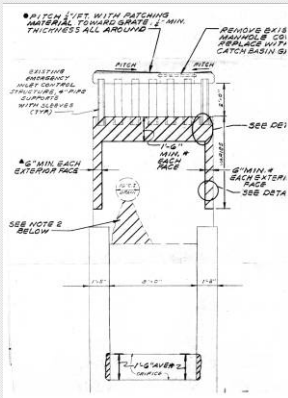


ENGINEERING SERVICES

Many dams were built as our nation grew from its infancy, with a need for power production and water supply. There are more than 3000 dams known to exist in Massachusetts alone. Many of these dams in New England are more than 100 years old. Many are in near-failure condition.

Some dams represent obstacles to fish migration or tidal flushing. In such cases, it may be a better choice to remove a dam which is also costly to maintain and represents a hazard.



Haley and Ward is a municipal consulting firm that specializes in engineering services for dams including planning, evaluation, design, permitting, monitoring, modeling, regulatory compliance, inspections, rehabilitation and construction services.



DESIGN

- Review of existing structures for safety & stability
- Renovation of dams relative to the need, resource areas, soil and groundwater conditions, and other site constraints
- Dam removal evaluation, design, permitting & field services
- Flow & salt marsh restoration, RIFLS design
- Compliance with MDEM performance standards
- Soil stabilization/sediment control plans
- Outlet & spillway design for flood events
- Fish ladder design for new and repairable facilities
- Facility inspection, operation and maintenance plans to address scour, cracking, sinkholes, seepage, muddy discharge, excess vegetation, structural issues, erosion, instability, rodent damage
- Water supply dependable yield analysis
- Contract documents/agencies
- Opinions of probable construction cost

MANAGEMENT: REGULATORY COMPLIANCE, INVENTORY, PLANNING, EVALUATION & MONITORING

- MDEM Phase 1 and Phase 2 investigations
- Underwater inspections
- Design and implementation of complete dam inventory & management plans
- Review of hydraulic, structural and hydrologic adequacy
- Review for conformance to state and federal standards
- Review of infrastructure adequacy, needs & inventory
- Preparation of prioritized improvement plan
- Permitting and grants under Army Corps of Engineers, MDEM Chapter 253, MassDEP, MA Executive Office of Environment Affairs, MA Office of Coastal Zone Management, MassWildlife, MA Department of Fish and Game, Division of Ecological Restoration, and local conservation commission.
- Emergency Action Plans



CONSTRUCTION ADMINISTRATION SERVICES