Bridges

FCC Construcción

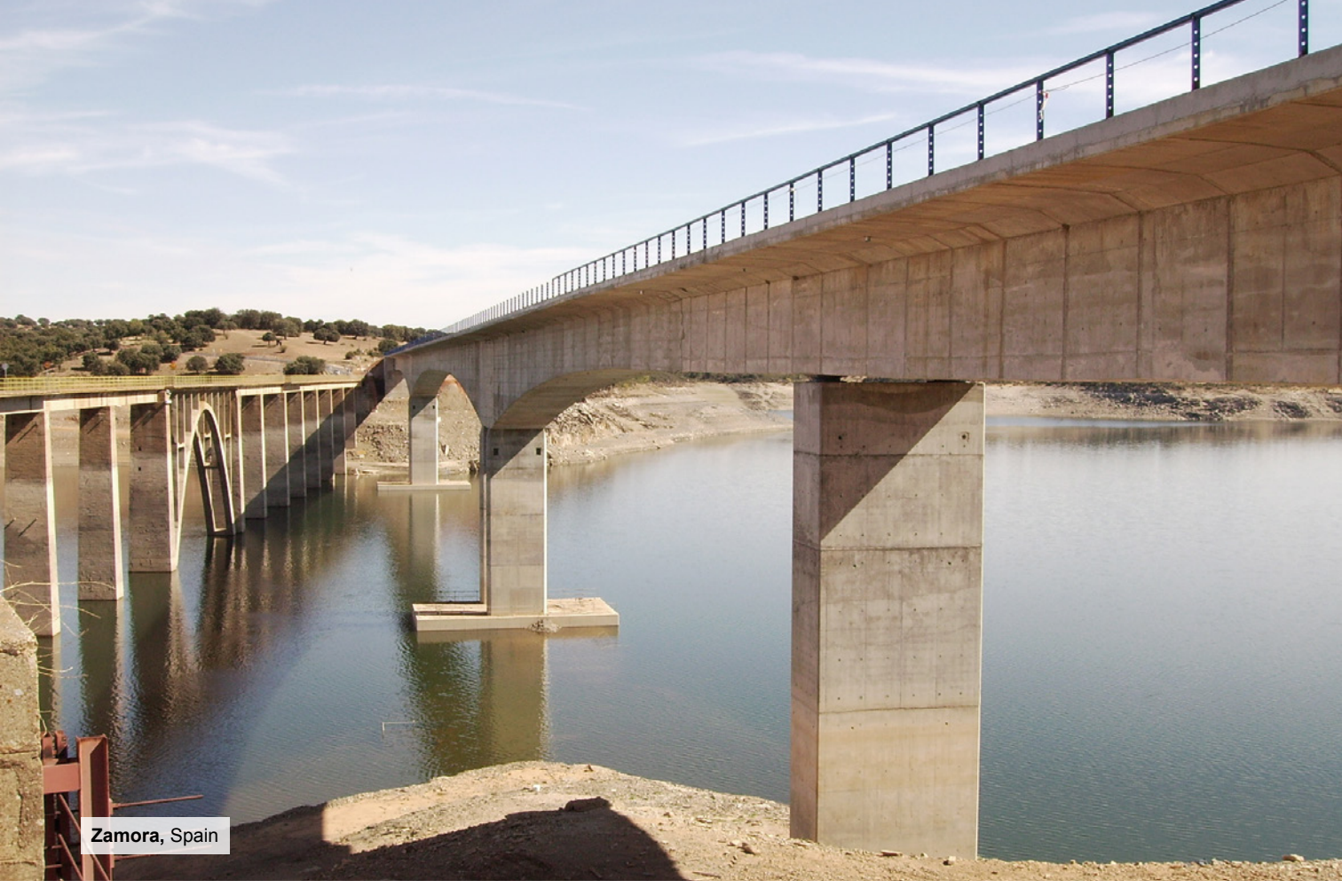
Extensive experience

on bridges

FCC Construcción has been building bridges for more than 115 years. In this time FCC has built various types of beam, arch and suspension bridges using traditional; steel, concrete as well as new, and innovative engineering materials. FCC Construccion's range of bridge undertakings include; multipurpose, medium and large span constructions of all major bridge types (beam, arch, suspension, cable stayed, cantilever, truss and tied arch).

Construction can include the use of; in-sit concrete with static formwork, self-attachable formwork, precast elements with successive overhangs, along with the use of special plant such as; large marine cranes.

FCC Construcción has been licensed by the Swiss BBR Network for use of post tensioning-systems which are commonly applied in bridge construction such as that used in; the Corgo viaduct (Portugal), the Vidin Bridge (Romania), or in the bridge Fernando Reig (Alcoy, Spain).

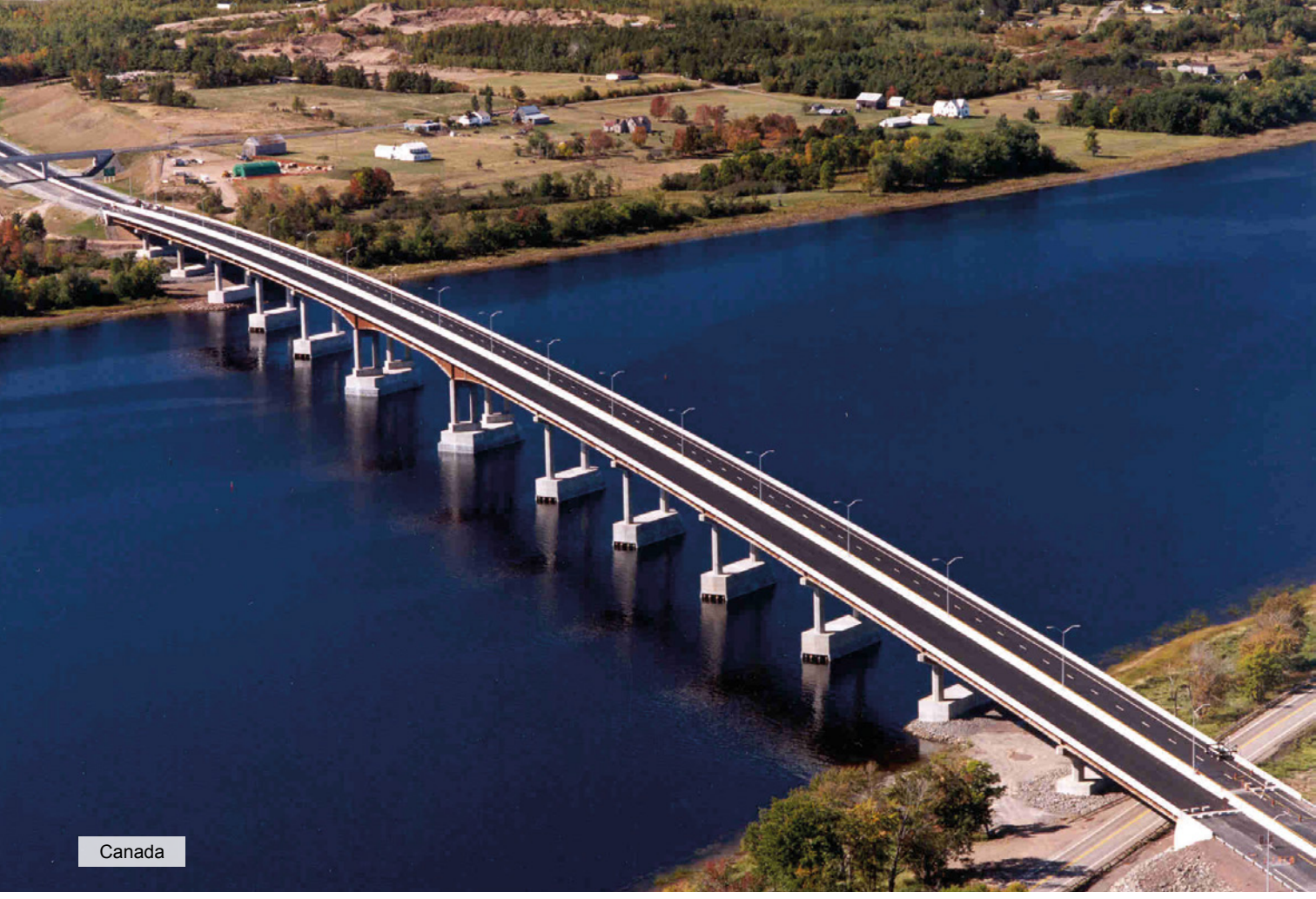


Zamora, Spain

Ricobayo
Reservoir
Viaduct

This pre-stressed, concrete bridge has the longest span of 155 meters, which is also the longest high speed railway span in Europe. The bridge was constructed using cantilevered advances with cast in-situ segments.

