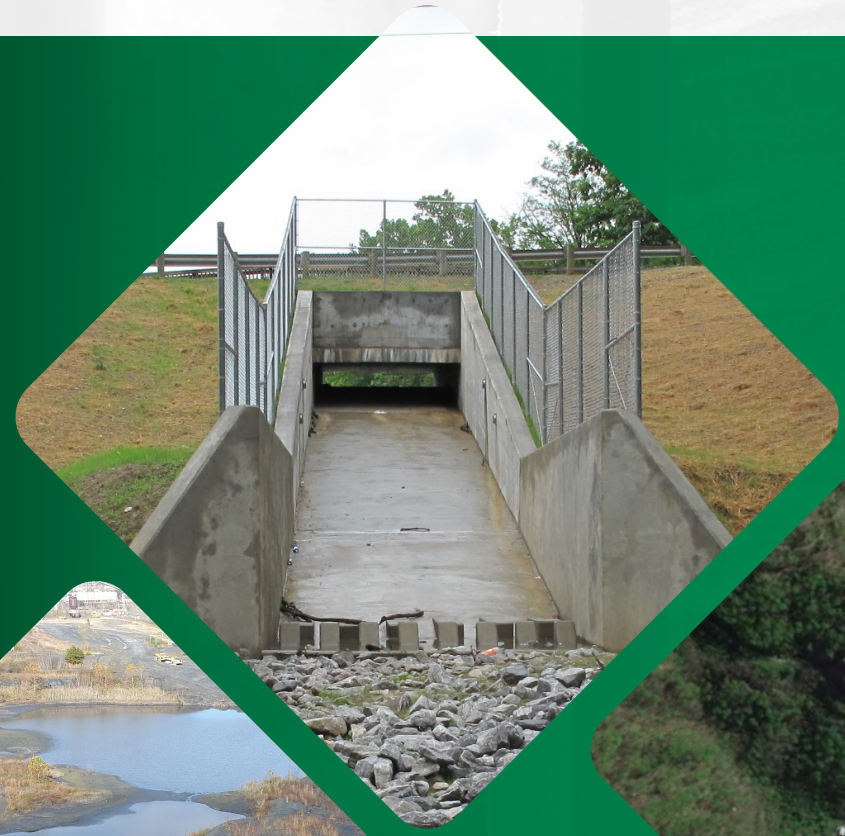
synTerra

IMPOUNDMENT DESIGN



Design challenges and regulatory concerns are common in impoundment projects, as are monitoring activities. Dam size, construction materials, and hydraulic structures affect future operations. Owner liability — concerning disposal and the protection of water bodies — presents important considerations. An impoundment's stability and performance depends on site conditions, equipment, personnel, and construction. Monitoring and inspection plans must be in place. The right consulting firm can help a company meet the complex regulations and business objectives related to impoundments.

Civil and geotechnical solutions for impoundment challenges

A diverse set of civil and geotechnical engineering capabilities is required if your project is to stand the test of time. SynTerra's designs, construction services, environmental services, and investigative capabilities help clients complete jobs to specifications and in compliance with environmental regulations. SynTerra's geotechnical engineers, scientists, and technicians have the qualifications to design and monitor impoundments and waste areas.

SYNTERRA CAPABILITIES FOR IMPOUNDMENT DESIGN:

Design – Coal/Waste/Tailings
- Refuse ratios, coarse to fine and staging
- Zoned dam embankments
- Hydrology and storm routings
- Decant spillway systems
- Geotechnical exploration and sampling
- Geotechnical laboratory testing
- Embankment seepage analyses
- Slope stability analyses
- Settlement monitoring
- Design reports for submittal to regulatory agencies

Construction
- Surveying for facility layout and control
- Construction materials sampling
- Rock, soil, aggregate, and concrete materials testing
- Instrumentation monitoring
- On-site compaction testing
- Geotechnical evaluations
- Observation and documentation
- Drawings and specifications development

Operation
- Dam safety inspections
- Consultations for operation
- Regulatory compliance and negotiation
- Phreatic Surface Modeling
- Storm Water Pollution Prevention Plans (SWPPP)

Environmental
- Slope stability
- Groundwater and seepage
- Erosion and sediment control
- Containment berm evaluations
- Monitoring well design and installation
- Hydrogeology
- Geochemical modeling
- Risk assessment

Impoundment Life Cycle
- Routine examinations
- Liability assessments
- Slurry storage projects
- Monitoring and oversight
- Emergency action plan
- Closure plans

Freshwater Dams and Lakes
- Hydrology and hydraulics
- Engineering analysis and design
- Compliance processes for standards of operations
- Erosion and sediment control
- Monitoring and oversight
- Construction quality assurance
- Removal plans

Permitting
- Industrial landfill permit
- Construction permit
- SMCRA permits
- 401/404 permit

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