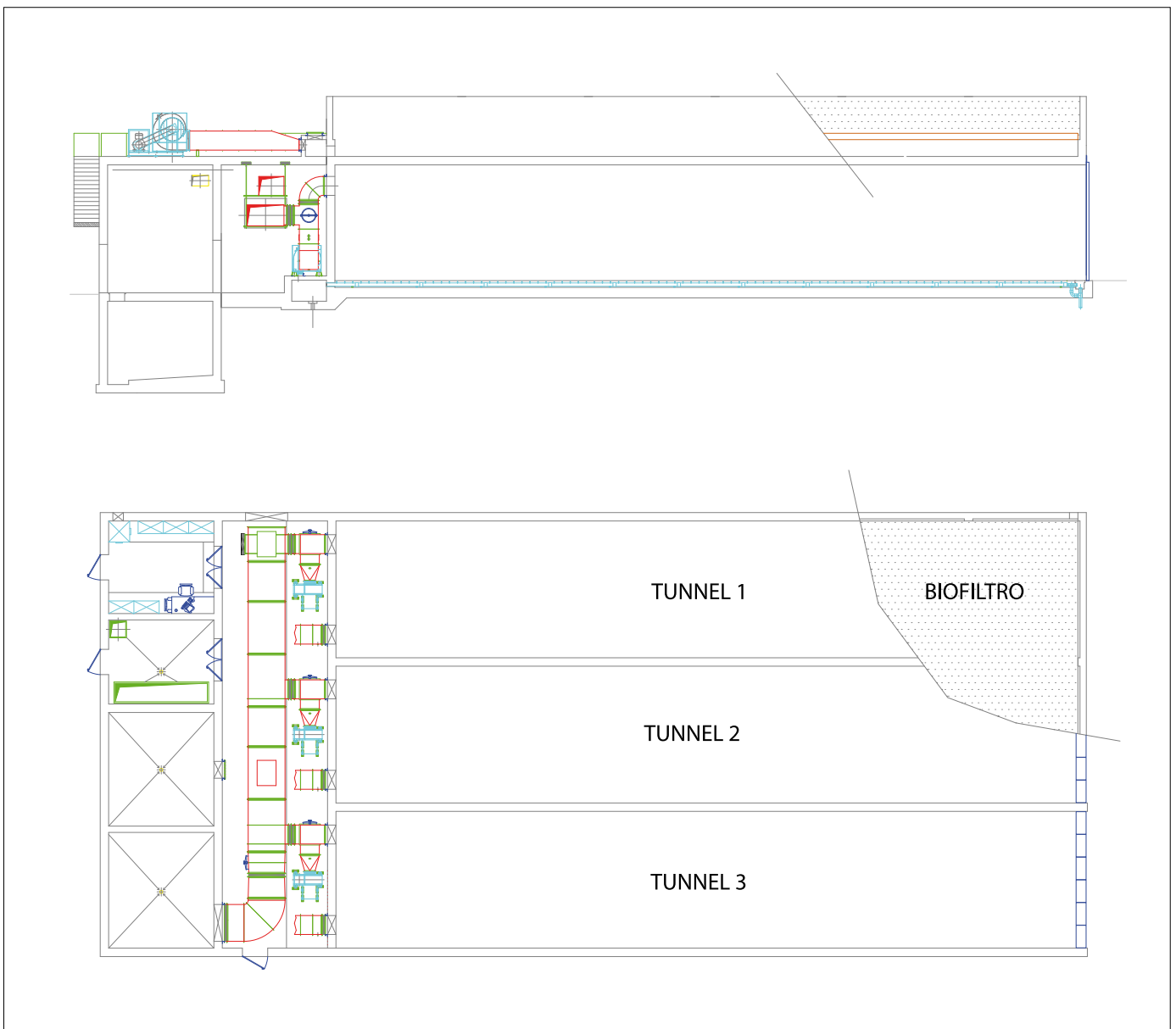


23 GIOIA TAURO (RC) ITALY

Year	2001
Client	TM.E. SpA - TERMOMECCANICA ECOLOGIA
Operator	TM.E. SpA -TERMOMECCANICA ECOLOGIA
System description	Tunnel composting
Waste processed	Organic from mixed municipal solid waste
Plant capacity	16,000 t/year



Tunnel composting technology is used to process organics from mixed municipal waste. The biological process takes place inside closed reactors, consisting of tunnels made of reinforced concrete with an aeration system integrated into the floor.



The plant uses the biotunnel composting technology for the biological treatment of organic waste deriving from the screening of mixed municipal waste.

The process takes place in three closed reactors, consisting of reinforced concrete tunnels equipped with a ventilation system integrated in the floor.

The air blown into the material through the floor is in part re-circulated inside the tunnel and in part sent to the odour control system. Air coming from the waste-sorting areas is used as fresh process air in the tunnels, so the total volume of waste air is lowered without having a negative effect on the buildings' ventilation.

A sophisticated collection and treatment system for leachates ensures correct tunnel drainage and allows the liquid to be re-used for moisturizing the processed material by means of nozzles set up under the ceiling of each tunnel.

Once the tunnel has been loaded with the wheel loader, its special door is closed and the process begins, which lasts approximately two weeks. At the end of the treatment the tunnel is emptied and a new cycle begins.

A computerized control system, including visualization on PC with colour graphics, monitors the process and keeps its parameters in preset ranges, which are different for every stage of the process.

Many process parameters are measured by sensors set up in various parts of the system. For instance, material temperature, air temperature, oxygen content in the air, air pressure and air flow are continuously monitored and recorded.

To control odours, the air exhausted from the tunnels, mixed with the air flow coming from the areas where waste is mechanically processed, is treated in a large biofilter. Biofiltration controls odours very efficiently because malodorous gases, absorbed by the superficial moisture of the filter media, are quickly digested through a biological process.

The centralized control system also surveys the biofiltration process, which takes place after the air flow has gone through a scrubber.

In this plant, due to lack of space, the biofilter was set up on top of the roof of the composting tunnels.



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