

Retrofitting your old Concrete Water Tank



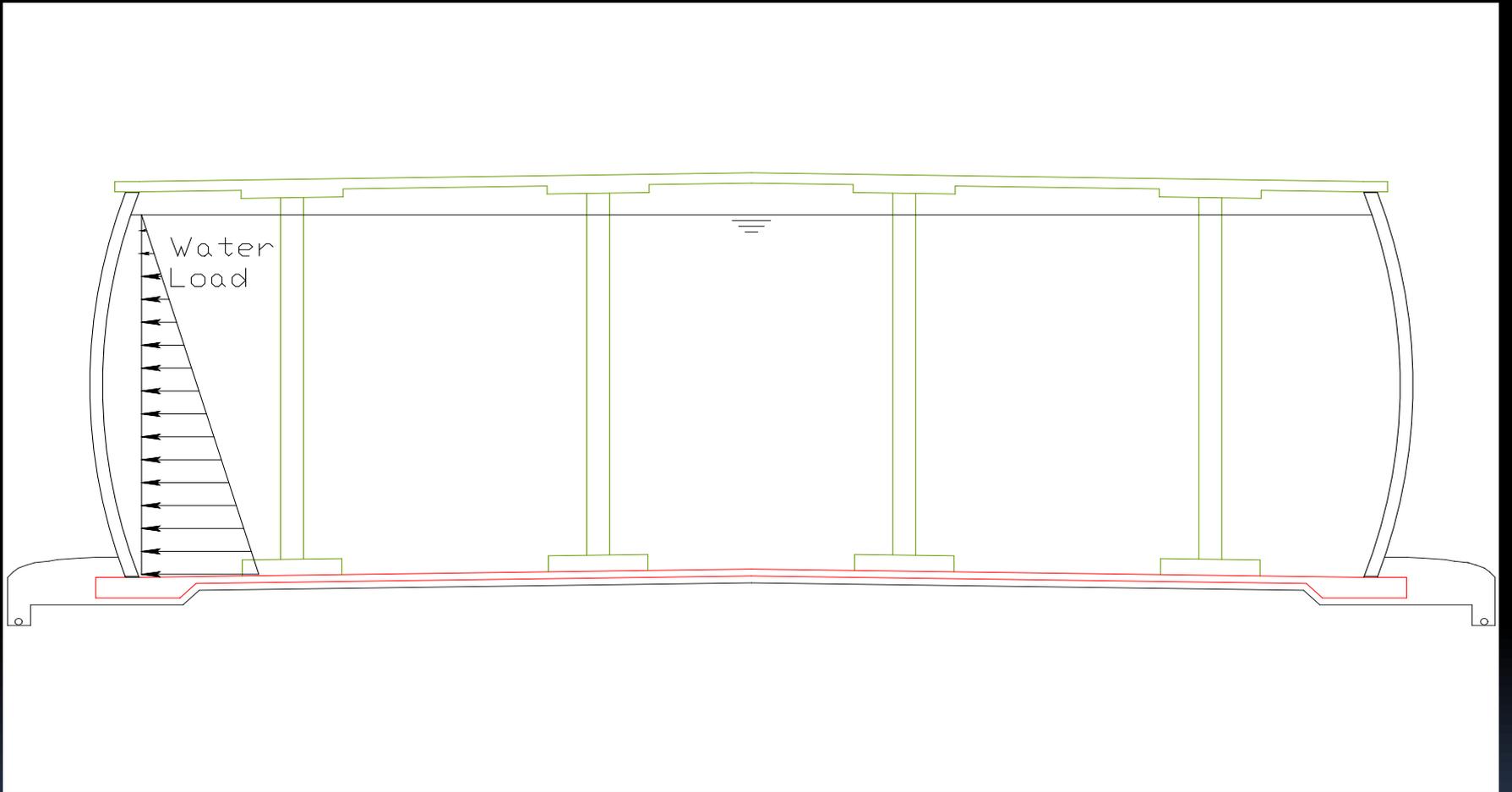
CONCRETE TANK SERVICES

Compression vs. Tension

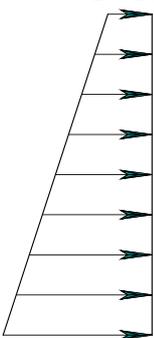
Understanding the
design of your tank

Fixed or Free
Base
Connection?

