



STANDARD SPECIFICATIONS FOR CONSTRUCTION OF CROSSOVERS

Definition:

A crossover is the section of the driveway that crosses over the verge area in front of a property i.e from the road edge surface to the property boundary line.

Description:

The objective of a Standard Specifications for Construction of Crossovers is to provide a Guide and set Specifications to follow when construction of a crossover for builders, developers and property owners.

This specification sets out the minimum standards for the construction and completion of a crossover from the edge of the carriageway to the property boundary line. Particular care must be taken during construction for the protection of public utility services, survey marks, council and private property.

Sight Lines:

Crossovers are to be positioned so that sight lines, for path users and vehicles, are unobstructed.

Distance to Obstructions:

Side Entry Pits – Minimum 1m

Street Trees – Minimum 1.5m (depending on size of trunk)

Utility Boxes – Minimum 1m

Streetlights – Minimum 1m

If Crossovers are proposed within the above distances given then relocation will be required (where possible).

Sight Distance to Roadway Traffic:

The Requirements for minimum sight distance at the road interface are defined in the Australian Standard AS 2890.2-2002 Parking facilities.

Frontage Road Speed (km/hr)	Domestic Property Absolute Minimum (m)	Minimum SSD (m)	Desirable: 5s gap (m)
40	30	35	55
50	40	45	69
60	55	65	83
70	70	85	97
80	95	105	111
90	130	130	125
100	160	160	139
110	190	190	153

Grades and Levels:

Crossover construction over a footpath is to address the Path Construction Guidelines - a maximum crossfall of 2.5% to cater for residents who have a disability. To allow the path to shed water and to avoid ponding, a crossfall of 2.0-2.5% is recommended.

Maximum grade desirable 15-17%.

Where a footpath exists (either at the fence line or adjoining the kerb), this shall be taken for level control, with



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the crossover graded from that level to the road or property boundary line respectively.

In steep terrain, levels will have to be established to suit the existing conditions.

Position:

The crossover shall be at right angles to the road, unless otherwise approved.

The crossover shall be located to allow for adequate sight distance to approaching traffic.

Dimensions:

Maximum and minimum dimensions of crossovers are shown on Standard Plans 8.1 and 95.33. Residential Crossovers – Minimum of 2.5m and a maximum width is 9m

Rural Crossovers – Minimum of 2.5m and a maximum is 11m

If land owners need to exceed to above the maximum listed width for commercial/business use then they are required to submit the request with the Application to the Shire Office for approval.

Materials & Construction:

Acceptable materials for construction of crossovers include laterite gravel (gravel is only permitted in rural areas), road base, limestone, concrete and paving with optional seals of bitumen or asphaltic concrete. The crossover shall be constructed so that no loose materials are carried onto the carriage way.

Excavation

All excavations shall be executed cleanly and efficiently to provide for a consolidated, sound base, free of depressions, soft spots or any deleterious materials.

- a) The Subgrade shall be compacted to a minimum of 95% MMDD in accordance with AS1289 clause 5.4.1 or 5.4.2.

Boxing Out

Where necessary the site of the crossover should first be cleared of all vegetation, roots and trees; the site then boxed out and the sub-grade formed to levels and gradients as required – the site being excavated or filled, as the case may be.

Formation

The formation shall be consolidated, ready to receive the required thickness of gravel or limestone.

Form work

The form work is to consist of 150mm x 25mm merchantable, quality Jarrah.

150mm x 25mm Jarrah form work to be placed down both sides from building line, where no footpath exists; or from the edge of the footpath, where a footpath exists, to the kerb or road shoulder.

The sweeps are also to be formed with 150mm x 25mm Jarrah.

The form work to have 150mm x 25mm Jarrah legs, spaced not more than 1.5m apart, securely spiked or bolted to kerbing, where the crossover is being constructed in sand.

Gravel

Gravel is not permitted in Residential areas.

The gravel is to be a good quality laterite gravel, free from clay, vegetation, silt, etc.

Gravel to have total consolidated thickness of not less than 100mm in the case of a domestic crossing,



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and not less than 150mm in the case of a heavy duty crossing, which is required for service stations, factories and shops and all places subject to more than domestic traffic.

Gravel is to be spread, rolled, water-bound and corrected, as necessary, to shape, grade etc.

Limestone

The limestone rubble is to be obtained from an approved source and shall be free of sand, roots and other foreign material.

Concrete

The Site shall be boxed to provide a firm, sound sub-grade, free from depressions or soft spots.

The Materials used to build up the area to the required level shall consists of sand, free from vegetable or other deleterious matter.

Surplus material shall be removed from the site.

Sub-base shall be thoroughly and evenly moistened, though not saturated, prior to the placing of concrete.

6mm Contraction joints shall be made in the form of plain dummy construction joints with an approved jointing tool at 1.5m centres maximum.

Expansion joints shall be located adjacent to any existing concrete or kerb and as indicated on Plan No. 95.33.

All concrete used shall be supplied by an approved firm, in a ready mixed state.

Concrete shall have a minimum compressive strength of 25MPa at 28 days and shall have a maximum slump of 90mm (residential) and a minimum compressive strength of 32MPa at 28 days and shall have a maximum slump of 90mm (industrial). An approved high early strength additive may be added to give rapid hardening.

Minimum thickness shall be 100mm (residential) or 150mm (industrial).

Concrete shall be evenly placed to the depth specified and spread continuously until the pour is completed.

The surface finish shall be obtained by screeding to the correct levels and floating to provide a dense surface free of irregularities.

The concrete shall be cured by water or sprayed curing membrane, final surface shall be given a broom finish.

Paving

Construction shall be undertaken in accordance with the manufacturer's recommendation and good Engineering practices and the Shire's Standard Crossover Detail attached.

Boxing out shall be undertaken to conform to block thickness.

The boxed area shall be compacted to provide a firm, sound sub-grade free from depressions or soft spots.



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Materials used to build up the area to the required level shall consist of sand, free from vegetable or other deleterious material.

Surplus material shall be removed from the site.

