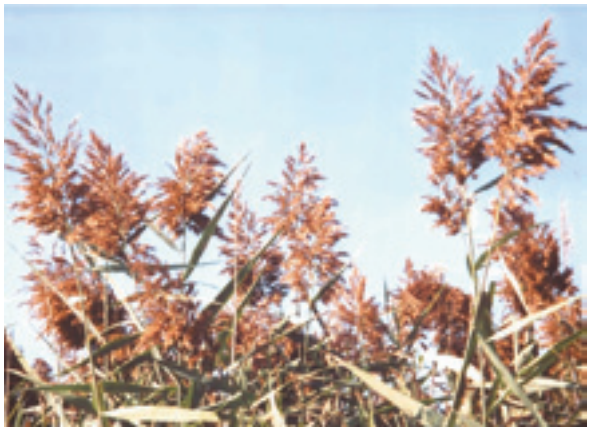
Natural treatment plants

CONSTRUCTED WETLAND SYSTEMS

Natural treatment systems exploit the ability to transfer oxygen through the roots typical of certain plant species. Such capacity promotes the proliferation of microorganisms able to degrade the organic matter contained in waste water.

Sub-surface constructed wetland systems make a perfect option, especially for domestic waste water, on condition that:

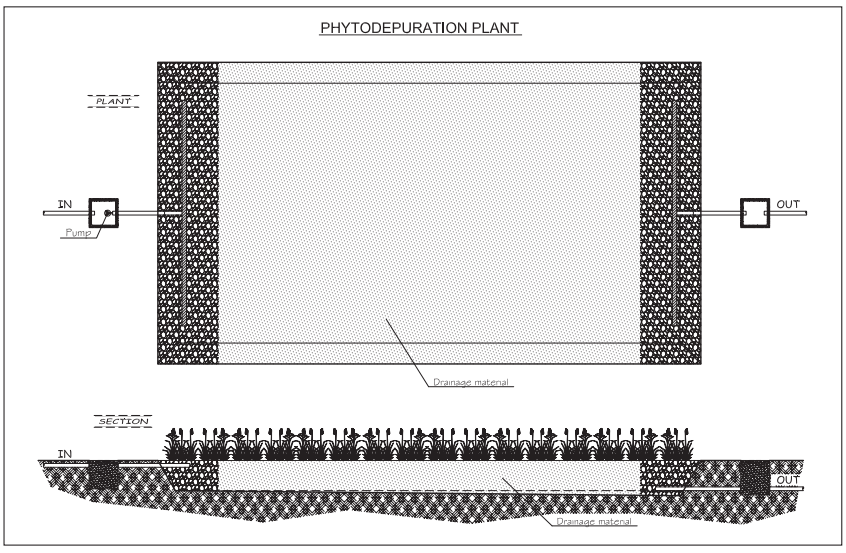
- waste water is produced by a medium-small population equivalent (e.g. an isolated dwelling);
- flow is not constant over time (e.g. a farmhouse holiday facility open only a short period each year);
- the environmental impact connected to treatment plant installation must be cut down to a minimum.



The size of such plants varies according to organic load concentration and to flow.
As a rough guide, surface for residential waste water will be approx. 2.5 sq m per inhabitant equivalent with vertical flow constructed wetland treatment systems, and 4 sq m per inhabitant equivalent with horizontal flow systems.

Technical features

Constructed wetland plants consist of a basin built with PVC sheets, heat sealed on the site. The bottom of such basin is filled with a bed of draining material, generally a mix of gravel in two sizes, to house the sewage distribution system made up of plastic perforated tubes.



The surface can be fully planted with *Phragmites Australis* or with other marsh varieties. However, it is highly recommendable to select a monoculture option in order to prevent reciprocal infestation. The outlet is always fitted with a well, in a size compatible with incoming and rainwater flow, for housing the timer pump used for redirecting discharge water to the top of the plant when necessary.
Vertical flow plants must be fitted with a loading pump, situated in a well upstream the same. Such feature is optional in horizontal flow systems (if incoming load is adequate).