



# HSL Atlantic Axis. Sar Viaduct

Stretch Rialiño–Padrón, A Coruña, Spain / 2012

Structural type  
Characteristics  
Owner  
Client  
Constructor

prestressed concrete box girder bridge  
main span 55,0 m. total length 2,411 m  
Dirección General de Ferrocarriles. Ministerio de Fomento  
FERROVIAL  
Ferrovial



Railway viaduct on the stretch between Rialiño - Padrón (A Coruña) of the Atlantic corridor of the High Speed Railway Line which crosses the valleys of the Rivers Sar and Sarela.

It is composed of a notably long structural concrete deck measuring some 2,441m with two hyperstatic spans and an intermediate isostatic span. Each hyperstatic span is fixed on a central point set upon A-shaped piers.

The deck was constructed using MSS in 46 phases. The foundations are deep piles except in the case of three piers which employ a direct foundation.

The structure is a single deck with 46 spans with lengths measuring  $36.90 + 45.00 + 21 \times 55.00 + 45.00 + 38.10 + 40.80$  (inert span)+  $38.10 + 45.00 + 17 \times 55.00 + 45.00 + 36.90$  between abutment centers, so offering a total length of 2411.10m. The deck has two fixed points which are located at piers P-13 and P-35 which correspond to the two A-shaped piers. An isostatic span has been placed between piers P-24 and P-25. These piers have a double support, with a longitudinal separation of 2.65m between them. This configuration offers three sections of independent deck. The first, which runs between abutment E-1 and pier P-24 are organized around pier 13 and have length differences of: 686.90 m and 578.10. The third, which runs between pier P-25 and abutment E-2, has length differences of 523.10 m and 576.90 m around pier P-35 and finally, section 2, which is the isostatic span between piers P-24 and P-25. The deck has a constant, regular width of 14.00m.

The distribution of the expansion joints along the length of the track are: simple on abutment 1, simple or double on the isostatic span and simple on abutment 2.

The deck is composed of a prestressed concrete box section with a maximum height of 3.75m with a 2% camber running to the sides. The soffit width is 6.00m and the cantilevers stretch outwards 3.25m in length. The box section is 0.30m thick in its lower chord which increases to 0.60m over the piers. The upper chord varies in thickness between 0.20m and 0.40m and the webs are 0.50m thick. The deck was constructed employing MSS in all 46 phases from abutment E-2 to abutment E-1.



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