Dr G.W.E Milligan
MA MEng PhD CEng FICE
Senior Consultant

Areas of expertise
Soil-structure interaction, retaining structures, foundations, slope stability, embankments, soil reinforcement, tunnelling, trenchless technologies, pipes and culverts, field instrumentation.

Recent experience
Dr George Milligan joined the Geotechnical Consulting Group full-time in January 1997, having been an Associate of the group since its inception in 1983, and became a Director in 1998. Prior to that, from 1979 to 1996 he was a University Lecturer in the Engineering Department of Oxford University, and a Fellow and Tutor in Engineering at Magdalen College. His research interests were in soil reinforcement (including soil nailing), tunnelling and trenchless technologies (including pipe jacking, microtunnelling and pipe bursting).

Dr Milligan has been involved in a wide variety of projects, including applied research contracts; provision of expert opinion and claims advice; and general design and review work.

Research projects have included anchored earth, soil nailing, pile capacity in sand, embankments on soft clay, interpretation of shear box tests, pipe jacking and tunnelling. Expert opinion and claims advice have related to excavations, retaining structures, reinforced soil, slope stability, embankments on soft ground, piled and shallow foundations, and to tunnelling problems in rock and soft ground involving large diameter shield drives down to small diameter pipe jacks and directional drilling.

Design or review work for projects in the UK and overseas has included: design, specification and reporting of site investigations; foundations of all kinds including rafts and piles; basement designs including retaining walls; heave and settlement analyses; retaining structures and shafts, including piled and diaphragm walls; reinforced soil and soil nailing projects in the UK, Jersey, Greece and Ireland; earthworks, particularly related to problems with embankments for railways, roads and dock structures; land reclamation for port and other facilities; and tunnelling, box jacking, pipe jacking and directional drilling.

Dr Milligan has been involved in projects relating to sheet pile walls and/or ground improvement measures at port or marina facilities in Bahrein, Jeddah, Belgrade, London and Felixstowe (UK), and Callao (Peru). Other ground improvement projects have been related to building structures in India, Angola and Greece (Athens).

Dr Milligan has been an author of more than sixty publications, mainly relating to flexible retaining walls, reinforced soil structures, tunnelling and pipe jacking. His paper on “Soil deformations near anchored sheet pile walls” (Geotechnique 33, 1, 41-55) was awarded the British Geotechnical Society prize in 1983.

Continued over page...

GEOTECHNICAL CONSULTING GROUP

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Dr Milligan retired from being a Director of GCG in April 2010 but continues to work with the Group as a Senior Consultant.

Areas worked
UK, Oman, Iraq, Republic of Ireland, Indonesia, Dubai, South Africa, Serbia, Greece, Romania, Kazakhstan, Lebanon, Kuwait, Abu Dhabi, Saudi Arabia, Bahrein, Egypt, Angola, Peru, Hong Kong, Singapore, Malaysia, Syria and Australia.

Previous experience
On graduating, Dr Milligan joined the Edinburgh office of Ove Arup and Partners and worked as a structural engineer and resident engineer, from 1966 to 1970.

From 1970 to 1974, Dr Milligan was a research student in the soil mechanics research group at Cambridge University; his thesis project involved model testing and analysis of rigid and flexible retaining walls in sand.

From 1974 to 1979, Dr Milligan was employed as a geotechnical engineer, first with Scott Wilson Kirkpatrick and Partners, then later with Golder Associates. He was involved in the design of deep basements for multi-storey buildings; excavation and piled foundations in soft alluvial soils; checking of geotechnical aspects of gravity offshore oil platforms; problems of expansive clay in Oman; foundations on weathered rock in Luxembourg; full-scale trials for construction of roads on very soft soils; and rock mechanics aspects of Dinorwig pumped storage scheme, principally rock slope stability at the upper headworks and stress measurements and instrumentation for the main underground cavern. He acted as Resident Engineer for two years on the Basrah Barrage, Iraq, which involved site investigation, dewatering, preconsolidation of soft soils using wick drains, slope stability, mass excavation, and construction of foundations on slurry trench walls; and for four months on construction of a tailings pond embankment dam in the Republic of Ireland.

Education
BA, Oxford University, 1966 (converted to MA 1979)
MEng, Glasgow University, 1970
PhD, Cambridge University, 1974

Awards
British Geotechnical Society Prize in 1983, for work on flexible retaining walls.

Professional Qualifications
Member of the Institution of Civil Engineers, 1974-1992
Fellow of the Institution of Civil Engineers, 1992 - present
Member of the United Kingdom Society for Trenchless Technology
Member of the International Geotextile Society
Member of the British Geotechnical Association
Member of the British Tunnelling Society

Service on Technical/Professional Bodies
Member of the Géotechnique advisory panel, 1984 – 1986 and 2009-2010.
Assistant co-ordinator of the geotechnics research programme supported by the Science and Engineering Research Council, 1984 - 1986
Member of the advisory committee for geotechnics of the Construction Industry Research and Information Association, 1985 - 1988
Member of the committee of the British Geotechnical Society, 1994 – 1997
Member of steering committee for Geotechnical Engineering Research Centre, City University, London, 1995 - 1997
Member of working party on Clay in Construction, Engineering Group of Geological Society
Member of Core Group for Network in Trenchless Technology (NETTWORK)
Member of EPSRC College for review of research grant applications