Harvard University Science Complex, MWRA Sewer

Allston, MA

Project Contacts: 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

Minera Escondida, Organic Growth Project 1, Tunnel 4

Atacama Desert, Chile

Project Contacts: Jesse Beaver

Expansion of the Minera Escondida copper mine included constructing a corrugated steel structural plate arch tunnel. The tunnel acts as a buried bridge to carry a haul road over the mine’s...

Services: Structural Investigation, Structural Rehabilitation
Markets: Highway & Tunnel
Keywords: Buried, Condition Assessment, Culverts and Storm Drains, Damage, Finite Element Analysis, International, Metal, Metal-Steel, Pipe, Steel, Pipeline, Settlement, Structural Adequacy Assessment, Tunnel
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

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
Keywords: Composites-FRP / CFRP / GFRP, Cracking, Masonry-Brick
Bingham Canyon Mine
Salt Lake City, UT
Project Contacts: Jesse Beaver, Phillip Sharff

A conveyor belt runs along one of the canyon benches at the copper mine. The upper slope of the canyon was undergoing a slow and predictable landslide transverse to the conveyor belt. To protect...

Services: Structural Investigation
Markets: Highway & Tunnel
Keywords: Buried, Culverts and Storm Drains, Failure Investigation, Finite Element Analysis, Metal-Steel, Pipe, Retaining Wall, Soil-Structure Interaction, Tunnel

Vertical Installation of Corrugated Steel Pipe
Waltham, MA
Project Contacts: Jesse Beaver

Contech Engineered Solutions (Contech) installs corrugated steel pipe (CSP) to form wind turbine foundations. After excavating, Contech installs the pipe vertically within the hole and quickly...

Services: Structural Design
Keywords: Culverts and Storm Drains, Foundation, Pipe, Pipe, Steel, 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
Paramus Park Mall

Paramus, NJ

Project Contacts: Phillip Sharff

Corrugated metal storm drain pipes running beneath the Paramus Mall parking lot were severely corroded and deflected. SGH investigated the pipes’ condition and developed rehabilitation options...

Services: Structural Investigation, Structural Rehabilitation

Markets: Retail

Keywords: Metal, Pipe, Pipeline, Settlement

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
City of Columbus Pipeline

Columbus, OH

Project Contacts: Murat Engindeniz, Rasko Ojdrovic

While attempting to install telecommunications lines below a creek, a driller punctured a buried, 48 in. dia. prestressed concrete cylinder pipe (PCCP). The pipe is part of Columbus’s water system...

Services: Structural Rehabilitation
Markets: Government
Keywords: Composites-FRP / CFRP / GFRP, Failure Investigation, Laboratory Testing and Analysis, PCCP, Pipe, Pipeline

Palo Verde Nuclear Generating Station Pipelines

Tonopah, AZ

Project Contacts: Rasko Ojdrovic, Mehdi Zarghamee

Constructed in the early 1980s by the Arizona Public Service Company, the water reclamation supply system at Palo Verde Nuclear Generating Plant consists of thirty-six miles of prestressed...

Services: Structural Investigation
Markets: Nuclear
Keywords: Condition Assessment, Corrosion, Cracking, Failure Risk Assessment, PCCP, Pipe, Pipeline, Risk Assessment

Nuclear Power Plant Circulating Water Pipeline

United States

Project Contacts: Murat Engindeniz, Rasko Ojdrovic

At the power plant, 84 in. dia. steel discharge headers transfer water from the condenser to the discharge tunnel. SGH designed internally bonded, carbon fiber-reinforced polymer (CFRP) liners for...

Services: Structural Rehabilitation
Markets: Nuclear
**Nuclear Station Low-Pressure Service Water System**

**United States**

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

The low-pressure service water system comprises 36 in., 42 in., and 54 in. dia. steel pipe. Approximately 1800 ft of pipe was corroded and required repair. SGH designed internally bonded, carbon...

**Services:** Structural Rehabilitation

**Markets:** Nuclear

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

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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
Fermi 2 Nuclear Power Plant, Circulating Water Pipeline

Monroe, MI

Project Contacts: Murat Engindeniz, Rasko Ojdrovic

The 144 in. dia. circulating water pipeline at Fermi 2 consists of two intake lines between the reservoir and condenser and two discharge lines between the condenser and two cooling towers. All...

Services: Structural Investigation, Structural Rehabilitation
Markets: Nuclear
Keywords: Composites-FRP / CFRP / GFRP, Concrete Rehabilitation, Failure Risk Assessment, PCCP, Pipe, Pipeline

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
**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

**Keywords:** Failure Investigation, Failure Risk Assessment, Finite Element Analysis, International, Metallurgy, Pipe, Pipeline, Soil-Structure Interaction

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**Gillette Stadium**

Foxboro, MA

**Project Contacts:** Donald Dusenberry, Dean Rutila, Mehdi Zarghamee

Gillette Stadium serves as home to the New England Patriots and the New England Revolution. The stadium has 68,000 seats on three decks, eighty luxury suites, and over 6,000 club seats. SGH...

**Services:** Building Enclosure Investigation, Materials Investigation, Structural Investigation

**Markets:** Sports & Entertainment

**Keywords:** Arena/Stadium, Concrete, Concrete-Precast, Cracking, Curtain Wall, Failure Investigation, Petrography, Pipe
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

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...
Water Research Foundation, Prestressed Concrete Cylinder Pipe Condition Assessment

United States

Project Contacts: Rasko Ojdrovic

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...

Services: Structural Investigation
Markets: Water/Wastewater
Keywords: Codes & Standards, Condition Assessment, Deterioration, PCCP, Pipe, Pipeline, Research/Development

Owens Dry Lake Project

CA

Project Contacts: Phillip Sharff

The Owens Dry Lake Project was initiated to flood the surface of a dry lake as dust blowing off the surface of the lake was the source of significant caustic contaminants and presented a health...

Services: Structural Investigation
Markets: Water/Wastewater
Keywords: Analytical Studies, Composites-FRP / CFRP / GFRP, Pipe, Plastic/Composite
Calleguas Municipal Water District, Conduit North Branch

Thousand Oaks, CA

Project Contacts: Rasko Ojdrovic, Mehdi Zarghamee

Calleguas Municipal Water District experienced a failure in 140 ft of steel liner within a 78 in. dia. prestressed concrete cylinder pipe (PCCP) water main. The failure resulted in local flooding...

Services: Structural Rehabilitation

Markets: Water/Wastewater

Keywords: Finite Element Analysis, Metal, Metal-Steel, PCCP, Pipe, Pipeline