Surfacing

The surface is to be again re-shaped and gravel added, where required, to give the correct shape. Surface then to be well watered and rolled with a vibrating roller.

The surface to be slurred and swept clean of any loose material.

Sealing

When the foundation is dry, apply two coats of seal as follows:-

- Spray bitumen emulsion at the rate of 1.35 litres/sqm and cover with 10mm aggregate, and roll.
- When first coat emulsion has “broken” spray second coat at 1.35 litres/sqm and cover with 5mm aggregate and roll to produce a tight even surface with no bitumen exposed. Excess aggregate is to be swept and removed.

Kerbing

Where the roadway has cast in-situ kerbing, it may be removed with the Shire’s approval. However, the crossover shall attain a minimum height of 75mm above the road gutter and the kerb returns shall be constructed to provide an even transition with the remaining kerb.

Footpath

The Footpath cannot be removed for the purpose of the crossover or for the construction of the crossover. If damage occurs to the footpath due to the crossover construction, then the contractor/resident will be responsible for the repairs.

Completion

On completion, any surplus materials are to be removed and the site left in a clean and tidy condition to the satisfaction of the Shire’s Infrastructure services.

Culverts:

Where necessary, a culvert of reinforced concrete or Helcor pipe complete with masonry headwalls shall be constructed.

The pipe size will be determined by the Shire’s Infrastructure Department.

Pipes shall be laid at the same grade and level as the existing open drain, unless otherwise noted.

Pipes shall be placed in the existing drain and, where practicable, parallel to the road edge, or as determined by the Shire’s Infrastructure services.

Headwalls shall be constructed of either:-

- a) Concrete (minimum 150mm thick) either precast or cast insitu
- b) Brick – thickness dependent on wing wall height
- c) Stone – (mortared) thickness dependent on wing wall height



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Council Contribution:

On completion of a crossover, the Application for Crossover Subsidy will need to be submitted to the Shire for a contribution and a final inspection.

Only one crossover per lot will receive a subsidy from the shire.

The rule of one crossover per lot applies to all lots whether containing duplex or higher density buildings. All maintenance of the approved crossover is the responsibility of the property owner.

Payment of Council's subsidy in urban/town site areas will only be accepted on condition that the crossover is completed to a sealed finish. Bitumen, concrete asphalt or brick pavers will be accepted as a sealed finish. A sealed crossover is necessary when it is to a bitumen road surface.

Standard Plans:

Standard Crossover Details (SD.06.01)

Residential Crossover Details (SD.06.02)

Industrial Crossover Details (SD.06.03)

