MONASH UNIVERSITY
DEPARTMENT OF CIVIL ENGINEERING
CLAYTON AND CAULFIELD CAMPUS

ANNUAL REPORT

1998
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1. INTRODUCTION AND OBJECTIVES FOR 1998

1.1 Implementation of new teaching strategies

The Department of Civil Engineering shared in the Faculty's funding constraints but nevertheless succeeded in its objectives of introducing a more flexible, student centred approach to learning, coincident with the introduction of a new common First Year across four campuses. To achieve this the Department committed itself to developing courseware so that the same subject could be delivered consistently on the diverse campuses. The objective beyond this is to develop the subjects further into distance education format, so that Monash qualifications can be accessed off campus.

1.2 New subjects and courses

The Department has a strategy of providing a diversity of courses based upon its key teaching expertise. This enables the Department to accommodate more easily the challenges of shrinking DETYA funds while maintaining viable groups for teaching research and scholarship.

Education programs with the potential to articulate to a degree were introduced by the Transport Group in Bus Management and Parking, attracting significant enrolments.

A new Bachelor of Technology (Infrastructure, Design, Construction and Management) was developed in cooperation with Holmesglen College of TAFE, providing an articulated path through a Diploma of the Built Environment at Holmesglen to the BTech, and thereafter possibly to the BE. First intake to Holmesglen will be in 2000, and first intake to level 2 at Monash will be in 2001.

1.3 Engagement with Industry

In line with the Monash and the Engineering Faculty Plans, the Department has the objective of strengthening its engagement with industry. All sections of the Department, such as the Transport, Structures, Geomechanics and Water Groups, have strong industry links. Plans initiated in 1997 to form an Industry Advisory Panel (IAP) were well under way when the visit by the IEAust accreditation committee gave the matter added impetus. The IAP was in place by the end of the year.

1.4 Teaching and Research Efficiencies

The objective of reducing staff contact time for teaching, taking advantage of information technology, the web, etc, was somewhat blocked by the need to teach two "old" degrees at Caulfield and Clayton, and one "new" degree at Level 1 on three campuses (with Monash Sunway about to start). Contact hours were reduced in the new subjects, but the learning style of problem based learning required commitment of senior academic staff to its implementation.

1.5 Research Centres

With CRCCH and AME CRC both at the stage of bidding for extension, there was a lull in new project proposals. The Department values these research centres, and strongly supports the renewal bids. The other Centres, namely, the Institute of Transport Studies and the Monash Timber Engineering Centre continue to do well. The Department strongly supports engagement with MUARC in specialist areas such as vehicle crashworthiness and road-side infrastructure.
1.6 Staff profile management

The Department is committed to reducing the fraction of the DETYA budget allocated to salaries with an ultimate upper limit of 80%. Reductions were achieved through not renewing two contract positions and two staff moving to fractional appointments. These were modest reductions compared with those achieved in 1997, and plans for further rationalisation have been developed for 1999 and beyond.

2. CURRENT DEPARTMENTAL STRUCTURE

In 1998, the Department operated through four sections - Geoengineering, Structures, Transport and Water, headed by A/Prof C. Haberfield, Prof. P. Grundy, Prof. W. Young and A/Prof. G.P. Codner respectively.

The Management Committee consisted of Prof. P. Grundy (Chair), Prof. W. Young (Deputy Head of Department) Mr R.G. Hadgraft (Director of Teaching), A/Prof. C.M. Haberfield (Director of Research), Mr. K. McKenry (Director, Civil & Computing Program), Mr C.D. Powell (Resources Manager).

2.1 Current Staff Numbers:

<table>
<thead>
<tr>
<th>Type of Staff</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of academic teaching staff</td>
<td>27</td>
</tr>
<tr>
<td>Number of research fellows</td>
<td>4</td>
</tr>
<tr>
<td>Academic vacancies</td>
<td>Nil</td>
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<tr>
<td>Number of technical staff</td>
<td>18</td>
</tr>
<tr>
<td>Number of secretarial/admin. staff</td>
<td>12</td>
</tr>
<tr>
<td>Number of research assistants¹</td>
<td>4</td>
</tr>
</tbody>
</table>

¹Appointment not necessarily for whole year

2.2 Staff Changes

New Appointments:

Dr Brett Lemas - Senior Lecturer

Promotions:

Dr F.T. Wong - Senior Lecturer to Assoc. Professor
Dr J.P. Seidel - Lecturer to Senior Lecturer
Dr X-L Zhao - Lecturer to Senior Lecturer

Resignations: Nil

Retirements: Nil

2.3 List of Academic Staff

Head of Department
Professor Paul Grundy

Professors
Paul Grundy BCE(ons) MEngSc Melb. PhD Cantab. FIEAust MISOPE CPEng
Russell Gordon Mein BAgE(Hons) MEngSc Melb. PhD Minn. FIEAust
William Young BE (Hons) N.S.W. MSc PhD GradDipMan MBA Deakin FIEAust FITE FCIT CPEng
Emeritus Professors
Eric Marwick Laurensen BE PhD N.S.W., CPEng, FIEAust
Noel William Murray BE(Hons) Adel. PhD Manc. DrEngEL FIEAust MICE MISStructE FTS

Adjunct Professor
Kenneth Wade Ogden BE (Hons) MEngSc Melb. DipCE Ballarat School of Mines PhD MITE FIEAust CPEng

