerances shall be ±20mm when checked with a 3m straightedge, and no areas shall hold water.

#### 3.4.9.2 Cultivation

Before sowing areas of ground and lots disturbed by earthworks, the whole area shall be broken up and thoroughly cultivated to a depth of 150mm, then harrowed or raked to produce a firm seed bed with a fine tilth of 30mm deep for seeding. All rubbish, perennial weeds and stones greater in any dimension than 20mm arising from this work shall be collected and removed off-site.

Berms shall have the topsoil broken up to an even depth of 30mm and shall have all rubbish removed as for earthworks areas above.

### **3.4.9.3 Grassing**

The Developer shall be responsible for establishing grass on all berms, and on all areas of ground disturbed by, or subjected to earthworks.

If necessary, sprinkler systems may be required to establish a take of grass and/or prevent topsoil being blown away by wind. The cost of sprinkler set-up and of moving sprinklers shall be borne by the Developer.

### **3.4.9.4 Seed Sowing**

Grass seed shall be sown in all cultivated areas and berms at a rate of 350kg/hectare or 35g/m<sup>2</sup>. At the time of sowing fertiliser shall be applied to the topsoil at the rate of 100kg/hectare or 10g/m<sup>2</sup>

### **3.4.9.5 Failure to Establish Grass**

Where, in the opinion of the Engineer, the failure to establish a successful cover of grass is due to the developer's negligence or the condition of the seed, the developer will be required to make good the sown areas to an acceptable standard before the work will be approved.

Grass areas will only be certified as being acceptable when germination is shown to be satisfactory, all weeds have been removed and the grass has been mown at least once.

## **3.4.10 ROAD SURFACING**

### **3.4.10.1 General**

TNZ Specification P/3 - "Specification for First Coat Sealing", TNZ Specification P/4 - "Specification for Resealing" and TNZ Specification M/6 - "Specification for Sealing Chips" shall be deemed to be part of this Specification except that :

All reference to the basis of payment contained within these TNZ Specifications is deleted  
Reference to the Contractors obligations with respect to the foreshortening of the maintenance requirements of the seal coat is deleted.

### **3.4.10.2 Two-Coat Seal**

A two coat seal shall be applied to the prepared basecourse surface.

The first layer shall consist of the supply and spraying of TNZ P/3 180/200 penetration grade bitumen cut back to suit, plus 1 part per hundred [pph] adhesion agent, at a rate of 1.2 litres/m<sup>2</sup> residual [measured at 15°C], and the supply, spreading and rolling of TNZ M/6 Grade 3 chip at a spread rate of 75 m<sup>2</sup>/m<sup>3</sup>

The second layer shall consist of the supply and spraying of TNZ P/3 180/200 penetration grade bitumen cut back to suit, plus 1 pph adhesion agent, at a rate of 0.8 litres/m<sup>2</sup> residual [measured at 15°C] and the supply, spreading and rolling of TNZ M/6 grade 5 chip at a spread rate of 150m<sup>2</sup>/m<sup>3</sup>.

Note that the finished basecourse level is to be flush with the channel for a chipseal surface.

### **3.4.10.3 Asphaltic Concrete Paving**

The first layer shall consist of a waterproofing membrane seal composed of bituminous emulsion spread at a rate of 0.8 litres per m<sup>2</sup>, and the supply and spreading of TNZ M/6 Grade 5 or other chip as approved by the Engineer, at a spread rate of 100m<sup>2</sup>/m<sup>3</sup>

The second layer shall be applied immediately after the completion of the first layer and shall consist of the supply, spreading and compaction of the specified compacted thickness of asphaltic concrete laid in accordance with the relevant clauses contained within TNZ Specification P/9 - "Specification for the Construction of Asphaltic Concrete Paving".

Note that the basecourse surface shall be constructed to such a level that the finished surface of the asphaltic concrete will be 10mm above the adjoining channel level..

### **3.4.10.4 Concrete Block Paving**

Road carriageways may be surfaced with concrete block pavers subject to the specific approval of the Engineer.

All bedding courses for block paving shall be laid in accordance with NZS 3116 : 2002 - "Concrete Segmental Paving".

All paving blocks shall be laid in accordance with NZS 3116 : 2002 - "Concrete Segmental Paving".

The type of paver to be used, the laying pattern and the types of edge restraint to be used are to be shown on the submitted drawings.

### **3.4.11 ROAD SIGNS**

All signs are to be constructed and installed in accordance with the following Standards:

- The latest version of the appropriate Transit NZ Specifications covering sign formats, in particular
- TNZ "Manual for Traffic Signs & Markings Part 1"
- TNZ C/20 - "Standard for Manufacture & Maintenance of Traffic Signs, Posts and Fittings"
- NZS 5414 : 1977 - "Specification for the Construction of Traffic Signs"
- Road Sign Manufacturers Association - "Compliance Standard for Traffic Signs".

WDC specification or individual requirements where required will supersede standards set out in the above documents.

- The size of signs and the font to be used are shown on Standard Drawing R 12.
- The face of the name plate blade is to be coloured High Density green with High Density white lettering. The backs of all signs are to be coloured "Aircraft Grey No 693" as referred to in NZS 7702 : 1989, or similar, with a semi-gloss finish, unless otherwise stated.

- All signs except “Rebound” plastic RG17s are to have an aluminium substrate.
- All Stop [RG5], Give Way [RG6], Keep Left [RG17] and street name plates are to be Class 1 Wide Observation Angle [VIP or similar] reflectorised sheeting.
- All other regulatory, warning and information signs are to be Class 1 High Intensity grade reflectorised sheeting.
- All parking signs are to be non reflective.
- All sign poles shall be fabricated from 50mm nominal bore medium galvanised tube and shall be powder coated white. Tops shall be capped with white powder coated end caps. Sign poles shall be set in a socket footing surrounded by a concrete mowing strip at least 100mm wide around the pole base.

### **3.4.12 TRENCH REINSTATEMENT**

#### **3.4.12.1 INTRODUCTION**

Roads and streets in the Whakatane District are vested in the Whakatane District Council.

Before any trench or excavation is opened up on any road or street including the berm, in the Whakatane District, advice must be given to the Council as to the arrangements which have been made to maintain the trench or excavation in a safe condition, to backfill the trench or excavation and reinstate the surface.

Specific criteria will apply to proposed work in the Central Business District and urban shopping centres.

The carrying out of all work and the reinstatement of roadways and berms shall be carried out strictly in accordance with the requirements of SNZ HB 2002:2003 – “Code of Practice for Working in the Road”, except where that code is modified by this specification.

Principal Providers, including Government departments, ad hoc utility corporations, Council departments and statutory corporations, or other organisations with statutory authority to place or maintain services in roads or streets will be required to submit a road opening notice to the Whakatane District Council.

***The acceptance of a road opening notice by the Whakatane District Council does not confer any approval to work on Council utility assets.***

#### **3.4.12.2 ROAD OPENING NOTICE**

A “Road Opening Notice” in the form of Appendix 3.1 is required to be lodged at the office of the Whakatane District Council for each separate job or section of a continuing job which involves excavation or the lifting of the road pavement or footpath surfacing or berm, on a road or street in the Whakatane District.

A minimum of seven (7) days notice is to be given for planned excavations. Where emergency maintenance work is necessary, the notice is to be lodged by fax as soon as practicable but no later than the next working day.

If the road or street involved is a State Highway, the notice will require that Transit New Zealand has been notified and any conditions imposed by that body have been received.

#### **3.4.12.3 WORKS COMPLETION NOTICE**

A “Works Completion Notice” in the form of Appendix 3.2 is required to be lodged at the office of the Whakatane District Council within one week of the completion of every job for which a Road Opening Notice has been lodged.

#### **3.4.12.4 SURFACE REINSTATEMENT**

No permanent surface reinstatement shall be carried out until the Engineer is satisfied that the backfilling procedures have been satisfactorily completed.

Reinstatement works are to be carried out in accordance with the requirements of Clause 4.7.2 of the Code and Standard Drawing R 31.

The surfaces detailed below shall be reinstated in accordance with the following requirements:

(a) **Asphaltic Concrete, or Slurry Sealed Surfaces**

- Shall be reinstated using asphaltic concrete on a waterproofing primer coat of emulsified bitumen
- Thin asphaltic surfacings shall be 35 mm of mix 15 AC
- Structural asphaltic surfacings shall be a minimum of 50 mm of mix 20 AC.

(b) **Chip Sealed Surfaces**

(i) **Transverse Trenches**

25mm of Mix 10 asphaltic concrete

(ii) **Longitudinal and Isolated Repairs outside Traffic Lanes**

Two coat grade 3/5 bitumen seal coat.

**Note** - In roads identified for resealing, method (ii) above will apply.

(b) **Concrete Footpaths**

Where existing concrete footpaths are damaged or have sections removed during trenching works, they shall be reinstated in accordance with the following requirements:

- The minimum dimension of any reinstated portion of the footpath shall be not less than 1.0m.
- The footpath shall be reinstated across its full width
- Both sides of the section removed shall be saw cut the full depth of the existing concrete
- Where the section removed is less than 1.0m from a construction or shrinkage control joint, the reinstatement shall be made to the line of the joint

### 3.4.12.5 RESPONSE TIMES

Resurfacing must be completed within the following time periods:

- (a) **Arterial Roads** 2 days
- (b) **Collector Roads** 4 days
- (c) **Local Roads** 7 days

Where work is continuous, a sacrificial emulsion sealing coat shall be used to meet the response times with permanent sealing at the completion of the works.

**Note:** The contractor shall be responsible for the maintenance of the road surface for the duration of the project.



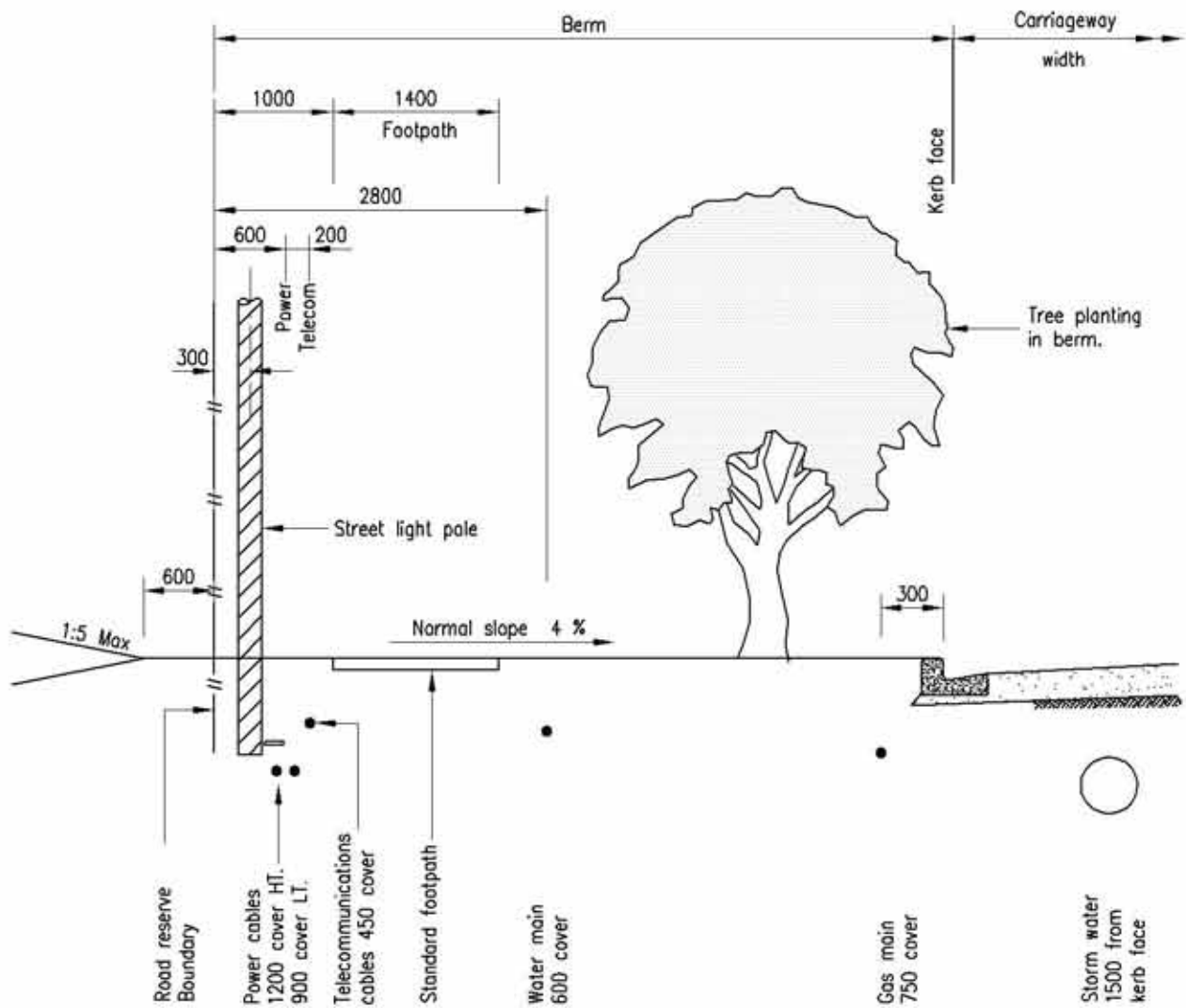
## CHAPTER 3

### ROADING

#### STANDARD DRAWINGS

R 02	.....	Standard Berm
R 04	.....	Cul-de-Sac Heads Design Examples
R 05	.....	Traffic Sight Lines at Intersections
R 06	.....	Typical Intersection Layout
R 07	.....	Pram Crossing
R 08	.....	Vehicle Crossing Residential
R 09	.....	Vehicle Crossing Industrial/Commercial
R 11	.....	Kerb and Channel Profiles
R 12	.....	Street Signs
R 13	.....	Standard Urban Accessways – Construction Details
R 14	.....	Fencing for Pedestrian Accessways
R 19	.....	Traffic Calming Devices Mild Restraints
R 20	.....	Traffic Calming Devices Moderate Restraints
R 21	.....	Traffic Calming Devices Strong Restraints
R 22	.....	Traffic Calming Devices Tee Intersections
R 25	.....	Sight Distances for Vehicle Entrances
R 26	.....	Standard Rural Accessway
R 28	.....	Rural Vehicle Entrance (1 to 4 lots)
R 29	.....	Rural Vehicle Entrance (5 or more lots)
R 30	.....	Rural Vehicle Entrance Heavy Commercial/Tanker
R 31	.....	Trench Reinstatement
R 32	.....	Stormwater Connection to Kerb and Channel





