Harvard University Science Complex, MWRA Sewer
Allston, MA
Project Contacts: Arthur Davies, Daniel Valentine, Mehdi Zarghamee

Harvard University planned to locate a new science complex above a Massachusetts Water Resources Authority (MWRA) brick masonry pipeline that was over 115 years old. The University was concerned...

Services: Structural Investigation
Markets: Water/Wastewater
Keywords: Adjacent Construction, Masonry-Brick, Nonlinear, Pipe, Soil-Structure Interaction, Vibration / Fatigue Analysis

Sonoma County Water Agency, Transmission System Pipeline
Sonoma County, CA
Project Contacts: Jesse Beaver

The Sonoma County Water Agency manages a regional water supply to ensure its customers have access to clean water. Wanting to preserve their assets, the agency needed to understand the condition...

Services: Materials Investigation
Markets: Water/Wastewater
Keywords: Metal-Steel, Metallurgy, Petrography, Pipe, Pipe, Steel, Pipeline
Skewed Culvert

Boston, MA

Project Contacts: Jesse Beaver, Andrew Sarawit

With limited guidance in existing design standards, the culvert manufacturer was struggling to efficiently design headwalls for their metal culverts skewed relative to the road. SGH implemented a...

Services: Structural Design
Markets: Water/Wastewater
Keywords: Analytical Studies, Culverts and Storm Drains, Metal, Research/Development

Massachusetts Water Resource Authority, Beacon Street Line

Boston, MA

Project Contacts: Murat Engindeniz, Rasko Ojdrovic

Constructed in the 1870s, the Beacon Street Line carries water under the MBTA Green Line tracks in the busy Brookline neighborhood. Massachusetts Water Resources Authority (MWRA) identified a leak...

Services: Structural Rehabilitation
Markets: Water/Wastewater
Keywords: Composites-FRP / CFRP / GFRP, Pipe, Pipeline, Water Leakage

DC Water North East Boundary Trunk Sewer

Washington, DC

Project Contacts: Murat Engindeniz, Rasko Ojdrovic

In 2014, a five-story residence was constructed directly over DC Water’s North East Boundary Trunk Sewer (NEBTS) with only about 2 ft of soil between the bottom of the basement and the top of the...

Services: Structural Investigation, Structural Rehabilitation
Markets: Water/Wastewater
Indian Valley Reservoir
Newport Beach, CA
Project Contacts: Philip Hashimoto
The Indian Valley Reservoir provides long-term irrigation storage and flood control. A 2010 inspection report recommended seismic analyses of the floodgates and control structure to confirm the...

Services: Structural Investigation
Markets: Water/Wastewater
Keywords: Finite Element Analysis, Flood, Risk Assessment, Seismic Analyses, Structural Adequacy Assessment

ITC Crossing
Mount Olive, NJ
Project Contacts: Phillip Sharff, Bryan Strohman
During construction of the ITC Crossing development, sections of corrugated metal pipe (CMP) and reinforced concrete pipe (RCP) in the storm drainage system were found to be structurally...

Services: Structural Investigation
Markets: Water/Wastewater
Keywords: Concrete-Reinforced, Culverts and Storm Drains, Drainage, Metal, Pipe

Brandon Shores Power Plant
Curtis Bay, MD
Project Contacts: Murat Engindeniz, Rasko Ojdrovic, Mehdi Zarghamee
Brandon Shores Power Plant (BSPP) has a proactive inspection and repair program for circulating water and service water pipelines, including prestressed concrete cylinder pipe
(PCCP), steel pipe,...

**Services:** Structural Investigation, Structural Rehabilitation

**Markets:** Water/Wastewater

**Keywords:** Composites-FRP / CFRP / GFRP, Condition Assessment, Construction Administration, Inspection, Laboratory Testing and Analysis, Metal-Steel, PCCP, Pipe, Power, Testing/Inspection

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**Stroube Drain**

**Oxnard, CA**

**Project Contacts:** James McDonald, James Parker, Phillip Sharff

After constructing the first 1.5 mi of the Stroube Drain cast-in-place, reinforced concrete box culvert, the owner discovered the design did not consider live loads for the most severe traffic...

**Services:** Structural Investigation

**Markets:** Water/Wastewater

**Keywords:** Concrete, Concrete-Reinforced, Condition Assessment, Cracking, Culvert, Culverts and Storm Drains, Expert Testimony, Storm Drains

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**Miami-Dade Water and Sewer Authority**

**Miami, FL**

**Project Contacts:** Murat Engindeniz, Rasko Ojdrovic

In 2010, Miami-Dade Water and Sewer Authority (MDWSA) instituted a continuous inspection and repair program for their 48 in. to 96 in. dia. prestressed concrete cylinder pipes (PCCP). With brief...

