

Wastewater Services



MWH®

now
part of



Stantec



We are global experts in developing waste-to-resource solutions to optimize wastewater treatment operations.

Engineers from MWH, now part of Stantec have designed wastewater treatment facilities around the globe, ranging in size from 0.25-mgd to more than 800-mgd. Our wastewater experience encompasses collection systems, advanced treatment facilities, residuals management and handling, odor control and air pollution, and water reuse. On the treatment side, we have significant expertise in all facets of wastewater liquid stream and solids stream treatment, ranging from conventionals for organic removals, to complex nutrient removal/resource recovery processes covering scopes from compliance evaluations, to turnkey delivery of completely operational facilities.

We hold expertise in:

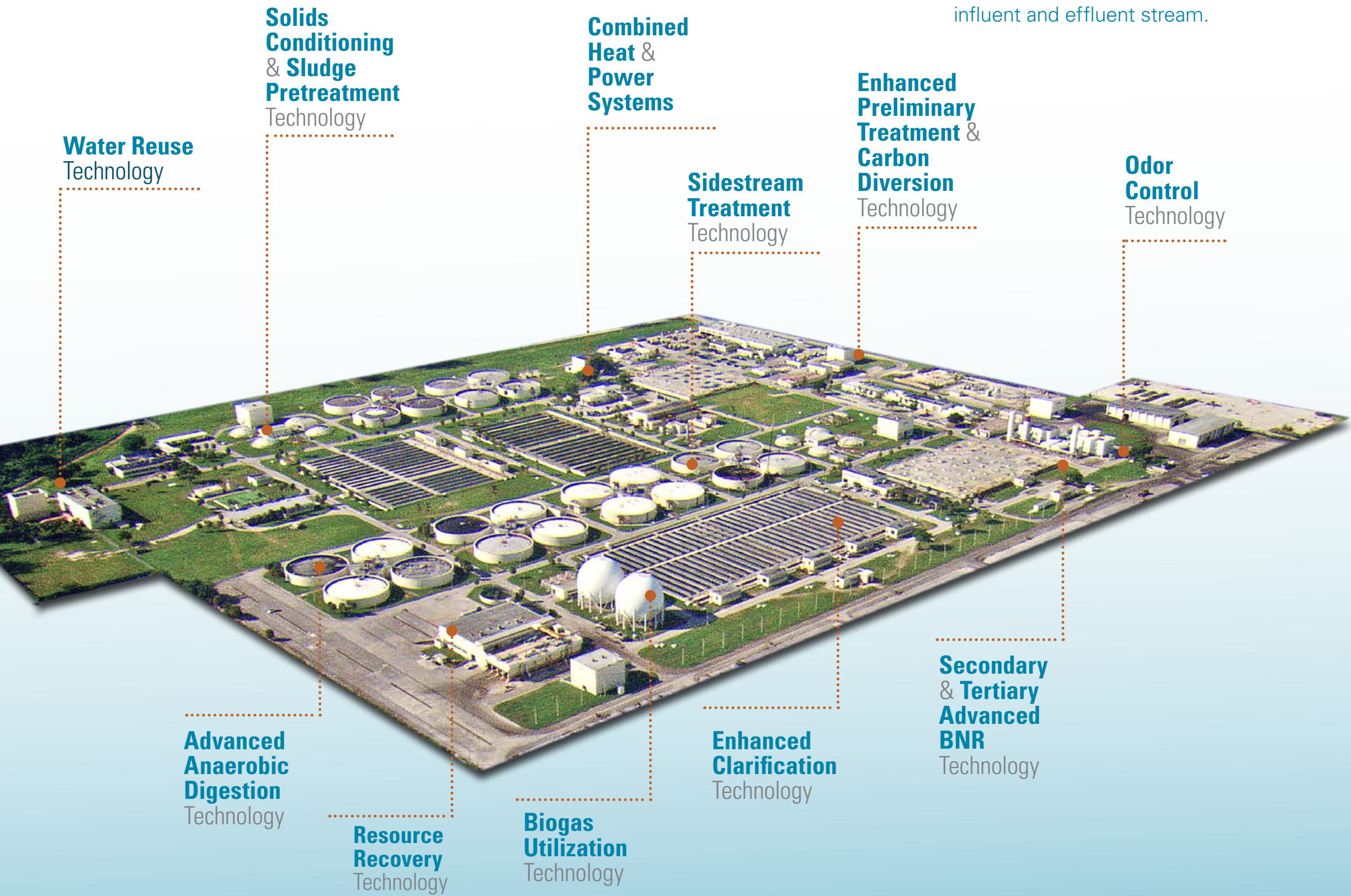
- Integrated Biological, Physical and Chemical Systems Designs
- Biological Treatment Process Modeling
- Wet Weather Treatment Process Technology and Modeling
- Odor Source and Dispersion Modeling
- Computational Fluid Dynamics Modeling
- Integrated Water Management Modeling
- Energy Management Modeling
- Resource Recovery Modeling
- Carbon Inventory and Emissions Modeling
- Data Inventory, Analysis and Management
- Preliminary and Detailed Design
- Published Technical Literature Research