WHAKATANE  
DISTRICT  
COUNCIL



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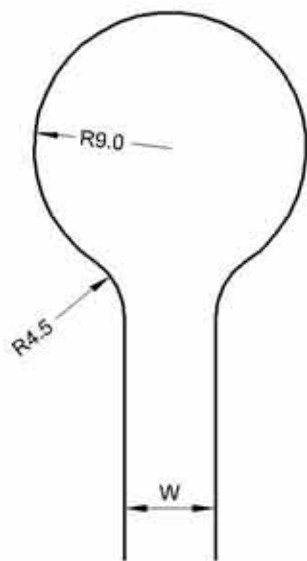
## STANDARD DRAWING

NOT TO SCALE

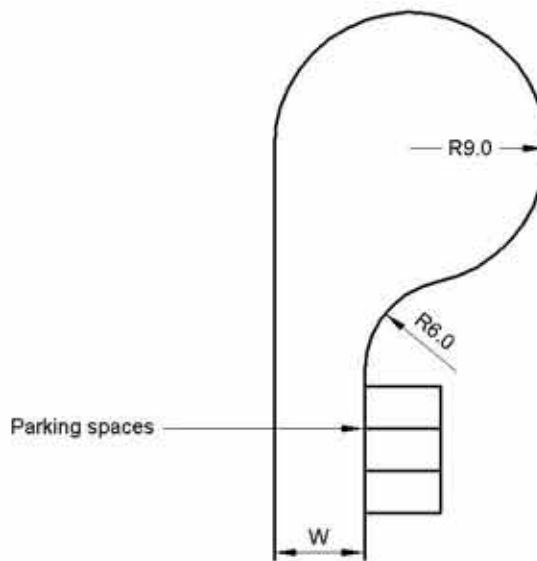
## STANDARD BERM

# R 02

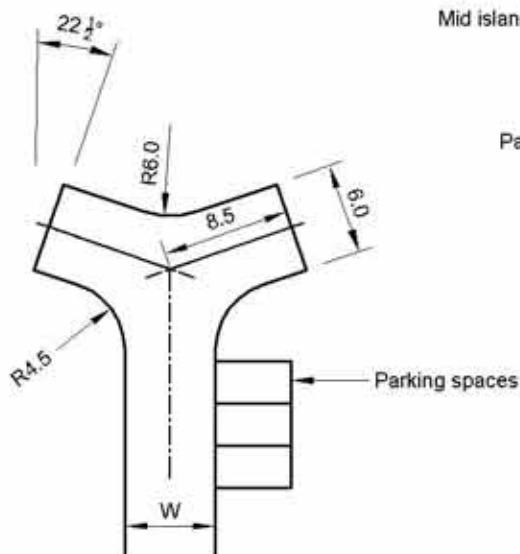
ISSUE 7.0  
SEPTEMBER 2007



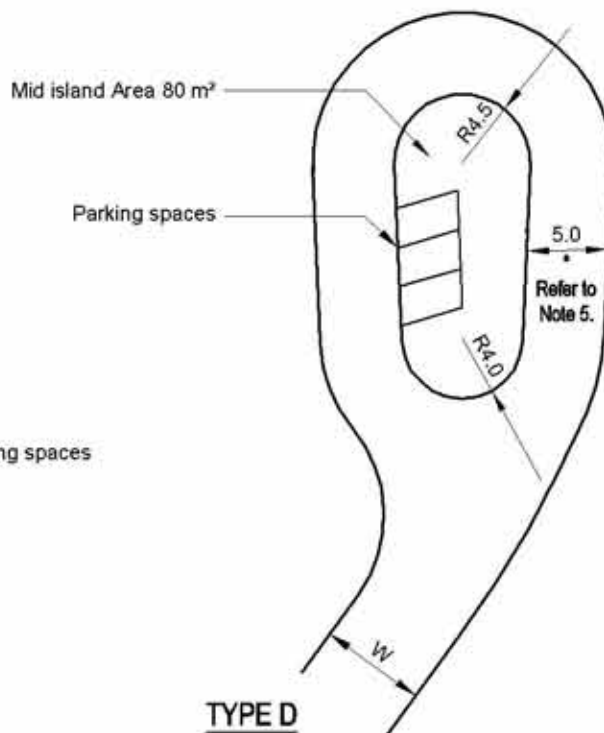
**TYPE A**



**TYPE B**



**TYPE C**



**TYPE D**

**NOTES:**

1. If 15 lots or less are serviced from the Cul de Sac and the Cul de Sac is less than 150m long the turning head radius shall be a minimum of 9.0m and the width 'W' shall be 6.0m.
2. If more than 15 lots are serviced from the Cul de Sac or the Cul de Sac is more than 150m long, the turning head radius shall be a minimum of 12.0m and the width 'W' shall be 7.0m or more.
3. A 'type C' Cul de Sac head may only be used where the Cul de Sac serves 15 lots or less and where the Cul de Sac is less than 150m long.
4. The width 'W' for a 'type D' Cul de Sac shall be a minimum of 7.0m.
5. The width of the traffic lane around the Cul de Sac head 'type D' may be reduced to 4.0m in isolated short lengths clear of the proposed driveways but must be wide enough to ensure that a 90 percentile 12.5m single unit truck can still negotiate the turning head without riding onto the kerbs.

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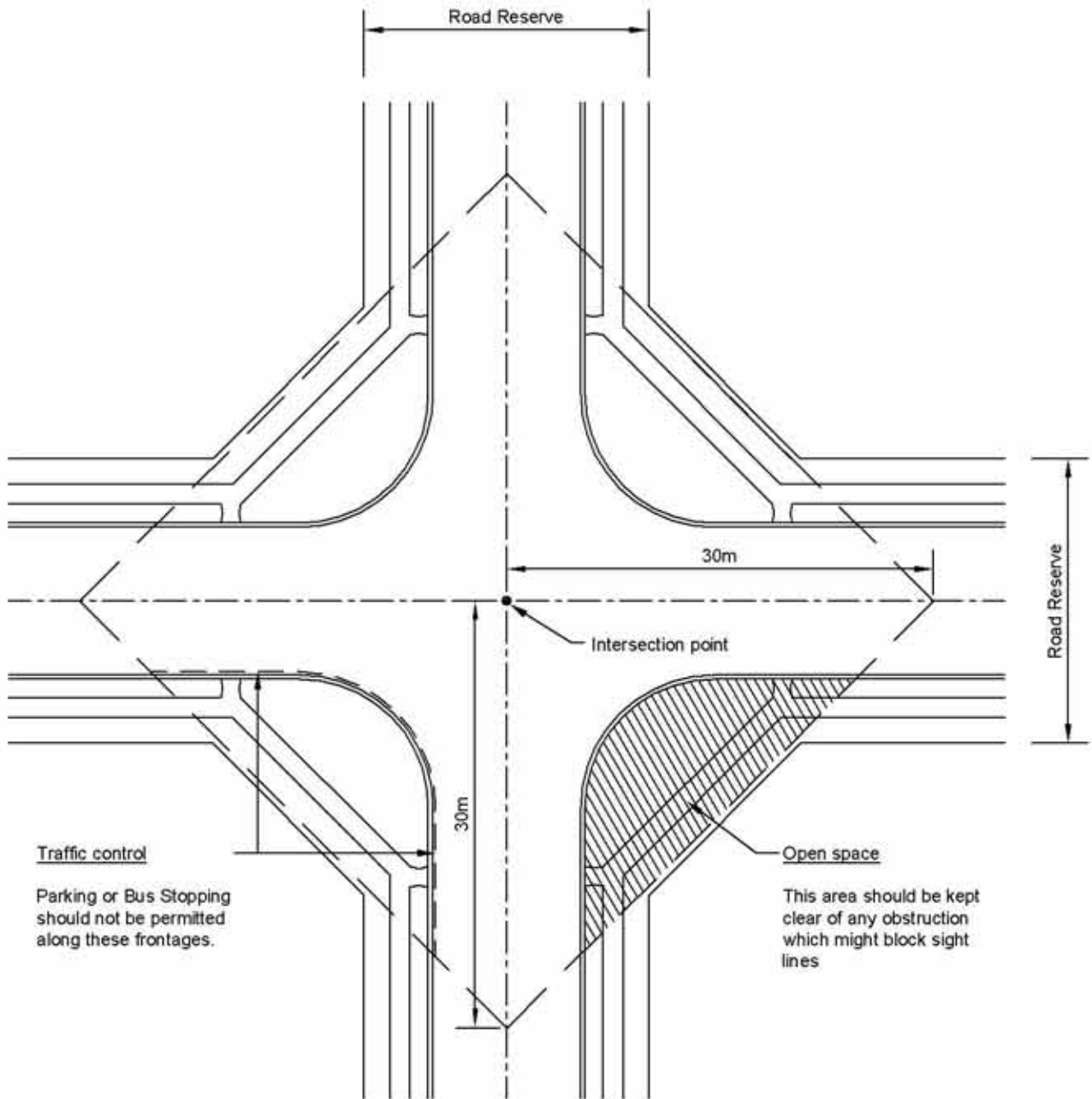
**STANDARD DRAWING**

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**CUL DE SAC HEADS  
DESIGN EXAMPLES**

**R 04**

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Note:

All standards of design illustrated hereon are jointly applicable to all corners of the intersection.