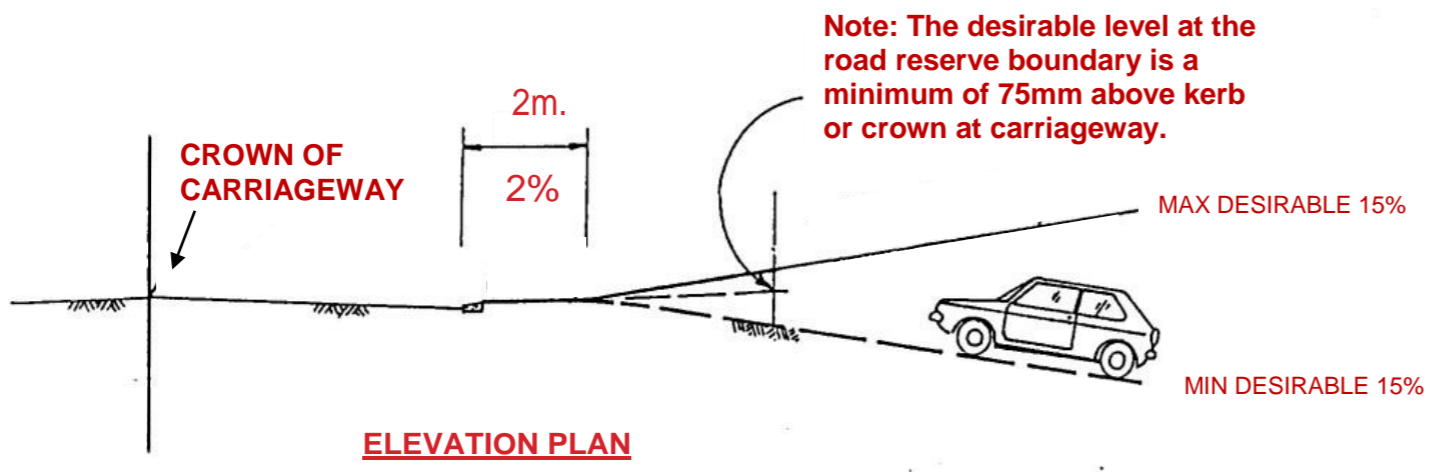
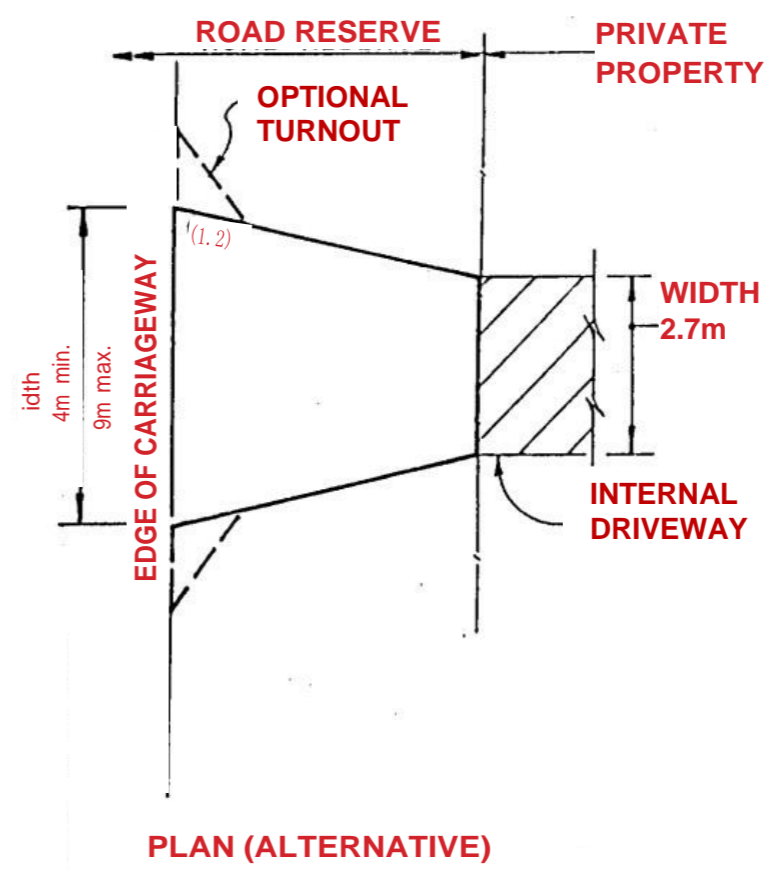
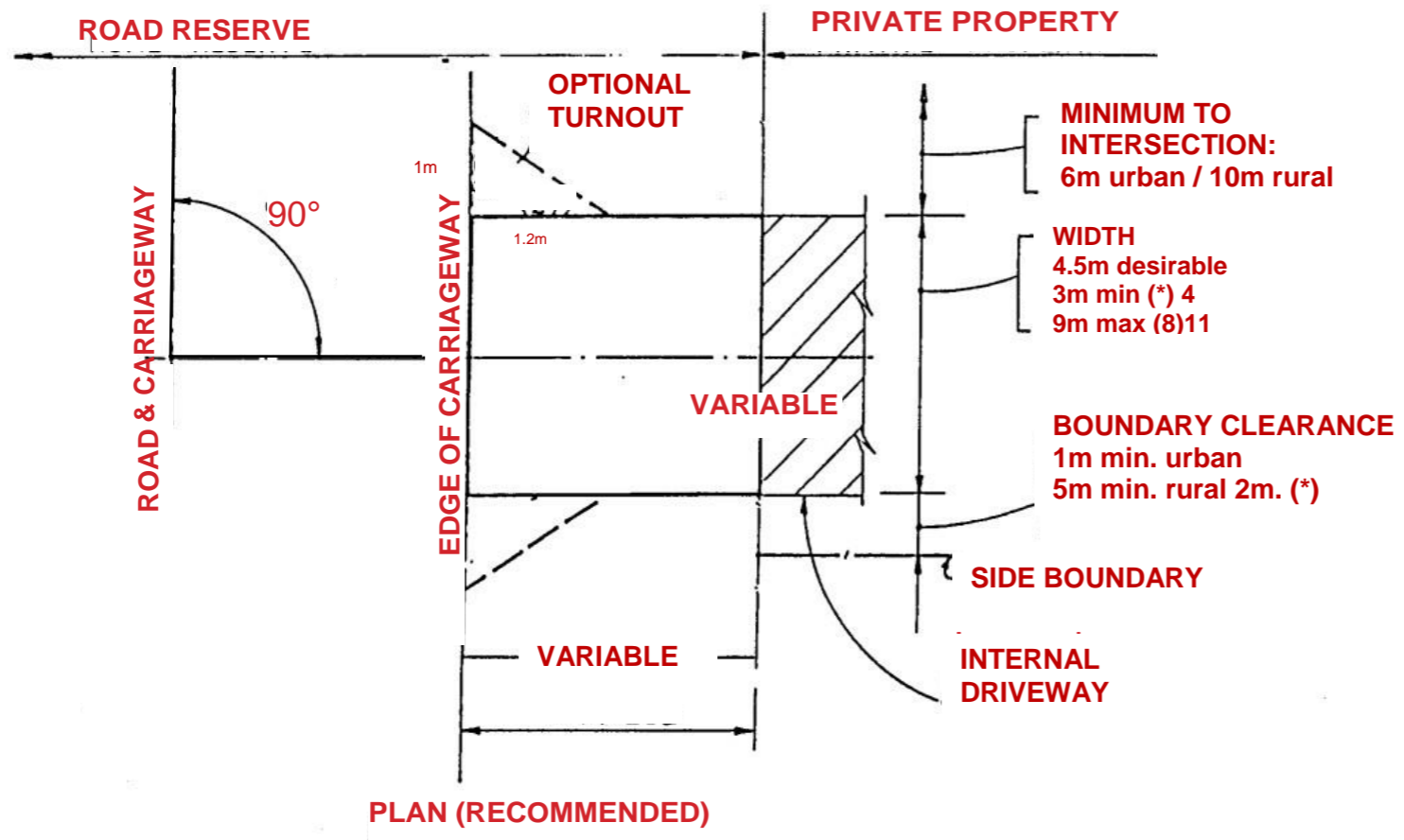
Cross Sections (SD.06.04)

Standard Culvert Details (SD.06.05)

Refer to WALGA Crossover Guidelines (which was prepared by Cardno & WALGA)

General Information:

- Crossovers shall be constructed in accordance with this STANDARD SPECIFICATION and the attached particular requirements.
- All work shall be carried out to the satisfaction of the Manager of Technical Services.
- Maximum of two crossovers permitted per block.
- If alterations to existing utilities, such as manholes, telephone installations, water meters, footpath, kerbing, power poles, street trees, or any other, are required, the applicant shall make arrangements with and pay all costs to the appropriate authority.
- Provision is to be made to maintain the existing drainage characteristics.
- A good standard of workmanship is required. Shoddy workmanship and poor finish is unacceptable.
- Where the crossover abuts a kerbed road the crossover shall be surfaced with concrete, brick or block paving or a bitumen product.



Note: The desirable level at the road reserve boundary is a minimum of 75mm above kerb or crown at carriageway.

- NOTE:**
- For sites where these standard details are not applicable, refer to specific approved requirements.
 - (*) dimensions shown thus refer to commercial crossings only.
 - Expansion & contracting joints not shown, refer to specifications in document.
 - Use when existing concrete driveway is less than 3m wide).



