

# *CURRICULUM VITAE*

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**MARTIN FAHEY**  
Consultant Director

**DATE OF BIRTH:** 19 May 1950

**NATIONALITY:** Australian, Irish

**ACADEMIC BACKGROUND:** PhD in Soil Mechanics, Kings' College, Cambridge (1980)  
BA, BAI (1st Class Hons) in Engineering Science, The University of Dublin (Trinity College), 1976

**PROFESSIONAL AFFILIATIONS:** Chartered Professional Engineer  
Fellow, Institution of Engineers, Australia  
Member, College of Civil Engineers, Australia  
Member, Intl. Society of Soil Mech. and Geoenvironmental Engineering  
Core Member, Technical Committee 16 (Site Characterisation), ISSMGE  
Member, Australian Geomechanics Society

**COUNTRIES WORKED IN:** Britain, Australia, Ireland, France

**EXPERTISE:** Geotechnical Engineering, Mine Tailings Behaviour, *In Situ* Testing, Laboratory Testing, Offshore Geomechanics, Research, Teaching

**MAJOR PROJECT EXPERIENCE:**

- Site investigation and foundation design for major city-centre buildings such as the Merlin Hotel and R&I Tower in Perth.
- Consulted to Alcoa of Australia on design and construction of Residue Disposal Area 'H', Cooling Pond at Kwinana and on remedial measures at Residue Area 'F' at Kwinana.
- Developed design charts for the Main Roads Department of Western Australia for rock pitching of highway embankments to resist erosion due to flooding.
- Directed centrifuge testing programme for the stone column installation at the Nelson Point extension of the BHP Iron Ore export terminal, Port Hedland, Western Australia.
- Carried out major design review of foundation system for the Hot Briquetted Iron Plant (BHP), at Port Hedland, WA.
- Carried out Self-Boring Pressuremeter testing for Sizewell 'B' Nuclear Power Station (U.K.), Mandurah Bypass Bridge, Albany Grain Terminal, Waikerie Pile Test site (South Australia), Westralia Square and Bishop's Sea developments (Perth), Perth City Rail Project, Redcliffe Bridge and Burswood Bridge approach embankments (Perth) and other bridges on the Mitchell Freeway and Tonkin and Roe Highways (Perth).

- Directed laboratory testing programme at UWA for various offshore projects for Woodside Offshore Petroleum - North Rankin “A”, Goodwyn “A”, Laminaria, Wanaea.
- Directed laboratory testing programs at UWA for other offshore projects, notably for platforms in Bass Strait, New Zealand (Kupe South), Gorgon (WAPET), Bayu-Undan (BHP), Scarborough (Esso) and Wandoo (Wandoo Alliance).
- Directed a major industry-sponsored investigation of the behaviour of gold tailings, resulting in the development of the computer program MinTaCo for analysis of the evaporation and consolidation behaviour of gold (or any) tailings.
- Conducted laboratory and centrifuge testing and numerical modelling for numerous tailings projects in Australia, New Zealand and Africa.
- Introduced seismic cone penetration testing, and Marchetti dilatometer testing, into engineering practice in Perth.

**EMPLOYMENT HISTORY:**

Advanced Geomechanics, Perth Consultant Director	1994 - Present
The University of Western Australia Head of School of Civil & Resource Engineering	2000 - Present
Professor	2001 - Present
Associate Professor	1994 - 2000
Senior Lecturer	1989 - 1993
Lecturer	1984 - 1989
Golder Associates Pty Ltd, Perth, WA Senior Geotechnical Engineer	1981 - 1984
Office of Public Works, Dublin, Ireland Engineer, Harbour Engineer’s Office	1976 - 1977

**LANGUAGE PROFICIENCY:**

English, French (spoken), Gaelic

**AWARDS:**

Fitzgerald Prize (Trinity College)	1976
Ward Prize (Trinity College)	1976
Cullen Prize (Trinity College)	1976

**PUBLICATIONS:**

Summary: 37 Journal publications  
70 Conference papers  
Over 60 research and consulting reports

Some key publications on pressuremeter, seismic CPT, calcareous soils, tailings management, and centrifuge testing:

Fahey, M., Newson, T.A. and Fujiyasu, Y. (2002). Engineering with tailings. Invited Keynote Lecture, Proceedings 4<sup>th</sup> International

Conference on Environmental Geotechnics, Rio de Janeiro, Brazil, Vol. 2, 947-973, Balkema, Lisse. .