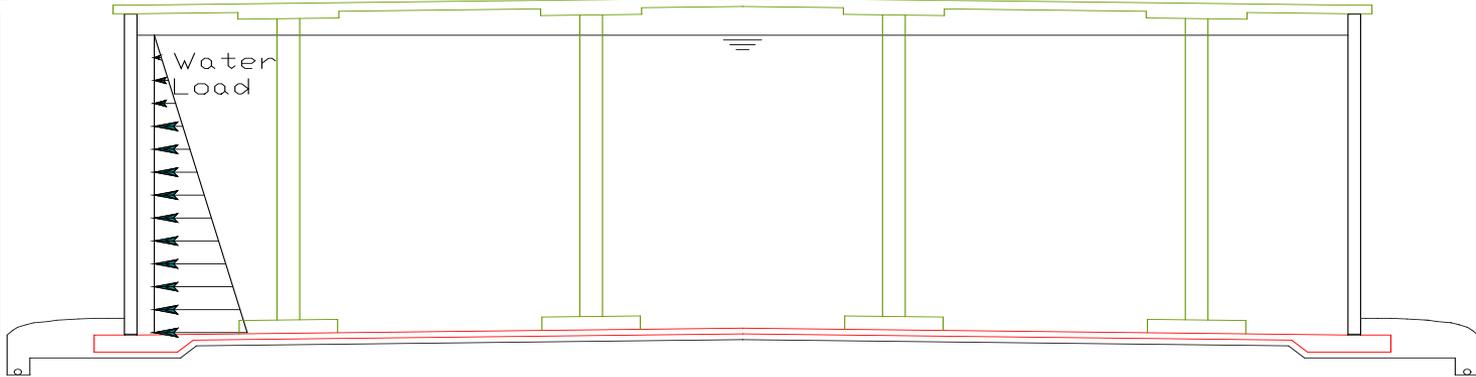
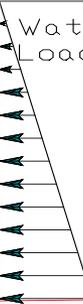
How will each
handle the load?



Prestressing Force



Water Load



Safety & Security



NO OPEN FIRE
OR OTHER
Hazardous Activities

Retrofit – Safety/Security/Access Upgrades



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Retrofit – Safety/Security/Access Upgrades