STANDARD CROSSOVER DETAILS

NOTES
STRUCTURAL INTEGRITY AND CERTIFICATION REMAIN THE RESPONSIBILITY OF THE PROPERTY HOLDER.

NO.	ISSUE & REVISION	DATE
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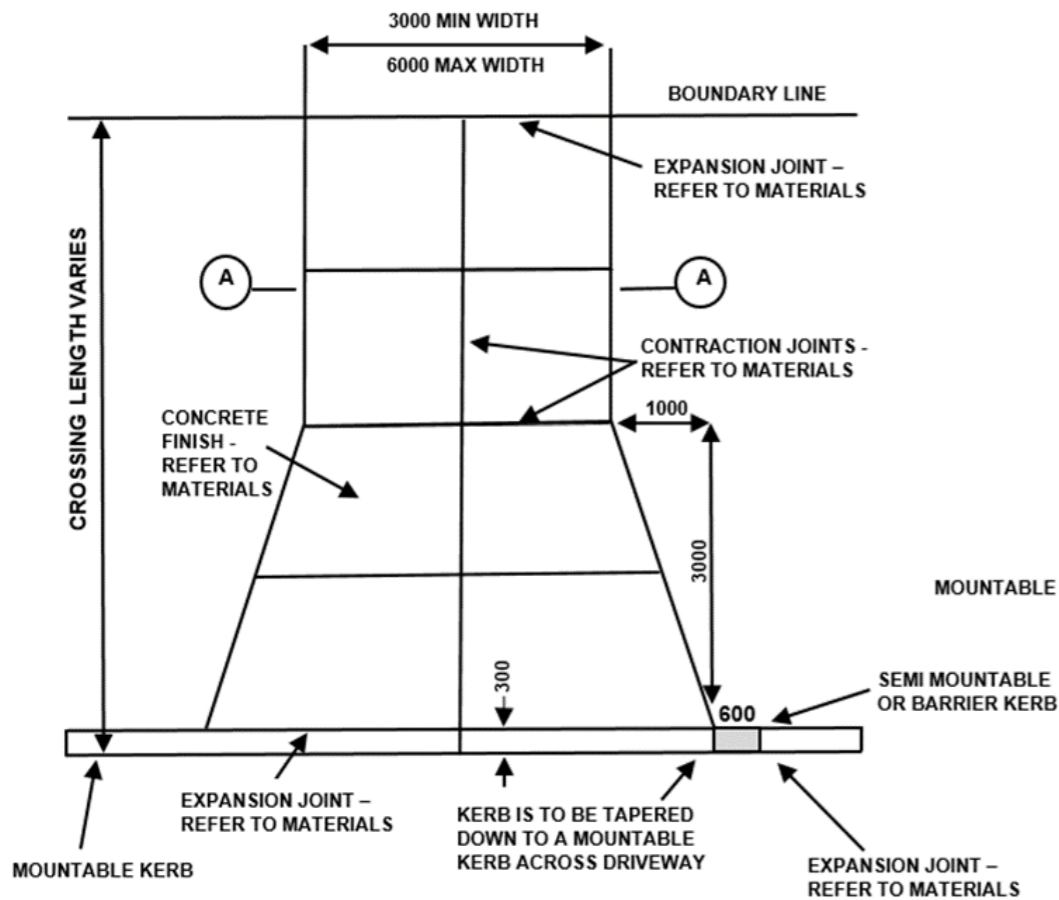
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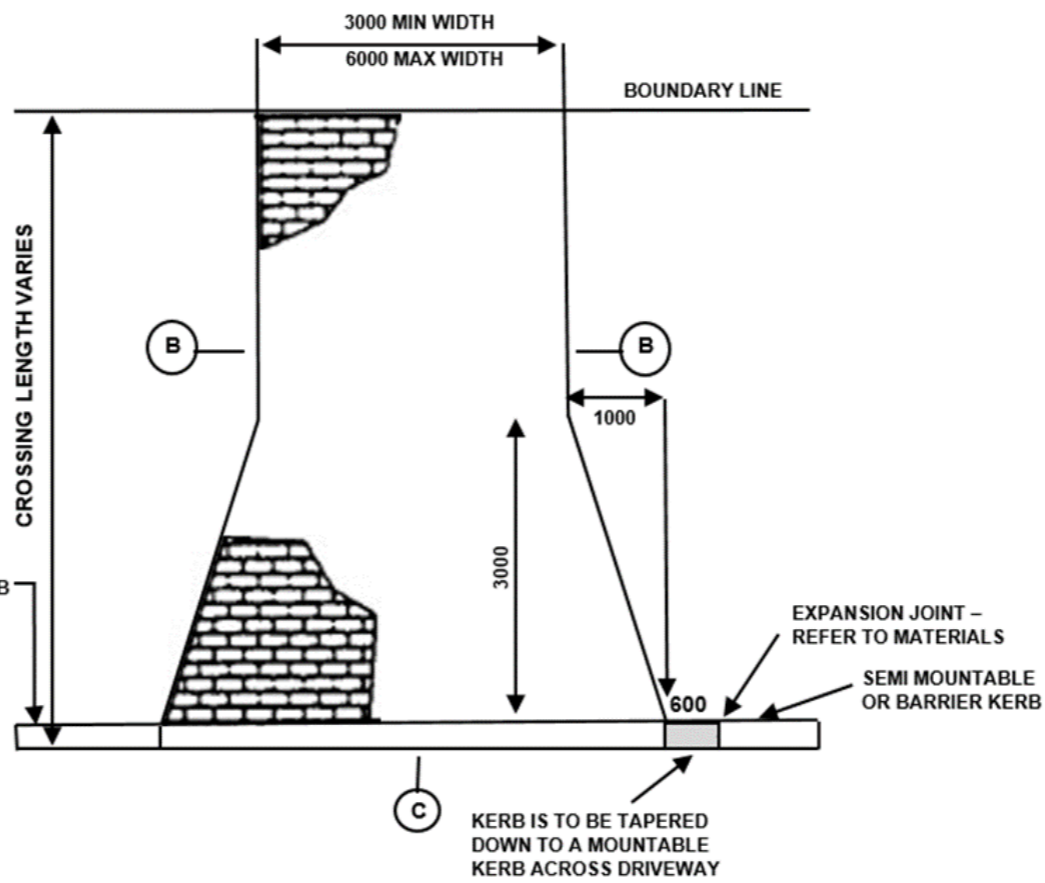
CROSSOVER PLANS