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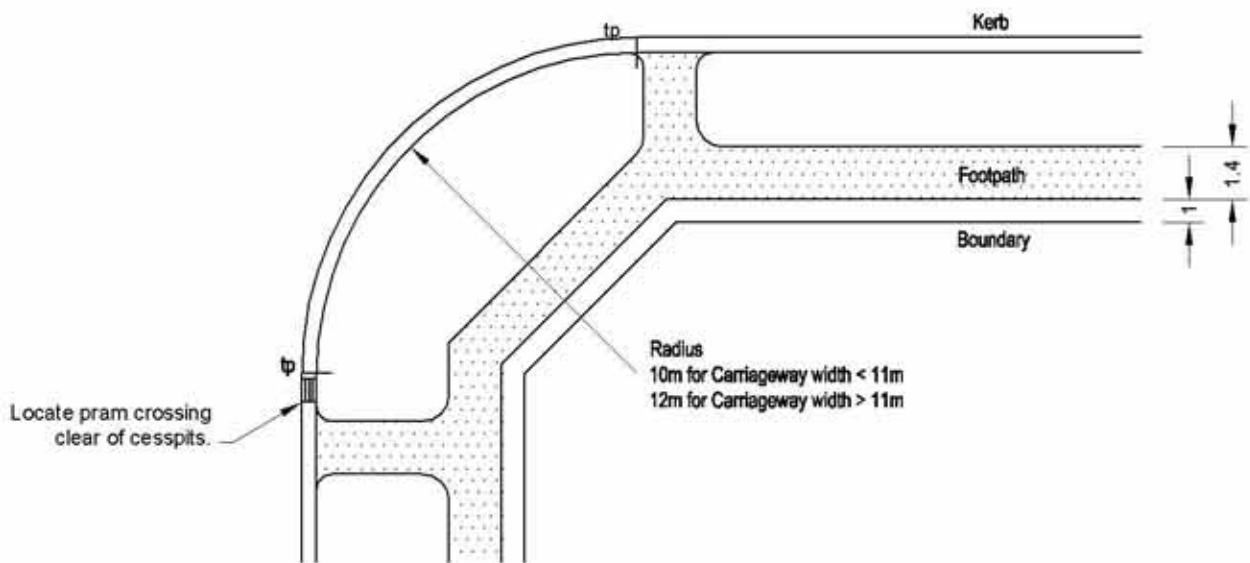
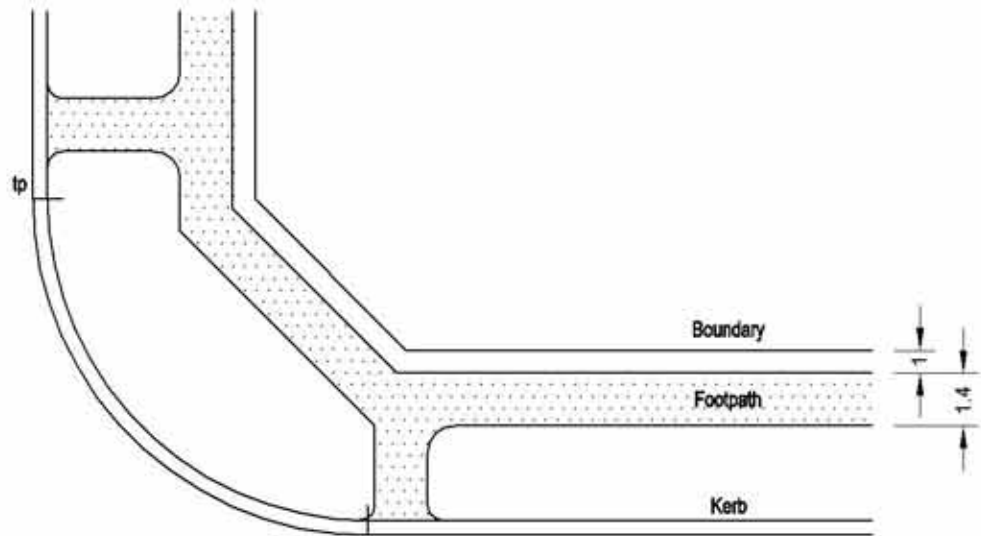
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TRAFFIC SIGHT LINES  
AT INTERSECTIONS

R 05

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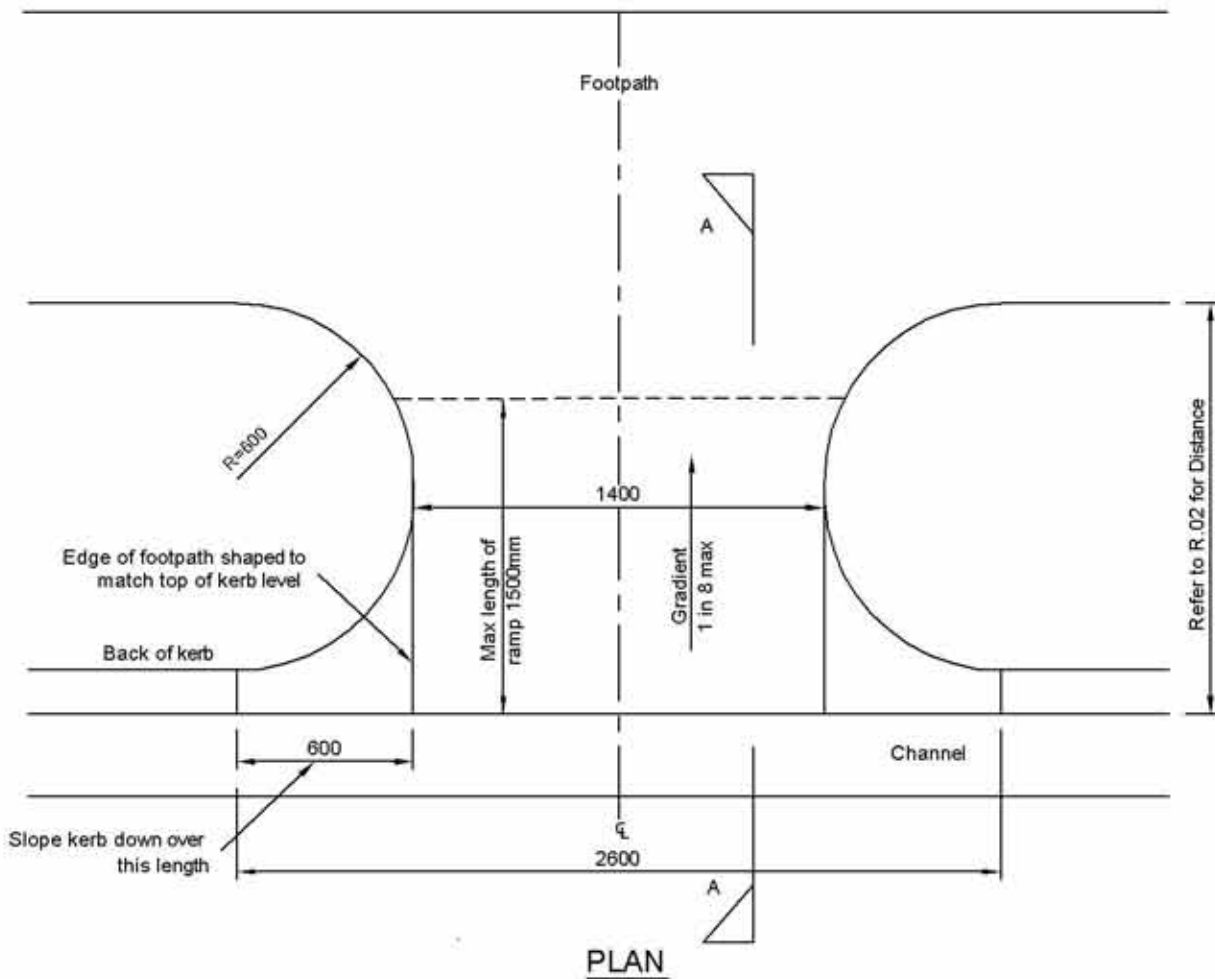
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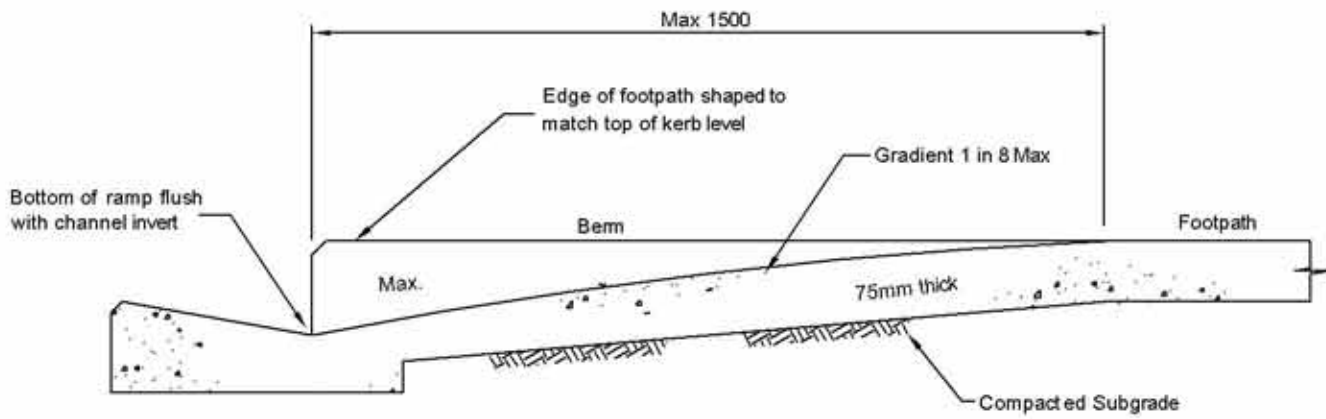
TYPICAL INTERSECTION LAYOUT

R 06

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SEPTEMBER 2007




PLAN



SECTION AT A-A

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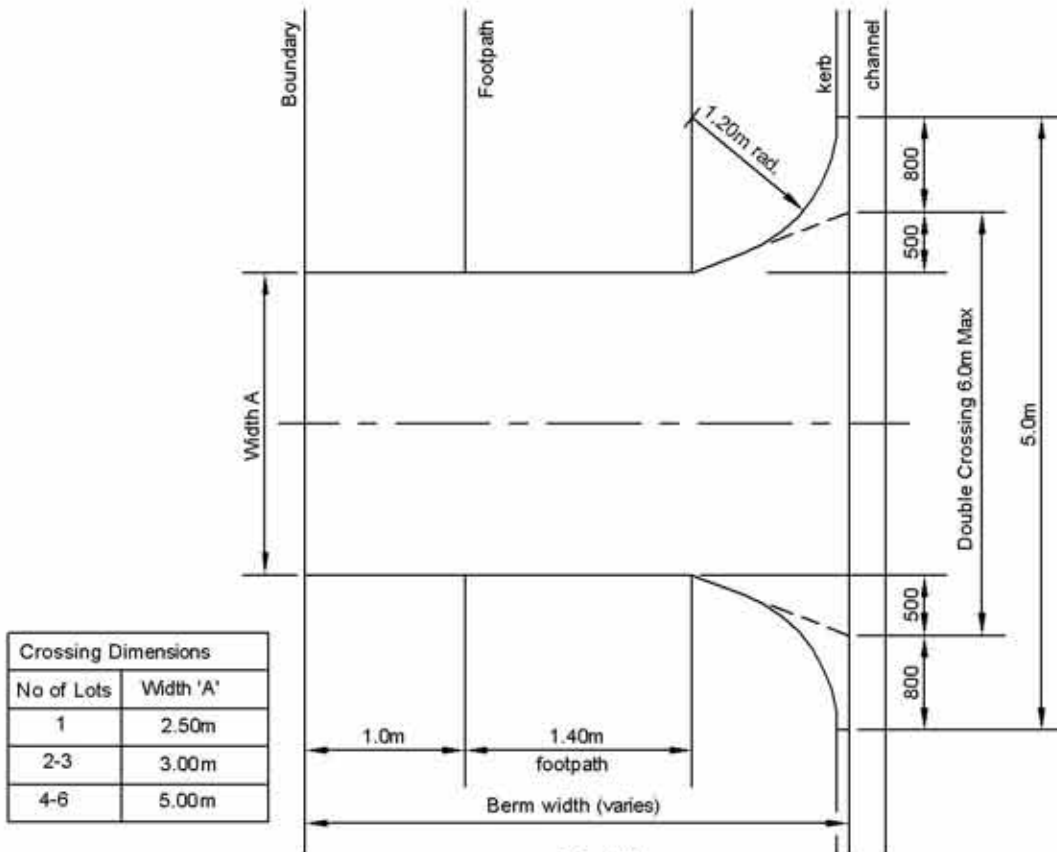
PREPARED BY 

STANDARD DRAWING

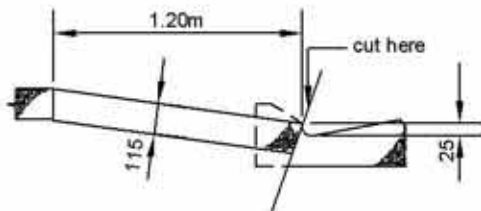
NOT TO SCALE

PRAM CROSSING

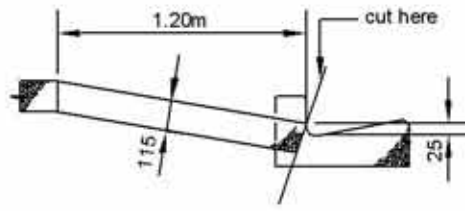
R 07  
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PLAN



MOUNTABLE KERB AND CHANNEL



VERTICAL KERB AND CHANNEL

NOTES

1. The concrete shall be 115 mm thick.
2. All concrete shall have a minimum crushing strength of 20 MPa at 28 days and shall comply with NZS 3124:1987
3. If there is no existing footpath the Council will provide level pegs to ensure that the work ties in with future footpath development.
4. The work shall be carried out in such a manner as to ensure the safety of road and footpath users.
5. Vehicle crossing to be located a minimum of 0.5m clear of cesspits, power poles or other similar obstructions.
6. A vehicle crossing serving 2 lots shall be reinforced with HRC 665 mesh placed centrally.
7. Crossings serving more than 2 lots shall be 150mm thick and reinforced with HRC 665 mesh placed centrally.
8. The footpath is to be replaced unless specifically exempted by the Engineer and the crossing shall run continuously between the kerb and the property boundary.
9. Where there is an existing kerb and channel in satisfactory condition the kerb shall be removed by saw cutting at the back edge of the channel as shown above.