Beautify

Rehabilitation - Aesthetics



Rehabilitation - Aesthetics



Rehabilitation - Repairs





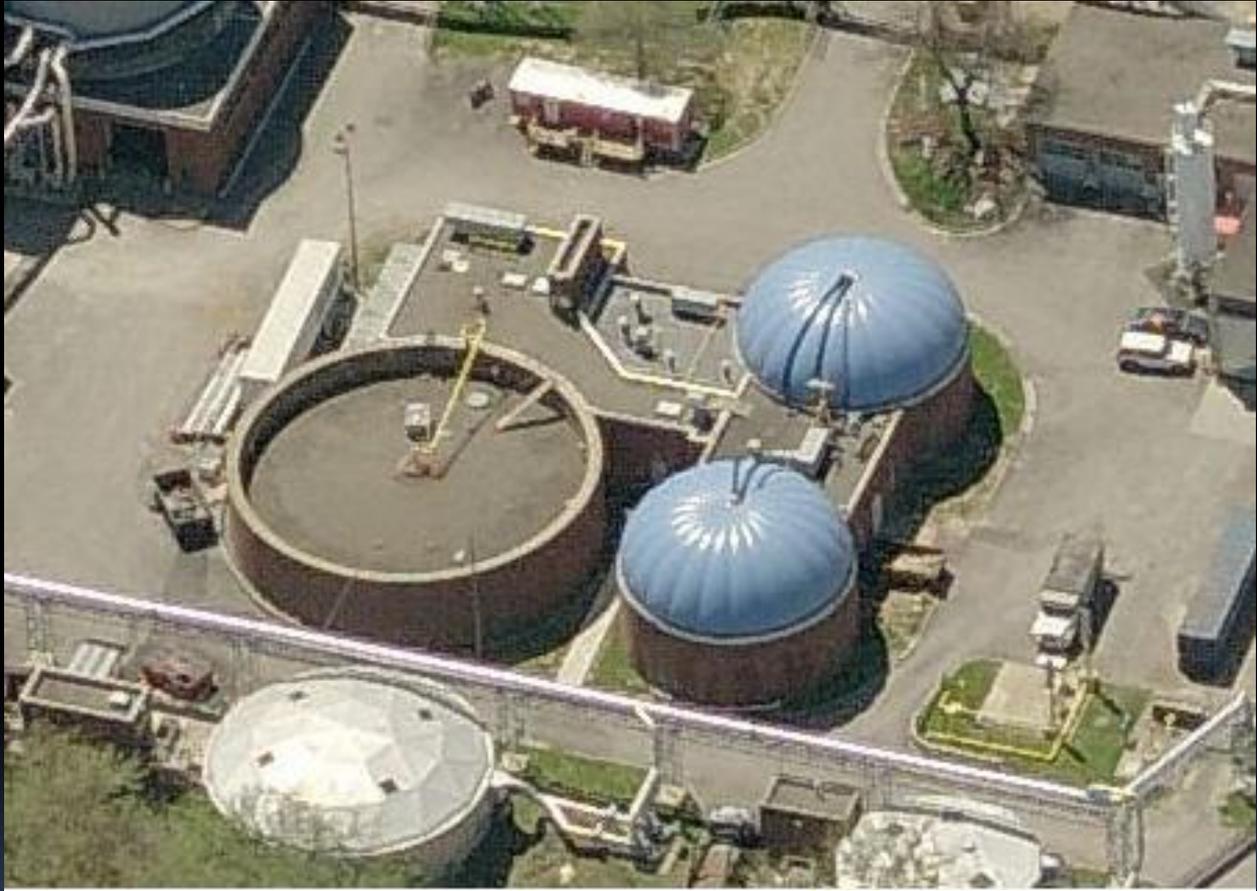
New Technology

Rehabilitation - Repairs



- Response to Change in Clients Needs





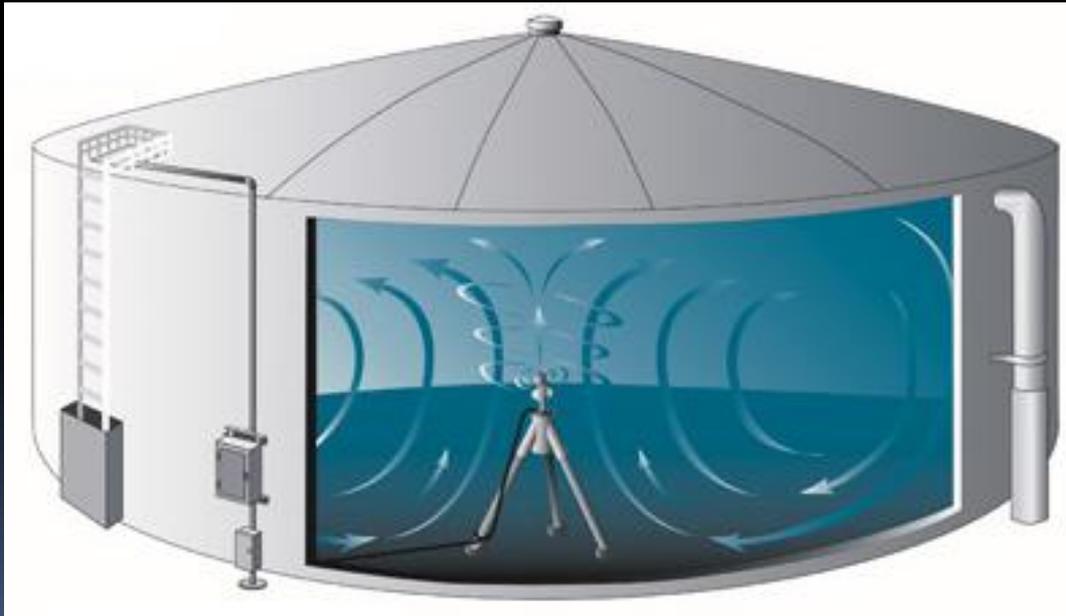
Water Quality Upgrades

Retrofit – Water Quality



Mechanical Mixing System