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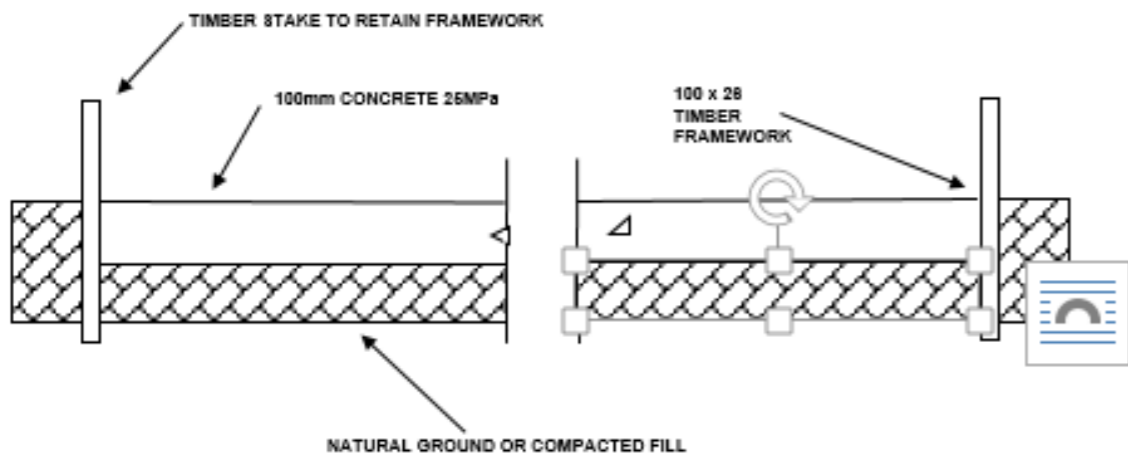
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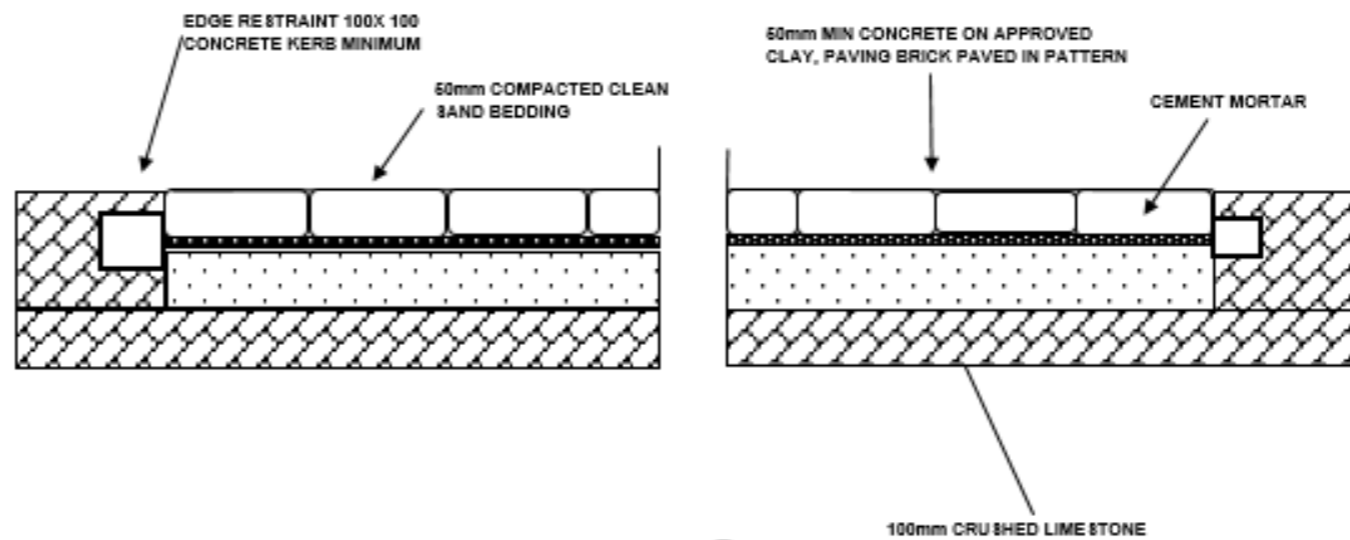
CONCRETE CROSSOVER PLAN