We have the capability to service **your needs** throughout **all phases of your project.**

- Wastewater and Biosolids System Master Planning
- Process Engineering and Design for Mainstream and Sidestream Liquid and Solids Treatment Systems
- Biological and Physical/Chemical Treatment Process Modeling
- Treatment System Design Support (Preliminary Engineering Reports)
- Treatment Technology Research
- Process Validation Pilot Plant Design/Operation
- Equipment Analysis and Evaluation
- Plant Operations and Optimization
- Energy Consumption Audits
- Real Time Controls
- Resource Recovery – Water, Energy, Nutrients
- Sustainability – Greenhouse Gas (GHG) Emissions, Carbon & Energy Balances, Renewable Energy
- Operations Training
- Best Treatment and Management Practices
- QA/QC & Value Engineering
- Process Start-Up/Testing/Commissioning and Decommissioning
- Regulatory Compliance Strategy
- Industrial Treatment Process Technology

Wastewater Treatment: *Waste-to-Resource; Waste Streams-to-Value Streams*

At MWH, now part of Stantec we see wastewater not as waste, but as a beneficial resource. We can help you manage your wastewater system by exploring and evaluating process options to optimize operations for recovering resources from your influent and effluent stream.



Developing Innovative Solutions to Environmental Challenges

Biological Nutrient Removal (BNR)

We use state-of-the-art process modeling and hydraulics tools that optimize our wastewater plant designs in order to achieve very low levels of nutrients in plant effluents. Our recent BNR process designs have included activated sludge with enhanced biological nitrogen and phosphorus removal, sidestream enhanced biological phosphorus removal and deammonification, biologically aerated filters/ de-nitrification filters, integrated fixed film/activated sludge, and membrane bioreactors (MBR).

Operational Optimization and Sustainability

Operational optimization at existing wastewater treatment plants reduces operating costs, reduces or eliminates chemical additions, reduces energy consumption, and reduces GHG emissions, all by focusing on maximizing the use of existing resources and infrastructure, and managing carbon and residuals inventories.



Our Project Experience



Seafeld Odor/Inlet Improvement Project
Stirling Water (Seafield) Ltd
Edinburgh, U.K.

Seafeld Wastewater Treatment Works is the largest treatment works in the East of Scotland, treating the waste of 850,000 people from Edinburgh and the surrounding area. Treating this amount of waste brings issues and concerns including odor problems, followed closely by the having an effective inlet works. We were awarded a two-part contract with Stirling Water to help deliver the Odor Improvement Plan (OIP) and an upgrade to the Inlet Works Plan (IIP). The OIP included the provision of a new two-stage chemical and activated carbon odor control system which covers the areas of the plant that represent the primary sources of odor. The Inlet Works (IIP) included the installation of new coarse screens, upgrading of the existing fine screens complete with screenings handling and replacement of the grit classification arrangement. The upgrade to the inlet works will have a major positive impact on the overall performance of Seafeld Wastewater Treatment Works.



Jebel Ali Sewage Treatment Plant
Dubai Municipality
Dubai, United Arab Emirate

The Jebel Ali Sewage Treatment Plant (STP) is one of the largest plants in the world, serving an ultimate population of 4.5 million. The plant treats 300,000 cubic meters of wastewater per day from Dubai's rapidly developing new housing and industrial areas, and provides irrigation water for the large-scale beautification of the City. We were responsible for the architecture, engineering design, construction oversight and supervision for the project. The STP has been designed to produce an effluent suitable for unrestricted reuse to meet Dubai Municipality standards. The project was awarded the United Arab Emirates Best Water Reuse Project as part of the MEED Project Quality Awards in 2010.



Everest Water Reclamation Facility
City of Cape Coral
Cape Coral, FL

The Everest Water Reclamation Facility (WRF) project expanded the existing plant from 8.5 to 13.7 mgd. The project included modifications to the inlet piping, new influent flow metering, two new screens, two new aeration basins, one new clarifier, two new chlorine contact basins, and effluent transfer pumps. With the City's current treatment capacity and reclaimed water requirements, it was vital that the Everest WRF maintain operability throughout its expansion, requiring a diligent approach to mitigating the effects of construction activities. For example, the project required several tie-ins to connect piping, clarifiers, and aeration basins to the existing influent and effluent lines. Each of these tie-ins typically had to be completed in less than four hours. Using its operations analysis approach to mitigate operations conflicts during construction, we were able to clearly outline the City's operability requirements and work with the construction and operations teams to ensure smooth shutdowns that did not affect the facility's operations.