Associate Professors
Gary Peter Codner DipCE Caulfield I.T. BE (Hons) MBA PhD FIEAust
Chris Michael Haberfield BSc BE (Hons) Syd. PhD MIEAust CPEng
Robert John Keller BE (Hons) PhD Cant. MASCE MIAust MIPENZ
Henry Robert Milner BE MEngSc Qld. PhD Lond. FIEAust. CPEng

Senior Lecturers
Riad Al-Mahaidi BSc (Civil Eng) (Hons) Baghdad MSc PhD C’nell MIAust MASCE CPEng
Abdel Malek Bouazza CivEng Algiers PhD Glas.
Raphael Hilary Grzegieta MgrInz (Hons) T.U. Cracow PhD MIEAust CPEng NPER-3 MSAEA
Roger George Hadgraft BE (Hons) MEngSc James Cook DipCompSc Qld PhD
Brett Lemass BE(Hons) PhD MIEAust CPEng NPER-3
Barry Chunqing Li BE(Hons) ME Wuhan PhD N’cle (N.S.W.) MIAust CPEng
Geoffrey Rose BE (Hons) Queensland I.T. MSc PhD Northwestern MIAust
Jay G Sanjayan BSc(Eng) (Hons) S. Lanka PhD MIAust
Julian Peter Seidel BE (Hons) PhD MIAust CPEng
Geoffrey Robert Taplin BE(Hons) Tas. MEngSc CPEng MICE MISStructE MIAust
Peter Erwin Weimann DipEng ETH (Zurich) MEngSc MIAust CPEng
Bill Man-Biu Wong BSc (Eng) Lond. PhD N.S.W. CEng MICE, MIAust, CPEng
Tony Hoong Fatt Wong BE PhD CPEng MIAust MASCE
Xiao-Ling Zhao PhD Syd. ME Shanghai Jiao-Tong MASCE MIAust CPEng MCCES

Lecturers
Peter Scott Daly BE (Hons) GradIEAust SITE CPEng
Quy Le BE Auck. GradDipComp Chisholm I.T. CPEng MIAust
Keith Harry McKenry BE MEngSc Melb. CPEng MIAust
Samantha Yvonne Taylor BE MEngSc GradIEAust CPEng
Jagoda Williams MgrInz Warsaw PhD Polish Acad. Sci. MASCE
Richard Murray Wootton BE Melb. DipCE Caulfield I.T. MEngSc TTTC

Associates of the Department
Ian Boyd Donald BCE (Hons) MEngSc Melb. PhD DIC Lond. MIAust
Alan Holgate BSc (Hons)Lond. PhD MICE MIAust
3. ENROLMENT PATTERNS AND FUNDING

Interest in the undergraduate civil engineering remains strong. Total numbers at Clayton grew during 1998, although intake to second year declined somewhat. Numbers at Caulfield have declined over the last three years.

Research at Clayton remains strong. Research activity at Caulfield is developing.

4. COURSE INITIATIVES

4.1 New Degree Program

In 1998, the Faculty of Engineering introduced a new common first year across all three campuses (Clayton, Caulfield and Gippsland). The Department introduced a new civil engineering subject, ENG1201, which blended design and analysis. Students worked in groups on the design of a footbridge, while studying the principles of statics.

In 1999, a set of new second year subjects is being introduced. These are also project-based, blending design and analysis.

4.2 Teaching Strategy

The department published its Teaching Strategy in March 1998. It emphasises project-based and problem-based learning and distance education. The strategy can be accessed at:

As part of this strategy, a significant effort has been placed on developing the Department's web site for teaching. It provides students with flexible access to learning resources.

5. **RESEARCH AND DEVELOPMENT**

5.1. **List of Research Projects undertaken in 1998**

*Geotechnical Engineering*

- Sonic echo methods for NDT testing of cast-in-situ piles (Seidel)
- The dynamic response of pile/soil interfaces (Seidel)
- The shear behaviour of rock joints (Haberfield/Seidel)
- The strength and deformation properties of rock masses (Haberfield)
- The performance of piles in rock (Seidel/Haberfield)
- The influence of construction procedures on pile capacity in rock (Seidel/Haberfield)
- Development of a design methodology for screwed cast-in-place piling (Seidel)
- Development of fibre-optic transducers for pile dynamic measurements (Seidel)
- Slope stability – computer analyses (Haberfield)
- Ground anchors (Haberfield)
- Enhancing pile and anchor performance using expansive cements (Haberfield)
- Wellbore stability for the petroleum industry (Haberfield)
- Interface friction of soil-geosynthetics and geosynthetics-geosynthetics at very low pressures (Bouazza)
- Performance of geosynthetic clay liners (GCL) under various site conditions (Bouazza)
- Gas permeability and diffusion of geosynthetics clay liners (Bouazza)
- Use of biopolymer or biofilm barriers for waste containment (Bouazza)
- Containment of contaminants with vertical cutoff walls (Bouazza)
- Geotechnical properties of oil contaminated soils (Bouazza)
- Geotechnical properties of municipal solid wastes (MSW) (Bouazza)
- Mechanical properties of soil tyre chip mixtures (Bouazza)
- Soil Remediation using solidification/stabilisation process (Bouazza)
- Active containment barrier walls (Bouazza)
- Spectral surface wave analysis for site investigation (Bouazza)
Structures