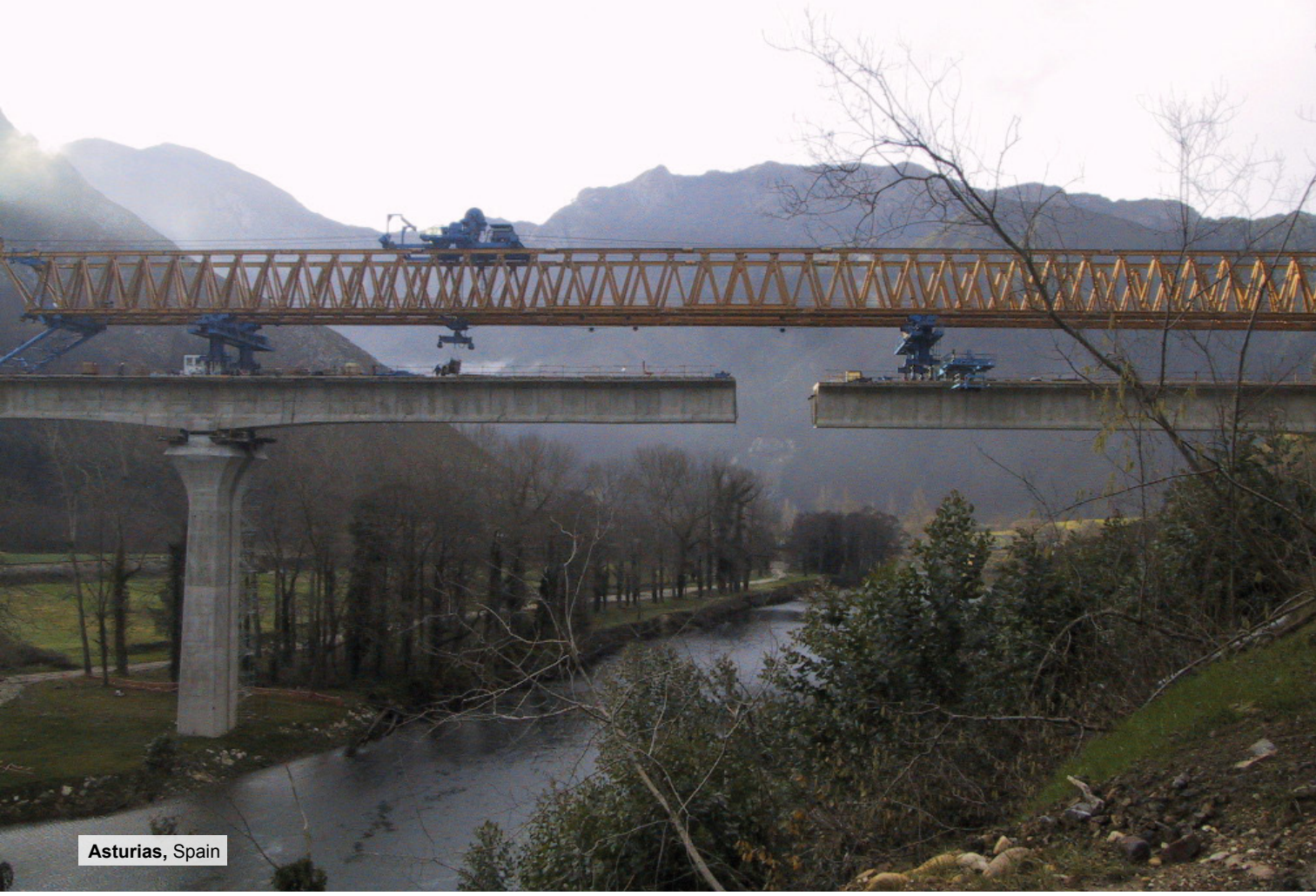
The new viaduct construction was commissioned after discovering significant damage to the structure of the existing bridge that seriously compromised the safety of its users.



St. John and **Jemseg**
Viaduct

The St. John and Jemseg viaducts are located on the highway linking Moncton with Fredericton, on Canada's East Coast. The St. John Bridge is the longer of the two at 1,062 meters and the Jemseg Viaduct has a length of 976 meters with 11 spans.

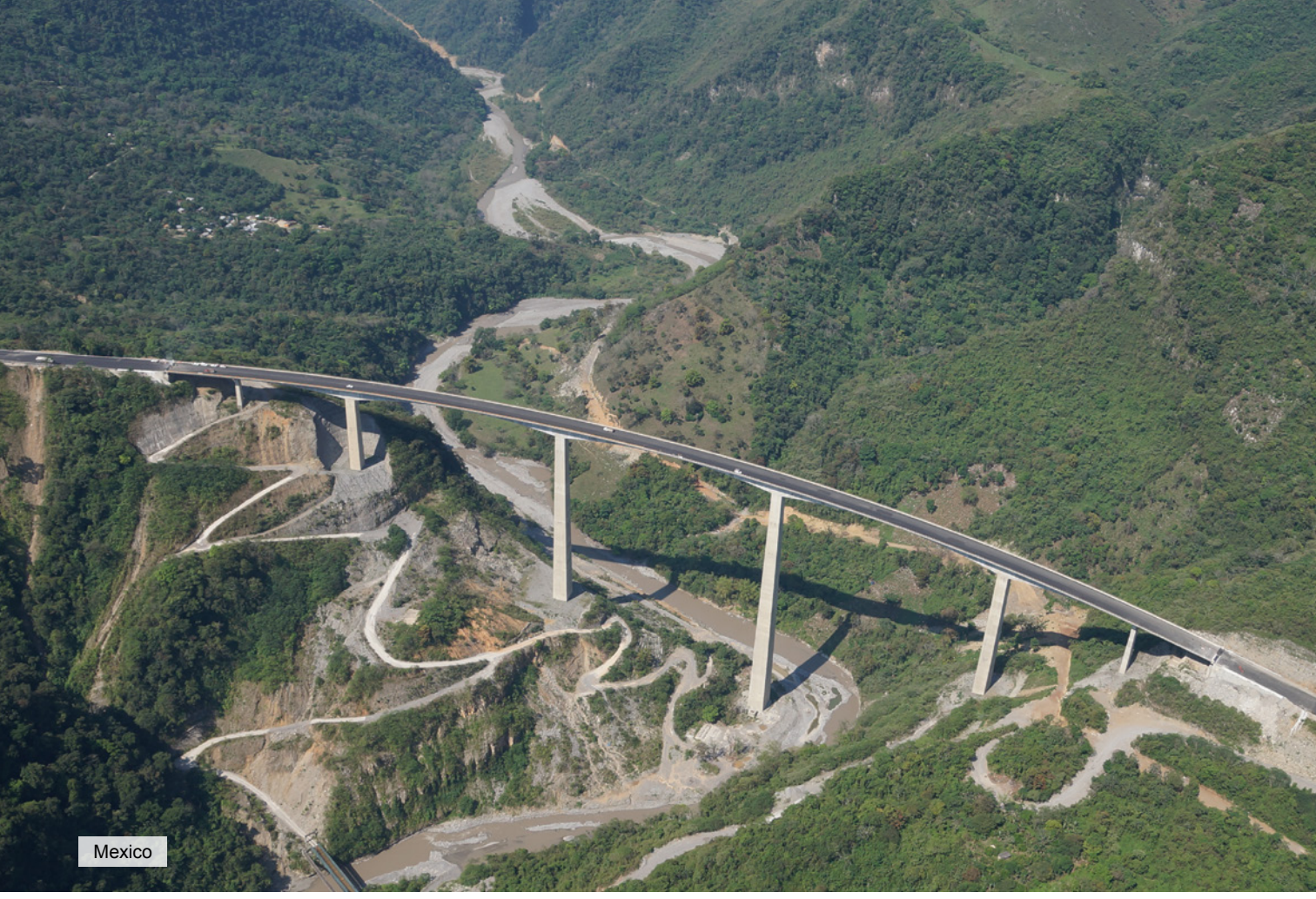
These bridges have not only substantially improved transport links between the two most important cities of the New Brunswick province in Canada, but also improved connections between the easternmost provinces and the rest of the country.