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STANDARD DRAWING

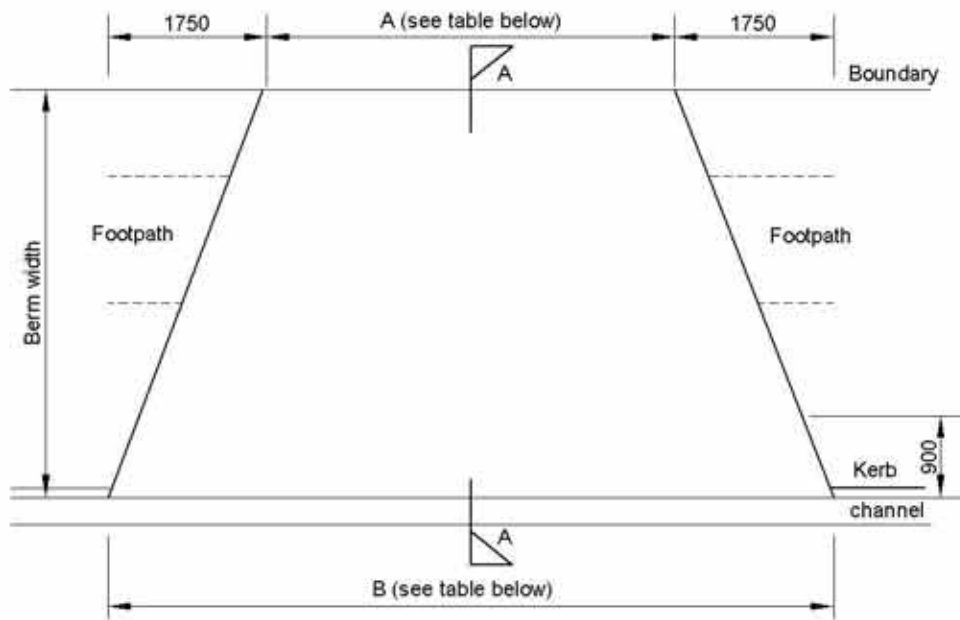
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VEHICLE CROSSING RESIDENTIAL

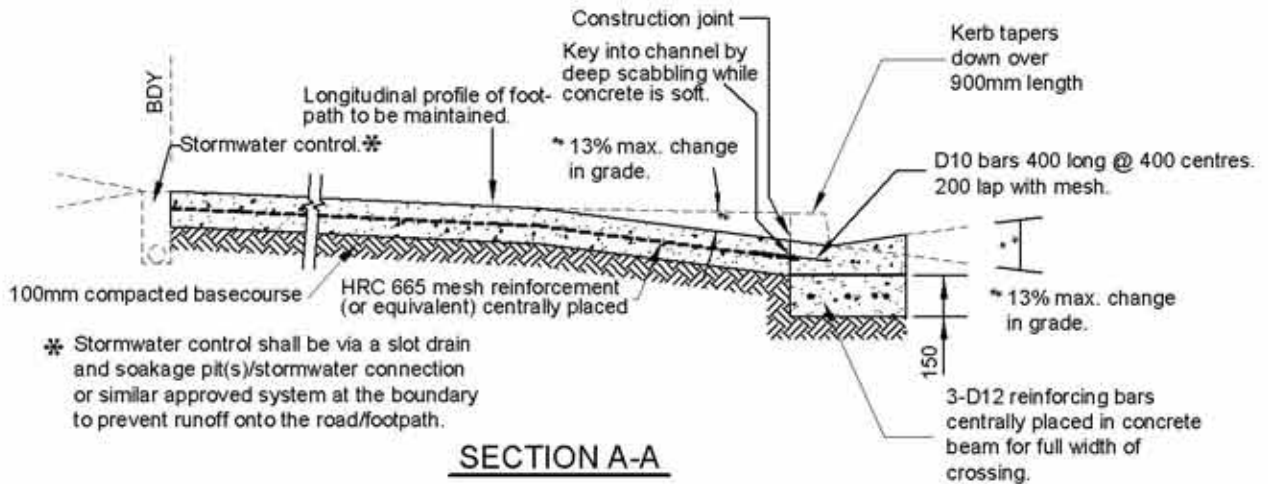
R 08

ISSUE 7.0 SEPTEMBER 2007





**PLAN**



**SECTION A-A**

**NOTES:**

1. The concrete shall be 150mm thick and reinforced with 1 layer of HRC 665 mesh placed centrally.
2. The concrete shall have a minimum crushing strength of 20 MPa at 28 days and shall comply with NZS 3124:1987.
3. The crossing shall run continuously between the kerb and the property boundary. All existing footpath, kerb and channel are to be replaced.
4. If there is no existing footpath the Council will provide level pegs to ensure that the work ties in with future footpath development.
5. The work shall be carried out in such a manner as to ensure the safety of road and footpath users.
6. Locate crossing a minimum of 0.5m clear of cesspits, power poles or other similar obstructions.

	HEAVY INDUSTRIAL (Double lane)	HEAVY INDUSTRIAL (single lane only)	LIGHT INDUSTRIAL (single lane)	LIGHT INDUSTRIAL (double lane)
A	7000	4500	3500	6000
B	10 500	8000	7000	9500

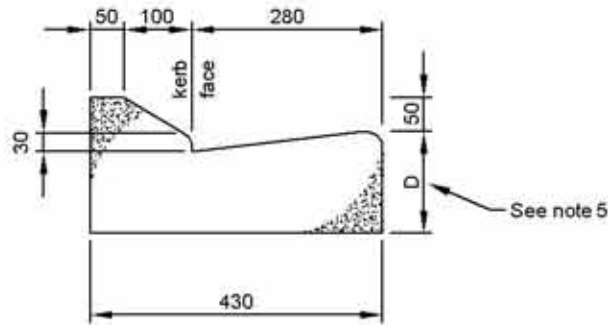


**STANDARD DRAWING**

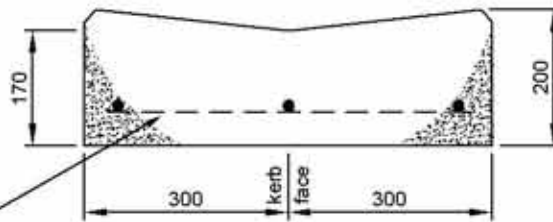
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**VEHICLE CROSSING  
INDUSTRIAL/ COMMERCIAL**

**R 09**  
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SEPTEMBER 2007

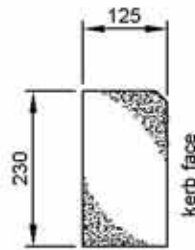


**MOUNTABLE KERB AND CHANNEL**



**DISHED CHANNEL**

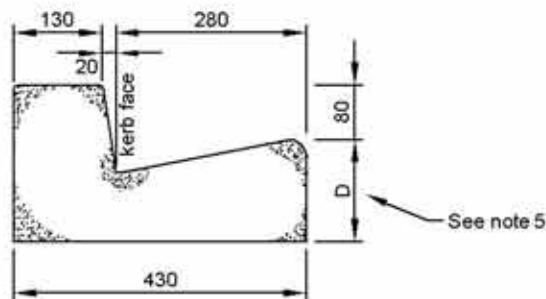
Reinforce with one layer of HRC 665 mesh with 50mm cover from the bottom or 3 x D16 reinforcing bars.



**NIB KERB**

**Note:**

1. All chamfers shall be 25mm.
2. 'No slump' concrete shall have a minimum cement content of 240kg/m<sup>3</sup>.
3. All dimensions are in millimetres.
4. Mountable kerb shall only be permitted where the Engineer is satisfied that berms will not be at risk as a result of indiscriminate access or continuous parking.
5. Depth 'D' as shown on kerb and channel detail is defined as follows:  
Residential - 150mm  
Industrial / Commercial - 230mm
6. Subgrade beneath kerbs and channels shall have a CBR of no less than 7.



**VERTICAL KERB AND CHANNEL**

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**STANDARD DRAWING**

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**KERB AND CHANNEL PROFILES**

**R 11**

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Post cap for steel caps

Approved fixing for blade to post

Refer to table for size.  
White letters on green background.

Street Name

No Exit

NOTE:  
Street names may be erected on existing poles where approved.

NOTES:-

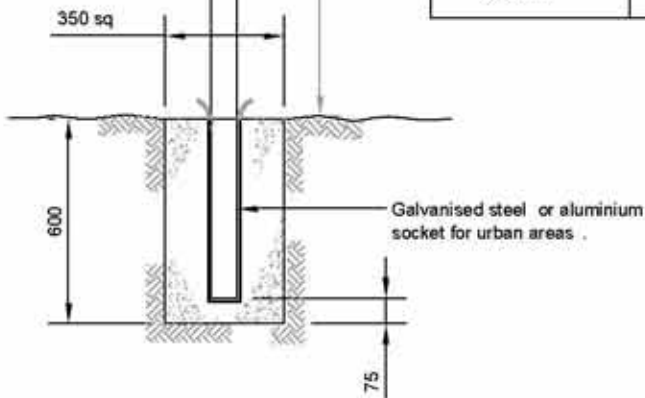
1. Posts and supports to consist of-
  - a) Rural area: 100mm x 100mm timber, clean building grade or No. 1 framing grade, treated H4, primed and finished with high gloss white paint above ground level.
  - b) Urban area - 50mm ID galvanised mild steel or aluminium pipe, powder coated white located using galvanised or aluminium sockets in concrete footings with mowing strips.
2. Signage to be in accordance with Transit New Zealand "Manual of Traffic Signs and Markings-Part 1: Traffic Signs". To have WHITE retroflective symbols and lettering on GREEN background. Signs to be shaped to a point to indicate direction.
3. Lettering to be upper and lower case to the weight detailed in table 4 below.

3000 clearance to underside of lowest sign.

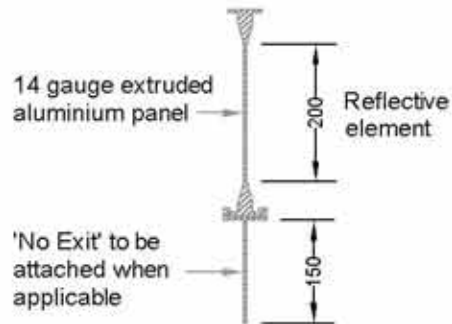
See note 1.

4. SIGN BLADE DETAILS

Primary Blade Size	Supplementary Blade Size	Letter Height	Supplementary Letter Height
200mm	150mm	150mm Series D	100mm Series D



POST DETAIL



TYPICAL BLADE SECTION

WHAKATANE DISTRICT COUNCIL



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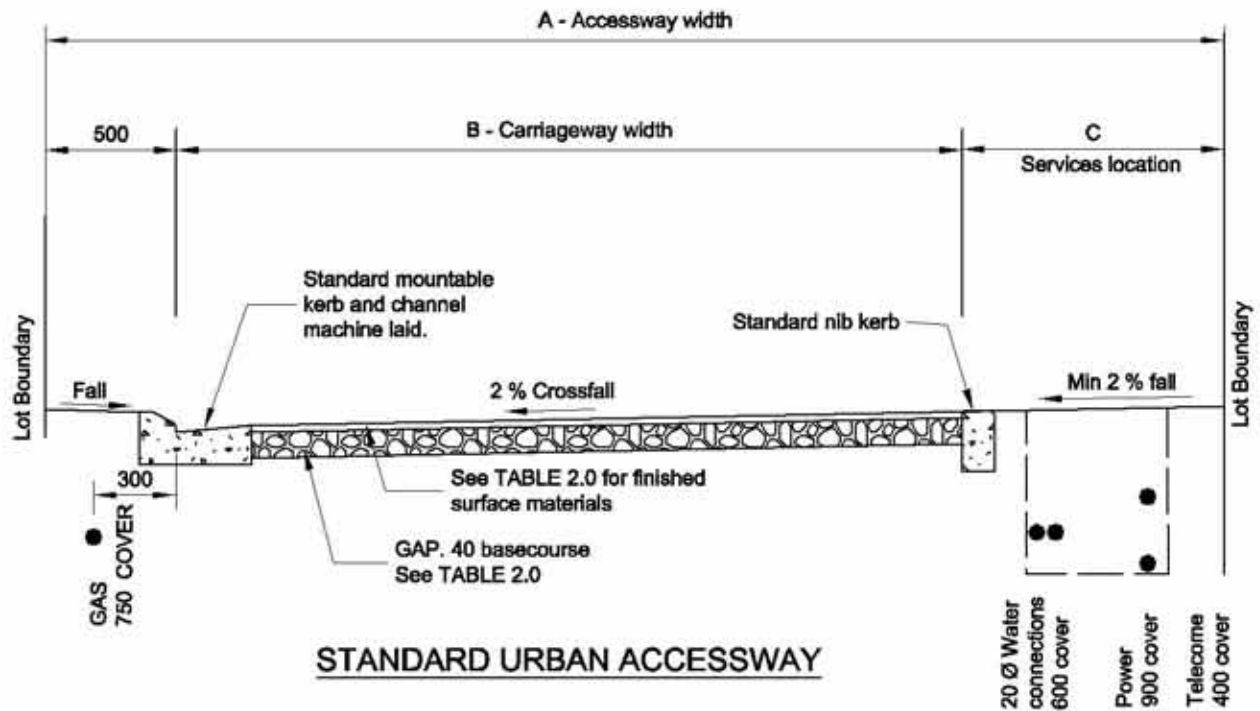
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STREET SIGNS

