"PEDRO GÓMEZ DEL BOSQUE" PEDESTRIAN FOOTBRIDGE OVER THE RIVER PISUERGA IN VALLADOLID. SPAIN

TYPE OF STRUCTURE: SUSPENSION BRIDGE

LOCATION: VALLADOLID. SPAIN. 41.628313,-4.745431

COMPLETED ON: 2009

TEAM: JAVIER MANTEROLA ARMISÉN,

JAVIER MUÑOZ-ROJAS FERNÁNDEZ,

SARA FERNÁNDEZ ALONSO.

CARLOS FERNANDEZ CASADO, S.L

OFICINA DE PROYECTOS

The quality of the waters and the state of the riverbank environment of many of the Spanish rivers were deeply degraded during the economical and industrial expansion of the mid XXth century, turning sometimes the nearby areas into polluted and marginal parts of the cities.

During the recent processes of city expansion or the regeneration of city centers one of the main concerns of many City Councils and other Public Administrations has been to recover these degraded rivers and to incorporate them into the urban fabric.

This regeneration has in many cases involved the creation or extension of pedestrian and cycle paths for the enjoyment of citizens, with new riverside walks and new crossings over the river.

An example of this kind of works is the ambitious plan of recovery of the riverbanks of the River Pisuerga along its crossing through the historical city of

Valladolid that has been carried out by City Council in collaboration with the Northern Hydrographic Confederation (a Water Public Agency dependent of the Ministry of Public Works). The "Pedro Gomez del Bosque" is footbridge included in a 3 km long development of this Plan, which involves new pedestrian routes -some of them over cantilever structures-, riverbanks landscaping and riverside vegetation replantation, and stabilization of some critical riverbank slopes.

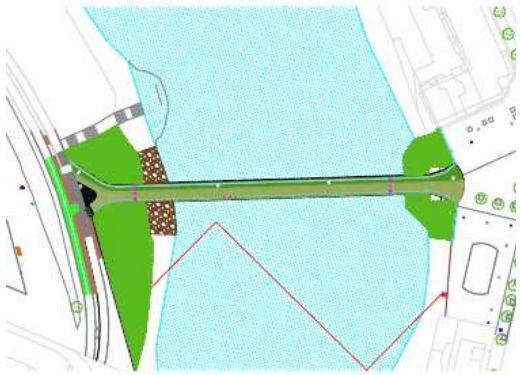
e-mail: cfcsl@cfcsl.com
www.cfcsl.com

c/ ORENSE, 10
28020 MADRID. ESPAÑA
TFNS. (34) (91) 5615849
TFAX: (34) (91) 5630101

The new footbridge is called "Pedro Gómez del Bosque" after a reputed local politician. It allows the connection between the boroughs of Arturo Eyries and La Rubia; previously connected only by two bridges located 2 km apart.

It is located in a curve of the river at a location where the left river bank lies on high and steep slopes while the other bank lies in a lower flat floodplain currently protected by a flood protection concrete wall.

Such crossing configuration, where one of the ends is in a relatively high position over the river, provided an adequate height over the water level to adopt a suspended stress ribbon type solution that spans neatly the riverbed from one bank to the other with no intermediate supports with a very gentle curve.



e-mail: cfcsl@cfcsl.com
www.cfcsl.com

c/ ORENSE, 10
28020 MADRID. ESPAÑA
TFNS. (34) (91) 5615849
TFAX: (34) (91) 5630101

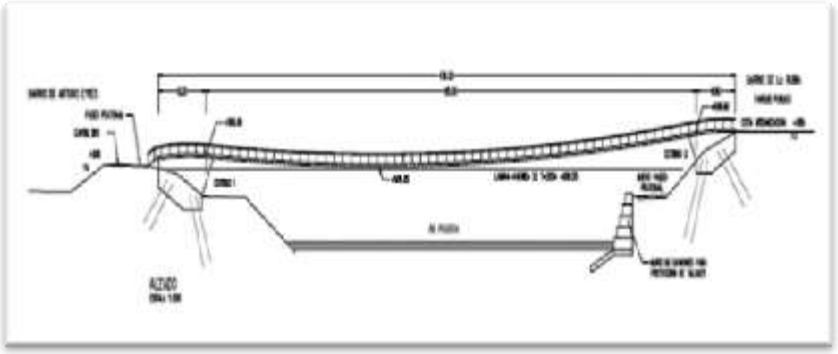
The cross section width is 5.0 m to allow for a 2.50 m pedestrian walk and a 1.50 cycle lane.

Compared to the most commonly solutions used in stress ribbons bridges and in order to improve the structure both constructively and formally two variations were introduced:

- The hanging element is a full-section continuous S355 grade steel plate.
- The concrete platform, made out of precast light concrete slabs, is a U-shaped cross section with slightly lifted curved arms on either side was designed in the aim to increase the apparent depth to provide the pedestrians with a greater sensation of comfort and security during the crossing and to get a more consistent lateral vision of the footbridge from outside.

The installation of the steel plate was a very interesting aspect of this project. It was carried out by hanging it from auxiliary cables arranged to provide an adequate geometry before subjecting it to the weight of the concrete platform.

The whole plate was completely assembled beforehand on one riverbank over provisional supports with rollers. Once the auxiliary cables were extended the plate was hanged from them and dragged from the opposite abutment with pulling cables until its final position.



Given the uniqueness of the footbridge and the interest of the Valladolid City Council in obtaining an outstanding work, it was complemented using exquisitely designed finishing: glazed, stainless steel railings and abutment wall cladding with white limestone.

The bridge was paved using a flexible colored rubber-based solution -similar to the material used for athletic tracks with partially recycled components- extremely comfortable to walk on.

The lighting solution used RGB LED light strips, arranged along the railing banisters programmed to gradually change color shades. Its striking visual effect has become a new vibrant nighttime landmark of the city.