♦ Reserve strength of offshore structures under repeated load (Grundy)
♦ Elastic behaviour, shakedown limit and ultimate strength of YT and KT tubular joints (Grundy)
♦ Prestressed grouted pile/sleeve connections (Grundy)
♦ Fatigue of thin-walled welded tubular connections (Zhao/Grundy)
♦ Underwater shock loading of steel plates (Grzebieta/Hammond)
♦ Void-filled thin walled steel sections (Grzebieta/Sironic)
♦ Modelling spot-welded joints (Grzebieta)
♦ Axial crushing of square and round tubes subjected to impact loads (Grzebieta/Lu)
♦ Tubular members under high amplitude dynamic loading (Zhao/Grzebieta)
♦ Innovative tubular connections under high amplitude dynamic loading (Zhao/Grundy)
♦ Void-filled double skin tubular members (Zhao/Grzebieta)
♦ Fire resistance of tubular columns filled with high strength concrete (Zhao/Grundy/B.Wong)
♦ Innovative tubular connections at elevated temperature (Zhao/Grundy/B.Wong)
♦ Dynamic performance of light weight floor systems (Zhao/Grundy)
♦ Stability and strength of very high strength (VHS) circular tubes (Zhao)
♦ Theoretical and experimental investigation into the ultimate strength of reinforced concrete T-beam bridges (Al-Mahaidi/Taplin/Grundy)
♦ Strengthening of reinforced concrete T-beam bridges using carbon fibre reinforced polymer strips (Al-Mahaidi/Taplin)
♦ Investigation of bursting of anchorage zones in post-tensioned members (Al-Mahaidi)
♦ Strength determination of slender wall panels with and without openings (Al-Mahaidi/Sanjayan)
♦ Pull-out and push-out capacity of concrete plugs in tubular piles (Al-Mahaidi/Grundy)
♦ Incremental collapse of composite beams (Taplin/Grundy)
♦ Interface shear strength testing of composite slabs (Taplin)
♦ Behaviour of high strength concrete under triaxial loading (Sanjayan/Setunge)
♦ High early strength concrete using alkali activated slag concrete (Sanjayan)
♦ Durability of alkali activated slag concrete (Sanjayan)
♦ Load bearing capacities of slender walls in fire (Sanjayan)
♦ Elastic and plastic strength of steel structures at elevated temperatures (B.Wong)
♦ Ultimate strength of steel frames in fire (B.Wong)
• Structural behaviour of steel plates at elevated temperatures (B.Wong/KHTan – Singapore)
• Shakedown analysis using a lower bound approach by spreadsheet method (K.McKerny/B.Wong)
• Temperature prediction of structural sections (including steel and steel/concrete composite sections) in fire (B.Wong/Ghojel)

**Timber Engineering**
• Fibre composite reinforcement of timber (Milner)
• Epoxy/ply windmill blades for wind farm usage (Milner)
• Epoxy grouted dowel connectors in large scale timber structures (Milner)

**Transport**
• “Level of service” of roads (Daly/Young)
• Analysis of activity location choice (Daly)
• Trip chaining behaviour (Daly)
• Perception of traffic noise (Daly)
• Assessment of road safety audit (Daly)
• Accident investigation and road safety engineering (Daly)
• Instrumented vehicle (Daly)
• Modelling the effects of freeway incidents (Rose)
• Telephone-based advanced traveller information systems (Rose)
• Travel awareness through survey feedback (Rose)
• Level of service of bicycle facilities (Rose)
• Impacts of safe routes to school schemes (Rose)
• Web based traveller information system (Rose)
• Logistics case studies (Taylor)
• Traffic Engineering (Taylor)
• Transport for the disabled (Young)
• Modelling small area traffic model (Young)
• Electronic road pricing (Young)
• Environmental impacts of transport (Young)
Multistory parking (Young/Tan)
Modelling transport demand and parking management (Young/Daly)

**Water**
- Dynamic programming for capacity sharing of surface water resources (Codner)
- Sustainable development indicators (Codner)
- Stabilisation of river banks with groynes (Keller)
- Design of minimum energy structures (Keller)
- Meander development in rivers (Keller)
- Restoration of urban and rural streams in Australia (Rutherford)
- The role of vegetation in stream channel stability (Rutherford)
- Developing practical methods for predicting meander migration rates (Rutherford)
- The impact of rates of rise and fall upon bank erosion processes in regulation rivers (Rutherford)
- Non-linearity in catchment flood hydrology (T. Wong)
- Hydraulic modelling of outflow control devices for Wetlands (T. Wong/R. Wootton)
- Water quality monitoring at the Monash University Research Wetland Trap (Gippsland) (T. Wong)
- Stochastic simulation of Wetland and Gross Pollutant Trap performance (T. Wong)
- Investigation of Spatial Patterns of Sedimentation in Wetlands (T. Wong/Breen)
- Urban wetland performance evaluation using qualitative methods (T. Wong)
- Hydraulic conductivity measurement for forested soils (Vertessy/Mein/Dunkerley)
- Leaf area, interception, and transpiration in mountain ash forest (Vertessy/Tapper/Mein)
- Model prediction uncertainty under certain parameter information (Connell/Nathan/Mein)
- Impacts of forest management and plantation establishment on catchment water balance (Vertessy/Tapper/Mein)
- Water relations for Eucalypt Plantations over saline shallow groundwater (Connell/Morris/Mein)
- Estimation of extreme design rainfalls and floods (Weinmann/Siriwardena/Mein)
- Holistic approaches to design flood estimation (Weinmann/Rahman/Siriwardena/Mein/Laurenson)
- Effects of rainfall estimation errors on flood forecasting (Weinmann/Seed)
Engineering Education

