

Current Methods and Technologies for Repairing Concrete Wastewater Treatment Facilities

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What's Unique with WWTP Concrete Repair ?



Current Methods and Technologies

- Specifications
- Real World Construction
- Overcoming Installation Challenges



Concrete Repair Process

- Evaluation
- Correctly Written Specifications
- Surface Preparation
- Material Selection
- Proper Installation

Material Properties

- Compressive Strength
- Modulus of Elasticity
- Shrinkage
- Freeze/Thaw Resistance
- Bond Strength
- Flexural Strength
- Permeability
- Impact & Abrasion Resistance
- Coefficient of Thermal Expansion
- Chemical Resistance
- Sulfate Resistance

Application Criteria

- Repair Thickness
- Consistency
- Set time
- Viscosity
- Ease to Place
- Stickiness
- Aggregate Extension



Materials

- Patching Mortar
- Rapid Set Repair Mortar
- Crack Injection- Epoxy
- Water Plug
- Chemical Grout
- Waterproofing Coating
- Chemical Resistant Coatings

Seal Active Leaks

Water Stops

- Interior and Exterior
- Below Grade Walls
- Foundations
- Reservoirs
- Manholes
- Tunnels



Seal “Weeping” Walls

Waterproofing Coatings

- Positive or Negative Side
- Crystalline
- Hardens in Seconds



Stop Leaking Cracks

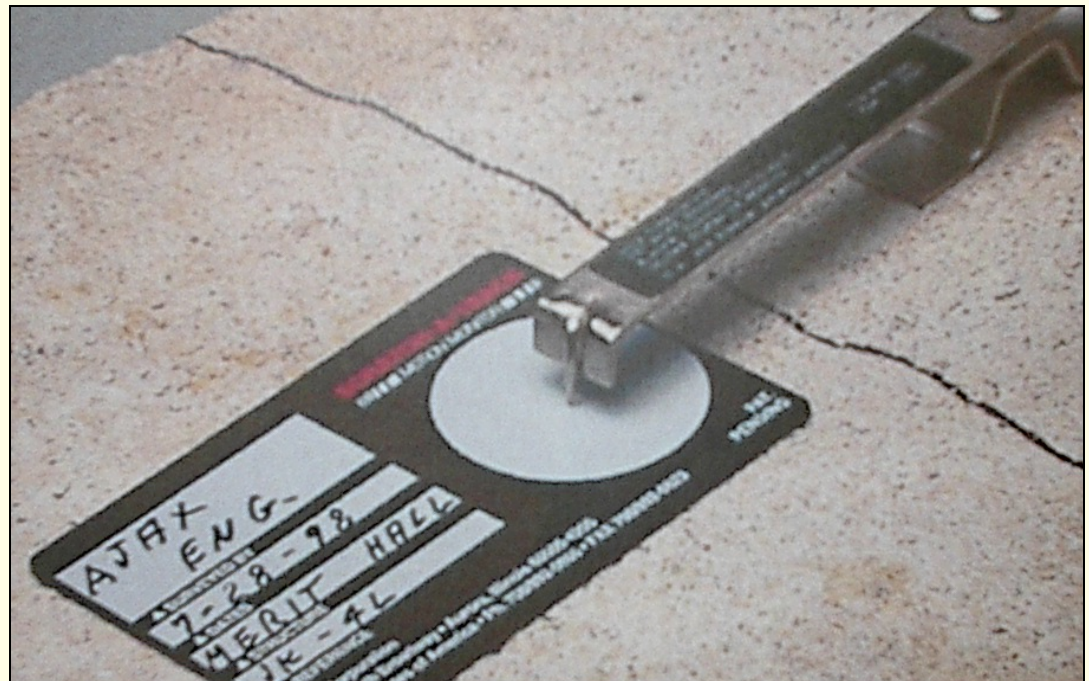
Urethane Chemical Grout

- Low Viscosity Urethane
- Expands
- Hydrophilic/Hydrophobic



Crack Repair

- Non-water Cracks
- Dynamic Cracks
- Static Cracks



Crack Injection



Coatings and Linings

- Chemical Resistance
- Flexible
- High Build



WATER & WASTEWATER

Challenges & Opportunities

... A Contractor's Perspective



- Aging Infrastructure
- Overcoming Installation Challenges
 - Site Access/Mobilization
 - Site Conditions
- Opportunities

Aging Infrastructure

- Old Structures
- Lack of Maintenance
- H₂S Deterioration



WTP Challenges

- Deteriorated concrete
- Rusted & expanded reinforcing
- Humidity in work spaces approaching 100%
- Confined spaces
- Access-challenged and congested work spaces

