



Construcción **Transmontana dual carriageway** in Portugal



Improving the terrestrial

The Transmontana motorway between Vila Real and Bragança forms part of the **Red Trans-European Transport Network** and will allow the connection of the A-4 dual carriageway, which commences in Oporto, to the border with Spain and with Europe.

The project

This is a contract for the design, construction and maintenance of a new **194 km dual carriageway that consists of 32 kilometres of new construction, 106 km of straightening and 56 km of conditioning and improvement of the existing IP4.**

The project speed for the new highway is 120 km/h, although, because of the complex orography in the region, lower values have been adopted along certain sections.

The project includes the conditioning of the Sierra de Marão crossing, an area with steep slopes and a difficult route that have been reduced by these works with **the improvement of the actual accident rate.**

The junctions with the IP4 have been modified to adapt them to the new infrastructure by the construction of **seventeen viaducts**, among which special mention must be made of the following:

- The Corgo Viaduct is 2,790 metres long with a main span of 300 m. It's a cable-stayed bridge with a maximum column height of 130 m with a spar of 63 m. Its aim is to save the Corgo river with a deck height of 230 m.

General information

Client	Estradas de Portugal
Commencement date	2008
Completion date	31 Julio 2013
Budget	706 million Euros
Viaducts	17 / Total 7,220 metres

Main quantities and dimensions

Steel	34.622.055,25 kg
Concrete	267.797,33 m ³
Bituminous layers	1.540.250 t
Granular layers	1.462,944,90 t
Excavation volume	15.204.515,61 m ³

Experience, professionalism and teamwork

The FCC team, with the consolidated experience of over a century of executing works all around the world, worked on this dual carriageway in order to convert this project into reality. Teamwork was essential in order to successfully execute this highway. More than 2,500 people worked on this dual carriageway, of which 80% were local labour.

- **Means:** FCC assembled two agglomerate plants, which produced more than one million tonnes.
- **Innovation:** BBR, the FCC company specialised in post-stressing, installed 88 cable stays for the Corgo Viaduct, with a seat (an innovating element) that formed the connection between a cable-stay pair that permitted them to work with different loads on the two sides.
- **Environmental care:** An environmental impact survey was carried out and the necessary measures taken to protect the surroundings and achieve landscape integration of the new highway. Fauna passes were executed for the protection of species, such as the Iberian wolf, which is in danger of extinction.