R 12

ISSUE 7.0  
SEPTEMBER 2007



### STANDARD URBAN ACCESSWAY

NO. OF LOTS	DIMENSIONS		
	A	B	C
1	3.00	2.00	0.5
2-3	4.00	3.00	0.5
4-6	6.0	5.00	0.5

OPTION A	60mm COBBLESTONES 20mm SAND 100mm BASECOURSE
OPTION B	25mm ASPHALTIC CONCRETE 125mm (MIN) BASECOURSE
OPTION C	100 mm CONCRETE WITH 665 MESH REINFORCING

#### NOTES

1. Maximum Length of Accessway is 60 metres.
2. All concrete should be 20 MPa
3. Maximum number of allotments served shall be 6
4. Where concrete is used nib kerb can be deleted.
5. Chip sealing is not permitted

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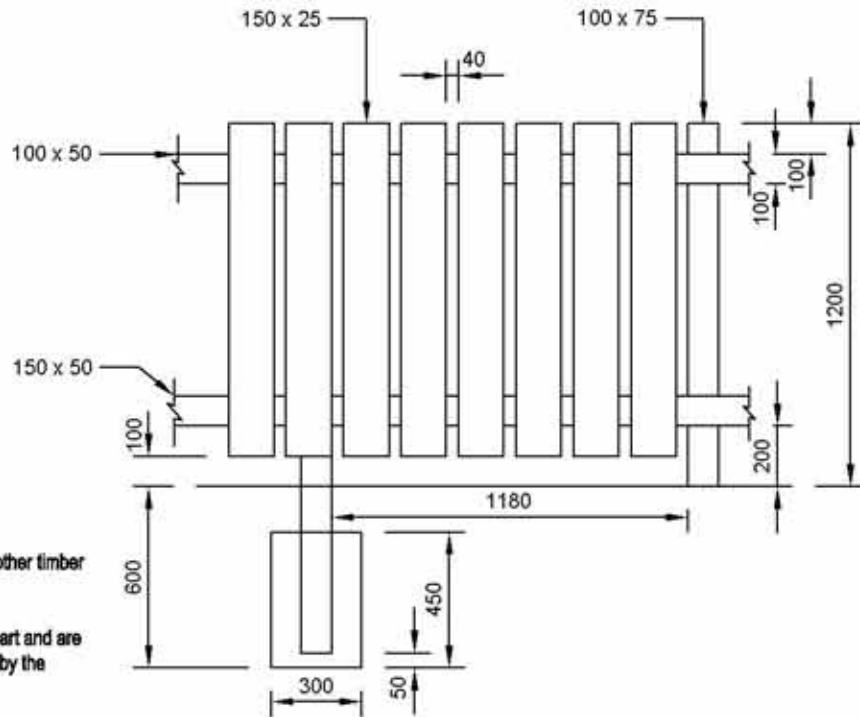
STANDARD DRAWING

NOT TO SCALE

STANDARD URBAN ACCESSWAY  
CONSTRUCTION DETAILS

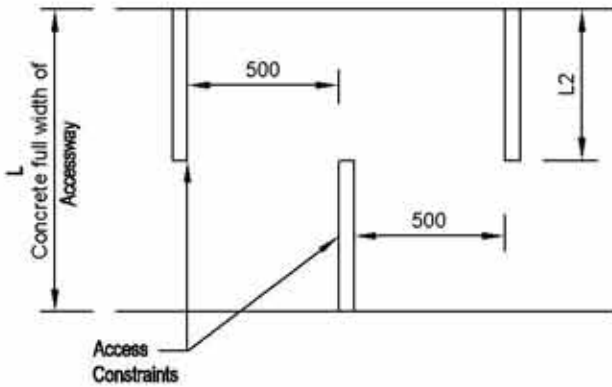
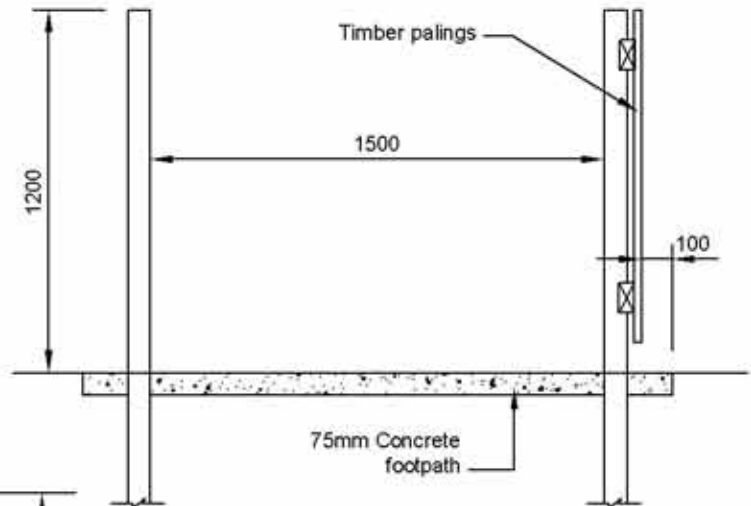
R 13

ISSUE 7.0  
SEPTEMBER 2007



**NOTES**

1. Timber to be ground treated H4. All other timber H3 to be treated.
2. Posts not to be greater than 1.8m apart and are to be set in concrete or as approved by the manager of parks.
3. All joins are to be by way of galvanised bolts or nails and are firmly secured.
4. All construction to be in accordance with recognised tradesman practice.
5. All timber unstained and unpainted.



**NOTES:**

1. Fence shown represents minimum standard required. Alternatives may be agreed with the manager of parks.
2. Access constraints: U shaped 50mm Ø Galvanised pipe 900mm high above the ground.

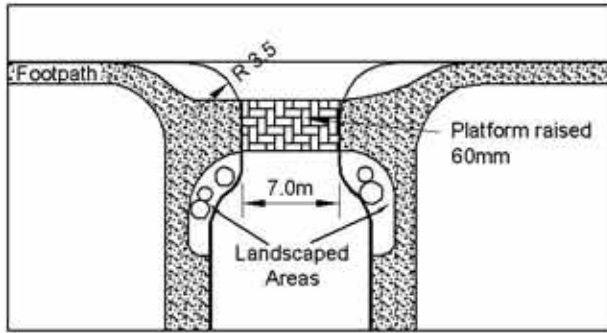


**STANDARD DRAWING**

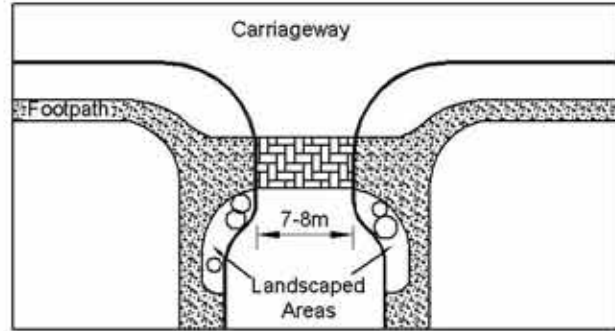
**NOT TO SCALE**

**FENCING PEDESTRIAN ACCESSWAYS**

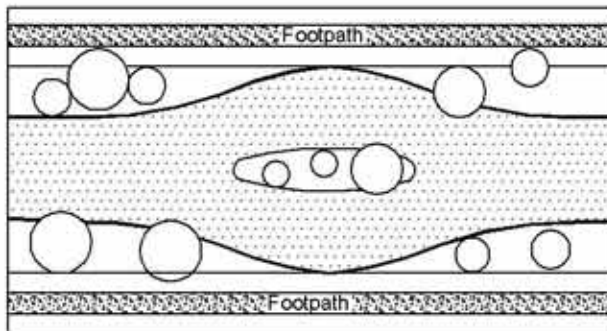
**R 14**  
ISSUE 7.0  
SEPTEMBER 2007



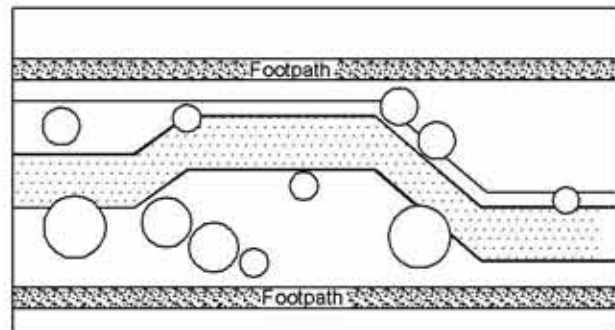
1.1 THRESHOLD TYPE B



1.2 THRESHOLD TYPE C



1.3 TRAFFIC ISLANDS IN THE STREET



1.4 CHANGE OF ALIGNMENT

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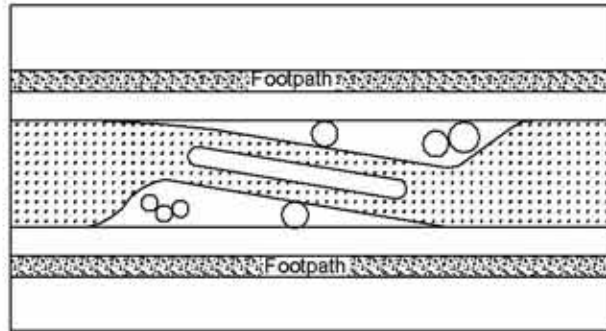
STANDARD DRAWING

NOT TO SCALE

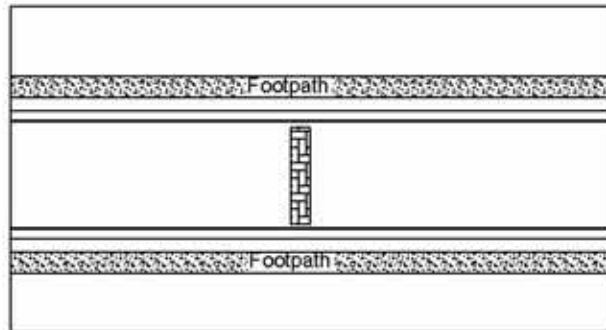
TRAFFIC CALMING DEVICES  
MILD RESTRAINTS

R 19

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2.1 TWO LANE ANGLED SLOW POINT



2.2 TWO LANE HUMP

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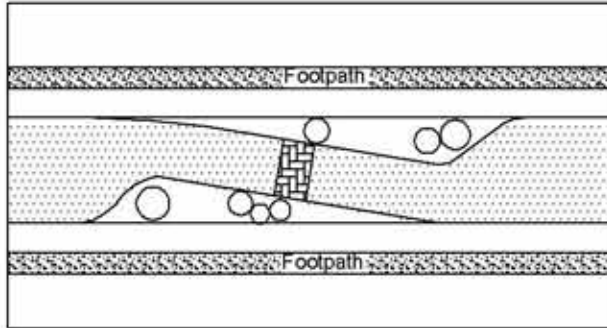
STANDARD DRAWING

NOT TO SCALE

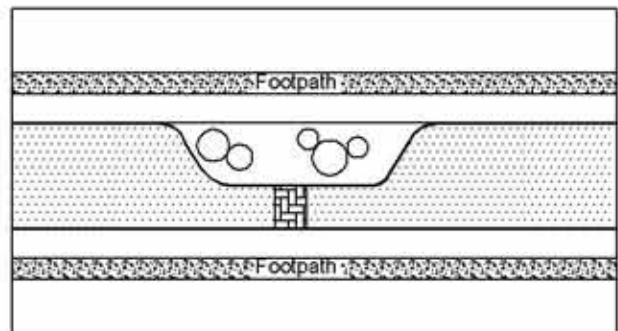
TRAFFIC CALMING DEVICES  
MODERATE RESTRAINTS