Asturias, Spain

Sella
Viaduct

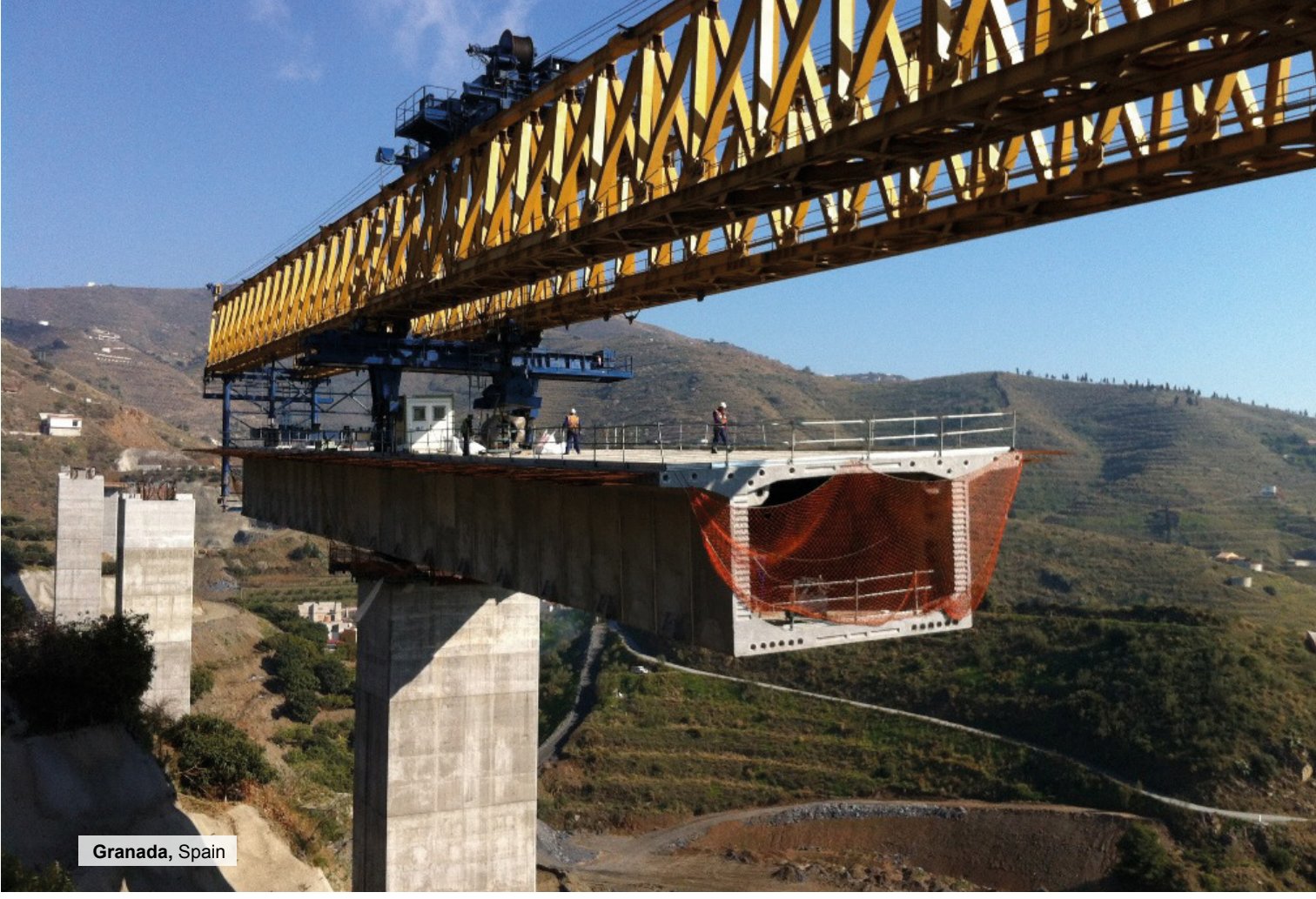
The viaduct on the Caravia - Llovio (Asturias) stretch of the Cantabrian highway was built by FCC Construcción using cantilevered precast segments. The structure is 535 meters long and it has a main span of 106 meters.



Ingenierio
Gilberto Borja Viaduct
Navarrete

At 850 meters long with a maximum span of 180 meters the bridge was built by cantilevered advances of cast in-situ segments. The viaduct has a maximum height above the riverbed of 225 meters, which makes it **the second highest in the world and the highest in America.**

In 2015, this project received the Lieberman Award for ‘Best Works’, awarded by the Mexican Chamber of the Construction Industry (CMIC) through the Industry Foundation of Construction for Technological Development and of Productivity (FIC).



Granada, Spain

Romeral
Viaduct

This bridge was built with pre-fabricated segments constructed in advances which cantilever with upper self-lacing formwork.

The central section is widen with in situ concrete in a second phase to form a 29.84 meters wide carriage. The total length is 569 meters with intermediate spans of 92 meters.

Concha de **Artedo**
viaduct

The viaduct is located on the Las Dueñas - Muros de Nalón section (Asturias) of the N-632 road, it is 1,184 meters long and crosses the valleys of the Uncín and Especuero River. It was built with prefabricated, cantilevered segments at a height of 110 meters. This new layout facilitates decongestion of traffic in the area, contributing to improved connections, thus promoting tourism in the region.

Galicia, Spain

Arenteiro and **Barbantiño**

Viaduct

Located in Orense (Galicia), on the railway corridor of High speed North - Northwest, Orense - Santiago sub-section. There are two concrete viaducts 67 meters wide, and 1,444 meters and 1,176 meters long respectively. The viaduct boards were built using the push system from one of the two stirrups.

Galicia, Spain

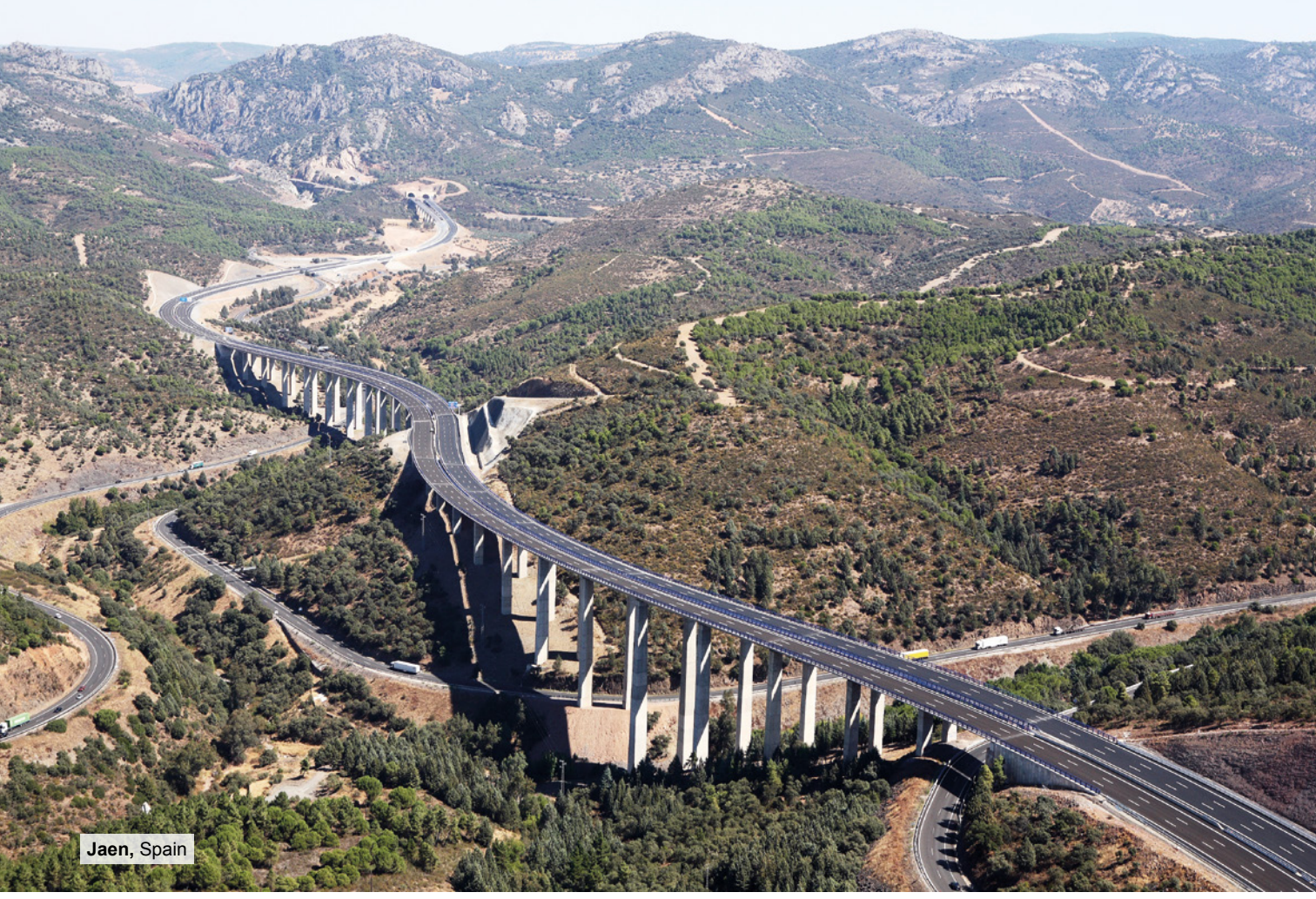
Arnoia and **Valenzana**
Viaduct

These viaducts are located on the Rías Bajas highway (Galicia), on the stretch San Ciprián de Viñas - Alto de Allariz. The Arnoi and Valenzana viaducts are 945 meters and 450 meters long respectively. The sections are erected isostatically to bridge to construct the 45 meters spans with 16 prefabricated, pre-stressed segments.