connection in Portugal

Consortium

Concessionary company

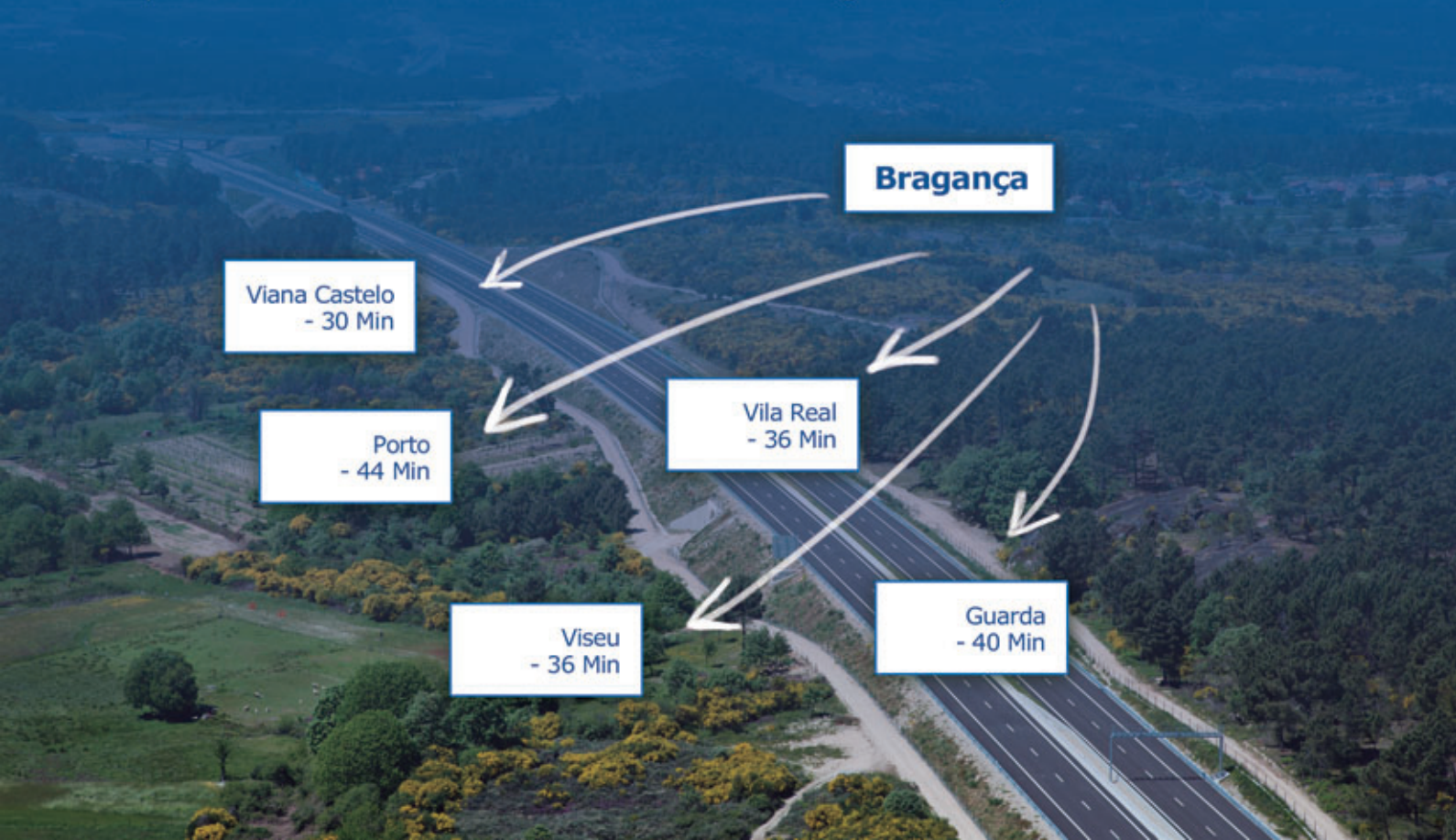
Estradas de Portugal awarded the contract to the consortium **ACE Autoestradas XXI**, formed by **Globalvía Infraestructuras**, constituted by FCC and Bankia, with equal shares, jointly with the Portuguese company **Soares da Costa** for the concession of this dual carriageway for a 30 years period.



50% Soares Da Costa	25% FCC Construcción	25% RRC Ramalhõ Rosa Cobetar, a Portuguese construction company of the Grupo FCC
		

Value for the public

- Economic drive for the area.
- Accident rate improvement, which is halved.
- Reduction of travelling times, up to 40% less.
- Improvement in the connections between northwest Portugal and Europe.





Batch 1 Vila Real - Increase of Vila Real

- ✦ **Corgo Viaduct:**
The second highest in Europe. A cable-stayed bridge, with 2,790 metres long a maximum column height of 130 metres and a deck height of 230 over the Corgo river.
- ✦ **Cabanas de Cima Viaduct:**
391 metres long and 30 metres high.
- ✦ **Las Presas Viaduct:**
126 metres long and 14 metres high.
- ✦ **Constantim Viaduct:**
254 metres long and 18 metres high.



Corgo Viaduct

Specifications:

- ✦ 194 kilometres long.
- ✦ 32 km new construction.
- ✦ 106 kilometres of highway straightening.
- ✦ 56 kilometres of conditioning and improvement of the actual IP4.
- ✦ 17 special viaducts.



River Tinhela Bridge

Batch 3 Justes - Murça

- ✦ **Bridge over the Jorjais stream:**
365 metres long and 55 metres high.
- ✦ **River Tinhela Bridge:**
268 metres long and 49 metres high.