R 20

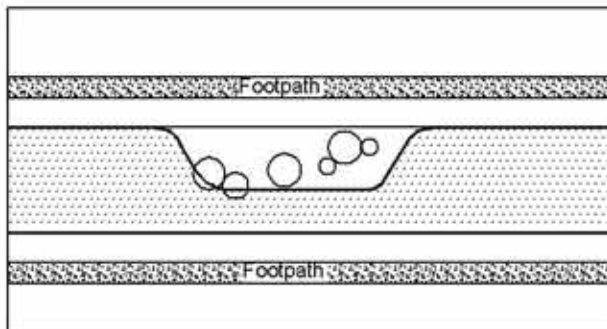
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SEPTEMBER 2007



3.3 COMBINED SLOW POINT WITH SPEED HUMP



3.2 SINGLE LANE SPEED HUMP



3.1 SINGLE LANE SLOW POINT

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STANDARD DRAWING

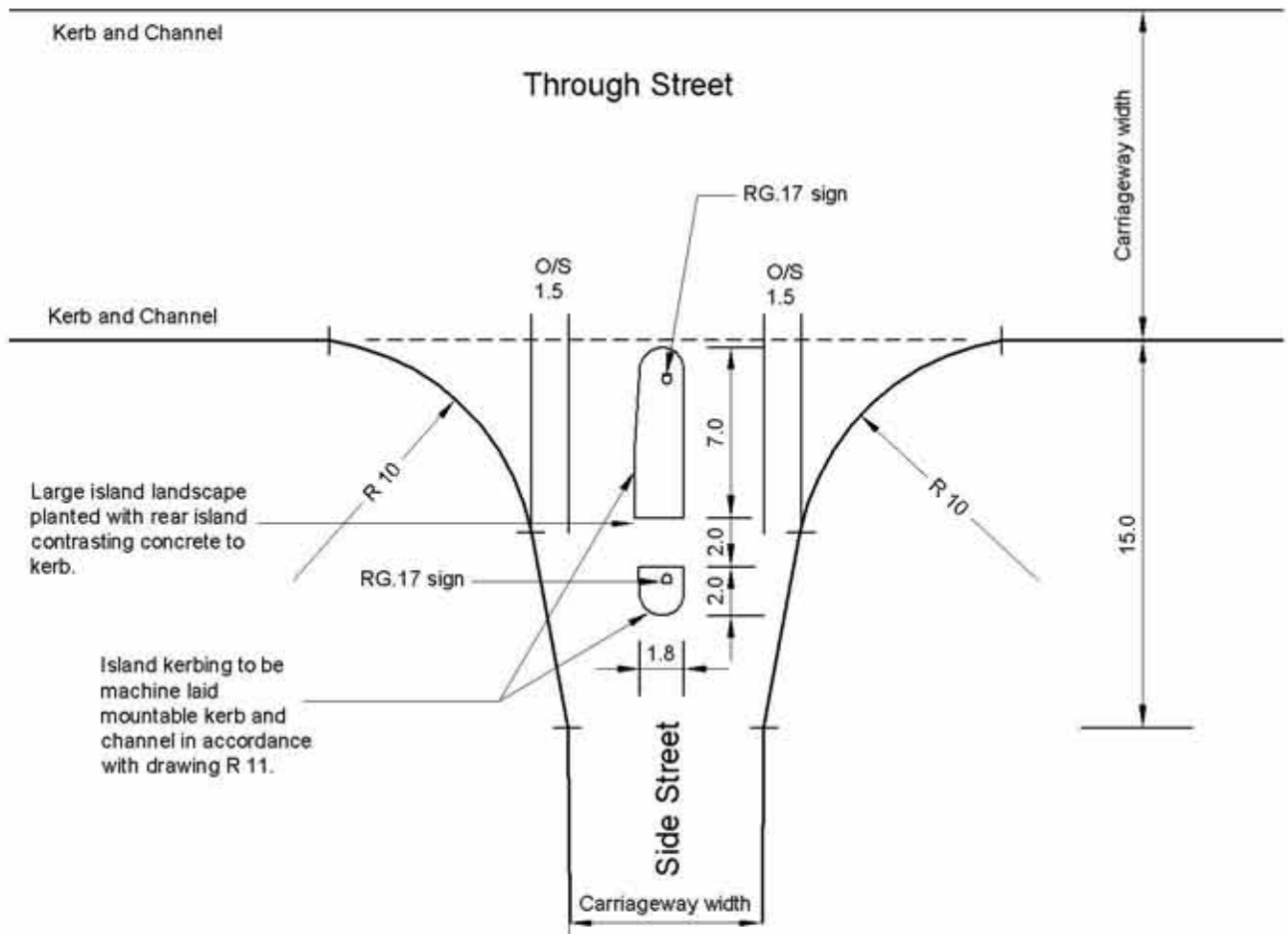
NOT TO SCALE

TRAFFIC CALMING DEVICES  
STRONG RESTRAINTS

R 21

ISSUE 7.0  
SEPTEMBER 2007





NOTES:

1. Where the through street is wider than 8.0m both tangents at the corner radius shall be flared 1.5 metres.
2. Suitable for 90 percentile single axle trucks.

INTERSECTION LAYOUT

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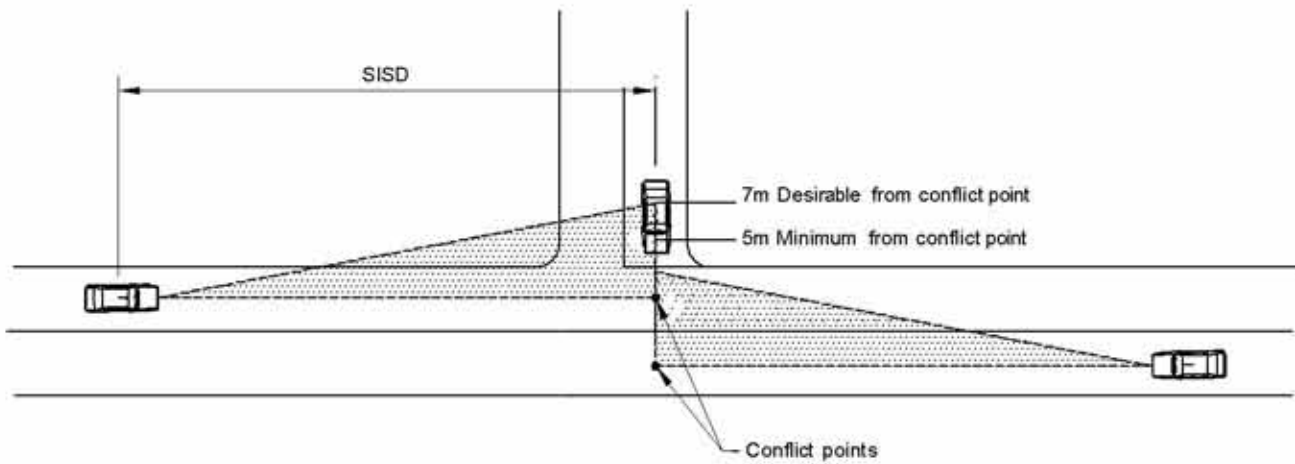
STANDARD DRAWING

NOT TO SCALE

TRAFFIC CALMING DEVICES  
TYPICAL TEE INTERSECTIONS

R 22

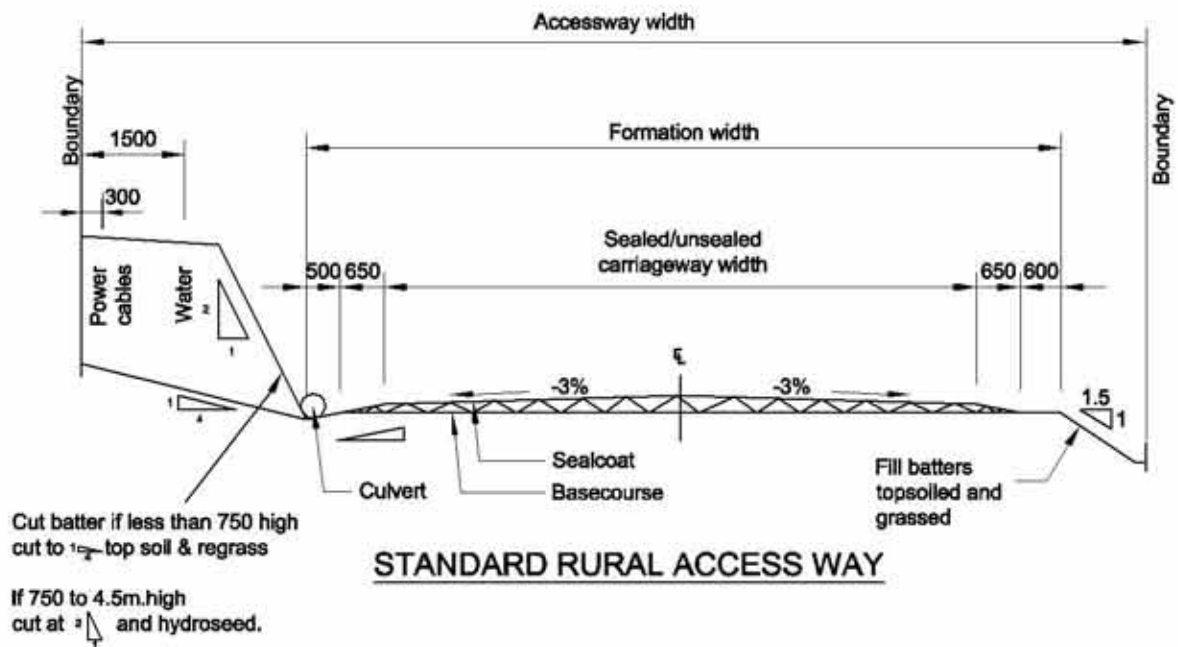
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SEPTEMBER 2007



Safe Intersection Stopping Distance (SISD)	Vehicle Operating Speed (km/h)							
	40	50	60	70	80	90	100	110
Desirable minimum (m)	39	54	71	91	114	140	170	205
Absolute minimum (m)	33	47	63	82	103	128	157	190

**NOTE:**

The table above is a guide only based on Austroads Geometric Design Guidelines for urban roads and rural roads. For further details regarding sight distance criteria and design both of these guides should be consulted.



### STANDARD RURAL ACCESS WAY

Geometric design shall be in accordance with "Austroads: A Guide to Geometric Design of Rural Roads"

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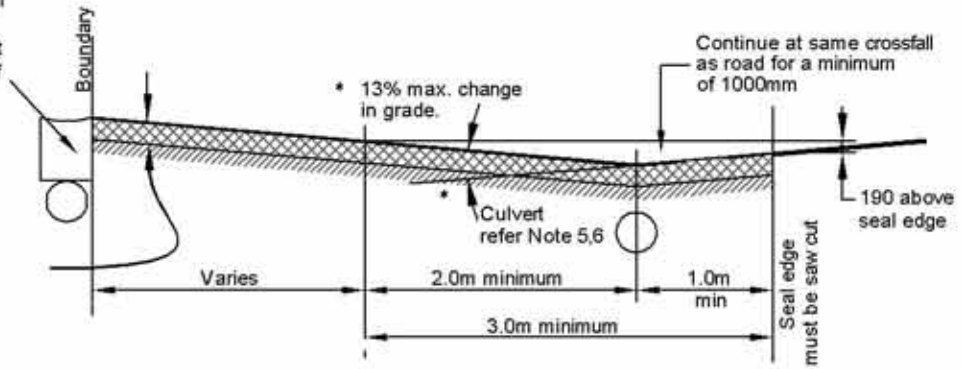
STANDARD RURAL ACCESSWAY

R 26

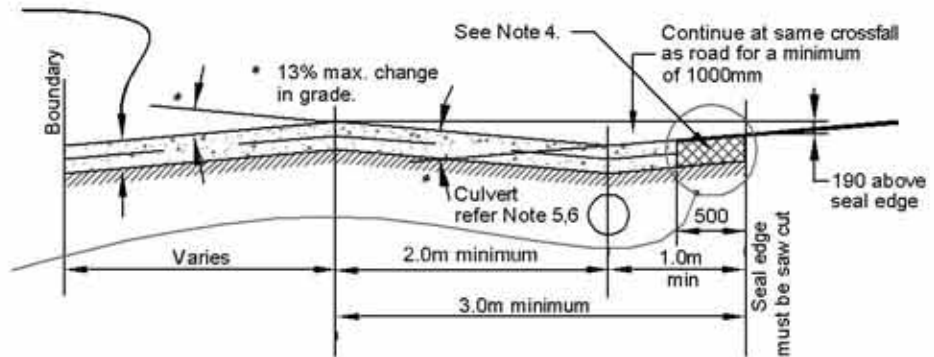
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SEPTEMBER 2007

Notes:

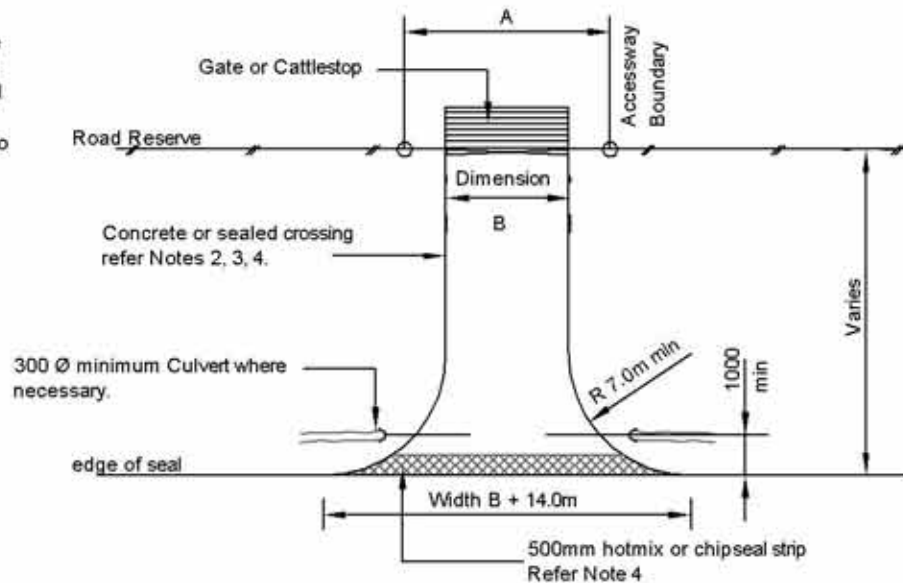
- Stormwater control via slot drain and soakage pits, (or similar approved stormwater control) at the boundary, to prevent run-off on to the road
- If the adjoining road is unsealed and the access serves only 1 lot an all weather metal formation of 125mm compacted basecourse will be acceptable.
- Where the adjoining road is sealed and/or the access serves more than 1 lot the entrance shall be constructed using a 2 coat seal or 20mm hotmix over a 125mm thick basecourse or 125mm thick 20MPa reinforced concrete (665 HRC centrally located) on a prepared consolidated subgrade. Dimensional details are the same for both sealed or concrete crossing. The area to be sealed shall also cover the anticipated or existing swept vehicle area.
- 500 min wide hotmix or chipseal strip to edge of concrete crossing on prepared consolidated 125mm thick basecourse.
- Culverts and headwalls to be designed and installed to the approval of the Engineer. All culverts shall be 300mm minimum diameter installed to the manufacturers recommendations.
- Water table to each side of culvert shall be aligned to prevent erosion
- Entrance to be located a minimum of 0.5m clear of cesspits, hydrants, power poles or other similar services.
- Sight distances to comply with Standard Drawing R25.
- Maximum gradient shall be 1 in 12 for first 6 metres after road edge line.
- All work shall be carried out in such a manner as to ensure the safety of all road users.



WHERE THE PROPERTY IS HIGHER THAN THE ROAD



WHERE THE PROPERTY IS LEVEL WITH  
OR LOWER THAN THE ROAD



NUMBER OF POTENTIAL LOTS	DIMENSION B (m)	DIMENSION A (m)
1	3.50	5.0 if lot size < 1ha 8.0 if lot size > 1ha
2-4	5.00	9.0

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STANDARD DRAWING

NOT TO SCALE

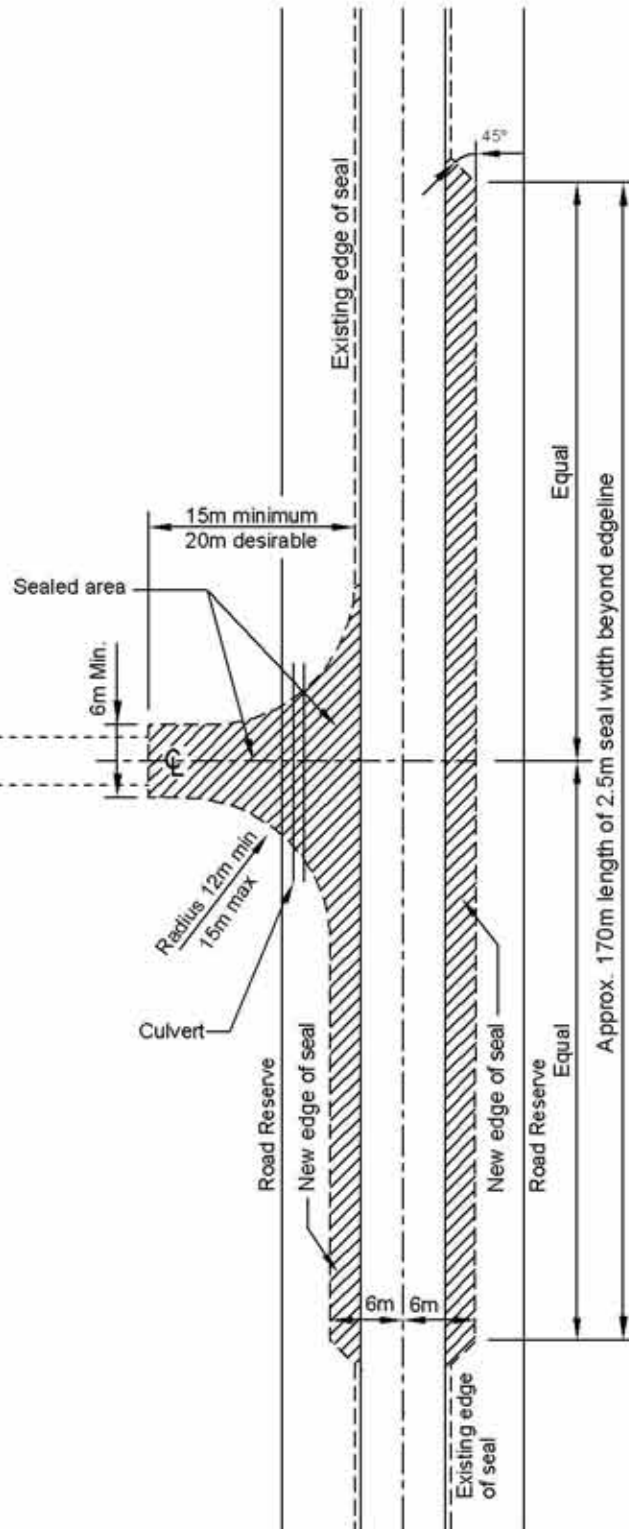
RURAL VEHICLE ENTRANCE  
1 TO 4 LOTS

R 28

ISSUE 7.0  
SEPTEMBER 2007

NOTES:

1. The vehicle entrance and widening shall consist of a 2 coat seal over 150mm minimum thickness basecourse on a prepared and consolidated subgrade. Required basecourse thickness to be determined using the Austroads Pavement Design Guide.
2. All areas shown hatched shall be sealed except that the sealing of the area on the side of the road opposite the entranceway shall be required only when vehicles movements along the road exceed 500 vehicles per day.
3. All markings shall comply with the TNZ Manual of Traffic Signs and Markings.
4. The sealed area is to be shaped such that storm water or loose metal does not migrate on to the carriageway.
5. If existing lanes are less than 3.5m wide then widening will be more than 2.5m.
6. Culverts and headwalls to be designed and installed to the approval of the Engineer. All culverts shall be 300mm minimum diameter installed to the manufacturers recommendations.
7. Sight distances to comply with Standard Drawing R 25.
8. Maximum gradient shall be 1 in 12 for first 6 metres after road edge line.
9. All work shall be carried out in such a manner as to ensure the safety of all road users.



WHAKATANE  
DISTRICT  
COUNCIL



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OPUS

STANDARD DRAWING

NOT TO SCALE

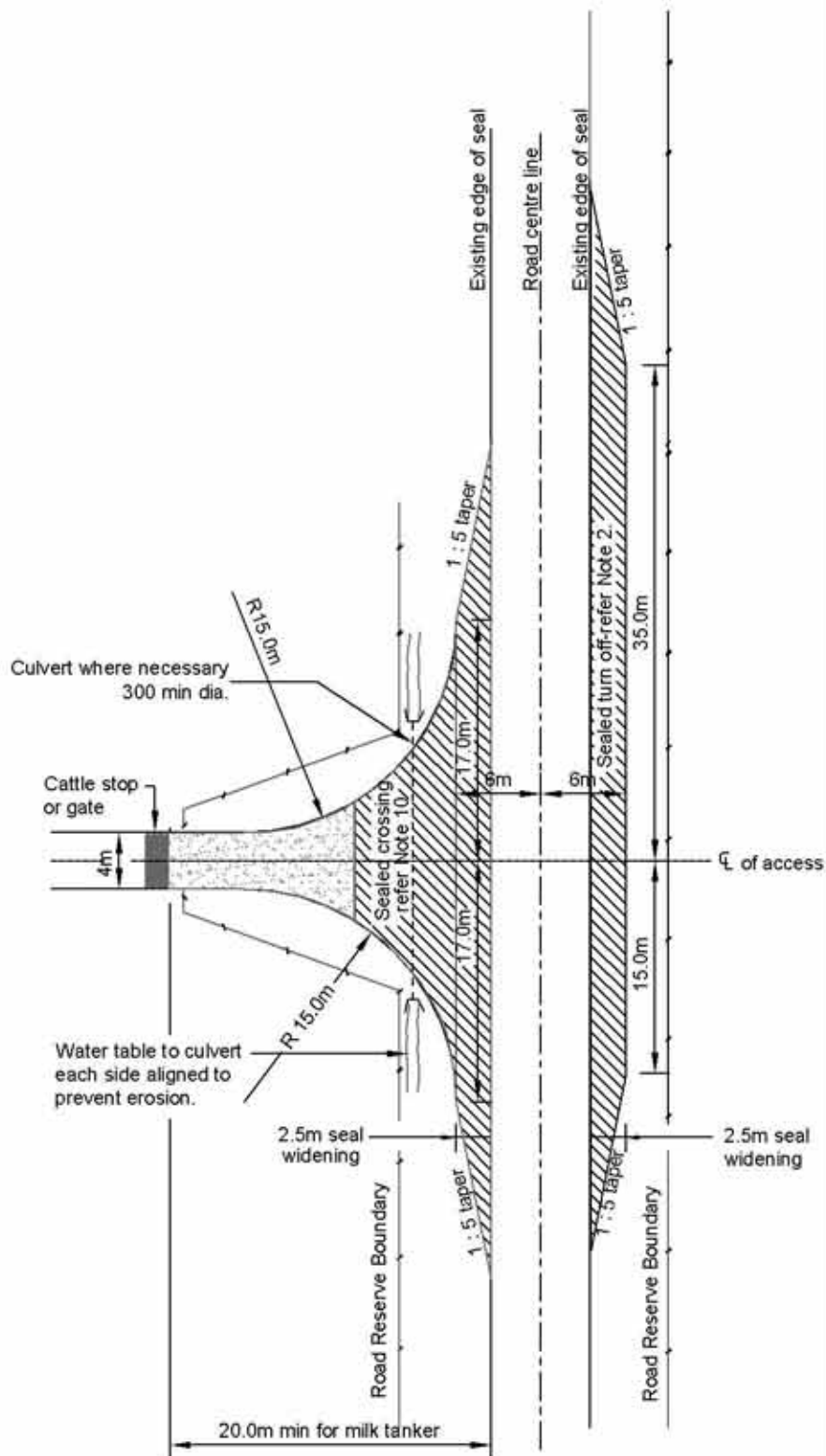
RURAL VEHICLE ENTRANCE  
5 OR MORE LOTS

R 29

ISSUE 7.0  
SEPTEMBER 2007

NOTES:

1. The vehicle entrance and widening shall consist of a 2 coat seal over 150mm minimum thickness basecourse on a prepared and consolidated subgrade. Required basecourse thickness to be determined using the Austroads Pavement Design Guide.
2. All areas shown hatched shall be sealed except that the sealing of the area on the side of the road opposite the entranceway shall be required only when vehicles movements along the road exceed 500 vehicles per day.
3. All markings to comply with the TNZ Manual of Traffic Signs and Markings.
4. The sealed area is to be shaped such that storm water or loose metal does not migrate on to the carriageway.
5. If existing lanes are less than 3.5m wide then widening will be more than 2.5m.
6. Culverts and headwalls to be designed and installed to the approval of the Engineer. All culverts shall be 300mm minimum diameter installed to the manufacturers recommendations.
7. Sight distances to comply with Standard Drawing R 25.
8. Maximum gradient shall be 1 in 12 for first 6 metres after road edge line.
9. All work shall be carried out in such a manner as to ensure the safety of all road users.
10. The crossing is required to be sealed for a minimum of 10 metres from the existing road edge.
11. Gate or cattle stop shall be set back to allow vehicles to be parked off carriageway while opening and closing gates (20m min for milk tanker).



