

SERVICES

Geotechnical Monitoring



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Bayonne Bridge move monitoring / geocomp.com

Geotechnical Monitoring

At Geocomp, we understand that every project comes with its own set of challenges, and we are here to provide you with tailored monitoring solutions that meet your specific needs. Our team of experts collaborates closely with you to design and install customized monitoring systems, empowering you to make informed decisions and enhance project outcomes.

Why Choose Geocomp Monitoring?

At Geocomp, we are dedicated to providing you with comprehensive monitoring solutions tailored to your specific project needs. From system design and installation to real-time monitoring and data interpretation, we provide the insights necessary for successful project management. Our team of geotechnical experts leverages advanced monitoring technology to deliver extensive engineering analysis, modeling, and detailed designs that go beyond standard offerings.

Top-Tier Technologies: Our cutting-edge monitoring solutions deliver accurate, real-time data, empowering you to make informed decisions throughout your project.

Real-Time Performance: With our iSiteCentral® platform, you benefit from cloud-based data collection and automatic alerts, enabling you to address performance issues as they arise.

Informed Decision-Making: Our advanced technology and monitoring expertise allow you to track changes in your assets over time, providing long-term integrity and safety of your projects.

Choose Geocomp for monitoring solutions that prioritize your success and peace of mind.

Applicable Across Multiple Sectors

Geocomp delivers comprehensive monitoring systems to make rapid, informed decisions across any project type:

- Wind Farms
- Buildings
- Dams & Levees
- Tunnels
- Bridges
- Mines
- Deep Foundations
- Rail/Transit
- Airports/Ports
- Highways



City Hall Plaza renovation monitoring



Sumner Tunnel monitoring

Monitoring Technology

At Geocomp, we understand that effective geotechnical monitoring is vital for the safety, stability, and longevity of your engineering projects. Our advanced sensors and instruments provide continuous, real-time data on ground behavior and surrounding structures, enabling you to identify potential issues early and implement timely solutions.

Key monitoring technologies we offer include:

- **Ground Deformation:** Detect shifts or settlements in the soil.
- **Structural Deformation and Cracking:** Monitor changes in structural integrity.
- **AMTS (Automated Motorized Total Stations):** Conduct high-precision automated monitoring.
- **Load Monitoring:** Measure forces and loads on structural components.
- **Tilt Monitoring:** Track inclinations to assess movement trends.
- **Strain Monitoring:** Monitor stress and strain in structural elements.
- **CCR Instrumentation:** Proactively minimize risks of contamination and enhance structural stability.

Reliable. Trusted. Value-driven. Innovative.

For more than 40 years, Geocomp has been a trusted partner in advising clients on risk identification and mitigation.



Gloucester drawbridge monitoring

- **Track and Rail Deformation Monitoring:** Enhance safe railway operations by detecting deviations.
- **Pore Water Pressure and Groundwater Level Monitoring:** Gain insights into subsurface water conditions.
- **Distributed Fiber Optic Sensing:** Use fiber optics for long-distance monitoring of temperature, strain, and pressure.
- **InSAR (Interferometric Synthetic Aperture Radar):** Monitor ground deformation remotely using satellite imagery.
- **Seismic and Vibration Monitoring:** Capture responses to dynamic loads.
- **Stability Monitoring:** Monitor changes in slope and pore water pressure to prevent structural failures.

With our cutting-edge technology, you can make informed decisions that enhance the safety and success of your projects.

EXAMPLE PROJECTS

World Trade Center (NY)

East Side Access (NY)

Central Artery Tunnel (MA)

I-10 Twin Span Bridge (LA)

Florida Power & Light (FL)

Crenshaw Corridor (CA)

Fred Hartman Bridge (TX)

UNI Dome (IA)

Second Ave Subway (NY)

Honolulu Airport (HI)

Kentucky Lock & Dam (KY)

Middlebury Bridge/Rail (VT)

Zakim Bridge (MA)

Arkabutla Dam (MS)

TransEd Valley Line (AB)

Mario Cuomo Bridge (NY)

Willow Island Dam (WV)

Richland Creek Dam (GA)

Regional Connector (CA)

TVA Risk Management (TN)

Logan Airport (MA)

Instrumentation & Monitoring



B.F. Sisk Dam instrumentation & monitoring



USACE Arkabutla Dam emergency repair project

Automated Motorized Total Stations (AMTS)

Geocomp utilizes automated motorized total stations to make precise measurements for deformation and settlement monitoring. Using high precision instruments and reflective prisms, the automated systems produce data points at a rapid rate for long periods of time.

Key capabilities of the AMTS system provided by Geocomp are:

- Monitor deformation of structures to a high degree of accuracy with a very low cost per data point.
- Provide all mounting and communication equipment necessary for automating optical monitoring prisms.
- Assist in providing gravity base pedestals for stable readings on job sites that may not have structures to provide good line of site to the monitored area.
- Network instruments together when performing readings on tunnels, underground mines, open-pits, or within tricky urban settings.



AMTS on Bayonne Bridge project

iSiteCentral®

iSiteCentral® is a cloud-based automated data management system that collects data from sensors and automatically issues alerts of unexpected infrastructure performance in time for corrective action. Many Geocomp monitoring projects utilize this platform to manage electronic data transmission via documents, maps, and photos, all geo-located and time stamped to support informed decision making.



Accessible

Single platform enabling access anytime, 24/7 from anywhere, on any device.

Universal

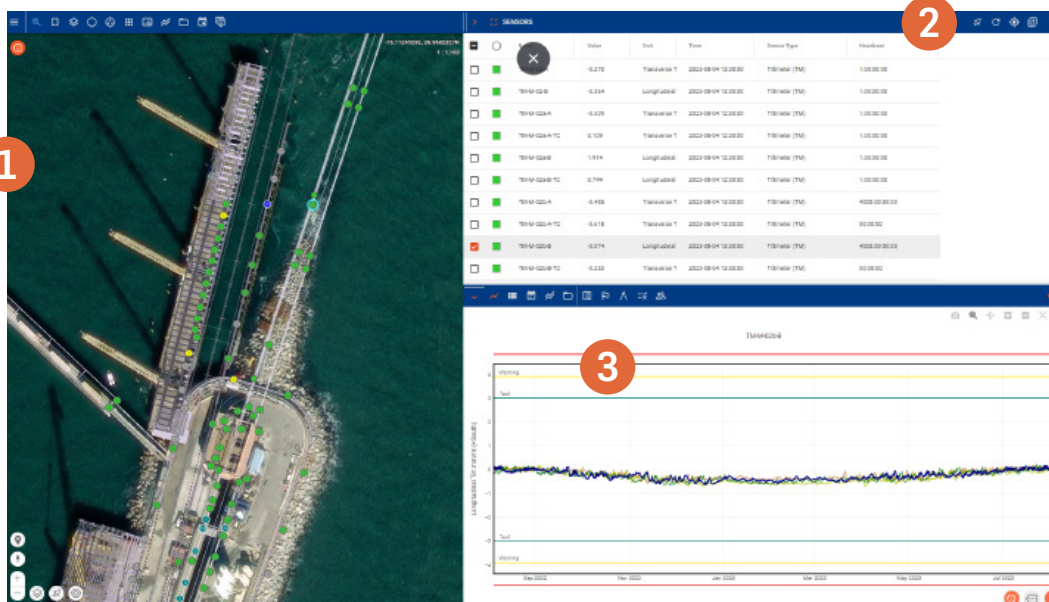
Can be scaled to support both small and large infrastructure projects on a global scale.

Web-based

Secure access, password protected web interface or task-specific application via desktop, tablet, or mobile device.

Integrated data

Provides automated data, documents, maps, and photos to support rapid evaluation and interpretation of info.



iSiteCentral® sensor readings and dashboard view

iSiteCentral

- 1** GIS image of the project in birds-eye view and sensor locations mapped out.
- 2** Project specific sensor data and information in the dashboard view.
- 3** Graph of sensor data over time, indicating pre-established thresholds.

Experience you can trust

For more than 40 years, Geocomp has helped clients overcome complex geotechnical monitoring challenges by providing tailored, technology-driven solutions. We work closely with our clients to identify their specific needs and deliver innovative, cost-effective services that advance their projects safely and efficiently.

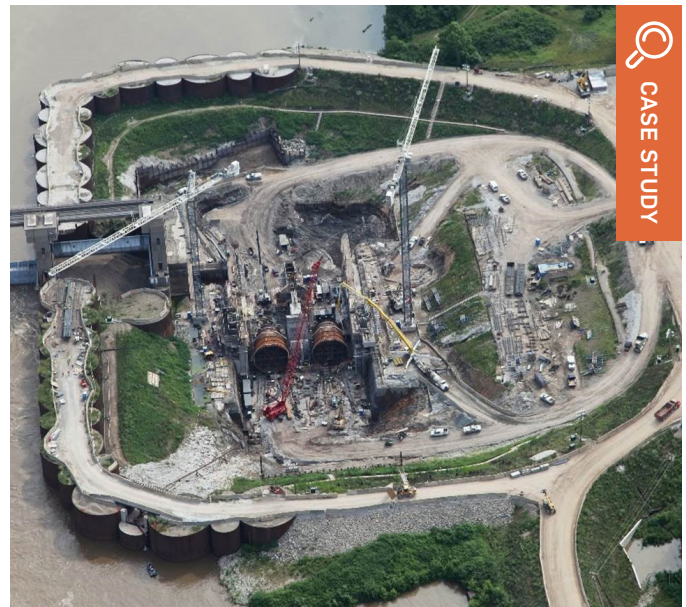
East Side Access Tunnel

Geocomp provided the client with a comprehensive geotechnical data management solution, empowering the ESA project team to quickly identify and respond to any potential impacts from excavation, tunneling, or construction activities on surrounding structures. Our real-time, 24/7 monitoring program delivered critical data during the most sensitive phases of construction, ensuring proactive decision-making and minimizing project risk. With over 13,000 geotechnical instruments in place, we efficiently managed and processed vast amounts of data through our user-friendly, web-based platform, *iSiteCentral*®. This solution allowed the client to access, visualize, and interpret data in a timely and intuitive format, giving them the confidence and clarity needed to maintain safety and project momentum.



Willow Island Hydroelectric Dam

Geocomp provided comprehensive engineering services throughout the design and construction of a cofferdam for a hydroelectric powerhouse. Our support included implementing a real-time, web-based monitoring system during excavation to track settlement, horizontal displacement, pore pressures, and tilt of both the existing piers and the planned construction. Additionally, we conducted 2D and 3D finite element analyses to establish accurate design loads for stabilizing rock anchors, and performed geotechnical direct shear testing on rock samples to evaluate the stability of the rock under various conditions. These services provided the client with critical data and engineering insights, enabling informed decision-making and enhancing the overall safety and success of the project.



Geocomp provides cutting-edge solutions leveraging the latest technological advancements to help clients achieve their goals. To learn more visit [geocomp.com](https://www.geocomp.com)

