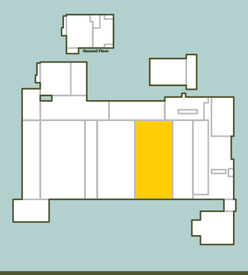


Biological Treatment – Phosphorus Removal

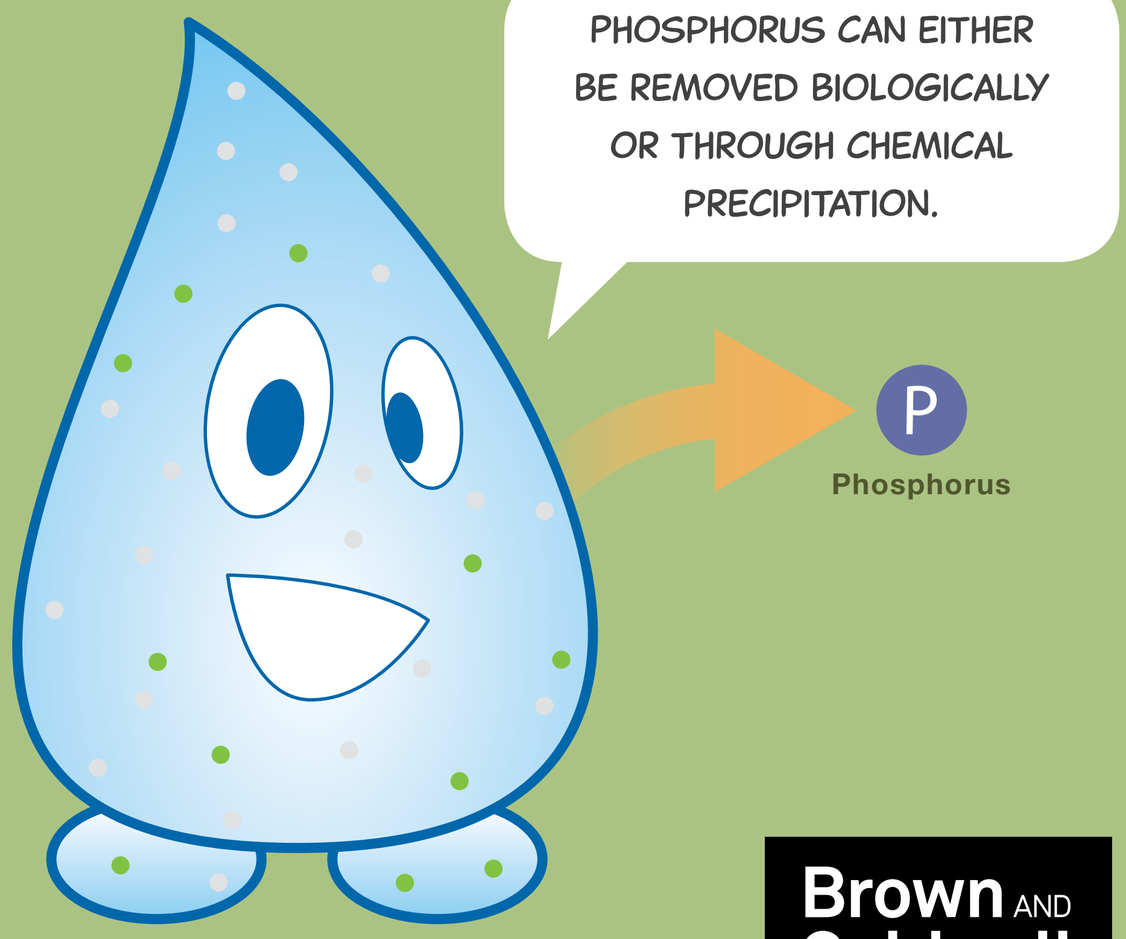
Johns Creek Environmental Campus

FULTON COUNTY

Wastewater has high levels of phosphorus that need to be removed to meet the strict discharge limits required to protect downstream users of the Chattahoochee River. Phosphorus removal at the JCEC can be accomplished in two different methods, either biologically or chemically. The biological basins are configured to facilitate the biological phosphorus (Bio-P) removal process. In this process, Phosphorus Accumulating Organisms (PAOs) develop and in the anaerobic basins they cause the release of phosphorus in a form where it can then be consumed by organisms in the downstream aerobic basins. In order for the PAOs to develop, an energy source may be necessary at times depending on the incoming wastewater. Acetic acid is provided to help the organisms' growth, if necessary. The JCEC can also remove phosphorus through chemical precipitation. In this process, ferric chloride is added and phosphorus is precipitated out of solution and removed in the sludge.

The biological basins promote the growth of Bio-P organisms that reduce phosphorus levels.

Aeration basins are aerated with fine bubble diffusers.



Biological Basins Design Parameters	
Number of Trains	4 (3 duty / 1 standby)
Volume of Each Train	1.88 million gallons
Minimum Depth	24 ft
Number of Anaerobic Zones per Train	2
Number of Anoxic Zones per Train	4
Number of Swing Zones per Train	2
Number of Aerobic Zones per Train	2
Return Activated Sludge Flow	2 to 4 x incoming flow

Brown AND Caldwell