Executed project report

Creation of Can Cabanyes wetlands, Granollers (Barcelona)

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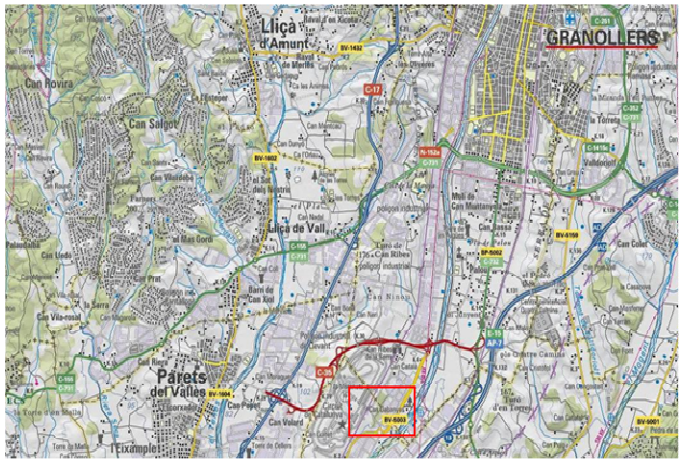
Customer and Construction Mgmt: Granollers Town council **Starting/ending date:** March 2003



INTRODUCTION

The proximity of Can Cabanyes zone to the Congost River, located in the alluvial plain of the right side and a wastewater treatment plant, allowed the construction of a surface flow wetland of one hectarea surface with an island in the central part. The water flow of the inlet effluent is 100 m³/day which may increase after the improvement of the WWTP facility.

To ensure the wetland availability from the beginning, the revegetation with fully developed helophyte communities was considered.



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1. Structure of the sewage treatment plant

Can Cabanyes tertiary purification system is composed by an main lagoon that receives water coming from more than one meter deep, a 40 cm water depth wetland with a central island to promote biodiversity, a secondary lagoon with hosts the bird observatory, a secondary wetland area and a third area with open water that discharge into the river or is used for watering.

Toni Cantos – 2005 (Museu de Granollers website)

The sewage treatment plant substantially improved the water quality. The values of NH_3 and DBO5 sampled in outlet of the sewage system right after the actions at 6 months later were:

	April'03	November'03
NH_3mgN/l	38,46	<1
DBO_5 mg0_2/l	43,66	7,75

(Granollers Town council)

2. Planting of structured plant in coir fiber

The key points of these purification systems are the flow dynamics and the passage of water through a very bioreactive system due to the microbial communities that develop within the *Phragmites australis* root system.
Despite this helophyte specie can be adapted to growth submerged up to 40cm they preferred more shallow areas. For this reason, pre established Plant pallet of Phragmites structured in coir fiber were planted in the 30% of the total wetland surface area . This helophyte has an important colonization capacity which results in total area coverage after one year. Likewise *Typha sp.* was also planted with structured Plant pallet.

This bioengineering technique ensure that the root system of the plants is functional and bioreactive right after the installation, which accelerate the reduction of the nutrient content in wetlands of natural purification. The combination of *Typha sp*. and *Phragmites australis* increases the efficiency of water purification as they present synergistic strategies.

Plant Pallets right after the installation with senescence leaves due to weather conditions.

During installation

Just after installation

After a short period of time, green steams appeared

General view of the area with Typha sp.

General view of the area with *Phragmites australis*

Along the perimeter of the island constructed during the previous action, the plantation of a plant structured in coir fiber (Plant Plug type) of *Iris pseudacorus* and *Scirpus holoschoenus* was used to ensure an optimal plant development, to increase vegetal and landscape diversity as well as serve as a refuge for autochthonous fauna and flora.

For this reason, we also aimed to create an area of natural interest for environmental education and dissemination.

General view of the plantation

Wetlands are used by birds as habitat

3. Environment arrangement and creation of the bird observatory

Fully developed wetland communitiesconstitute an excellent refuge for bird species and other aquatic organisms that are clearly present in the area. This means that the naturalized area of Can Cabanyes has a great interest for social and educational use. In this sense, a fence and a perimeter trail were firstly constructed, followed by the bird observatory.

Nowadays, Can Cabanyes is a highly frequented area which serve as a pedagogical resource for primary and high school education, as well as in the field of ecological research.

KEY CONCEPTS: diversification of habitats, wetland, increase biodiversity, environmental education,

TECHNIQUES APPLIED: Pre-vegetated Plant pallet, plant structured in coir fiber Plant Plug.