

Slabstress



Sustainable Technology

BROADMEAD MSCP

Client:	Bristol Alliance
Principal Contractor:	Norwest Holst
Frame Contractor:	Febrey Ltd
Specialist PT Contractor:	Freyssinet
Structural Engineer:	Waterman
Contract Value:	£1.0 Million
Contract Duration:	40 weeks
Works Commence:	April 2007
Works Completed:	March 2008

Broadmead Multi-Story Car Park formed part of the £500m Cabot Circus scheme, which saw extensive demolition to the existing retail buildings, and restructuring of the roads in order to extend the existing facilities and regenerate land to the North East of the site.

The design had to accommodate an existing large substation, which the car park spanned over. For this purpose two 30m long by 2.5m deep post-tensioned beams were precast on the site and craned into position. At 200+ tonnes, serious lifting gear was required but this was still judged a cheaper solution than the originally schemed steel virendeel girders.

Each beam rested on 2000t Freyssinet bearings and contained ten 19C15 tendons. Stressing was done in 5 stages as the loading was added to the beam as successive floors were added above. The bottom flange of the transfer beams was designed to support the falsework for level 3 construction, thus avoiding having to backprop onto the substation.

The car park decks consisted of 650mm deep by 1200/1800 wide PT beams spanning 16m with 175mm thick PT slabs between. The total suspended area of the 8-storey structure was 54,000m².



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