- Can require a small amount of power to operate
- Fast, cost efficient installation



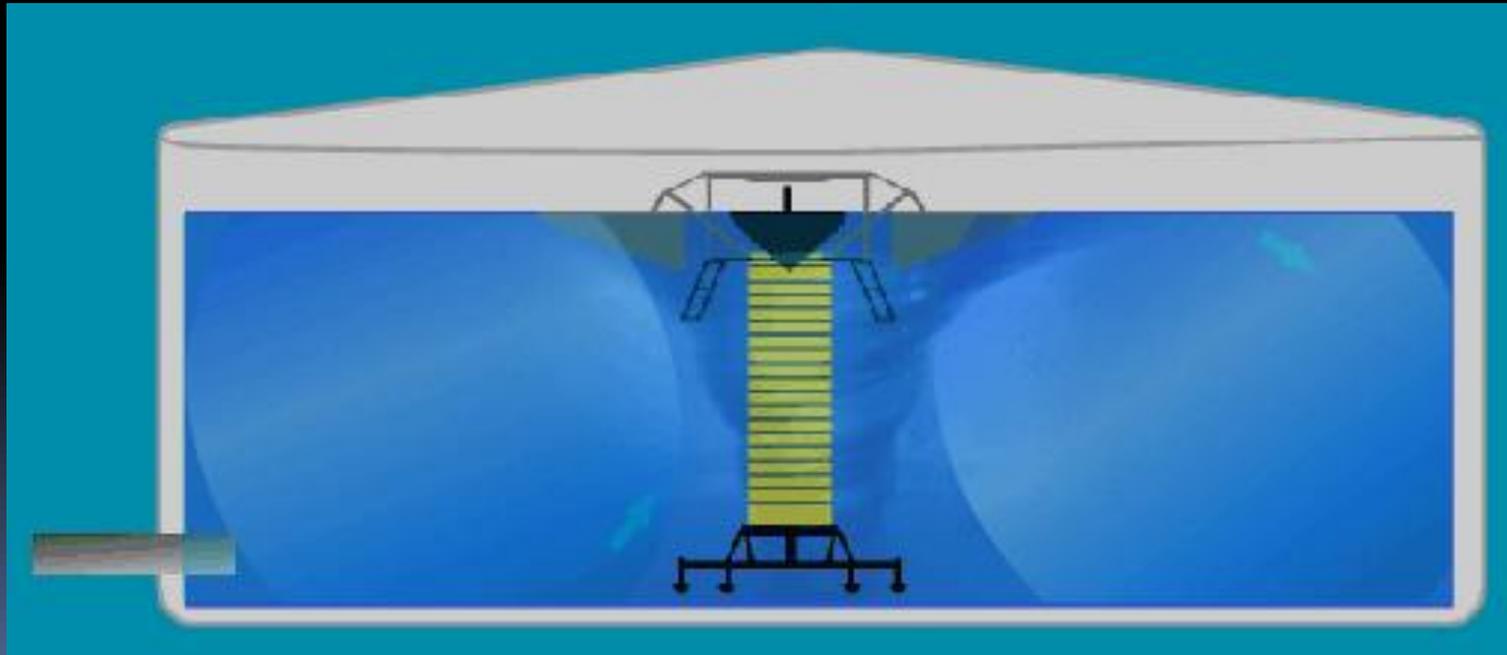
PAX Water Technologies



PAX Water Technologies

Mechanical Mixing System

- Prevents stagnation, thermal stratification, nitrification and short circuiting.
- Provides complete mixing of influent and outflow.
- Can be solar powered.