Barbantes
Viaduct

Situated in the Rias Bajas (Galicia), on the Castrelo reservoir this viaduct is 359 meters long with 54 meters long intermediate spans.

The construction method involved building from the piers using the push method and cantilevering the segments as they were assembled.



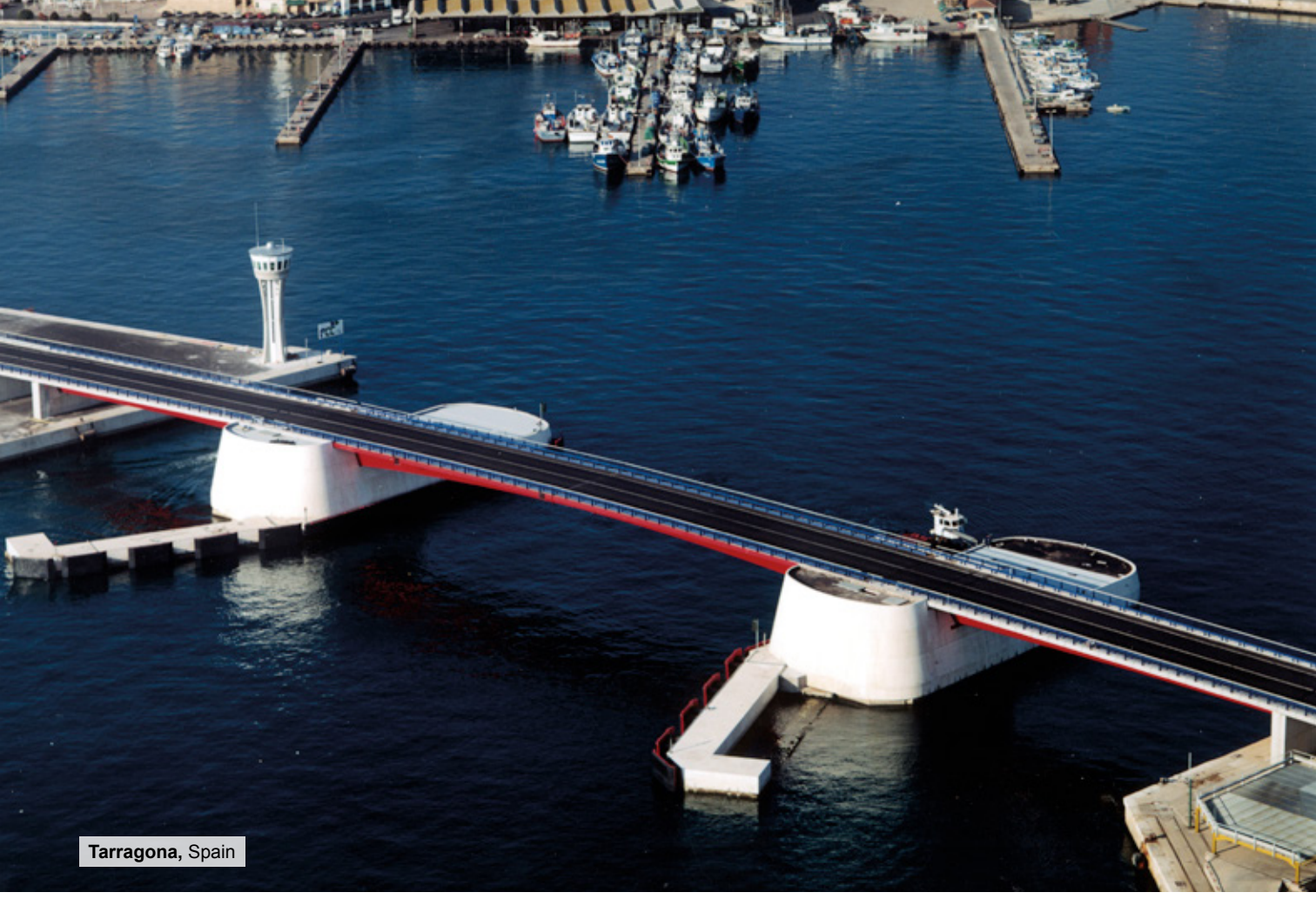
Despeñaperros
Viaduct

Six viaducts were built along the route; Santa Elena 260 meters, El Manantial 371 meters, Las Tinajuelas 520 meters, Despeñaperros 425 meters, Cuchareros 73 meters and Venta of Cardenas 150 meters, which bridge over a series of troughs and the Despeñaperros River. Four of these viaducts were built with prefabricated, pre-stressed segments.

The viaducts reduced, the route from thirteen to nine kilometres, as a result; reducing the time taken to make the crossing.

Barcelona
Bascule bridge

This world record infrastructure is the widest navigation channel allowed by a double leaf bascula. The bridge is set along a route between the Poniente docks and dock Port of Barcelona. The mobile bridge section over the navigation channel is built from structural steel having a total span of 109 meters. The need to mitigate the intense traffic of the port of Barcelona; improve fishing traffic, tourist cruises and water sports, made the construction of this unique bridge essential. The bridge also facilitates the renovation of inland waters ways, having significant environmental benefits as a result.

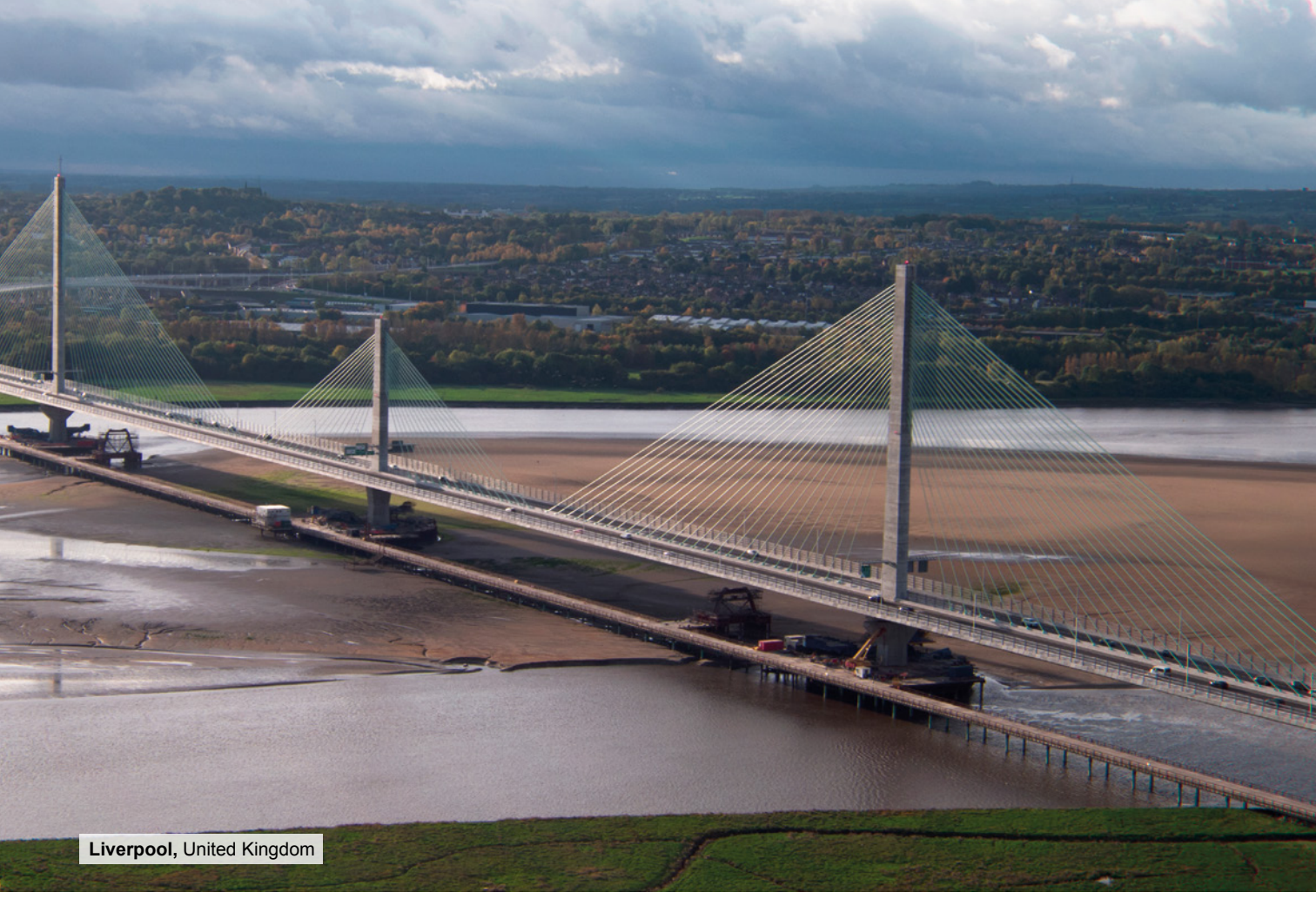


Tarragona, Spain

Tarragona
Bascule bridge

Located in the Port of Tarragona, it is a double-leaf, bascule Bridge that rotate around ball joints located in the buttresses that from am 80 meters wide channel.

