Canal de Isabel II

Lozoya basin

Puentes Viejas reservoir

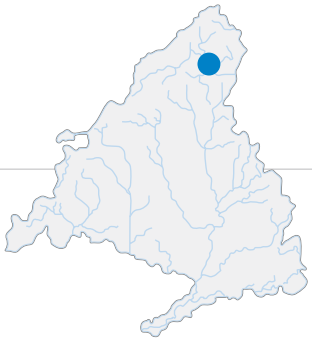
Puentes Viejas reservoir

The Puentes Viejas reservoir is the third in the Lozoya river, immediately upstream from the tail of the El Villar reservoir, where it spills its waters. Its name originates from the existence of two pontoon bridges that were used to cross the river. Until it entered service, Madrid took its water supply without any regulation from the Lozoya and Guadalix rivers.

The construction work for the dam was set out in the 1907 work plan. It was initiated between 1913 and 1914 and was completed in two stages. During the first one, which was completed in 1925, the dam reached a height of 43.5 metres, for a 22 million cubic metre reservoir. The second one involved its heightening, so that the capacity of the reservoir grew to 53 million cubic metres.

The dam is of gravity type, curve-shaped and with a lateral spillway, divided into twelve blocks of variable length.

A hydroelectrical plant was installed in 1991. Its turbines are driven by the flow that is discharged to the river.



Capacity
53.0 hm^3

Surface
280 ha

Type
Curved gravity

See table of reservoirs

Reservoir

Capacity:	53.0 hm^3
Average flow:	90 hm^3/year
Basin surface:	276 km^2
Maximum reservoir surface:	280 ha
Length of banks:	46 km
Length of river at the reservoir:	10 km

Dam

Classification:	type A
Type:	gravity. Curved shape
Height above foundations:	66 m
Crest length:	324 m
Crest width:	5 m
Face slope:	upstream: 0.025 downstream: 0.84
Volume of masonry:	144,600 m^3
Galleries:	horizontal at mid-height

Operating elements

Spillway

Number of spans:	6
Total length:	15 m
Operating mechanism:	class: sliding gate height: 3.20 m
Spilling capacity:	265 m^3/s

Outlets

Location:	3 levels
Number of ducts:	14
Operating mechanism:	sliding gates and hollow jet valve
Dimensions:	80 x 150 cm
Total dewatering capacity:	295 m^3/s^*

* Including the outlets from the small power plant.

Monitoring elements

- 28 topographical bases for levelling and collimation
- 7 points of area gauging
- 3 piezometers

Automated monitoring elements

- Reservoir point gauge
- Thermometer
- Rain gauge
- 3 liquid level gauges
- 3 piezometers

See tapping video

See tapping PDF

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