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Publication date	1 st June 2008
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MODEL CLAUSES FOR CIVIL ENGINEERING WORKS

SECTION 126

TEMPORARY BRIDGES

NOTES TO SPECIFIER:

These notes do not form part of the Specification.

Railway loading 126.1

Temporary bridges should be designed to either full RU loading including dynamic effects in accordance with GC/RT5112, or to a reduced loading not less than 0.75 RU loading, provided approval for such a reduction is obtained at the approval in principle stage in accordance with NR/SP/CIV/003. Past practice has been to design temporary bridges to a loading less than full RU, where the weight and speed of the rail traffic is suitable, and can be satisfactorily controlled, although confirmation must be obtained from Network Rail HQ as it is possible for break down cranes to be sent anywhere on the network. However, bridges on TSI routes must be designed for full RU loading.

Where a reduced design load is permitted, designing for the Route Availability (RA) number of the route would be reasonable, but should be treated with caution as rail vehicles with a higher RA number than the route under consideration are allowed to travel, either at reduced speed or full line speed, as the equivalent UDL of such vehicles on the structures on the route can be equal to or less than the RA loading applicable on the route.

Consideration may also be given to a reduced dynamic factor to allow for any reduction in rail traffic speed during the period when the temporary bridge is in use and the temporary nature of the works. Should a reduced dynamic factor be considered applicable, the RA loading including dynamic effects should be compared to the full RU loading including dynamic effects, and the proportion of RU determined accordingly.

Should it be possible to demonstrate that a design loading less than 0.75 RU is sufficient based on the existing loading regime for the route, including allowance for approved exceptional loads and diversions, a suitable and sufficient risk assessment must be carried out to justify the reduced loading and the results recorded. Such a risk assessment should demonstrate that the level of safety performance of the route is not reduced by using this reduced loading, and the risk assessment should be included in the information submitted for approval in principle.

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Where a loading less than full RU is proposed to be used, the information submitted for approval in principle should also include:

- (i) the intended life of the temporary bridge,
- (ii) any site specific hazards taken into account such as bridge bashing,
- (iii) control measures to prevent the bridge being over loaded.

Where a loading less than full RU is agreed at approval in principle stage, the Specifier should include the relevant details, including spans of the temporary bridge assumed in Clause 126.006.

Railway bridges 126.2 -collision loads

Collision loading should be used in the design of temporary rail bridge superstructures with a soffit less than 5.7 metres above the road. Collision loading for supports should be used in design irrespective of the height of the superstructure.

The basis of the requirements for collision loading from highway traffic is Highways Agency Departmental Standard BD60/04 'Design of Highway Bridges for Vehicle Collision Loads'.

For bridges over navigable waterways, the Environment Agency or relevant Port Authority should advise on the collision loading criteria to be used in the design of the supports and girders to a temporary railway bridge.

BS EN 1991 Parts 1 – 7 (2006) gives values of forces and rules of application to be used in the design of bridges for collision from road vehicles and ships.

Determination of the collision loads to be entered in the table will depend on the size and speed of craft using the waterway. A temporary bridge support is only likely to be able to resist collisions from light craft such as canal cruisers and therefore temporary bridges over rivers carrying larger craft should be protected with substantial fendering designed by a specialist marine consultant and the span should be increased if necessary to allow for the fenders. This is particularly important in vulnerable situations such as dock areas, near bends or on narrow reaches.