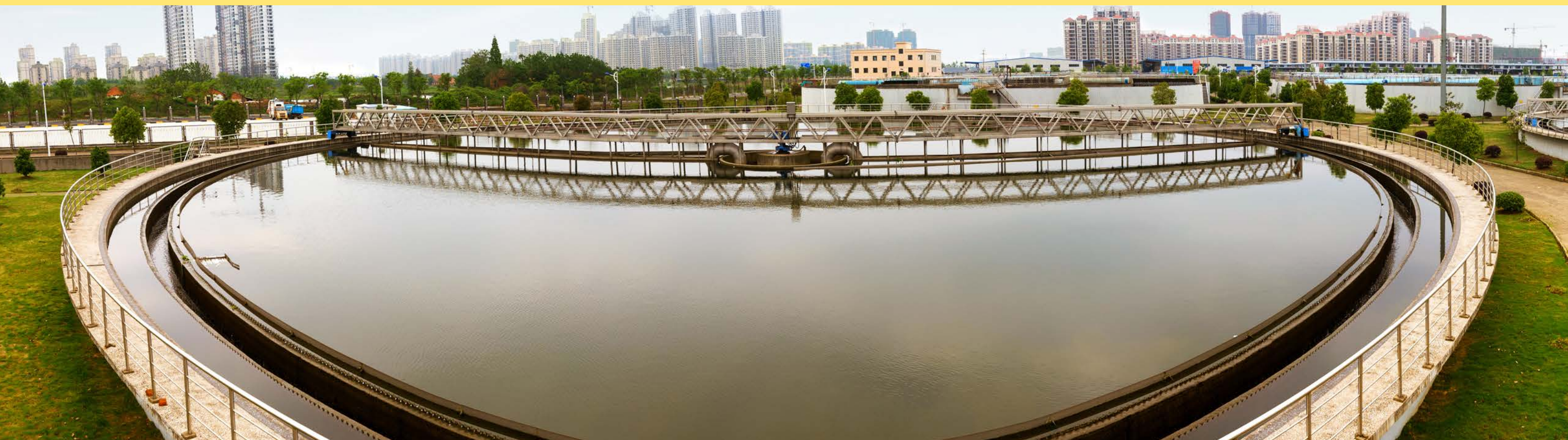
Minworth EBPR Plant
Severn Trent Water
Birmingham, U.K.

Severn Trent Water required phosphorous removal at Minworth Wastewater Plant which serves most of Birmingham, a population of 1.7 million. They selected the University of Cape Town (UCT) Enhanced Biological Phosphorous Removal (EBPR) process and have constructed a new Activated Sludge Plant stream (ASP 7) using this process. They planned to adapt this for use with their existing ASPs 1-6 using an independent EBPR tank with anaerobic and anoxic zones upstream of the existing aeration plant in a modified UCT process (MUCT). We were commissioned to investigate the hydraulic and process configuration of the new EBPR tank, its location within the existing treatment works layout, and to prepare an outline design for the scheme and cost estimates. Our team was assigned to consider alternative arrangements to reduce main flow pumping and developed an alternative process option using the Johannesburg process (JHB), and pilot plant investigations were set up to refine both options.



JD Phillips Water Reclamation Facility
Colorado Springs Utilities
Colorado Springs, CO

We completed construction of the new JD Phillips Water Reclamation Facility (JD Phillips WRF). The purpose of this facility is to provide the Colorado Springs Utilities with a new, state-of-the-art water reclamation facility to serve the community in the northern part of the city. The JD Phillips WRF is a conventional activated sludge advanced wastewater treatment plant with full biological nutrient removal and disinfection facilities. The plant was designed to treat an initial average daily flow of 20 mgd with the capability to expand to 30 mgd. The plant includes a 22 mgd tertiary filter plant (5.5 mgd initially) for reuse water, which is California Title 22 approved, and therefore, able to achieve a turbidity of less than 2 Nephelometric Turbidity Units (NTU). The plant also includes a UV disinfection system, which was designed specifically for reuse. Public involvement was a key aspect of this project. Various community workshops were conducted using conceptual models to inform the public about the project.





The MWH community, now part of Stantec, unites approximately 22,000 employees in over 400 locations across six continents. From initial concept and planning through design, construction, and commissioning, our work begins at the intersection of community, creativity, and client relationships. Visit mwhglobal.com and stantec.com, or find us on social media.



We provide responsive service and expertise from offices around the globe:

North America, Latin America, Europe, Africa, India, the Middle East, Asia and the Pacific



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