Fahey, M. (2001). Soil stiffness values for foundation settlement analysis. Proc. 2<sup>nd</sup> Int. Conf. on Pre-failure Deformation Characteristics of Geomaterials, Torino, Italy, Vol. 2, 1325–1332, Balkema, Lisse. .

Newson, T.A. and Fahey, M. (2001). Estimation of evaporation from saline tailings dams. Proceedings of Geoenvironmental Engineering: Geoenvironmental Impact Management Conference, 3, organized by the British Geotechnical Association, BGA, and Cardiff School of Engineering, Edinburgh, Scotland, 17-19 September (Eds: Yong, RN, Thomas, HR), Thomas Telford, London. .

Joer, H.J., Fahey, M., Randolph, M.F. and Bhattarai, B. (2001). Shear strength of soft soil determined from element tests and penetration tests. *Proceedings of the International Conference on Soil Mechanics and Geotechnical Engineering*, Istanbul, Turkey, Vol. 1, 137–140, Balkema. .

Carter, J.P., Airey, D.W. and Fahey, M. (2000). A review of laboratory testing of calcareous soils. Proceedings 2<sup>nd</sup> International Conference on Engineering for Calcareous Sediments, K. Al-Sharif (ed), Bahrain, (Feb. 1999), Vol. 2, 401–431, Balkema, Rotterdam. .

Fujiyasu, Y., and Fahey, M. (2000). Experimental study of evaporation from saline tailings. *Journal of Geotechnical and Geoenvironmental Engineering*, ASCE, Vol. 126, No.1, 18–27.

Fujiyasu, Y., Fahey, M. and Newson, T.A. (2000). Field investigation of evaporation from a fresh-water tailings storage. *Journal of Geotechnical and Geoenvironmental Engineering*, ASCE, Vol. 126, No. 6, 556–567.

Mao, X., Fahey, M. and Randolph, M.F. (2000). Pore pressure generation in cyclic simple shear tests on calcareous sediments. *Developments in Theoretical Geomechanics – Proceedings of the J.R. Booker Memorial Symposium*, Sydney, 371–381, Balkema, Rotterdam. .

Newson, T.A. and Fahey, M. (2000) Pollutant transport through slurried mine wastes in arid climates. *Int. Symp. on Physical Modelling and Testing in Environmental Geotechnics*. La Baule, France. 85-92. .

Fahey, M. (1999). Determining the parameters of a non-linear elastic model for prediction of ground deformation. *Australian Geomechanics*, Vol. 34, No. 1, March, 39–59.

Thomas, J. and Fahey, M (1999). Down-drag on pile groups due to surface loading. Proc. 18<sup>th</sup> Australia – New Zealand Conference on Geomechanics, Hobart, Tasmania, Vol. 1, 451-457. .

Fahey, M. and Bruno, D. (1999). Model testing applied to various geotechnical problems. Session Lecture, Proc. Int. Conf. on Offshore and Nearshore Geotechnical Engineering, Mumbai, India, 207–219, Oxford & IBH Publishing, New Delhi. .

Fahey, M, Watson, P.G. and Tremain, T. (1999). Vertical-horizontal loading of skirted foundations compared with vertical-torsional Loading. Proc. 9th Conference of International Society of Offshore and Polar Engineers, Brest, France, Vol. 1, 596–603. .

Mao, X.Y and Fahey, M. (1999). A method of reconstituting an aragonite soil using a synthetic flocculant. *Géotechnique*, **49**, No. 1, 15-32.

Mao, X., Fahey, M. and Randolph, M.F. (1999). Cyclic loading behaviour of fine-grained calcareous soils: effect of mean and cyclic stress level. Proc. 9th Conference of International Society of Offshore and Polar Engineers, Brest, France, Vol. 1, 548–555. .