- Examples of Rehabs



Rehabilitation - Repairs



Canby, Oregon 2.0 MG Retrofit



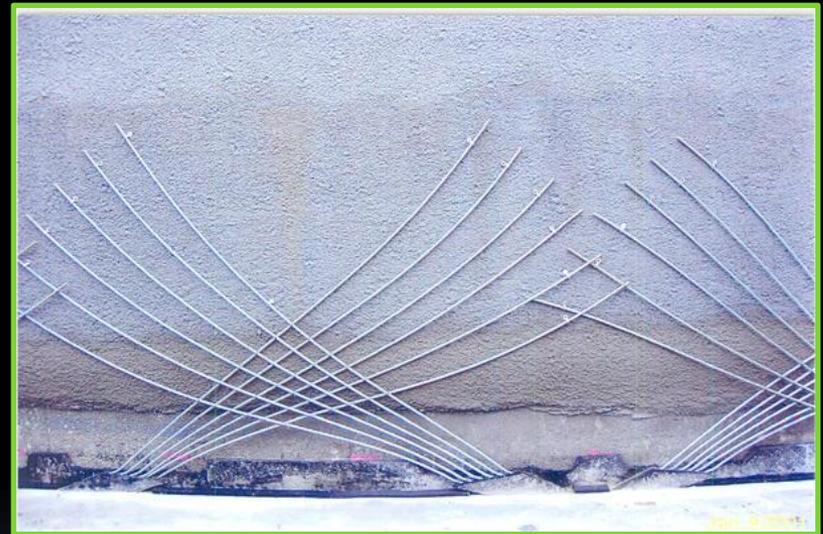








Forming of new machine footing and seismic cable system application



Seismic cable attached to wall before automated shotcrete application



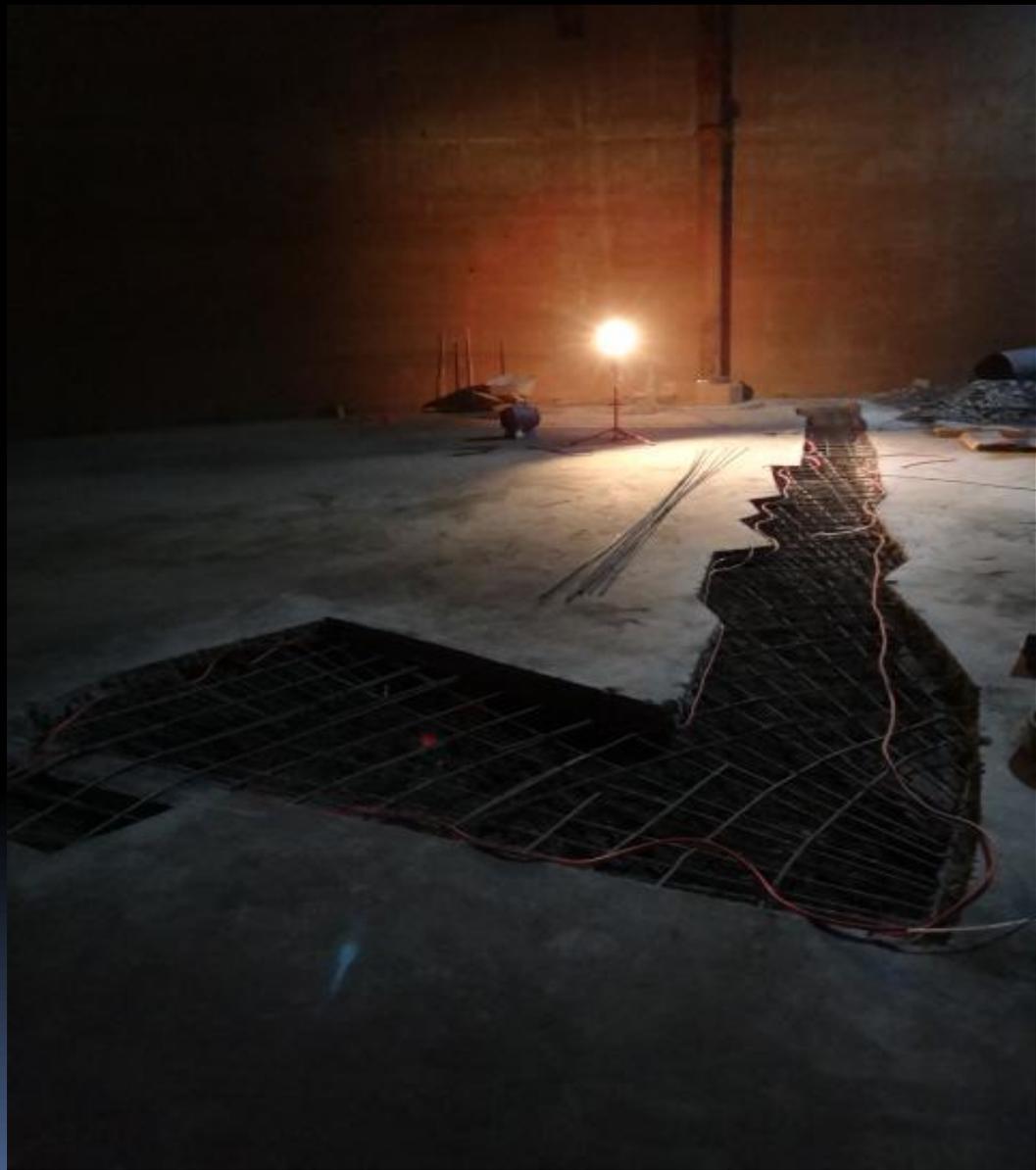






Puukolii Repair











Key to a good rehab is
Preparation

Rehabilitation - Repairs



Rehabilitation - Repairs





Honoka'a Camp Reservoir

Location: North Kohala, HI

Problem: Earthquake Damage



Low pressure epoxy injection of wall joints and cracks



NSF approved non-sag epoxy used to "cap seal" cracks.

Note: LP-epoxy injection ports



Example of fiber liner with SS316 baton bar system being installed due to leakage at wall to floor joint

Honoka'a Camp Reservoir



Exterior wall to footing connection, dam system installed to retain LP-epoxy injection of joint. Dam is removed after curing of epoxy.