- Environment engineering education (Codner)
- The design internet-based course materials for engineering education (Hadgraft)
- The development of network-based student support services (Hadgraft)
- The effect of learning styles on the student use of hypermedia (Hadgraft)
- How to empower students and staff within a university department (Hadgraft)
- A review of problem solving techniques used in engineering practice (Hadgraft)
- Object-oriented approaches to building hydrological models (Hadgraft)

Road safety and crashworthiness systems

- Maximising side impact protection (Grzebieta/Fildes)
- Investigating roadside infrastructure crashworthiness (Grzebieta/Tingvall)
- Mitigating whiplash injuries (Grzebieta/Tingvall)
- Far-side injuries in side impact crashes (Grzebieta/Fildes/Stolinski)
- Preventing injuries in under-run crashes (Grzebieta/Rechnitzer)
- Road-safety and crashworthiness of Melbourne Trams (Grzebieta/Daly)
- Investigation of Petroleum Tanker roll-over crashes (Grzebieta/Rechnitzer)
### 5.2. Research Funding for 1998

<table>
<thead>
<tr>
<th>Investigators</th>
<th>Title</th>
<th>Grantor</th>
<th>Amount Awarded</th>
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</thead>
<tbody>
<tr>
<td>R. Al-Mahaidi</td>
<td>Determination of Optimum Confinement Reinforcement or Anchorage Zones of Post-Tensioned Concrete Members</td>
<td>Australian Research Council Small Grant</td>
<td>$17,813</td>
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<tr>
<td>A. Bouazza</td>
<td>Development of a Surface Wave Geophysics Facility</td>
<td>Australian Research Council Infrastructure Funding (Block Grants)</td>
<td>$44,250</td>
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<tr>
<td>J. Cull</td>
<td></td>
<td></td>
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<tr>
<td>C. M Haberfeld</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>J. P. Seidel</td>
<td></td>
<td></td>
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<tr>
<td>A. Bouazza</td>
<td>Active containment Barrier Systems Incorporating Organo-Modified Clays for Environmental Remediation and Waste Containment Application</td>
<td>Australian Research Council Small Grant</td>
<td>$16,910</td>
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<tr>
<td>A. Bouazza</td>
<td>Development of Active Containment Barriers for Contaminated Land Remediation and Waste Containment – APA – C89804731</td>
<td>Australian Research Council Strategic Partnership with Industry-Research (SPIRT)</td>
<td>$20,000</td>
</tr>
<tr>
<td>A. Bouazza</td>
<td>To present papers at 3rd Int. Congress on Environmental Geotechnics</td>
<td>Monash Research Fund Travel Grant 1998 – Round 2</td>
<td>$1,000</td>
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<tr>
<td>A. Bouazza</td>
<td>Flow and Diffusion of Gas through Geosynthetic Clay Liners</td>
<td>Faculty of Engineering New Staff Member Research Fund</td>
<td>$12,500</td>
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<tr>
<td>P. Grundy</td>
<td>To present a paper at the Conf. on Bulk Carriers, U.I. and associated research visits</td>
<td>Monash Research Fund Travel Grant 1998 – Round 1</td>
<td>$1,000</td>
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<tr>
<td>P. Grundy/</td>
<td>Reliability based assessment of load capacity of existing bridges</td>
<td>Australian Research Council (SPIRT) VicRoads</td>
<td>$95,000</td>
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<tr>
<td>C.Q. Li</td>
<td>Initiation of steel corrosion under service loading</td>
<td>Monash Engineering Research Committee</td>
<td>$10,500</td>
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<tr>
<td>C.Q. Li</td>
<td>Residual strength of concrete structures deteriorating through reinforcement corrosion</td>
<td>Monash Engineering Research Committee</td>
<td>$12,000</td>
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<td>C.Q. Li/</td>
<td>Life cycle performance evaluation of concrete bridges deteriorating through steel corrosion</td>
<td>Australian Research Council (SPIRT) VicRoads</td>
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<td>P. Grundy</td>
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<tr>
<td>C.Q. Li</td>
<td>Determination of Initiation Time of Steel Corrosion in Concrete under Service Load</td>
<td>Faculty of Engineering, New Staff Member Research Fund</td>
<td>$10,500</td>
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<td>C.Q. Li</td>
<td>To present a paper at ASEC in Auckland, NZ</td>
<td>Monash Research Fund Travel Grant 1998 – Round 1</td>
<td>$800</td>
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<tr>
<td>B. Filides</td>
<td>Improved Side Impact Protection</td>
<td>Australian Research Council - Collaborative</td>
<td>$26,000</td>
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<td>R. H. Grzebieta R. Zou</td>
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<tr>
<td>R. H. Grzebieta G. Lu</td>
<td>Collapse of Thin-walled Structures: Buckling Modes and Inertia Effect</td>
<td>Australian Research Council – Swinburne University</td>
