

Category 1 Standard

S1800 Cable Runs

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1 Purpose

- 1.1 The purpose of this Standard is to define the minimum requirements for the civil/structural design of cable runs.

2 Scope

- 2.1 This Standard applies to the civil/structural requirements for the design of cable runs. It does not cover the requirements for the cable brackets nor of fixings for cable brackets to cable routes.

3 Requirements

3.1 Cable runs in open sections

- 3.1.1 Cables in open sections shall be carried on posts on both sides of the railway, except on relatively unimportant branch lines where cable posts shall only be positioned on one side of the line.
- 3.1.2 Cable posts shall be positioned at the top of embankments or the bottoms of cuttings. The spacing of posts shall be 1200mm, but where only signal or other small cables are carried, and an air main is available or other means are provided for intermediate supports at 600mm centres, the posts spacing may be increased to a maximum of 2400mm.
- 3.1.3 The lowest cable in any cable run must be a minimum of 300mm above ground level.
- 3.1.4 A minimum clearance of 1500mm must be provided between the back of a cable post and any fence.
- 3.1.5 Where double cable post runs are necessary, the minimum distance between the posts of the two runs must be not less than 1450 between the faces of adjacent posts.
- 3.1.6 Cables and cable runs shall not be fixed to handrails.
- 3.1.7 A cutting, grinding, drilling and fixing procedure in accordance with S1063 must be carried out, when additional cables are added to a cable run.

3.2 Cable runs on viaducts, bridge abutments and retaining walls

- 3.2.1 On viaducts, overbridge abutments and retaining walls cable brackets shall be fixed directly to the structures at 1200mm centres. Where an air main is available this may be used to provide additional supports for signal and other small cables at 600mm centres.
- 3.2.2 The lowest cable in any cable run must be a minimum of 300mm above ground level.
- 3.2.3 Cable brackets shall be fixed to the parapets using resin anchor bolts. The fixings shall comply with BS8539.
- 3.2.4 Before any fixings are installed, a cutting, drilling and fixing assessment carried out in accordance with S1063 must be carried out. It is essential that a track clearance certificate is obtained before new cable brackets are installed; only the brackets specified in the clearance certificate may be used.

3.3 Cable runs on underbridges

- 3.3.1 Cable runs on underbridges are to be carried on a purpose designed steel frame fixed to the bridge by bolting.

3.4 Cable runs in sub surface tunnels

- 3.4.1 Cable runs in sub surface tunnels shall be carried on brackets fixed to the tunnel walls with resin anchor bolts. Only epoxy resin anchors may be used, the fixings shall comply with BS 8539. A cutting, grinding, drilling and fixing procedure in accordance with S1063 must be carried out, and a track clearance certificate must be obtained before work commences. Only brackets specified in the clearance certificate shall be used.

3.5 Cable runs in Surface and Sub Surface Stations

- 3.5.1 The Railway Safety Principles and Guidelines Part 2b (k) specifically requires a 300mm wide recess beneath the platform nosing which should be kept clear of cables. All new cable routes must be routed to allow this 300mm recess.
- 3.5.2 Where cable runs are fixed to other walls in stations, the requirements of clause 3.2 shall be complied with.

3.6 Cable Posts

- 3.6.1 Cable posts shall have a Design Life of 50 years under service conditions, including almost continuous vibration to which cable runs may be subjected.
- 3.6.2 Cable posts shall not be affected by nor have any deleterious effect on materials in contact with them.
- 3.6.3 Cable post systems for new cable runs shall be pressed steel channel section, not less than 2.5mm thick to BS EN 10025 grade S275 or BS EN 10111 grade D11 or D12, hot dipped galvanised to 1461 (after pressing) with a pair of horizontal galvanised steel rails drilled at 600mm centres to receive pressed steel back plates (refer to Figure 1).
- 3.6.4 Coating systems used as finishes on cable posts shall be capable of being repaired on site.
- 3.6.5 Where replacement reinforced concrete cable posts for existing concrete cable post runs are required they shall be of concrete not less than grade RC40/50 to BS 8500. An exposure class of XF1 shall be assumed in the design.
- 3.6.6 The essential dimensions for the normally used concrete cable posts are shown on figures 2 – 4.
- 3.6.7 The tolerance on dimensions between fixing hole centres should be ± 0.50 mm and on other dimensions ± 1.00 mm.
- 3.6.8 Cable posts shall not be irreparably damaged when dropped onto a level hard surface from a height of 2m.
- 3.6.9 Cable post systems for new cable runs shall be designed assuming that brackets will be fitted to all holes, and that the brackets are filled with the maximum number of cables that can be placed on the brackets. A 25% extra capacity shall be allowed for in the design.
- 3.6.10 Cable posts shall be designed to resist wind loading and pressures and suctions from passing trains as specified in standards S1051 and S1053. The maximum applied