Finished reservoir after newly applied exterior paint.

0.75 MG Bolted Steel Reservoirs

Location: Cincinnati, OH

Problem: Leaking of concrete riser and insufficient structural steel

Calcium stains and leaking
due to insufficient structural
reinforcement



Hydraulic valve control
system penetrations through
wall - leaking



3 x 0.75 MG Bolted Steel Reservoirs



Exterior sandblasting
application



Interior rebar installation
required structural support

3 x 0.75 MG Bolted Steel Reservoirs



Cut and finish of newly applied first layer of shotcrete



Preparing screed system for hand applied shotcrete

3 x 0.75 MG Bolted Steel Reservoirs



Lay out of unbonded cable system

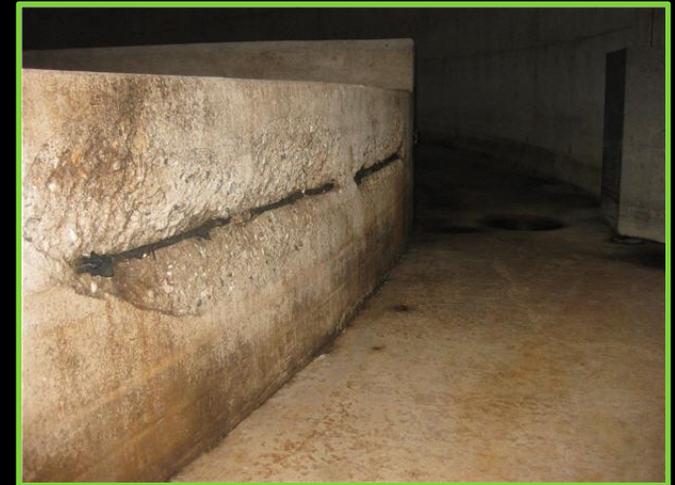


0.6 diameter galvanized cables installed with friction pads, ready for stressing

3 x 0.75 MG Bolted Steel Reservoirs



Stress application of 0.6 diameter galvanized strand. Layout and force requirements by DYK Engineering.