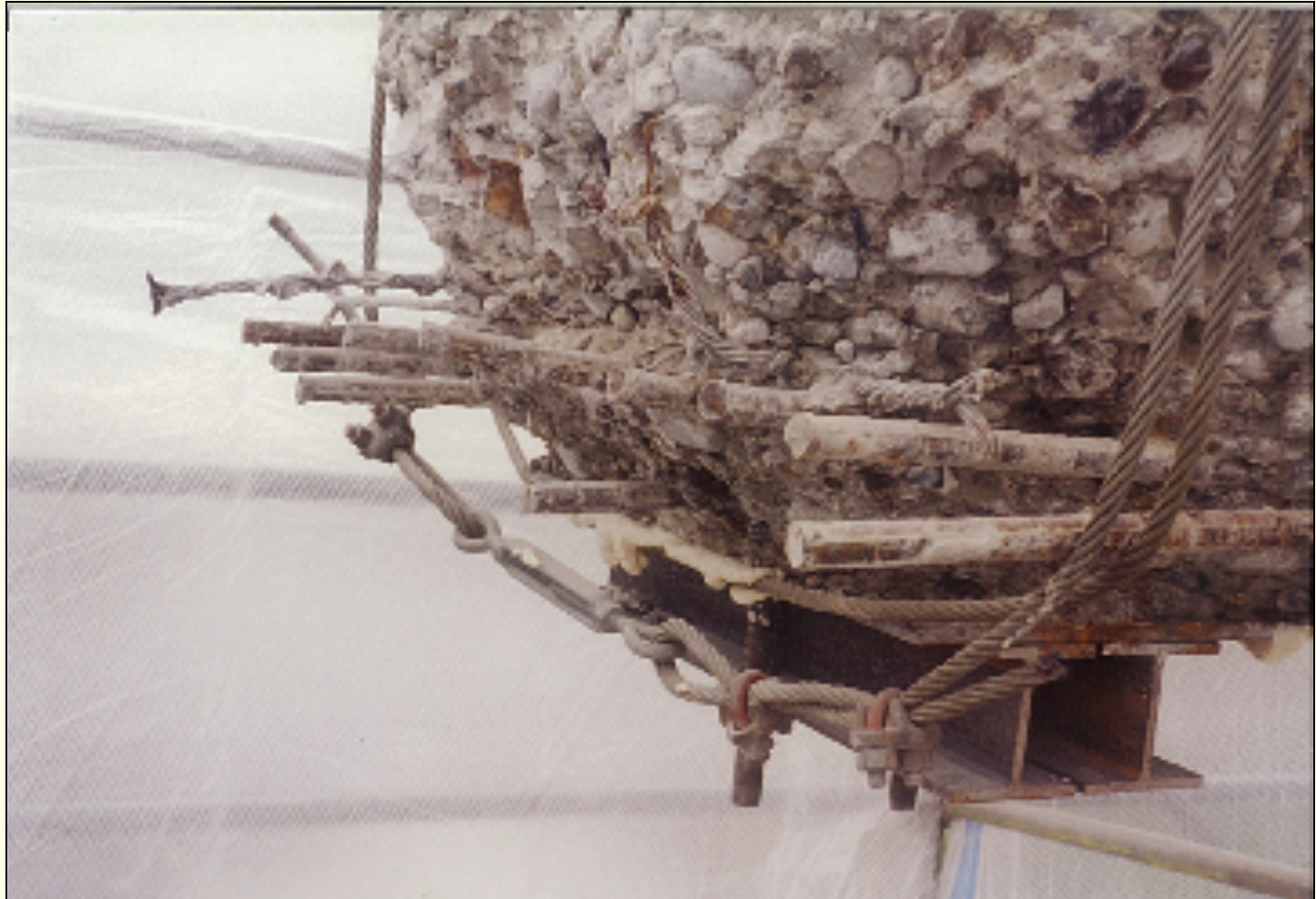
WWTP Challenges

- Tunnel flow can increase rapidly and unpredictably
- Intermittently hazardous atmosphere (H_2S)
- Permit-required confined space protocols
- Combined storm & sanitary flow (bio-hazard)
- Entry by crane & man-basket only
- Tunnel floor uneven (trip hazards)











Site Access



Confined Work Spaces



Equipment Mobilization



Jobsite Safety



Jobsite Safety



Jobsite Conditions



Jobsite Conditions



Opportunities

- Seal Water Leaks
- Concrete Repair
- Epoxy Injection
- Coatings









Increasing Your Opportunities

- Become involved in organizations that provide networking opportunities
- Provide continuous training for your employees
- Create project profiles, newsletters, brochures
- Host an open house
- Sponsor lunchbox seminars
- Have a jobsite cookout



Increasing Your Opportunities

- Commit yourself to high quality work
- Create relationships
- Evaluate bidding services
- When the economy slows, DO NOT cut back your marketing dollars
- Learn to think so far outside of the box that you're in danger of losing site of the box



Success !



Success !



Success !



Questions ??

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