The construction of this drawbridge, which joins the Reus and Lleida docks in the port of Tarragona, has rerouted 700 lorries daily away from the seaside towns of El Serrallo and the Moll de Costa. The height and width of the navigation channel were designed to allow more than 90% of boats in the fishing fleet of Tarragona across without having to raise the bridge.



Liverpool, United Kingdom

Mersey Bridge

The project included design, construction, financing, maintenance and operation of the bridge over the Mersey River (United Kingdom). The 2,250 meters long bridge includes three central cable stayed spans that go up to 318 meters. The width of the deck is variable at up to 43 meters.

The project received multiple accolades including; RICS North West ‘Project of the Year’ prize. The Mersey Bridge was also recognized by KPMG among the 100 most important infrastructure projects in the world. It has also been listed as one of the ‘best bridge[s] in the world’ by IABSE in 2019.

Sevilla, Spain

Alamillo Bridge

The Alamillo Bridge w**as a symbol of the Universal Exposition Seville in 1992 and serves as an emblematic monument of the city.** It is a 200 meters, single-span, cable-stayed bridge supported by a 142 meters tall pylon, inclined at 58 degrees to act as a counterweight. The bridge works by balancing deck against the weight of the pylon. It is the first cable-stayed bridge built without braces.

Santo Domingo, Dominican Republic

Ozama Bridge

It is a cable-stayed bridge with a system of braces. For this bridge the height of the pylons is restricted by the height of the buttresses of the existing adjoining bridge. The main span has a maximum length of 180 meters.

The bridge was constructed to alleviate the vehicular congestion near the Juan Pablo Duarte Bridge, thus increasing the capacity to 183,000 vehicles daily.

Valencia, Spain

Azud del **Oro** Bridge

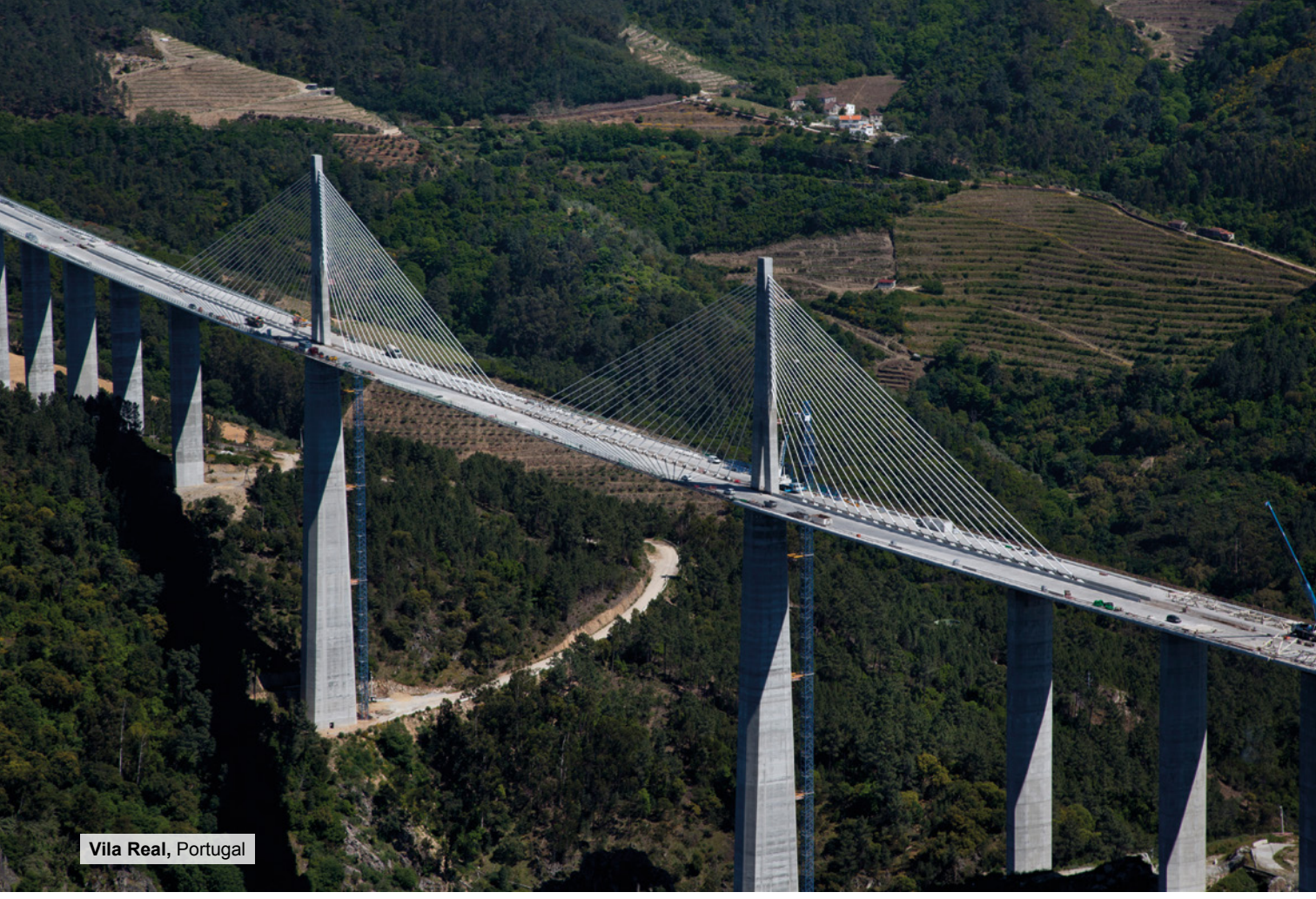
It is a cable-stayed bridge, with a 180 meters long, steel desk that weighs 5,500 tons. The cable stayed bridge has a 125 meters high mast supported by 29 front, harp-shaped cables and 4 sets of cable-tubes at the back. The 39 meters wide bridge is also the longest and the highest in Valencia.

Vidin, Bulgaria

New Europe Bridge

Bulgaria's largest construction project at the time, this project was built as part of the pan-European IV programme. It consisted of the construction of a combined bridge, with a total length of 1,791 meters, for road and rail traffic.

In 2013, the project received awards from the American Segmental Bridge Institute (ASBI) and the International Construction Economic Forum (ICEF). In 2014, The Engineering News Record (ENR) presented it with the Best Global Project Award.