**Services:** Structural Investigation, Structural Rehabilitation

**Markets:** Water/Wastewater

**Keywords:** Composites-FRP / CFRP / GFRP, Construction Administration, Failure Risk Assessment, Inspection, Laboratory Testing and Analysis, PCCP, Pipe, Pipeline, Testing/Inspection
Brian J. Gallagher Generating Station
Almonte, ON
Project Contacts: Rasko Ojdrovic

The Brian J. Gallagher Generating Station, located on the Mississippi River in Ontario, was completed in April 2010. In 2012, power output suddenly dropped by half. Mississippi River Power Corp. (...)

Services: Structural Investigation, Structural Rehabilitation
Markets: Water/Wastewater
Keywords: Composites-FRP / CFRP / GFRP, Concrete Rehabilitation, Construction Administration, Metal-Steel, Pipe, Pipeline

Pipe Failures in Residential Plumbing and Heating Systems
United States and Canada
Project Contacts: Phillip Sharff

SGH investigated the cause of failures in pipes used in residential domestic hot water and hydronic heating systems in the United States and Canada. Occurring after less than 10 yrs in service,...

Services: Materials Investigation, Structural Investigation
Markets: Water/Wastewater
Keywords: Laboratory Testing and Analysis, Materials Analysis, Pipe, Plastic/Composite, Residential

Huachipa Water Treatment Plant
Lima, Peru
Project Contacts: Jesse Beaver, Phillip Sharff

Ramal Norte Pipeline is a 27 km long subsurface pressure pipeline that provides drinking water from Huachipa Water Treatment Plant to several districts in Lima, Peru. The pipeline was in temporary...

Services: Materials Investigation, Structural Investigation
Markets: Water/Wastewater
Cheyenne Water Distribution System

Cheyenne, WY

Project Contacts: Rasko Ojdrovic, Mehdi Zarghamee

The water distribution system in Cheyenne includes four prestressed concrete cylinder pipelines (PCCP), approximately 13.5 mi long. The 16 to 30 in. dia., lined-cylinder pipes (LCP) were installed...

Services: Structural Design

Markets: Water/Wastewater

Keywords: Concrete-Prestressed, Condition Assessment, Corrosion, Failure Risk Assessment, Pipeline

Sudbury Aqueduct

Needham, MA

Project Contacts: Jesse Beaver, Phillip Sharff, Mehdi Zarghamee

Built in 1880, the aqueduct was a major pipeline for the City of Boston’s water distribution network until 1940, when the Hultman Aqueduct replaced it. Connecting reservoirs in Framingham with the...

Services: Structural Investigation

Markets: Water/Wastewater

Keywords: Adjacent Construction, Engineering Mechanics, Finite Element Analysis, Inspection, Masonry, Masonry-Brick, Pipeline, Risk Assessment, Soil-Structure Interaction
**Muskegon County Wastewater Management System**

Muskegon, MI  
**Project Contacts:** Rasko Ojdrovic, Mehdi Zarghamee

The Muskegon County Wastewater Management System's pipeline is an 11 mi, 66 in. dia. prestressed concrete cylinder pipe (PCCP) that carries raw domestic and industrial sewage. SGH investigated the...  

**Services:** Materials Investigation, Structural Investigation  
**Markets:** Water/Wastewater  
**Keywords:** Condition Assessment, Corrosion, Engineering Mechanics, Failure Investigation, Field Testing, Laboratory Testing and Analysis, Metallurgy, PCCP, Petrography, Pipe, Pipeline

**Hultman Aqueduct**

Weston, MA  
**Project Contacts:** Phillip Sharff, Mehdi Zarghamee

For many years, the Hultman Aqueduct delivered nearly all the drinking water to the Boston area. The aqueduct had never been shut down for inspection or maintenance during that time due to its...  

**Services:** Structural Investigation  
**Markets:** Water/Wastewater  
**Keywords:** Condition Assessment, Cracking, Engineering Mechanics, Field Testing, Laboratory Testing and Analysis, Nondestructive Testing, Petrography, Pipe, Pipeline

**R.O. Pickard Environmental Centre Expansion (ROPEC)**

Ottawa, ON  

For the R.O. Pickard Environmental Centre digester expansion program, the owner’s engineer envisioned two structurally-identical, modified, egg-shaped digesters founded on drilled piers extending...  

**Services:** Structural Design
Seismic Assessment of Pipelines

Canada

Project Contacts: Mehdi Zarghamee

Prestressed concrete cylinder pipes (PCCP) are extensively used in the cooling system of power plants. SGH evaluated the seismic performance of buried PCCP pipelines in low, moderate, and high...

Services: Structural Design
Markets: Water/Wastewater
Keywords: Engineering Mechanics, International, PCCP, Pipe, Pipeline, Seismic Analyses

Central Arizona Project

Tucson, AZ

Project Contacts: Mehdi Zarghamee

The 252 in. dia. concrete pipe is used in siphons to convey water in the Central Arizona Project and is the largest diameter pipe in the world. The pipes have a 19.625 in. thick concrete core and...