RESIDENTIAL BRICK PAVED PLAN



SECTION A
RESIDENTIAL CONCRETE CROSSOVER



SECTION B
RESIDENTIAL CONCRETE CROSSOVER



STANDARD DETAILS

NOTES

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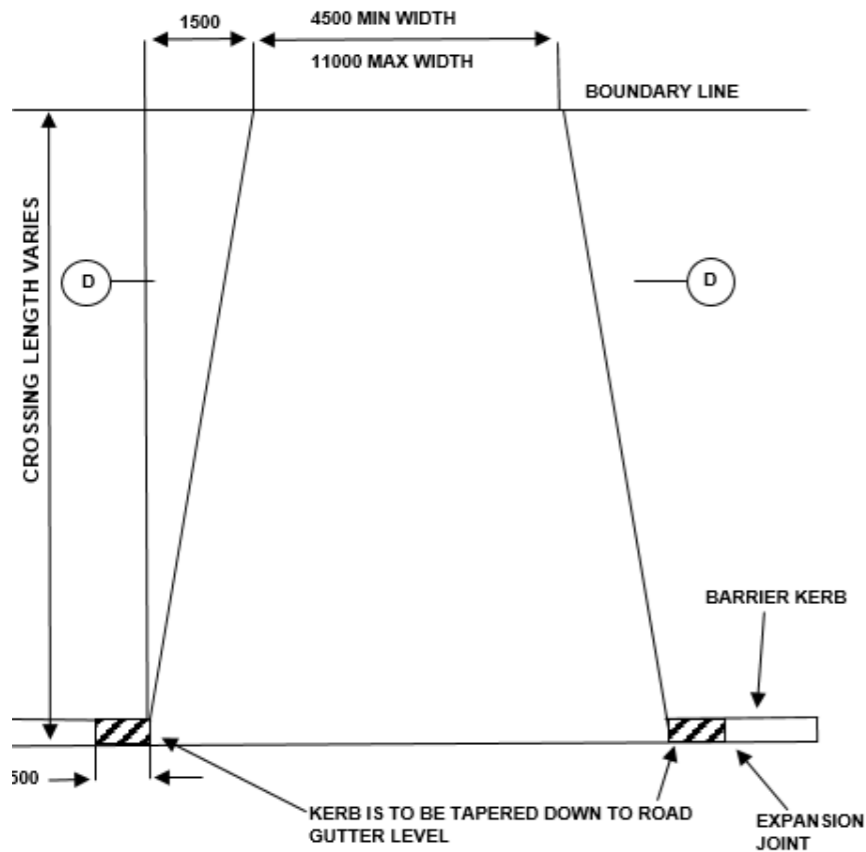
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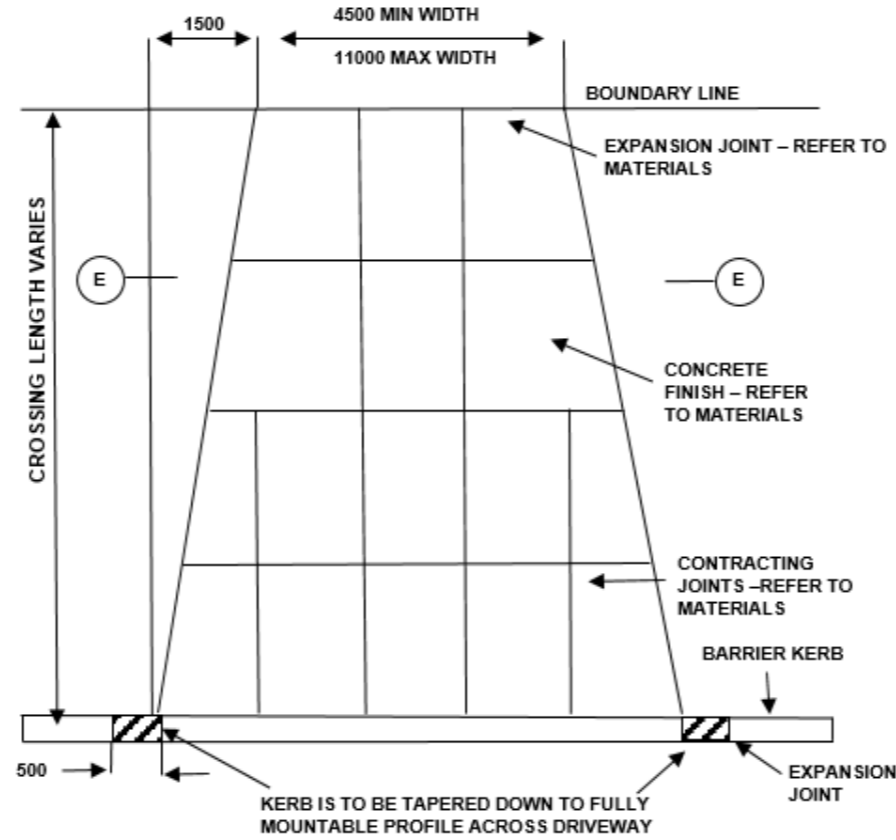
RESIDENTIAL CROSSOVERS

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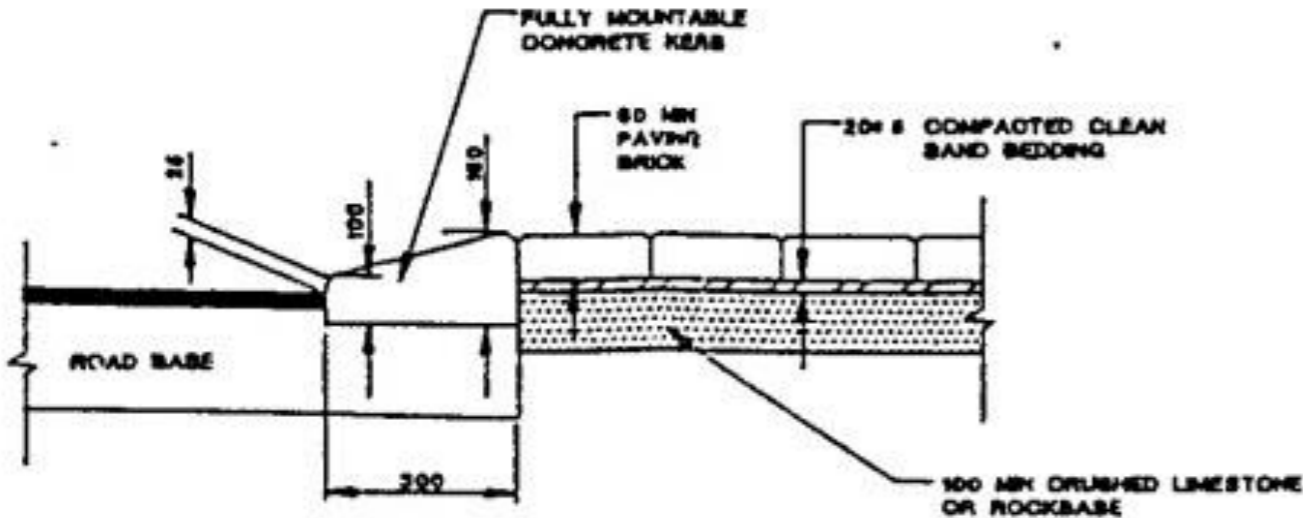
SD.06



