



Selector zones for Bio P

City of Winston – Biological Phosphorus Removal

Project Description

John Harrison, was manager or lead engineer on initial studies through the design of a 1.8 mgd activated sludge plant that removes phosphorus biologically (Bio-P) in Winston, Oregon. The final design includes use of both anoxic and anaerobic selector zones to meet stringent phosphorus limits without the addition of chemicals. The upgraded facility is capable of operating several Bio-P processes including side-stream predenitrification. The plant generally achieves less than 0.5 mg/l P and less than 10/10 mg/l BOD/TSS without effluent filtration.

A unique feature of this upgrade was the retention of existing rotating biological contactors (RBCs) for split flow treatment.

The project included:

- Adding a 65-ft. diameter secondary clarifier, an anaerobic digester, and a sodium bisulfite system for dechlorination.
- Adding a gravity belt thickener to concentrate solids prior to disposal or drying.
- Upgrading the gaseous chlorination system to initiate compliance with fire codes.
- Refurbishing effluent filters by replacing a Wheeler bottom underdrain and adding an air scour system.

A major challenge in serving Winston and Green Sanitary District was meeting budgetary constraints while designing for stringent discharge requirements.

Location

Winston, OR

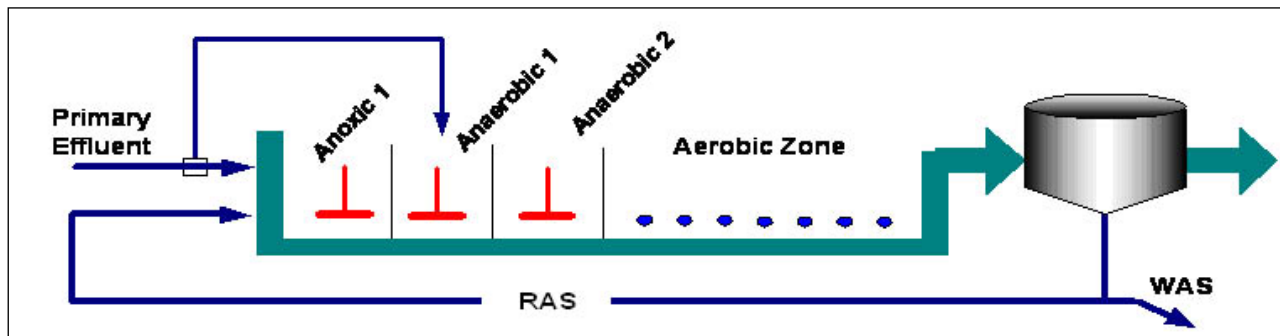
Services

Upgrade a 1.8 mgd plant to include biological phosphorus removal.

Add solids handling and dechlorination with minimal expense

Client

The City of Winston
201 NW Douglas Boulevard
Winston, OR 97496



Biological Process used at the Winston Plant