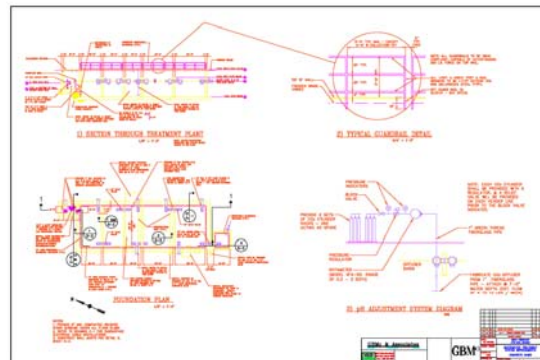


WASTEWATER ENGINEERING

GBM^c & Associates has extensive experience related to the treatment of industrial and municipal wastewater. This experience has involved the review and successful optimization of secondary biological treatment units, preparation of sludge management plans, facility-wide sampling and characterization efforts, treatability studies, system flow and capacity assessments, conceptual facility design, construction design/specification, and troubleshooting of physical/chemical and biological treatment processes.

Experience and Capabilities

- Conducted site studies for numerous industrial facilities including: pulp and paper manufacturing; specialty chemical manufacturing; rock quarry/crushing operations; fertilizer manufacturing; fiberglass products manufacturing; poultry, pork and cattle slaughter/processing; and vegetable processing/canning.
- Performed waste minimization/source reduction assessments of manufacturing areas to identify significant contributors to waste treatment hydraulic and/or contaminant loading, as well as to design product recovery systems.
- Developed Best Management Practices (BMP) Plans for pulp/paper manufacturing operations to prevent or minimize the effects of spills or leaks of high-strength waste streams on wastewater treatment systems.
- Prepared conceptual designs of wastewater treatment modifications necessary as a result of planned production expansions at pulp/paper and chemical manufacturing facilities.
- Provided detailed scope and cost estimates for wastewater capital projects.
- Conducted computer modeling of biological wastewater treatment units to predict maximum influent loading capacities.
- Provided root-cause investigations and corrective action recommendations for malfunctioning wastewater treatment systems.



Wastewater treatment system plan.

- Designed wastewater treatment systems for specialty chemical manufacturing, fiberglass products manufacturing, poultry and cattle processing facilities, and small community domestic wastes.
- Designed and performed treatability studies on effluents from organic chemical production units.
- Prepared beneficial use/land application management plans for wastewater treatment byproducts.

GBM^f Contacts

Chuck Campbell or Shon Simpson