



Underline Bridge No. 228A

At Hackney London for British Railways

STRUCTURAL ENGINEERS

**Rendel, Palmer & Tritton in
association with British Railways
Board and British Railways—
Eastern Region.**

STEELWORK CONTRACTORS

**Clarke Chapman—John Thompson
Ltd, Horseley-Piggott Division**

Judges Comments

**The use of steel including standard
plated floor units for the deck
enabled site work to be kept to the
minimum and avoided
interference with rail traffic except
at week ends.**

**The clean and simple lines fit well
into an urban setting and will
assist economy of maintenance.**

The structure is a double track, half through, seven span bridge which carries Existing curved tracks over the East Cross Route. The main girders are at about 10m centres and span 22 and 23m. They are arranged to follow the curvature of the tracks. They are supported on "sill" girders which are arranged normal to the tangent of the curve to the tracks. These sill girders straddle half of the width of the road and are supported at one end on steel columns which are located in the central reservation. The other end rests on concrete supports in the ground behind the road retaining walls. The construction depth was controlled by the level of the existing tracks, which were carried by an embankment, and the level of the new road.

The sill and main girders are boxes, the latter being stepped at their ends where they sit on the sill girders. The top of each sill girder is at deck level and itself forms part of the deck. The deck consists of panels of a B.R. standard type of battle deck which is simply supported between the main girder boxes. Deck panels are interconnected so as to provide longitudinal continuity, but as only the minimum number of site bolted connections was required, the deck units were not considered capable of acting together

in plan to resist lateral forces and so the centrifugal and other lateral forces are carried to the sill girders by the main girder boxes in lateral bending. Longitudinal forces on the bridge are carried by the North abutment only and the spans are interconnected to provide for longitudinal continuity, consequently longitudinal rollers support both ends of all sill girders. Lateral movements of the simply supported sill girders are accommodated by lateral rollers at one end of each girder.

The sill girders were erected by mobile crane and way-beams were then reinstated over the tops of them. The embankment was then trimmed and steepened so that the main girders could be erected. A light gantry was supported on the main girders and this was used for transporting and lowering the deck panels into position. The tops of the sill girders and the deck panels were coated in the shops with a coal tar epoxy formulation and, immediately after erection, the joints in the deck were waterproofed by the same formulation but strengthened with layers of fabric of chopped glass strand. The ballast and track was then laid on directly. All steel is in grade 43A except for tension flanges which are in 43D.