<td>$10,000</td>
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<tr>
<td>C.M. Haberfield J. P. Seidel</td>
<td>The Influence of Construction Practices on the Capacity of Piles in Rock</td>
<td>Australian Research Council Large Grant</td>
<td>$36,167</td>
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<tr>
<td>C.M. Haberfield</td>
<td>A Micro-Mechanical Approach to the Shear Behaviour of Rock Joints</td>
<td>Australian Research Council Large Grants Scheme</td>
<td>$41,200</td>
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<tr>
<td>C.M. Haberfield</td>
<td>Analytical and Computational Approaches to Soil/Rock Stability Calculations for Slopes, Foundations and Retaining Structures</td>
<td>Australian Research Council Small Grant Scheme</td>
<td>$15,998</td>
</tr>
<tr>
<td>C.M. Haberfield</td>
<td>To present a paper at the 2nd Int. Conf. on Hard Soils/Soft Rocks, to present a panel report on laboratory testing, Italy and to present a paper at the 3rd Int. Geotechnical Seminar on Deep Foundations on Bored and Auger Piles, Belgium</td>
<td>Monash Research Fund Travel Grant</td>
<td>$1,000</td>
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<tr>
<td>H. R. Milner</td>
<td>To present papers at the 5th World Conf. on Timber Engineering, Switzerland</td>
<td>Monash Research Fund Travel Grant</td>
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<tr>
<td>H.R. Milner</td>
<td>Long term performance of glulam</td>
<td>Australian Research Council, SPIRT</td>
<td>$45,000</td>
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<tr>
<td>H.R. Milner</td>
<td>Evaluation of particle board</td>
<td>CSR</td>
<td>$12,120</td>
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<td>H.R. Milner</td>
<td>Durability of wood adhesives</td>
<td>Timber Promotion Council</td>
<td>$7,500</td>
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<tr>
<td>H.R. Milner</td>
<td>Evaluation of bridge bearings</td>
<td>Silentblox</td>
<td>$11,114</td>
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<td>H.R. Milner</td>
<td>Plasterboard peaking</td>
<td>HIA/Boral</td>
<td>$17,000</td>
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<tr>
<td>H.R. Milner</td>
<td>Glulam development</td>
<td>Corowa Timber &amp; Moulding</td>
<td>$5,400</td>
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<tr>
<td>G. Rose</td>
<td>A Comparative Evaluation of &quot;Safe Routes to School&quot; – Implementation</td>
<td>Department of Transport &amp; Regional Development</td>
<td>$19,975</td>
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<tr>
<td>I. Rutherfurd</td>
<td>Preparation of Australian Manual of River Restoration</td>
<td>Land Water Resources Research &amp; Development</td>
<td>$5,000</td>
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<tr>
<td>J. G. Sanjayan P. Collins</td>
<td>Structural Engineering Properties of High Strength Concrete in Fire using Alkali Activated Slag</td>
<td>Australian Research Council Small Grant</td>
<td>$8,000</td>
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<td>High Early Strength Concrete using Alkali Activated Slag</td>
<td>Independent Cement and Lime/blue circle Southern Concrete</td>
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<td>Investigators</td>
<td>Title</td>
<td>Grantor</td>
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<td>J. P. Seidel</td>
<td>Development of a Design Methodology for Screwed Cast-in-Place Piling</td>
<td>Australian Research Council AFA (I) Vibro-Pile (Aust.) Pty. Ltd.</td>
<td>$10,000</td>
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<td>X-L. Zhao</td>
<td>Dynamic Performance of Duragal Floor Systems</td>
<td>Australian Research Council AFA (I) – BHP Steel-Tubemakers of Australia</td>
<td>$10,000</td>
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<tr>
<td>P. Grundy, L. Koss</td>
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<td>X-L. Zhao</td>
<td>Cold-Formed Tubular Connections Under Fatigue Load</td>
<td>Australian Research Council Large Grant</td>
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<td>X-L. Zhao, P. Grundy</td>
<td>Innovative Tubular Connections at Elevated Temperature</td>
<td>Australian Research Council Small Grant</td>
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<td>M. B. Wong</td>
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<td>X-L. Zhao, P. Grundy</td>
<td>Thin-Walled (T&lt;4mm) Duragal RHS Connections Under Fatigue Load</td>
<td>CIDECT – BHP Steel-Tubemakers of Australia</td>
<td>$36,515</td>
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<td>M. B. Wong</td>
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<tr>
<td>X-L. Zhao</td>
<td>To present a paper at the 8th Int. Symp. on Tubular Structures (ISTS) and to present a paper at the International Institute of Welding XV-E Meeting, Singapore</td>
<td>Monash Research Travel Fund</td>
<td>$800</td>
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<tr>
<td>TOTAL FUNDING AWARDED IN 1998</td>
<td></td>
<td></td>
<td>$750,380</td>
</tr>
</tbody>
</table>