INDUSTRIAL BITUMEN CROSSOVER PLAN



LIGHT INDUSTRIAL CONCRETE CROSSOVER PLAN



SECTION C



STANDARD DETAILS

NOTES
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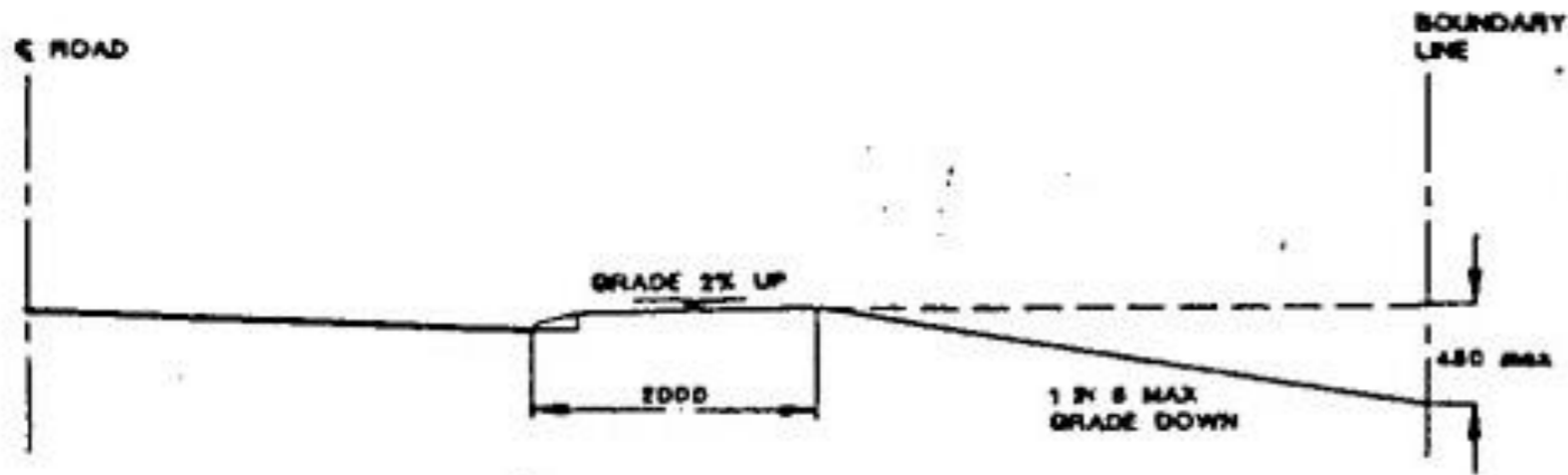
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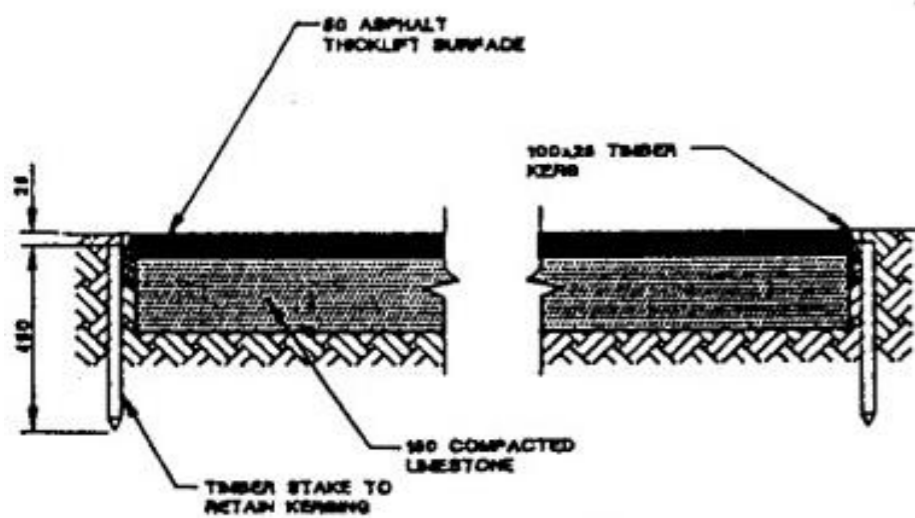
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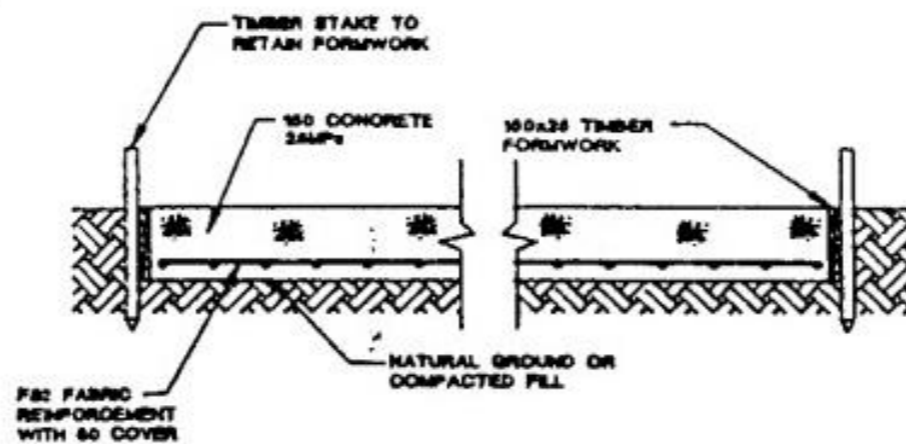
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**TYPICAL SECTION FOR CROSSING
BELOW KERB LINE REFER TO NOTE 1.**
N.T.S.



