



Client	Capita for Dawnus / Ferrovial Agroman JV for Welsh Government
Project Description	<p>ECI project for the construction of a 1.2km long elevated dual carriageway predominantly in viaduct to avoid difficult services diversions.</p> <p>The site was characterised by a heavily skewed crossing of a railway corridor, existing industrial access roads, buried obstructions and a complex layout of live services. The design solution involved a relatively simple arrangement of composite concrete approach spans on either side of a more complex 6-span steel composite viaduct over the railway beneath which most of the critical obstructions were encountered. Significant ingenuity was required in the location and design of the bridge piers in particular to allow the construction to progress around the 24/7 Celsa steelworks railway.</p>
Cass Hayward Role(s)	<ul style="list-style-type: none"> • Concept design for entire viaduct • Detailed design for steel composite railway viaduct • Independent design check for approach viaducts • Temporary works design for erection of precast components • Steelwork fabrication and erection compliance advice
Project Statistics	<ul style="list-style-type: none"> • Project Value: £57.3m • Construction: February 2016 - June 2017 • Two Concrete Approach Viaducts – 15 spans in total - 260m and 170m long, typical end span of 25m and typical internal span of 30m • Steel Composite Railway Viaduct – 6 spans - 227m long, maximum span 49m
Special Features	<ul style="list-style-type: none"> • Relatively long span precast beams for continuous approach viaduct construction • Steel box girder cross head to the portal pier between spans 4 and 5 of the railway viaduct to straddle the track zone • RC leaf pier between spans 3 and 4 of the railway viaduct has aperture to straddle the track zone on the north side. Aperture formed by installation of preformed RC shell over the railway and then infilling with insitu concrete to create rigid connection with pre-constructed adjacent wall and column
Awards	<ul style="list-style-type: none"> • Construction Excellence Wales Innovation Award – shortlisted • NEC Project of the Year Award – highly commended • NEC Contractor of the Year Award Winner • Concrete Society - Excellence in Concrete Awards – shortlisted • CIHT Cymru Wales - Transportation Project of the Year