
VOLUME 6 ROAD GEOMETRY
SECTION 1 LINKS

PART 2

TD 27/05

CROSS-SECTIONS AND HEADROOMS

SUMMARY

This Standard sets out the dimensional requirements for the highway cross-sections for all-purpose and motorway trunk roads, both at and away from structures. It also gives requirements for headroom at structures.

INSTRUCTIONS FOR USE

1. Remove Contents pages from Volume 6 and insert new Contents page for Volume 6 dated February 2005.
2. Remove TD 27/96 from Volume 6, Section 1 which is superseded by this Standard and archive as appropriate.
3. Insert TD 27/05 into Volume 5, Section 1.
4. Please archive this sheet as appropriate.

Note: A quarterly index with a full set of Volume Contents Pages is available separately from The Stationery Office Ltd.



THE HIGHWAYS AGENCY



SCOTTISH EXECUTIVE



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**WELSH ASSEMBLY GOVERNMENT
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**THE DEPARTMENT FOR REGIONAL DEVELOPMENT
NORTHERN IRELAND**

Cross-Sections and Headrooms

Summary: This Standard sets out the dimensional requirements for the highway cross-sections for all-purpose and motorway trunk roads, both at and away from structures. It also gives requirements for headroom at structures.

4.11.3 These items should be considered alongside the advice given in Section 4.6 above when selecting the width required for separator zones.

Chambers and Gullies

4.11.4 Advice on the location of drainage features, including access chambers, is given in **DMRB 4.2**. Design Organisations should be aware that siting access chambers and gullies within hardshoulders may affect the adequacy of temporary traffic management layouts and may also create additional maintenance liabilities. On all-purpose roads used by cyclists, access chambers and gullies within the hardstrip may also cause problems.

Maintenance Hardstandings

4.11.5 Consistent with Section 3.2 above, areas of hardstanding for maintenance activities provide a safety benefit to the highway and those working on it. Consideration should therefore be given to their provision along the route. Hardstandings are most needed where only hardstrips are provided and where hardshoulders are less than 3.0m wide. In the latter case, this includes most urban motorways.

4.11.6 In all cases, the Design Organisation must consult with the Maintaining Organisation, carry out a risk assessment and determine the need for hardstandings.

4.11.7 When selecting locations for any hardstandings, Design Organisations should follow the advice given in **TA 69 (DMRB 6.3.3)** to minimise risk. The width and length of maintenance hardstandings should be designed individually for the vehicle types likely to use them. For example, at communication cabinet locations the use will generally be cars or light vans, but at general purpose locations large goods vehicles may be expected to deposit equipment.

4.11.8 The frequency of any hardstandings should be determined by the Design Organisation, taking into account routine and capital maintenance regimes. Safety benefits will be maximised and cost savings may be gained by rationalising the locations of equipment that requires regular maintenance.

4.11.9 Design Organisations should ensure that hardstandings contrast in appearance with the main carriageway to dissuade general use. Signing should also be provided to inform the general public of their

specific purpose. Advice should be sought from the Overseeing Organisation on signing issues. Entry and exit tapers should be minimised to discourage public use but without compromising safety. Research is being undertaken to provide further advice on this matter.

Raised Rib Edgelines

4.11.10 Nearside and Offside edge lines must be raised rib on motorway mainline and connector roads.

4.11.11 For advice on the use of raised rib road markings on all-purpose roads refer to **Traffic Signs Manual Chapter 5**.

VRS Set-back

4.11.12 Obstructions immediately adjacent to the edge of the paved carriageway result in drivers reducing speed and positioning their vehicles away from the obstruction. The purpose of the set-back is to provide a lateral distance between the VRS and the carriageway which reduces the effect of the safety barrier on driver behaviour and driver shyness. Any proposals for departures or relaxations must consider:

- i. In central reserves: the effects on vehicle positioning within traffic lanes, particularly where non-standard lane widths are proposed.
- ii. In verges with a hardstrip or hardshoulder: the effects on the ability of occupants of parked vehicles to leave via the nearside doors and the possibility of increased risk due to parking closer to live traffic.
- iii. In verges without a hardstrip or hardshoulder: the effects on vehicle positioning within traffic lanes, particularly where non-standard lane widths are proposed.
- iv. In all cases the effects on future temporary traffic management systems, e.g. a low set-back, may preclude utilisation of paved areas for trafficking.

4.11.13 The set-back is the lateral distance between the traffic face of a safety barrier and as appropriate:

- i. Nearside: the back of the nearside hardstrip or hardshoulder
- ii. Nearside: the kerb face for roads without a nearside hardstrip or hardshoulder
- iii. Offside: the trafficked edge of the edge line or the kerb face where there is no edge line

The minimum dimensions to be used are given in Table 4-1.

Location	Desirable minimum set-back value (mm)	Available relaxations at sites described in footnotes
In verges with no adjacent hardstrip or hardshoulder	1200	Note (i), (ii)
In verges with an adjacent hardstrip or hardshoulder	600	(iii)
Central reserves	1200	Note (i), (ii)

Table 4-1: Set-back

Notes

Design Organisations may, where justified, consider Relaxations to set-back as follows:

- i. Relaxation to 600mm for roads of speed limit 50mph or less (including temporary mandatory speed limits).
- ii. Relaxation to 1000mm at existing roads with physical constraints (e.g. a structure) where it would be difficult to provide the desirable value.
- iii. Relaxation to 450mm will be permitted where it is considered necessary to position the VRS away from the edge of an existing embankment in order to provide support to the foundation.

4.11.14 On central reserves where there are no obstructions and there is only one double sided deformable safety barrier between carriageways, the set-back on both sides of the safety barrier must be as stipulated in paragraph 4.11.13 but they must not be less than the Working Width of the safety barrier minus the actual width of the safety barrier.

4.11.15 Set-back greater than the minimum values should be provided where space allows, particularly in the following circumstances:

- i. At verges for roads where continuous or near continuous VRS is proposed over a long length where the VRS may prevent a driver from mounting the verge in an emergency.
- ii. Where use of the minimum set-back in central reserves would result in the Paved Width being closer than 600mm to the VRS and where future temporary traffic management and maintenance regimes would require full utilisation of the pavement, e.g. on D2AP rural roads where a minimum set-back for normal operation (1200mm) could create a problem during certain temporary traffic management layouts if the 1.0m offside hardstrip was to be fully trafficked.
- iii. To achieve a smooth alignment with a parapet.

4.12 Rate of Change of Cross-Section Width

4.12.1 Notwithstanding the advice in paragraph 4.1.2, over the length of a route variations in the cross-section are likely to be required. Guidance on suitable sources of reference to determine the appropriate transitional arrangement is provided in Table 4-2.

4.12.2 Table 4-3 shows the required mainline rate of change in width based on a standard 3.65m lane. In all cases where Table 4-3 is used, the transition taper should correspond with the higher design speed of the two adjoining links under consideration. See **TD 22 (DMRB 6.2.1)** for the layout of Merges and Diverges.