Services: Structural Rehabilitation
Markets: Water/Wastewater
Keywords: Cracking, Excavation, Failure Investigation, Finite Element Analysis, PCCP, Pipeline, Risk Assessment, Soil-Structure Interaction
Massachusetts Water Resource Authority, Walnut Hill Treatment Plant, Cosgrove Intake Pipeline
Marlborough, MA
Project Contacts: Paul Kelley, Phillip Sharff
The Cosgrove Intake pipeline, a 144 in. dia. prestressed concrete cylinder pipe (PCCP), at MWRA’s Walnut Hill Water Treatment Plant Project was completed in early 2004 as a part of the water...
Services: Structural Rehabilitation
Markets: Water/Wastewater
Keywords: Failure Investigation, Pipeline

Greybull Water Transmission Pipeline
Greybull, WY
Project Contacts: Rasko Ojdrovic
The Greybull Water Transmission Pipeline is the only pipeline that carries treated water for the town of Greybull. The 16.5 mile pipeline was constructed in 1960s and 1970s with 12 in. and 14 in....
Services: Materials Investigation, Structural Investigation
Markets: Water/Wastewater
Keywords: Analytical Studies, Engineering Mechanics, Failure Risk Assessment, Field Testing, Laboratory Testing and Analysis, Petrography, Pipeline

MWRA, Blue Hills Covered Storage Design-Build Project
Milton, MA
As part of an effort to eliminate open distribution storage reservoirs, Massachusetts Water Resources Authority sought to construct two covered drinking water storage tanks. The Blue Hills Covered...
Services: Structural Design
Markets: Water/Wastewater
Keywords: Award Winning, Concrete, Concrete-Cast-in-Place
**Cholla Power Plant**

Joseph City, AZ

**Project Contacts:** Murat Engindeniz, Mehdi Zarghamee

Arizona Public Service Company (APS) chose SGH to perform a condition assessment and develop repairs for the circulating water pipelines at the Cholla Power Plant. The coal-fired power plant, co...

**Services:** Structural Rehabilitation

**Markets:** Water/Wastewater

**Keywords:** Composites-FRP / CFRP / GFRP, Failure Investigation, Pipeline, Plastic/Composite, Power, Risk Assessment

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**Natgun Water Storage Tanks**

Portland, OR

**Project Contacts:** Dominic Kelly, David McCormick, Mehdi Zarghamee

DN Tanks (formerly Natgun) designs and constructs prestressed concrete liquid storage tanks. The tanks are American Water Works Association (AWWA) D110 prestressed wire-wound concrete tanks that...

**Services:** Structural Design

**Markets:** Water/Wastewater

**Keywords:** Concrete, Concrete-Prestressed, Engineering Mechanics, Finite Element Analysis, Seismic Analyses, Tank

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**6th Avenue Flood Abatement**

Columbus, GA

**Project Contacts:** Dominic Kelly

Bounded on three sides by rivers and creeks, the City of Columbus faced the potential of major flooding. Foley Products Company asked SGH to design precast concrete box...
Prestressed concrete cylinder pipe (PCCP) have been used for water transmission systems for more than sixty-five years. Therefore, utilities need effective means to identify distressed or...

Water Research Foundation, Prestressed Concrete Cylinder Pipe Condition Assessment
United States
Project Contacts: Rasko Ojdrovic

Prestressed concrete cylinder pipe (PCCP) make up a significant portion of pipelines for the world's water, wastewater, and cooling water systems. Distress to PCCP can include broken wires,...

Water Research Foundation, CFRP Renewal of Prestressed Concrete Cylinder Pipe, Project 4352
United States
Project Contacts: Murat Engindeniz, Mehdi Zarghamee

Prestressed-concrete cylinder pipe (PCCP) makes up a significant portion of pipelines for the world's water, wastewater, and cooling water systems. Distress to PCCP can include broken wires,...
**Tank Service Life Estimate**

**Middle East, Saudi Arabia**

**Project Contacts:** Dominic Kelly

The tank, classified as an American Water Works Association (AWWA) D-110 Type I tank, is a strand-wound circular, prestressed concrete water tank with cast-in-place concrete tank walls clad in...

**Services:** Structural Design

**Markets:** Water/Wastewater

**Keywords:** Concrete, Concrete-Post-tensioned, International, Tank

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**StormTech, Inc., Stormwater Chambers**

**Wethersfield, CT**

**Project Contacts:** Jesse Beaver, Phillip Sharff

StormTech manufactures underground molded polypropylene chambers for stormwater retention systems. With no design standards available for these structures, StormTech asked SGH to assess the...

**Services:** Materials Design, Structural Investigation

**Markets:** Water/Wastewater

**Keywords:** Civil: On-Site Stormwater Management, Culverts and Storm Drains, Materials Analysis, Materials Testing for Design, Plastic/Composite, Research/Development, Storm Drains