

Assessed technical report for the construction of a protection levee on the left bank of Sant Isidre, in Santa Eulàlia de Ronçana

LOCATION AND DESCRIPTION OF THE PROJECT

The Tenes river runs for 5 km through the municipal district of Santa Eulàlia de Ronçana, and is comprised of channelled sections, sections flowing in its natural bed, and sections passing through floodplains where there are cultivated lands and housing estates.

The occupation of the floodplain and the existence of crossing structures on the river bed have changed the river hydraulic conditions, which caused heavy flooding in 1994. For this reason, river protection measures were implemented, and with the drafting of the Municipal Urban Planning Document (POUM), other measures are proposed to reduce the risk of flooding in the following susceptible areas: the housing estates of La Campinya, Sant Isidre, Can Juli, Can Sabater, and the industrial estate of Can Magre. The flood susceptibility study shows that priority should be given to the construction of the protection levee on the left bank of Sant Isidre, while always trying to compensate

Localización



ESTADO ACTUAL

- Buildings on the left bank of the river Tenes in the state of Sant Isidre, located in the floodplain, are very vulnerable to the effects of a flood.

- It is a section with little slope and width, which means the flood risk is high, especially above water dike.



PROJECT GOALS

- TO PROTECT the housing estate of Sant Isidre from flooding for a period of 100 years.

- TO MAKE THE USE OF BIOENGINEERING TECHNIQUES A PRIORITY so that actions are integrated into the area correctly in terms of their environmental and landscape impact.

PROJECT DESIGN CRITERIA

In terms of design, the project has been based on the topography of the area of Sant Isidre and the validation of the hydraulic study showing the current situation, and a simulation of the future situation.

ACTIONS

Different types of solutions have been defined according to the topography, available space and the necessary height for hydraulic protection of the section

SOLUTION A - ELECTROSOLDERED MESH GABION

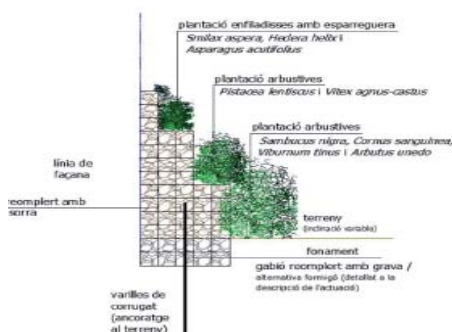
- Stacked gabions with a base filled with gravel and vegetation (creepers and shrubs) at each stack. An irrigation system is installed to facilitate the growth of bushes.
- In places where the foundation of the existing wall does not allow the installation of the gravel-filled gabion, concrete will be used to refill it.

SOLUTION B and C - SOIL LEVEE (1.5m and 1m high)

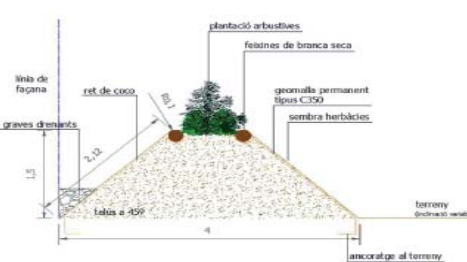
- A levee protected with permanent geomesh on the bed side, and with organic coconut mesh on the front side.
- Plantation of bushes between two lines of fascines made with dried branches, on the top of the levee.
- Re-vegetation through planting on the slopes.
- Creation of a triangular zone with draining gravel at the base of the slope.
- Excavations on the right bank to expand the hydraulic section, and planting on the surface of land removals.

SOLUTION D - SOIL LEVEE (1m)

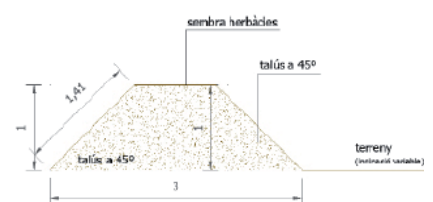
- A levee which circles the entire floodplain, following the edge of the housing estate as far as the road.
- Grading of lands and planting of herbaceous plants on the slopes.



Scheme solution A



Scheme solution B i C



Scheme solution D