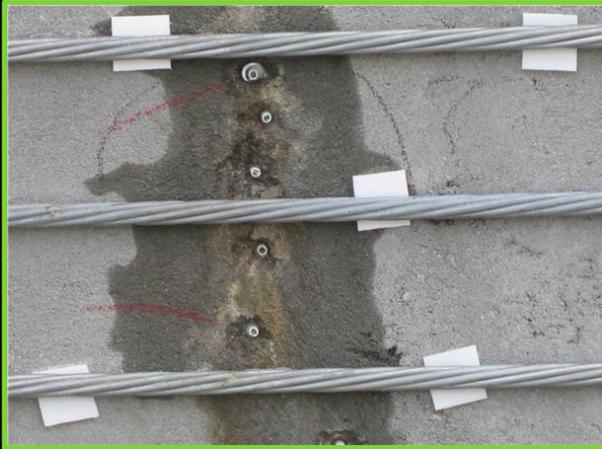


Spalded area due to corrosion



Same area patched after sandblasting and prep for non-shrink cementitious material

3 x 0.75 MG Bolted Steel Reservoirs



Leak testing before shotcrete cover coat. Areas that were showing leaks were epoxy injected with 2-part high viscosity material using low pressure pump system



Hand applied shotcrete cover over stressed 0.6 diameter cables



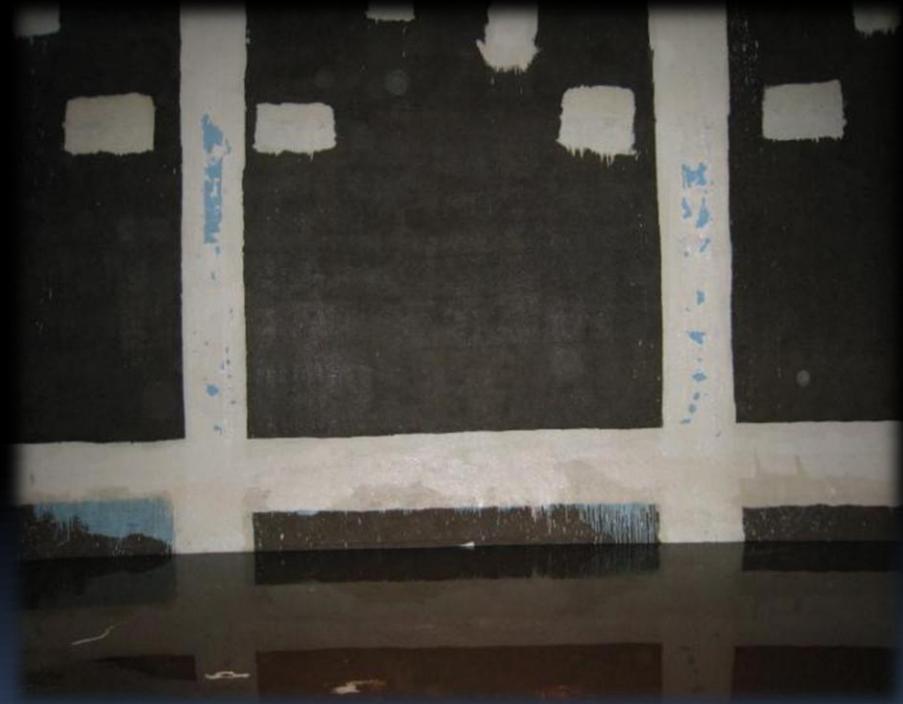
Completed shotcrete cover coat

3 x 0.75 MG Bolted Steel Reservoirs



Final touch up of reservoir retrofit

Inspection & Cleaning



Questions?