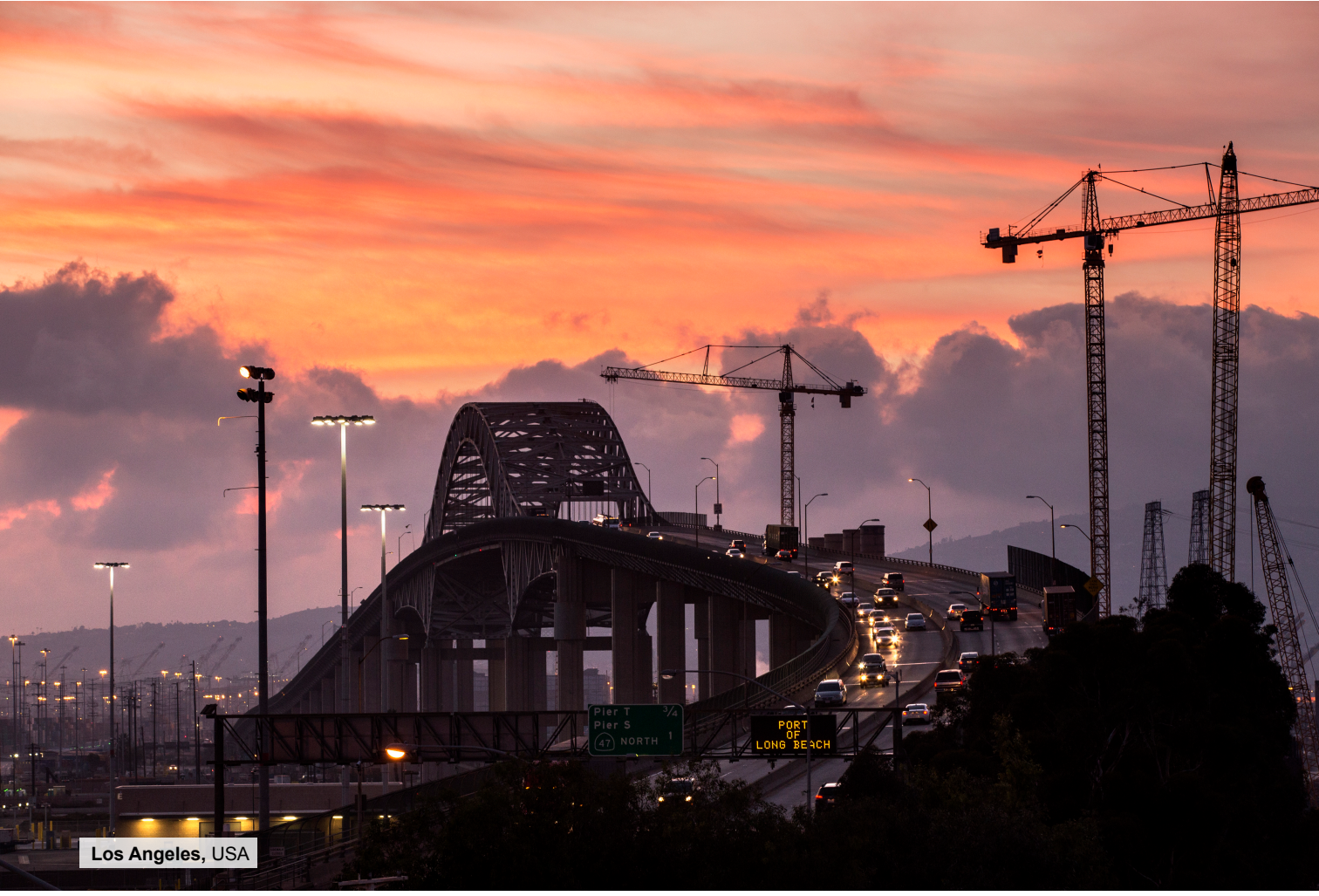


Vila Real, Portugal

Corgo Bridge

It is the **second highest viaduct in Europe**, located on the Transmontana Highway in Portugal. The bridge is 2,800 meters long with a cable-stayed central section spanning 300 meters. The pylons have a total height of 190 meters with the deck sitting 230 meters above the river Corgo (Portugal).

This project brought improvement to the Northeast connection of Portugal with Spain, including the crossing of the Serra de Marão Mountain.

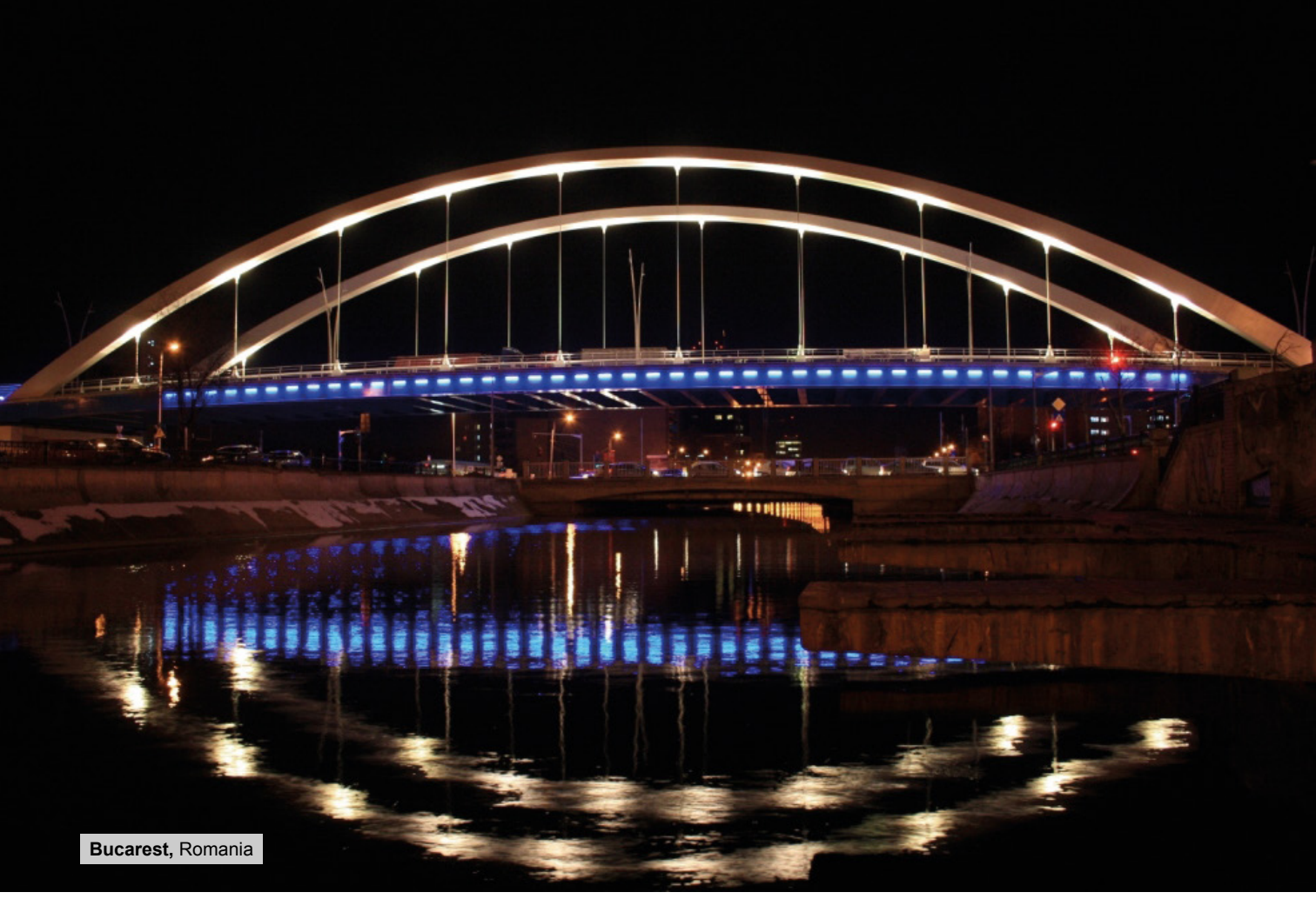


Los Angeles, USA

Gerald **Desmond** Bridge

The project included replacement of the current Gerald Desmond Bridge built in 1968 on the Back Channel of the Port from Long Beach (Los Angeles), with a new cable-stayed bridge. It has a main span of 305 meters and is located 61 meters above the Back Channel with two large spans of 152 meters. The central bridge section is supported by two, 155 meters tall single-shaft towers.

This construction allows improved traffic flow and enhanced security, in addition to having a very positive impact on the Southern California economy.



Bucarest, Romania

Basarab
Bridge

Located in northwest of Romania, it has four differentiated parts; the Grozavesti viaduct; the 120 meters long, arch bridge that crosses the Damvobita river; the viaduct Orchidea; and the cable-stayed bridge that serves the railway line. It also has a direct metro access station.

This is one of the largest projects completed in Romania in the last twenty years. The construction helps alleviate traffic and facilitates passage of the main tram arteries from the capital.

The project was awarded the ARACO Quality Trophy.

Merida, Spain

Lusitania
Bridge

The Lusitania Bridge central span is supported by a lattice metal arch which supports the deck. The main span is 180 meters long.

The construction of this bridge was carried out to link both sides of the Guadiana and to release the Roman Bridge, for pedestrian only use.

