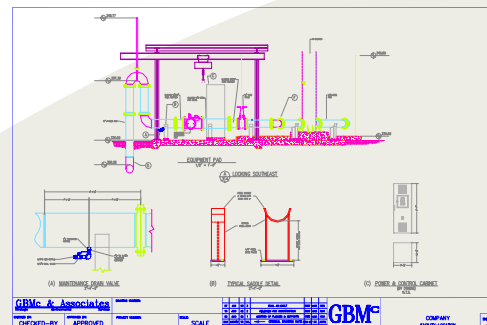


# ENGINEERING SERVICES

*GBM<sup>c</sup> & Associates has provided a broad range of engineering services to industrial facilities. This experience has included studies of manufacturing processes to eliminate waste and unit downtime, development of habitat restoration plans for closed facilities, preparation of engineering design plans and specifications, construction management and contract administration duties, preparation of Startup, Shutdown, and Malfunction (SSM) Plans, groundwater characterization studies, development of construction plans, preparation of oil Spill Prevention, Control and Countermeasures Plans, development of facility-wide Release Prevention, Control and Countermeasures (RPCC) Plans and design of site drainage modifications and containment structures.*

## Experience and Capabilities

- Developed the site **closure/restoration** plan for a kraft pulp/paper mill. Prepared engineering plans and specifications to convert abandoned waste treatment units to a diverse wetlands habitat. Overall Project Management including coordination between multiple State agencies and company resources.
- Provided on-site **construction management** and contract administration for brief and extended capital projects.
- Evaluated an ancillary cooling water system for a shielded cable manufacturer to identify deficiencies and provide **solutions to optimize production and eliminate waste discharges**. Prepared preliminary design and detailed cost analyses of modification alternatives to assist the facility with capital request/justification efforts.
- Prepared a **groundwater investigation** plan to evaluate the impact of earthen surface impoundments on the hydrology and quality of a nearby aquifer. Coordinated installation of monitoring wells; analyzed data collected and
- Prepared oil **Spill Prevention, Control and Countermeasures Plans (SPCC)** for a wide range of effected industrial facilities.
- Prepared **Startup, Shutdown, and Malfunction (SSM)** Plans for bleached and unbleached kraft pulp/paper manufacturing operations to minimize excess emissions of hazardous air pollutants during those specified events.



# **ENGINEERING SERVICES (cont.)**

- Performed a **waste characterization** study at a chemical manufacturing facility to identify source reduction/waste minimization opportunities.
- Provided **engineering design** and support services for a municipal/industrial collaborative wastewater pipeline construction project.
- Conducted **hydrological studies** of receiving streams to justify revised storm water discharge limitations for industrial facilities.
- Provided the Basis of Design for a subsurface high-rate diffuser for a chemical manufacturing facility using CORMIX.
- Demonstrated the acceptability of converting an active groundwater remediation project to monitored natural attenuation.
- Investigated and delineated the horizontal and vertical extent resulting from spilled industrial materials.
- Characterized storm water runoff quality/quantity to establish engineering design criteria at developed facilities.
- Prepared comprehensive Release Prevention, Control and Countermeasures Plans for three aluminum product manufacturing operations. The "One Plan" addresses potential releases of regulated materials to all media.
- Developed **Best Management Practices (BMP)** Plans for pulp/paper manufacturing operations to
- Provided turnkey engineering design and construction management for miscellaneous site improvement tasks at a manufacturing facility.



**GBM<sup>f</sup> Contacts**  
**Chuck Campbell, Shon Simpson or Vince Blubaugh**