



ORIGINAL NEED

With a preliminary study made in 1999, the Municipality of S. Casciano dei Bagni valued the feasibility of low environmental impact plants for the treatment of wastewater of all its small settlements and spa.

During this study environmental and anthropic data were collected, and so a solution with constructed wetland depuration systems was considered for the settlement of Ponte a Rigo.



DESCRIPTION

The plant, realized in July 2002, treats the civil wastewater from the settlement of Ponte a Rigo (120 P.E.) and is composed by a primary treatment with an Imhoff septic tank followed by a secondary treatment with horizontal subsurface flow constructed wetland (SFS-h).

The scheme of the plant is the following:

- inlet trap;
- Imhoff septic tank with a total useful volume of 8.6 m³ ;
- constructed wetland with horizontal subsurface flow;
- regulations and analyzing traps;
- outlet in the Rigo River .

LOCATION

Municipality of San Casciano dei Bagni
Province of Siena
Tuscany
Italy

COMMITTANT

Municipality of San Casciano dei Bagni

NUMBER OF PERSON

EQUIVALENT

120

WASTEWATER TYPOLOGY

Urban

PLANT TYPOLOGY

SFS-h

AREA (M2)

350

COST

€ 60.000,00

YEAR OF REALIZATION

2002

A by-pass of constructed wetland basin is installed, so to allow to interrupt the flow into the plant in case of extraordinary maintenance.

The chosen secondary treatment (horizontal subsurface flow) is composed of 1 rectangular basin with an useful total surface of 350 m². The treatment system is dimensioned with the aim of obtaining very good efficiencies in removing organic load, suspended solids and microbial load during all the year, and particularly in the summer when due to the low flows the river is more under pressure.

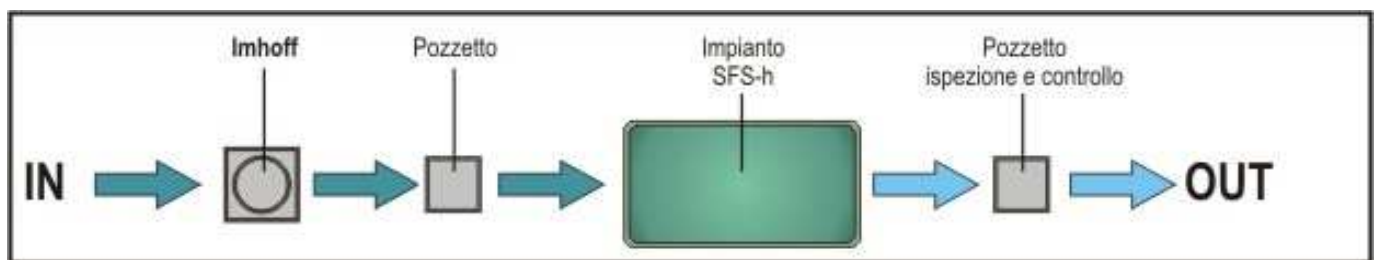
The plant has a very low environmental impact and can be used without dangers by visitors.



Basins are made by excavating the soil for a depth of about 1.2 m, are water-proofed by a geo-textile membrane in Pead, and are filled with design gravels.

A device at the end of the basins allows to maintain the wastewater constantly under the surface of the bed, avoiding aerosols, bad odours and insects development, being the plant near to houses. In the basins have been planted native vegetal species (*Phragmites Australis*).

The realization of the plant needed 80 days and the total cost is € 60.000,00.



Scheme of the plant