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STANDARD DRAWING

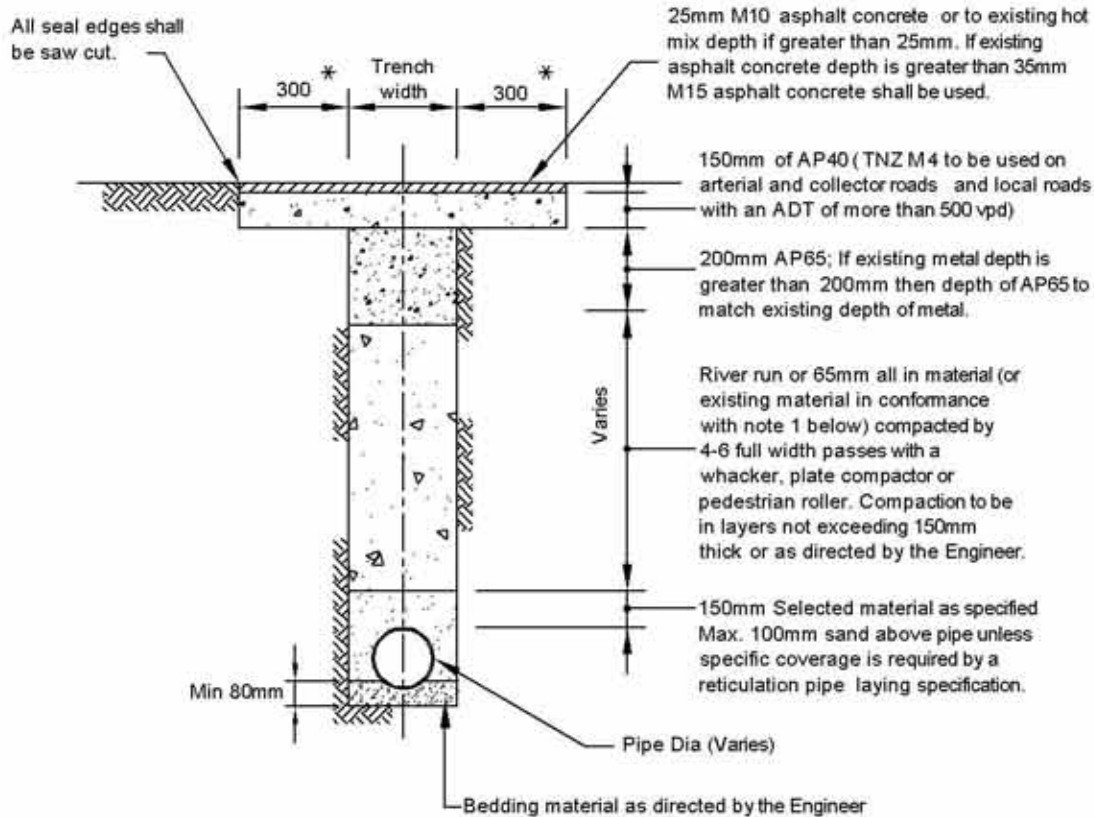
NOT TO SCALE

RURAL VEHICLE ENTRANCES  
HEAVY COMMERCIAL/TANKER

R 30

ISSUE 7.0  
SEPTEMBER 2007

\* This dimension may be reduced to 150 where the trench width is less than 300mm



**NOTES**

- Where the CBR of the existing material with its natural water content is greater than 10% measured in place by use of Clegg Hammer, Scala Penetrometer 2 blows per 25mm or Nuclear Densometer, that material may be used to backfill the trench up to 300mm from the top surface level of the trench.
- Bedding and backfilling is to be in accordance with the appropriate N.Z. Standard and the pipe or cable manufacturer's recommendations, or as directed by the Engineer. In all cases backfilling of the trench with either natural or imported material shall be compacted to achieve a Clegg Hammer value greater than 30, or a Scala Penetrometer reading greater than 6 blows per 25mm.  
Where the trench is under a footpath, the CBR of the natural material for it to be used as backfill shall be greater than 10% and shall be compacted to achieve a Clegg Hammer value greater than 8, or a Scala Penetrometer reading greater than 1 blow per 25mm.  
Where the trench is under a grassed berm, natural material may be used as backfill and shall be compacted to an equivalent density to the surrounding ground. The area is to have 75mm of compacted topsoil and grass sown and established by the service authority.
- All asphalt concrete to be laid in accordance with TNZ P/9.

WHAKATANE DISTRICT COUNCIL



PREPARED BY OPHS

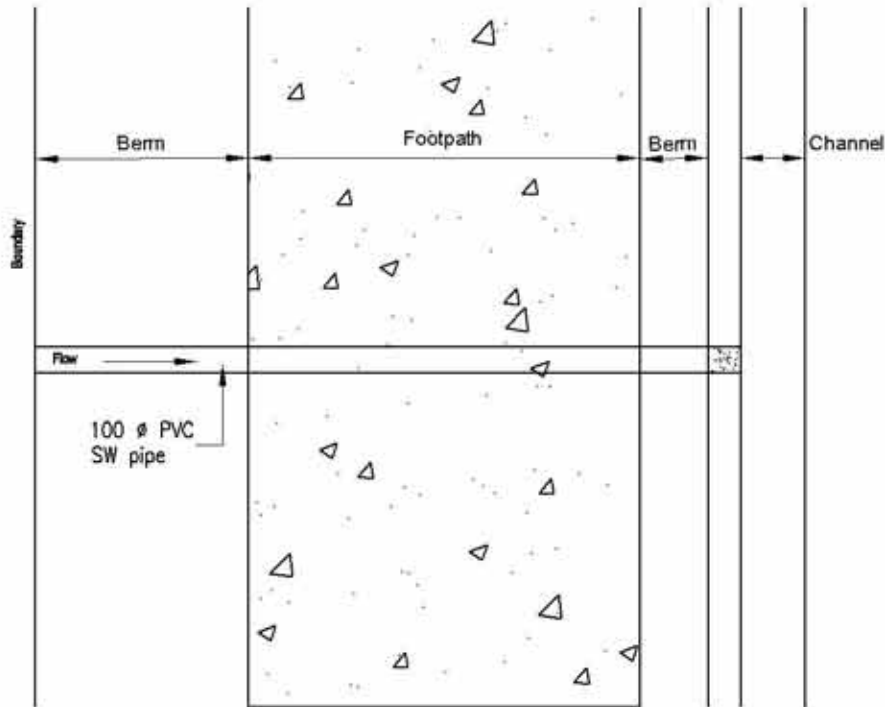
**STANDARD DRAWING**

NOT TO SCALE

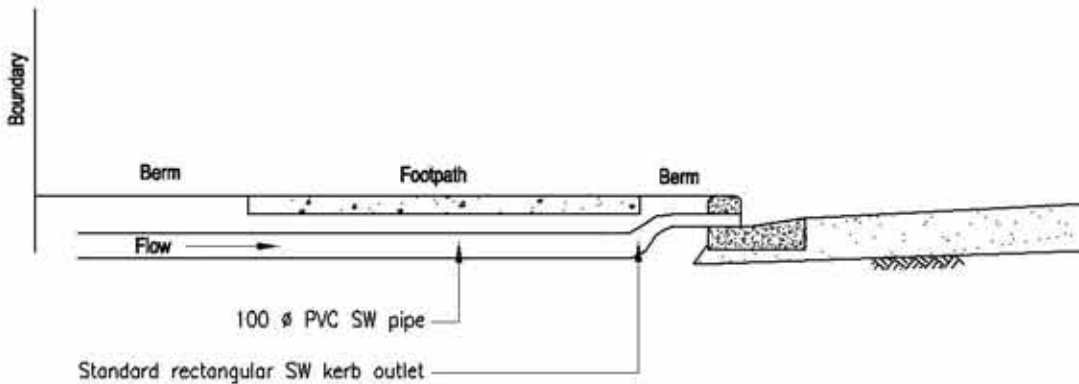
**TRENCH REINSTATEMENT CARRIAGEWAY AND FOOTPATH**

**R 31**

ISSUE 7.0  
SEPTEMBER 2007



PLAN



ELEVATION

**NOTE:**

1. Kerb outlets are to be cast into the kerb at the time the kerb is formed. If installing into existing kerb, kerb outlets shall be inserted by saw-cutting and removing the existing kerb a minimum of 500mm wide and installed a new rectangular kerb outlet.
2. Round kerb outlets will not be acceptable.

WHAKATANE  
DISTRICT  
COUNCIL



PREPARED BY  OPHS

STANDARD DRAWING

NOT TO SCALE

STORMWATER CONNECTION TO  
KERB AND CHANNEL

R32

ISSUE 7.0  
SEPTEMBER 2007



**ROAD OPENING NOTICE**

RON No:

I (name), \_\_\_\_\_  
 as agent for the principal provider detailed below, hereby notify the Whakatane District Council of our intention to undertake the following work:

TYPE OF WORK							
<input type="checkbox"/> Project (>28 days)	<input type="checkbox"/> Major (>20 metres)	<input type="checkbox"/> Minor ( $\leq$ 20 metres)	<input type="checkbox"/> Emergency				
PRINCIPAL DETAILS							
Company:				Contact person:			
Telephone	Day:	A/H:	Mobile	Fax:			
<b>DETAILS OF PROPOSED WORK</b> ( <i>indicate all aspects</i> )							
<input type="checkbox"/> Open trenching	<input type="checkbox"/> Trenchless construction	<input type="checkbox"/> installing cabinet/s					
<input type="checkbox"/> Installing pedestal/s	<input type="checkbox"/> Installing chamber/s	<input type="checkbox"/> Removing pole/cabinet/pedestal/structure/s					
<input type="checkbox"/> Installing pole/s	<input type="checkbox"/> Full road closure required	<input type="checkbox"/> installing other structure ( <i>specify below</i> )					
DESCRIPTION OF WORK							
Estimated Start Date:				Duration ( <i>hours/days/weeks</i> ):			
Road Name ( <i>closest</i> ):				Address ( <i>house number</i> ):			
Location (RAMM):		Start km:	End km:				
<i>If more than one road is affected, please provide a map.</i>							
ROLE IN WORK TO BE UNDERTAKEN							
<input type="checkbox"/> Principal	<input type="checkbox"/> Consultant	<input type="checkbox"/> Contractor	<input type="checkbox"/> Other				
Company:				Contact person ( <i>for all notifications</i> ):			
Postal address:							
Telephone	Day:	A/H:	Mobile	Fax:			
ATTACHMENTS— Please indicate which of the following documents are attached to the Road Opening Notice:							
<input type="checkbox"/> Plan of proposed works				<input type="checkbox"/> Traffic Management Plan			
<input type="checkbox"/> Copy of letters/notices advising residents of proposed work				<input type="checkbox"/> Work schedule			
ACCEPTANCE BY PRINCIPAL PROVIDER							
We hereby agree for or on behalf of the principal provider to comply in full with the requirements of the Transit New Zealand "Code of Practice for Temporary Traffic Management", and any other reasonable conditions required by the Whakatane District Council and to keep this notice on site while work is in progress. This consent is valid for three months from date of issue.							
<b>Note:</b> All work must comply with Health and Safety Act 1991 or any amendments thereto.							
<b>Signature:</b>				<b>Date:</b>			
<b>Print Name:</b>							

## WORKS COMPLETION NOTICE

To: <i>(The road controlling authority)</i>			
From: <i>(The principal provider or their consultant)</i>			
Date:			
This is to advise that work <b>IS NOW COMPLETE</b> on RON No:			
On: <i>(street name)</i>			
Please find attached:			
<input type="checkbox"/>	Amendments to information provided on the RON as follows:		
Type of work:	<input type="checkbox"/> Project	<input type="checkbox"/> Major	<input type="checkbox"/> Minor <input type="checkbox"/> Emergency
<b>DETAILS OF PROPOSED WORK</b>			
Description of work:			
Address:			
Location in road:			
Estimated start time:		Duration:	
<b>CONTRACTOR DETAILS</b>			
Role in work to be undertaken:	<input type="checkbox"/> Principal	<input type="checkbox"/> Consultant	<input type="checkbox"/> Contractor <input type="checkbox"/> Other
Company Name:		Contact person:	
Postal address:			
Telephone number:	(Day)	Telephone number	(A/H)
Mobile number:		Fax number:	
<input type="checkbox"/>	A copy of the compaction tests		
<input type="checkbox"/>	An as-built sketch or plan showing the extent and location of the work carried out		
<input type="checkbox"/>			
<input type="checkbox"/>	Details of work for the RCA to complete as follows:		
Works meet required standards	Date:		
Accepted by RCA	Date:		Print name:
Works comply and 12 month maintenance commences	Date:		Print name: