



Dr C. K. G. Choy
BEng PhD CEng MICE
Associate Director

Areas of expertise

Tunnelling, deep excavations and foundation systems; Pipelines; Monitoring and interpretation of results; Impact of construction works on existing pipelines, tunnels and structures

Experience with GCG

Dr Gary Choy joined the Geotechnical Consulting Group in 2006 and was a member of the company's team acting as Specialist Geotechnical Advisors to the Crossrail project in London. In 2008, he was seconded to Cementation Skanska and worked on site for the Dockland Light Rail '3 Cars Enhancement' project and slope stabilisation works near London Underground Perivale Station. He then returned to the Central Proposal Department working on tender design for various projects including a major foundation scheme for a proposed power station.

Between 2012 and 2015, Dr Choy was an integral part of the monitoring team responsible for monitoring the existing London Underground assets during the construction of a mixed use development at Victoria in London and the upgrade of London Underground Victoria Station. He helped to develop the systems and interpreted the monitoring data, identified any displacement trends where trigger values might be breached, and presented daily monitoring reports to relevant stakeholders. He also had to ensure the monitoring contractor complies with the specifications, identifies faults and verifies any remedial measures required.

Dr Choy has extensive experience of damage risk assessments to third party infrastructure (e.g. tunnels, buildings, pipelines) due to various adjacent construction activities (e.g. tunnelling, excavation, site redevelopment). Recently, he has worked on assessing the potential for building damage as a result of proposed works for the upgrade of London Underground Bank Station.

He is currently an advisor to Thames Water Utilities for numerous schemes, ranging from small development projects to large infrastructure schemes including Thames Tideway Tunnel, London Underground Northern Line Extension and High Speed 2 (HS2). This involves reviewing technical submissions; liaising with developers, engineers and contractors to ensure the proposed works can be undertaken safely and any affected assets are protected; risk assessments and development of mitigation measures.

Dr Choy is the author of several journal and conference papers. He is currently working with the Working Group 2 (Research) of the International Tunnelling and Underground Space Association (ITA) in preparing a guidance document on tunnelling-induced damage on utilities.

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GEOTECHNICAL CONSULTING GROUP

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Areas worked

UK

Previous experience

Dr Choy completed his undergraduate degree in Civil Engineering at the Hong Kong University of Science and Technology, Hong Kong with first class honours in 2000. His honours thesis involved three-dimensional numerical analysis of diaphragm wall installation effects, for which he received an academic award.

From September 2000 to March 2004, he undertook research at the University of Cambridge, studying the effects of diaphragm walls construction on a nearby piled foundation. The investigation was undertaken by using small-scale models tested within the geotechnical centrifuge. Two major developments in centrifuge modelling were achieved: firstly, an instrumented model pile was developed which can measure base load, shaft friction, bending moment and normal stress distributions. The second major breakthrough was a new technique to simulate concreting of a diaphragm wall panel in-flight. Based on the results, a conceptual framework for this soil-structure interaction problem was developed.

In April 2003, Dr Choy was awarded a Research Fellowship from St. John's College, Cambridge, and he carried out further research in soil-structure interaction problems and the development of sensors based on MEMS (microelectromechanical system) technology for field monitoring. This technology allows the development of small, low power consumption and "cheap" sensors capable of measuring very small strain during various construction activities such as excavation and tunnelling. Dr Choy was also involved with research instrumenting existing tunnels to monitor the effects of adjacent tunnel construction works.

Education/Research

PhD, Cambridge University, 2004

Research Fellow, St. John's College, Cambridge, 2003 – 2005

BEng, Hong Kong University of Science and Technology, 2000

Scholarships/Awards

Philip Turner Prize (for excellence in centrifuge modelling), Cambridge University, 2003

Research Fellowship, St. John's College, Cambridge, 2003

Scientific Instrument Makers' Post Graduate Award, The Worshipful Company of Scientific Instrument Makers, United Kingdom, 2003

Student Prize, Geotechnical Division, Hong Kong Institute of Engineers, Hong Kong, 2000

Professional Qualifications & Memberships

Member of the Institution of Civil Engineers, 2012 to present

UK Registered Ground Engineering Professional, 2013 to present

Member of the British Geotechnical Association

Member of the British Tunnelling Society

Service on Technical/Professional Bodies

Member of Geotechnical Engineering Advisory Panel, 2013 to present

Member of ITA Working Group 2 (Research), 2015 to present

Languages (other than English)

Cantonese