

Almond Valley Bridge

at Livingston for Midlothian County Council

Bridgework section

STRUCTURAL ENGINEERS

Chief Engineer's Department,
Livingston Development Corporation
(Chief Engineer J. Munro, CEng, MICE,
MI MunE)

STEELWORK CONTRACTORS

Cleveland Bridge & Engineering Company Ltd

Judges' Comments

A pleasing unobtrusive over-bridge of simple lines — one of the essential requirements of a modern motorway complex. The apparent simplicity belies the thought given to the basic requirements of standardization, site conditions, erection economy and ease of maintenance, all of which are so essential in a bridge of this length.

The Almond Valley Bridge is a structure of ten continuous 100ft spans varying in width from 100ft to 114ft carrying a dual three-lane urban motorway and slip roads over the River Almond at a height of 60ft.

The deck is composite and is of welded plate girders 5ft 6in deep and reinforced concrete slab 8in thick. Longitudinal forces are transmitted to the fixed end of the bridge and longitudinal movement to the other end. This is achieved by the girders resting on rocker bearings on welded box portal frames which in turn rest on rockers. This arrangement gives favourable conditions at the intermediate supports because the longitudinal forces on the bridge do not require to be resisted. The intermediate supports are founded on universal steel bearing piles varying in length from 30ft to 150ft.

The design concept was best translated into practice by the use of structural steel because it was desirable to limit the weight of the large movable

elements which constitute the intermediate supports and because the deck system had to be immediately self-supporting on erection and be capable of stabilizing the portals.

1,800 tons of structural steel of grade 50C — BS 4360 were used and 800 tons of universal steel piles.

The bridge was opened to traffic on 1 February 1972.