Mao, X., Randolph, M.F. and Fahey, M. (1999). Evaluation of the MIT-S1 soil model for a fine-grained calcareous soil. Proceedings 2<sup>nd</sup> International Conference on Engineering for Calcareous Sediments, K. Al-Sharif (ed), Bahrain, Vol. 1, 157–165, Balkema, Rotterdam. .

Randolph, M.F., Watson, P.G. and Fahey, M. (1999). Site characterisation and foundation design in soft sediments. Keynote Lecture, Proc. Int. Conf. on Offshore and Nearshore Geotechnical Engineering, Mumbai, India, 35–47, Oxford & IBH Publishing, New Delhi. .

Fahey, M. (1998). Deformation and *in situ* stress measurement. Invited Theme Lecture, *1<sup>st</sup> International Conference on Site Characterisation (ISC '98)*. Atlanta, Georgia, Vol. 1, 49–68, Balkema, Rotterdam.

Thomas, J., Fahey, M. and Jewell, R.J. (1998). Pile down-drag due to surface loading. Proc. International Conference Centrifuge '98, Tokyo, Vol. 1, 507–512, Balkema, Rotterdam. .

Fahey, M. (1997). Some unusual calcareous soils. *Proceedings 14<sup>th</sup> International Conference on Soil Mechanics and Foundation Engineering*, Hamburg, Germany, Vol. 4, 2197–2198, Balkema, Rotterdam.

Newson, T.A. and Fahey, M. (1997). Site investigation on active tailings deposits using a hovercraft. *Australian Geomechanics*, **31**, (June), 45–55.

Thomas, J., Fahey, M. and Jewell, R.J. (1996). Compression and tension behaviour of single piles in clay. *Proceedings VII Australia–New Zealand Conference on Geomechanics*, Adelaide, The Institution of Engineers, Canberra, Australia, 714–719.

Lee Goh, A. and Fahey, M. (1996). Measuring the coefficient of consolidation using SBP and piezocone dissipation tests. *Proceedings VII Australia–New Zealand Conference on Geomechanics*, Adelaide, The Institution of Engineers, Canberra, Australia, 915–920.

Soliman, A. and Fahey, M. (1996). Evaluation of a non-linear elastic soil model using centrifuge model testing. *Proceedings VII Australia–New Zealand Conference on Geomechanics*, Adelaide, The Institution of Engineers, Canberra, Australia, 551–556.

Fahey, M. and Lee Goh, A. (1995). A comparison of pressuremeter and piezocone methods of determining the coefficient of consolidation. *Proceedings 4th International Symposium on Pressuremeters*, Sherbrooke, Québec, Canada, 153–160, Balkema, Rotterdam.

Soliman, A., and Fahey, M. (1995). Measurement and interpretation of shear modulus in SBP tests in sand. *Proceedings 4th International Symposium on Pressuremeters*, Sherbrooke, Québec, Canada, 114–122, Balkema, Rotterdam.

Fahey, M., Robertson, P.K. and Soliman, A.A. (1994). Towards a rational method of predicting settlements of spread footings on sand. *Proceedings of Settlement '94: ASCE Geotechnical Special Publication No. 40*, Vol. 1, 598–611.

Fahey, M. and Soliman, A.A. (1994). Measuring the small-strain behaviour of sand in situ. *International Symposium on Pre-Failure Deformation Characteristics of Geomaterials (IS-Hokkaido)*, Sapporo, Japan, Vol. 1, 217–222, Balkema, Rotterdam.

Stewart D.K. and Fahey M. (1994). An investigation of the reinforcing effect of stone columns in clay. Vertical and Horizontal deformations of Foundations and Embankments: *Proceedings of Settlement '94: ASCE Geotechnical Special Publication No. 40*, Vol. 1, pp 513-524.

Fahey M. (1991). *The seismic cone test*. Publication CLAROM: Pour les Actions de Recherche sur les Ouvrages en Mer, Paris, ref: 39 303.

Fahey M. (1988). The response of calcareous soil in static and cyclic triaxial tests. *Engineering for Calcareous Sediments: Proc. Intl. Conf. on Calcareous Sediments*, Perth, Vol. 1, 61-68.