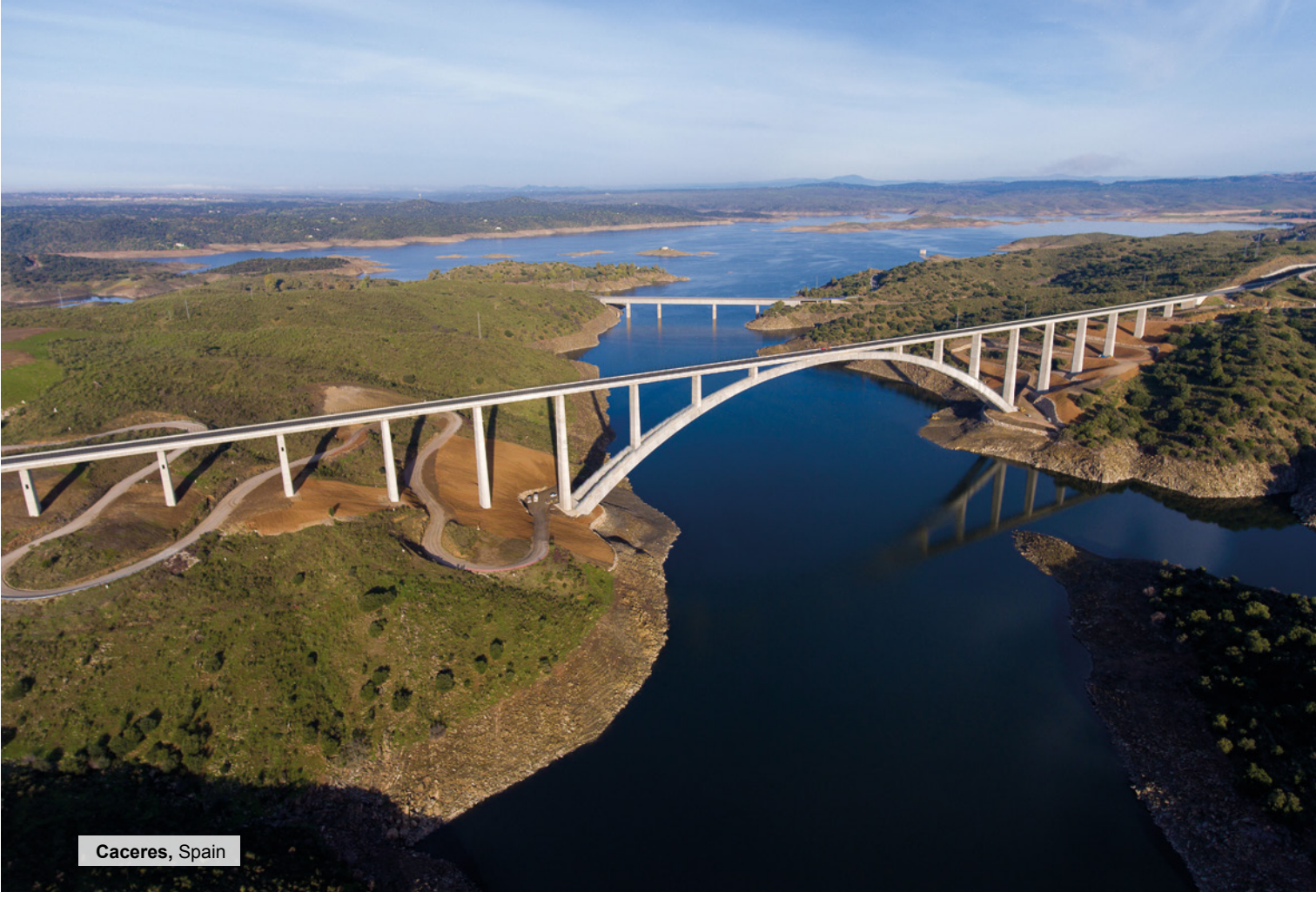
Currently, the Lusitania Bridge is trafficked by 15,000 daily vehicles.

Asturias, Spain

Viaduct of **Navia**

The Bridge is 906 meters long with two arches that support cable-stayed decks of 160 meters each. The remaining, smaller spans are 75 meters each. The bridge deck is 27 meters wide and is part of the A-8 motorway, built by **FCC Construcción.** The construction method used prefabricated, cantilever mounted segments.

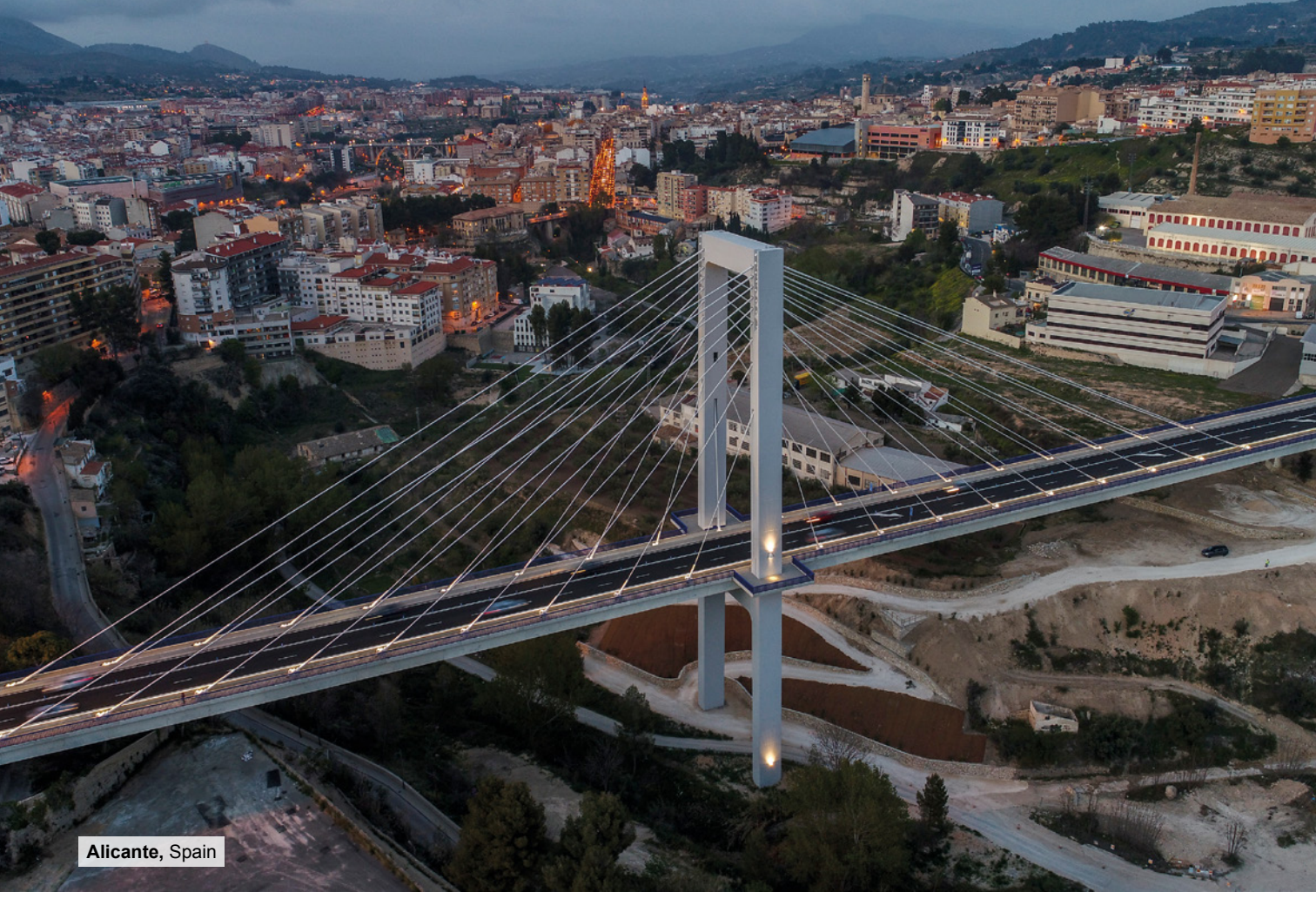
In 2010, this viaduct received a special mention by the International Concrete Federation (IBF) in the civil engineering structures category.



Caceres, Spain

Almonte river
Viaduct

Located on the Madrid- High Speed rail connection Estremadura, it has a total length of 996 meters and contains a 384 meters central arch to support the main span. The viaduct span sets a world record for railway arches. The record braking bridge has also been recognised with several international awards including; ENR Global Best Projects award; Gustav Lindenthal accesit medal in the III Awards of ACHE Engineering; American Concrete Institute-Excellence in Concrete Construction Awards; special mention in the International Federation for Structural Concrete (FIB), and special mention by the International Association for Bridge and Structural Engineering.