**SECTION (D)
INDUSTRIAL BITUMEN CROSSOVER**



**SECTION (E)
LIGHT INDUSTRIAL CONCRETE CROSSOVER**

- Notes:**
- Levels at the boundary line to be set by the shire, prior to any works commencing on internal driveway or crossover (contact the Shire's Infrastructure Services).
 - 10mm expansion joints to be provided as shown. A 10mm polyethylene foam packer shall be positioned in each expansion joint.
 - 6mm contracting joints to be provided at a spacing of 1.5
 - Where mountable kerbing exists, a 10mm expansion is to be provided between the back of kerb.
 - A concrete crossover is to have a broom finish, with joints and edges highlighted. Mountable kerb to have a smooth finish.
 - Privately constructed concrete crossovers, prior to pouring concrete.
 - All measurements in mm



STANDARD DETAILS

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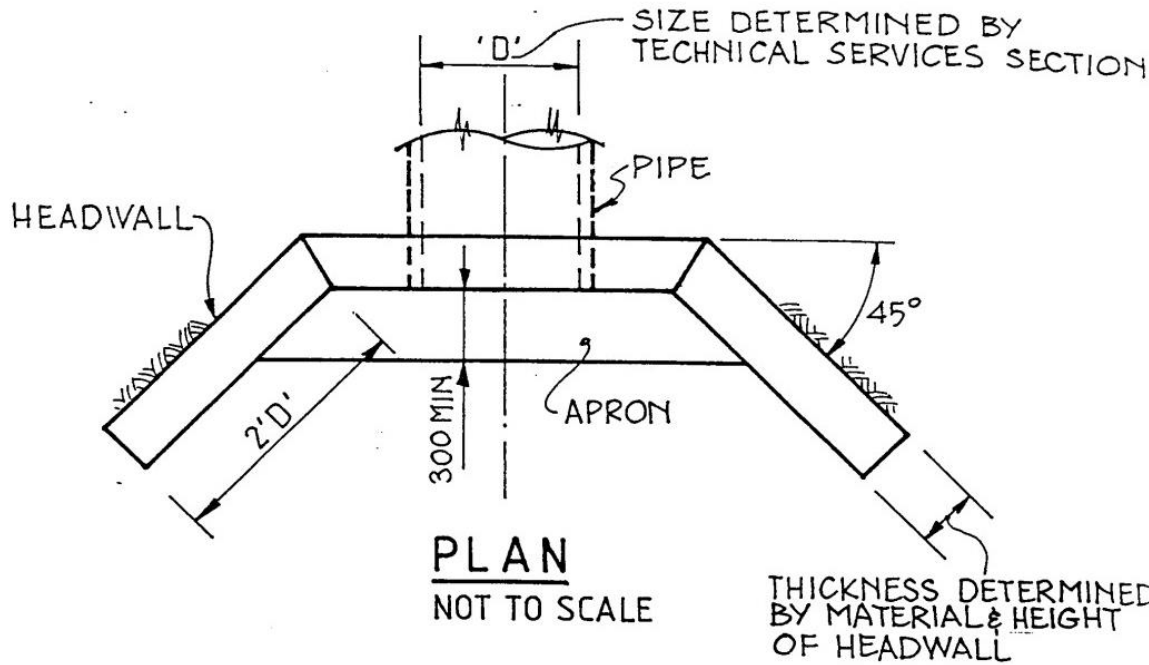
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CROSS SECTIONS

DRAWING NUMBER

SD.06.04



STANDARD DETAILS

NOTES

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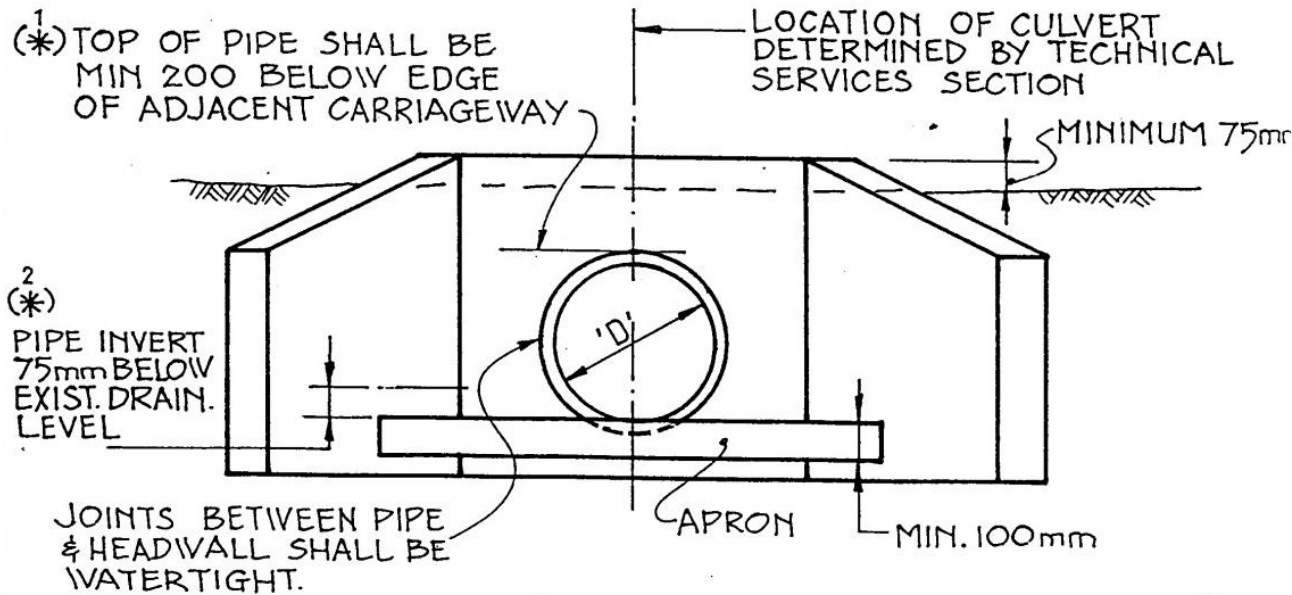
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STANDARD
CULVERT
DETAILS

DRAWING NUMBER

SD.06.05



NOTES:

- UPSTREAM & DOWNSTREAM HEADWALLS NEED TO MATCH
- ADOPT VALUE (*1) OR (*2) WHICH GIVES LOWEST PIPE LOCATION