River Tua Bridge

Batch 5 Lamas de Orelhão Mirandela Norte

- ✦ **River Tua Bridge:**
25 metres high and 291 metres long.

Batch 10 Bragança Bridge, Bragança extension

- ✦ **River Fervença Bridge:**
constructed of concrete and steel, 415 metres long and 80 metres high.

BRAGANÇA

Batch 11

Batch 9

Batch 9 Valle de Nogueira and Bragança Bridge

- ✦ **Bridge over the Santa Comba de Rossas stream**
91 metres long and 20 metres high.

Batch 8

Batch 7

Batch 7 Amendoeira node and IP2 junction

MACEDO DE CAVALEIROS

Batch 6

Batch 5

MIRANDELA

Batch 4 Murça - Lamas de Orelhão

- ✦ **Bridge over the Noura stream**
251 metres long and 45 metres high.

Batch 4

Batch 3

Batch 1

Batch 2

VILA REAL

Batch 2 Vila Real - Justes extension

- ✦ **River Pinhão Bridge:**
with a total length of 91 metres and a height of 25 metres.



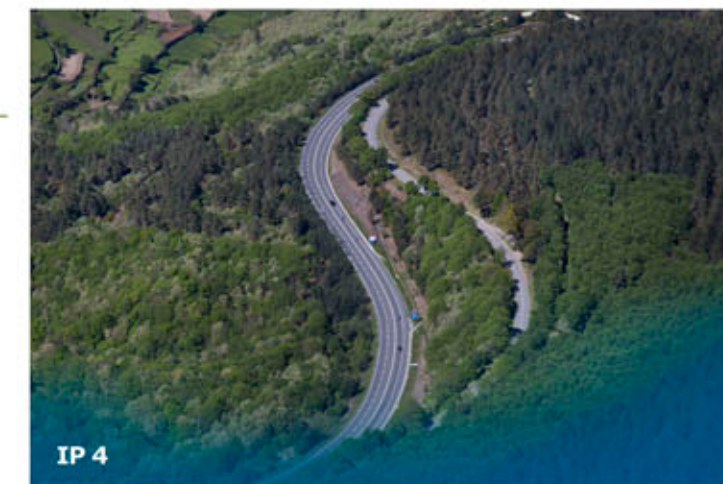
Bridge over the Jorjais stream



Bridge over the Açoreira stream

Batch 6 Mirandela Norte - Romeu

- ✦ **Bridge over the Açoreira stream:**
192 metres long and 30 metres high.
- ✦ **Viaduct EN15:** 555 metres long and 36 metres high.



IP 4

Batch 11 Bragança Quintanilla extension

- ✦ **River Sabor Bridge:**
533 metres long and 60 metres high.
- ✦ **Cebola Viaduct:**
140 metres long and 20 metres high.
- ✦ **Bridge over the Oporto stream**
198 metres long and 37 metres high.

Batch 8 Amendoeira Valle de Nogueira

- ✦ **River Azibo Bridge**
270 metres long and 35 metres high.



River Sabor Bridge

"The Transmontana dual carriageway is essential for the connection between the coast and the interior of Portugal and an improvement in the connection with Spain".

João Teixeira
Mayor of Murça



Team

"Managing works of this size was a unique experience due to the excellent coordination and teamwork".

Pablo López Marzo
Technical and Production Manager

"It is a singular work, mainly because of the Corgo Viaduct, the second highest in Europe".

Piedad Lucas. BBR Manager

"This singular project represents just what our company is capable of constructing".

Victor Manuel Flórido
General Supervisor

We are FCC



FCC Construcción, with an accumulated experience more than a century, is the area of FCC Infrastructure Group a company of international reference **services environmental water and construction.**

Its activities cover all engineering and construction areas in civil works and building.

It was a pioneer in developing its own business model in a profitable and sustainable manner, banking on local development and contributing to **the improvement of the people's quality of life.**



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