Fernando Reig
Bridge
Rehabilitation

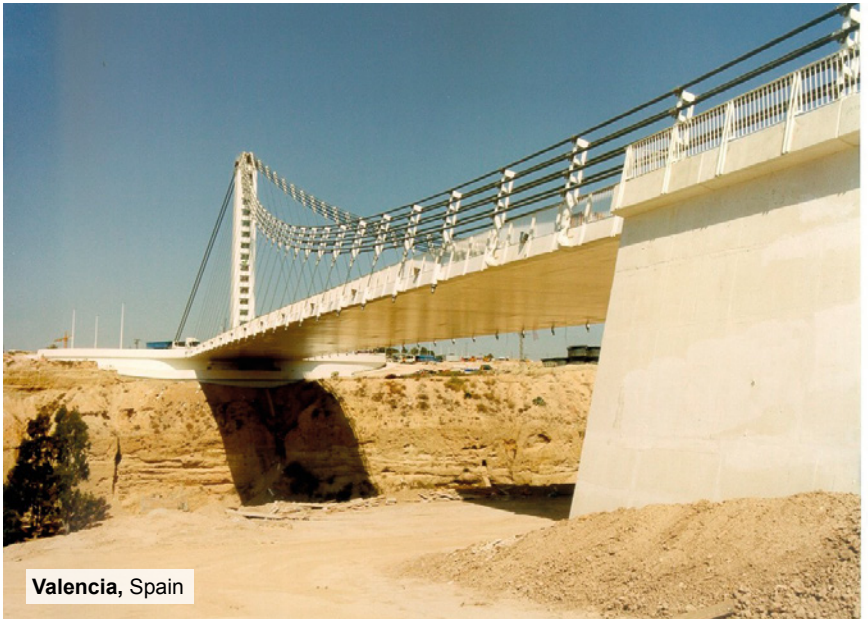
The Project involved replacing the 38 bridge braces, repairing the central pillar, and some aesthetic work including; paint and lighting.

Vinalopo river

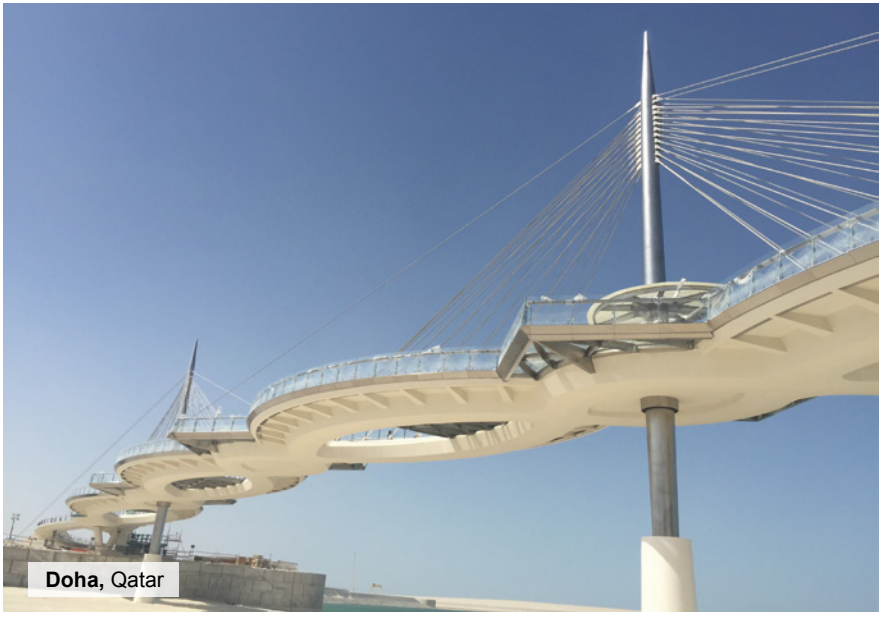
Suspension bridge

This is a suspension bridge with asymmetric wires. One of the stirrups is located at the top of the pier with the suspension cables placed lower.

The largest span is 164 meters long.



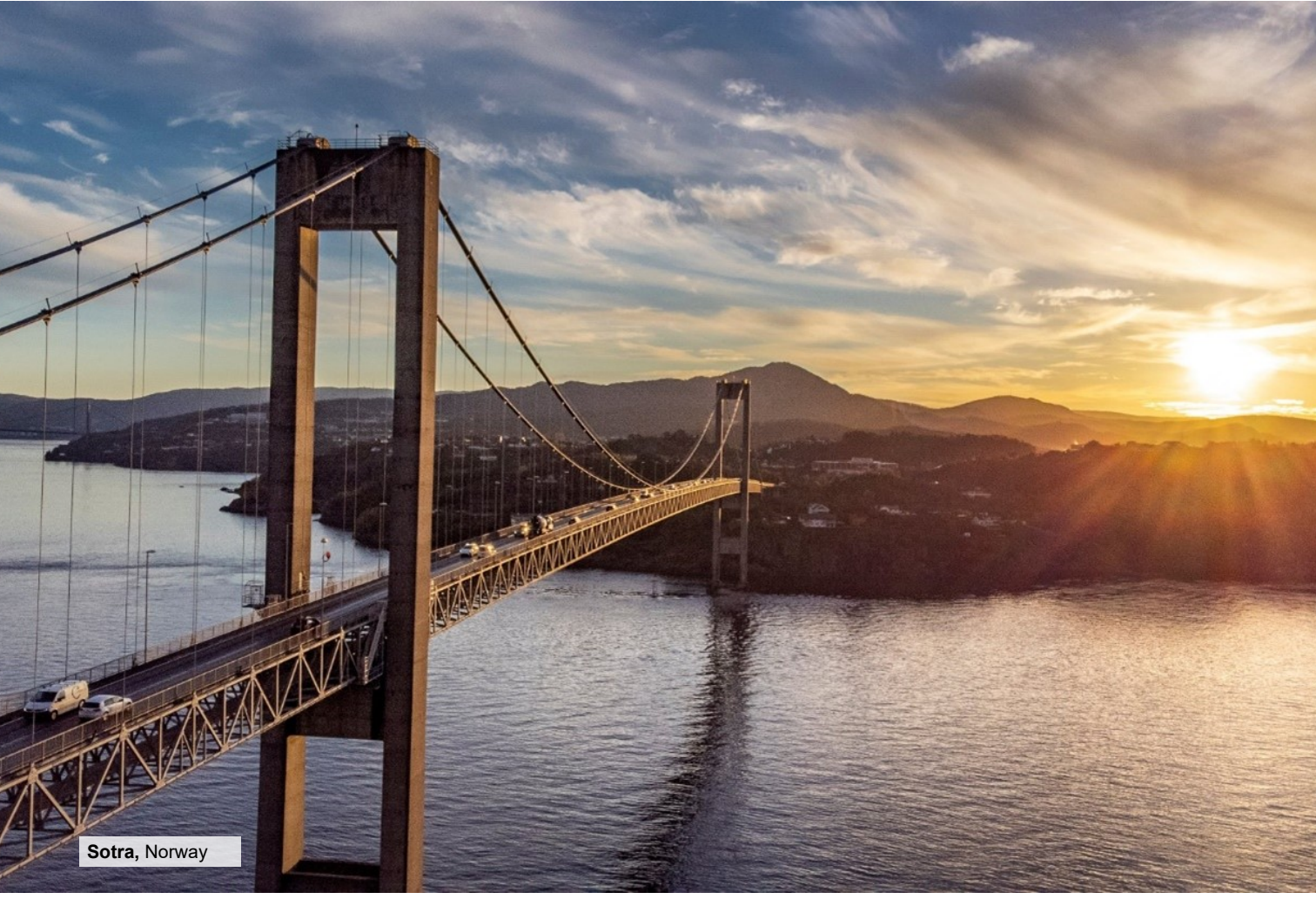
Valencia, Spain



Doha, Qatar

Footbridges
in Lusail

Located in an urban development from Lusail near Doha (Qatar). The pedestrian walkways interconnect the South of the Qetaifan Islands. The structure is of cable-stayed construction which support the 60 meters spans.



Sotra, Norway

Sotra Bridge

This is the largest road infrastructure contract in Norway's history and one of the largest contracts awarded in Europe.

The contract is based on the design and construction of a four-lane, 900-meter bridge linking Bergen and the island of Sotra. The project includes the construction of twin 4.6-kilometer-long tunnels. The new road system will have dedicated space for public transport, as well as pedestrian and bicycle access. The project also includes the construction of three smaller bridges.

This is the largest digitally constructed suspension bridge in the world.

WE ARE **FCC**

More than 1,000 kilometers of tunnels

More than 10,000 kilometers of highways

More than 3,500 kilometers of railways (1,500 kilometers of high speed and 450 kilometers of metro)

More than 5,500,000 square meters of airport runways

More than 2,500,000 square meters of airport terminals

60 kilometers of dykes and 50 kilometers of docks

130,000 homes built
More than 40 million square meters of non-residential building

More than 3,000 kilometers of gas and oil pipelines

More than 20,000 kilometers of water pipe

More than 110 water treatment plants

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