5.3. Postgraduate students and research topics in 1998

<table>
<thead>
<tr>
<th>Student Name</th>
<th>PhD or Master</th>
<th>Project Title</th>
<th>Main Supervisor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abernethy, Bruce (Mr)</td>
<td>PhD</td>
<td>The role of Vegetation in River Bank Stability</td>
<td>Dr. I. Rutherford</td>
</tr>
<tr>
<td>Ali-Khail, Masood (Mr)</td>
<td>PhD</td>
<td>Dynamic Performance of Duragal Floor Systems</td>
<td>Dr. X-L Zhao</td>
</tr>
<tr>
<td>Bailey, Mark (Mr)</td>
<td>PhD</td>
<td>Improved Techniques for Treatment of Uncertainty in Physically-Based Models of Catchment Water Balance</td>
<td>Prof. R. Mein</td>
</tr>
<tr>
<td>Bakharev, Tanya (Ms)</td>
<td>PhD</td>
<td>Chemistry Microstructure and Durability of Alkali Activated Slag Concrete</td>
<td>Dr. J.G. Sanjayan</td>
</tr>
<tr>
<td>Candappa, Dhanaj (Mr)</td>
<td>PhD</td>
<td>The Constitutive Behaviour of High Performance Concrete Under Lateral Confinement</td>
<td>Dr. J.G. Sanjayan</td>
</tr>
<tr>
<td>Chen, Xi (Ms)</td>
<td>PhD</td>
<td>Quantitative Wellbore Stability Analysis</td>
<td>A/Prof. C. Haberfield</td>
</tr>
<tr>
<td>Collingwood, Ben (Mr)</td>
<td>PhD</td>
<td>The Effect of Construction Practices on the Capacity of Rock-Socketed Piles</td>
<td>Dr. J. Seidel</td>
</tr>
<tr>
<td>Student Name</td>
<td>PhD or Master</td>
<td>Project Title</td>
<td>Main Supervisor</td>
</tr>
<tr>
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<tr>
<td>Collins, Frank (Mr)</td>
<td>PhD</td>
<td>High Early Strength Concrete using Alkali Activated Slag (AAS)</td>
<td>Dr. J.G. Sanjayan</td>
</tr>
<tr>
<td>Crozier, Damian (Mr)</td>
<td>PhD</td>
<td>Behaviour of slender reinforced concrete walls in fire</td>
<td>Dr. J.G. Sanjayan</td>
</tr>
<tr>
<td>Dale, Ken (Mr)</td>
<td>PhD</td>
<td>Behaviour of Tubular Connections Under Variable Repeated Loads</td>
<td>Prof. P. Grundy</td>
</tr>
<tr>
<td>Daly, Peter (Mr)</td>
<td>PhD</td>
<td>Modelling transport demand and parking</td>
<td>Prof. W. Young</td>
</tr>
<tr>
<td>Davis, Sharon (Ms)</td>
<td>PhD</td>
<td>Measurement of 50 forest soil hydraulic properties and the implications for physically based catchment models</td>
<td>Prof. R. Mein</td>
</tr>
<tr>
<td>Eley, Rachel (Ms)</td>
<td>PhD</td>
<td>Influence of vegetation on stream rating curves</td>
<td>A/Prof. R. Keller</td>
</tr>
<tr>
<td>Feikema, Paul (Mr)</td>
<td>PhD</td>
<td>Tree growth and water relations of eucalypt plantations over saline shallow groundwater</td>
<td>Prof. R. Mein</td>
</tr>
<tr>
<td>Gu, Xu Fan (Mr)</td>
<td>PhD</td>
<td>The Behaviour of Sandstone Concrete Joints</td>
<td>A/Prof. C. Haberfield</td>
</tr>
<tr>
<td>Hammond, Lloyd (Mr)</td>
<td>PhD</td>
<td>Structural response of air-backed to far-field underwater explosions</td>
<td>Dr. R. Grzebieta</td>
</tr>
<tr>
<td>Hewitt, Dean (Mr)</td>
<td>PhD</td>
<td>The influence of mechanical damage on the side wall integrity of a bulk carrier</td>
<td>Prof. P. Grundy</td>
</tr>
<tr>
<td>Hoang, Tam (Ms)</td>
<td>PhD</td>
<td>A joint probability approach to rainfall-based design flood estimation</td>
<td>Mr. P.E. Weinmann</td>
</tr>
<tr>
<td>Jordan, Philip (Mr)</td>
<td>PhD</td>
<td>Combination of rainfall estimates from Radar and Rain gauges to improve flood forecasting</td>
<td>Mr. P.E. Weinmann</td>
</tr>
<tr>
<td>Lloyd, Sara (Ms)</td>
<td>PhD</td>
<td>Best practice in water-sensitive urban design</td>
<td>A/Prof. T. Wong</td>
</tr>
<tr>
<td>Mashiri, Fidelis (Mr)</td>
<td>PhD</td>
<td>Thin-Walled Tubular Connections under Fatigue Loading</td>
<td>Dr. X-L Zhao</td>
</tr>
<tr>
<td>McJannet, David (Mr)</td>
<td>PhD</td>
<td>A hydrologic analysis of break of slope plantations</td>
<td>Prof. R. Mein</td>
</tr>
<tr>
<td>Milani, Nick (Mr)</td>
<td>PhD</td>
<td>Behaviour of tubular connections under variable repeated loading</td>
<td>Prof. P. Grundy</td>
</tr>
<tr>
<td>O’Sullivan, Sharon (Ms)</td>
<td>PhD</td>
<td>An investigation into the relationship between leaf area, transpiration rates and canopy interception in different age classes of Eucalyptus regnans.</td>
<td>Prof. R. Mein</td>
</tr>
<tr>
<td>Paterson, Darryn (Mr)</td>
<td>PhD</td>
<td>Predicting the duration and effects of freeway incidents</td>
<td>Dr. G. Rose</td>
</tr>
<tr>
<td>Patterson, Natalie (Ms)</td>
<td>PhD</td>
<td>Design of Steel Frames and Composite Columns for Fire Conditions</td>
<td>Dr. M.B. Wong</td>
</tr>
<tr>
<td>Student Name</td>
<td>PhD or Master</td>
<td>Project Title</td>
<td>Main Supervisor</td>
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<tr>
<td>Richards, Betty (Ms)</td>
<td>PhD</td>
<td>Investigation of catchment geomorphologic and flood frequency characteristics within the scale invariance framework</td>
<td>Prof. R. Mein</td>
</tr>
<tr>
<td>Richardson, Shane (Mr)</td>
<td>PhD</td>
<td>Rollover Protective Structures for (Military) 4 x 4 vehicles</td>
<td>Dr. R. Grzebieta</td>
</tr>
<tr>
<td>Shirazirad, Amir (Mr)</td>
<td>PhD</td>
<td>Determination of the Structural Integrity of Bulk Carriers through Monitoring Systems</td>
<td>Prof. Paul Grundy/ Dr. S. Cannon</td>
</tr>
<tr>
<td>Sironic, Elizabeth (Ms)</td>
<td>PhD</td>
<td>A Study of Void-Filled Thin-Walled Rectangular Steel Sections</td>
<td>Dr. R. Grzebieta</td>
</tr>
<tr>
<td>Slatter, Jim (Mr)</td>
<td>PhD</td>
<td>Cast in-situ screw piling</td>
<td>Dr. J. Seidel</td>
</tr>
<tr>
<td>Somes, Nicholas (Mr)</td>
<td>PhD</td>
<td>An investigation of the performance of constructed stormwater wetlands</td>
<td>A/Prof. T. Wong</td>
</tr>
<tr>
<td>Stolinski, Richard (Mr)</td>
<td>PhD</td>
<td>Side Impact Protection - occupants in the far-side seat</td>
<td>Dr. R. Grzebieta</td>
</tr>
<tr>
<td>Tan, Yan Weng (Mr)</td>
<td>PhD</td>
<td>A Study of Parking Movement in Multi-Storey Parking Systems</td>
<td>Prof. W. Young</td>
</tr>
<tr>
<td>Taplin, Geoff (Mr)</td>
<td>PhD</td>
<td>Incremental Slip of Composite Beams under Repeated Load</td>
<td>Prof. P. Grundy</td>
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<tr>
<td>Taylor, Samantha (Ms)</td>
<td>PhD</td>
<td>Urban Goods Movement and ITS</td>
<td>Dr. G. Rose</td>
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<tr>
<td>White, Lindsay (Mr)</td>
<td>PhD</td>
<td>An investigation of hydraulic issues associated with fishways</td>
<td>A/Prof. R. Keller/ Dr. I. Rutherford</td>
</tr>
<tr>
<td>Barley, Rebecca (Ms)</td>
<td>MEngSc</td>
<td>The recovery of geomorphic complexity in streams</td>
<td>Dr. I. Rutherford</td>
</tr>
<tr>
<td>Cleven, Michael (Mr)</td>
<td>MEngSc</td>
<td>Bond Loss Due to Steel Corrosion in Reinforced Concrete</td>
<td>Dr. C.Q. Li</td>
</tr>
<tr>
<td>Hewitt, Martin (Mr)</td>
<td>MEngSc</td>
<td>Shakedown and incremental collapse of catenary risers and tension legs in offshore platforms</td>
<td>Prof. P. Grundy</td>
</tr>
<tr>
<td>Isaac, Chris (Mr)</td>
<td>MEngSc</td>
<td>Initiation of Chloride-Induced Steel Corrosion in Concrete</td>
<td>Dr. C.Q. Li</td>
</tr>
<tr>
<td>Koay, Kelvin (Mr)</td>
<td>MEngSc</td>
<td>Safety barriers – design optimisation and harm formulation</td>
<td>Dr. R. Grzebieta</td>
</tr>
<tr>
<td>Pearce, Helen (Ms)</td>
<td>MEngSc</td>
<td>A Micro-Mechanical Approach to the Shear Behaviour of Rock Joints</td>
<td>A/Prof. C. Haberfield</td>
</tr>
<tr>
<td>Richards, Sarah (Ms)</td>
<td>MEngSc</td>
<td>Use of Organically Modified Clays for Soil Remediation and Waste Containment</td>
<td>Dr. A.M. Bouazza</td>
</tr>
<tr>
<td>Rodgers, Cameron (Mr)</td>
<td>MEngSc</td>
<td>Optimisation of timber I-Beams with trellis webs</td>
<td>A/Prof. H. Milner</td>
</tr>
<tr>
<td>Sabaratnam, Renuka (Mr)</td>
<td>MEngSc</td>
<td>Storm bank undercutting: distribution and processes</td>
<td>Dr. I. Rutherford</td>
</tr>
<tr>
<td>Taylor, Jack (Mr)</td>
<td>MEngSc</td>
<td>The Structural Use of Particle Board</td>
<td>A/Prof. H.R. Milner</td>
</tr>
<tr>
<td>Vangpaisal, Pok (Mr)</td>
<td>MEngSc</td>
<td>Performance of Geosynthetic Clay Liners as a Gas Barrier</td>
<td>Dr. A.M. Bouazza</td>
</tr>
<tr>
<td>Student Name</td>
<td>PhD or Master</td>
<td>Project Title</td>
<td>Main Supervisor</td>
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</tr>
<tr>
<td>Whitton, John (Mr)</td>
<td>MEngSc</td>
<td>The Effect of Mining Subsidence on the Stability of Structures</td>
<td>Dr. M.B. Wong</td>
</tr>
<tr>
<td>Wilkinson, Scott (Mr)</td>
<td>MEngSc</td>
<td>The development of depth variation in rivers</td>
<td>Dr. I. Rutherford</td>
</tr>
<tr>
<td>Youngman, James (Mr)</td>
<td>MEngSc</td>
<td>A Model for Improving the Delivery of Field Service Support with Applications to Emergency Services</td>
<td>Dr. G. Rose</td>
</tr>
</tbody>
</table>

5.4. List of Research Seminars

<table>
<thead>
<tr>
<th>PRESENTER</th>
<th>SEMINAR TOPIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Philip Jordan</td>
<td>Use of radar rainfall estimates to improve flood forecasting</td>
</tr>
<tr>
<td>Shane Richardson</td>
<td>Rossover crashworthiness of military vehicles</td>
</tr>
<tr>
<td>John Fenton</td>
<td>Observation of the relative motion of two floating pieces of parsnip: Lewis Fry Richardson's life and contributions to knowledge</td>
</tr>
<tr>
<td>Roger Hadgraft/Kaya Prpic</td>
<td>Engineering Education in Thailand</td>
</tr>
<tr>
<td>William Young</td>
<td>What Distance Education can do for Civil Engineering</td>
</tr>
<tr>
<td>Darryn Paterson</td>
<td>Predicting duration and effects of freeway incidents</td>
</tr>
<tr>
<td>Riadh Al-Mahaidi/Geoff Taplin</td>
<td>The ultimate load testing of a VicRoads bridge</td>
</tr>
<tr>
<td>Sara Lloyd</td>
<td>Construction of wetlands</td>
</tr>
<tr>
<td>Kaya Prpic</td>
<td>Reinventing Education</td>
</tr>
<tr>
<td>Frank Collins</td>
<td>Concrete-making in Mekong</td>
</tr>
<tr>
<td>Roger Hadgraft</td>
<td>A review of CIV1201</td>
</tr>
<tr>
<td>Quy Le</td>
<td>Current practical design method of post-tensioned transfer plates supporting heavy point loads</td>
</tr>
<tr>
<td>Bob Keller</td>
<td>Is there life after engineering?</td>
</tr>
<tr>
<td>Keith McKenry</td>
<td>Plastic analysis of frames using a spreadsheet platform</td>
</tr>
<tr>
<td>Jack Taylor</td>
<td>Timber Particle Board</td>
</tr>
<tr>
<td>Rachel Eley</td>
<td>Prediction of rating curves in rivers and the role of vegetation</td>
</tr>
<tr>
<td>Fidelis Mashiri</td>
<td>Cold-formed tubular connections under fatigue load</td>
</tr>
<tr>
<td>Sara Lloyd</td>
<td>Construction of wetlands</td>
</tr>
<tr>
<td>Bob Keller</td>
<td>The application of physical models to hydraulic engineering</td>
</tr>
<tr>
<td>Jim Slatter</td>
<td>Recent developments in screw piling technology</td>
</tr>
<tr>
<td>Masood Ali-Khail</td>
<td>Dynamic properties of duragal floors</td>
</tr>
</tbody>
</table>
5.5. Publications

Book: Editorship and Edited Compilation

Book Chapters:

Journal Articles (Referred):
Abernethy, B. and Rutherford, I.D., "Where along a river's length will vegetation most effectively stabilise stream banks", Geomorphology, Elsevier, Amsterdam Netherlands, (Vo. 23), Full article, pp 55 - 75, 1998
Li, C.Q., "Discussion on life cycle cost design of deteriorating structures", Journal of Structural Engineering, ASCE, Detroit, USA, (Vol. 124 No. 11), Discussion, pp 1367 - 1368, 1998


Journal Articles (non-referred):


Journal Article: Letter or Note

Conference Publication (Refereed):


20


Conference Publication: Editorial Board


Conference Publication: Non-Refereed


Conference Publication: Extract of Paper


Persson1, J., Somes2, N.L. and Wong, T.H., "Hydraulics Efficiency of Constructed Wetlands and Ponds", in Samia Maria Tauc-Tormesio (ed), 6th International Conference on Wetland Systems for Water Pollution Control, Centre of Environmental Studies., Sao Paulo, Brazil, 6th International Conference on Wetland Systems for Water Pollution Control, Sao Paulo, Brazil 27September - 2 October 1998, -, pp 113 - 113, 1998


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Non-Commercial Books:


Holgate, A., Fyansford Monier Arch Bridge, in - (ed), Department of Civil Engineering, Monash University, Clayton, Victoria, 1, 1998

Holgate, A., Monier Arch Bridge at Anderson Street, Melbourne, in - (ed), Dept. Civil Engineering, Monash University, Clayton, Victoria, 1, 1998


5.6. Thesis Accepted for a Higher Degree

Aryal¹, S.K., “A similarity approach to characterise the hydrologic behaviour of landscapes”, (Doctor of Philosophy (Faculty of Engineering)), 1998

Bui¹, Q.D., “Fibre reinforced grout beams”, (Doctor of Philosophy (Faculty of Engineering)), 1998

Cheng¹, F., “A laboratory study of the influence of wall smear and residual drilling fluids on rock socketed pile performance”, (Doctor of Philosophy (Faculty of Engineering)), 1998

Fleuter¹, W., “Analytical and experimental investigation into the shear performance of joints in soft sedimentary rocks”, (MEngSc (Research)), 1998

Flockhart¹, C., “The plastic collapse of hollow and foam-filled spot-welded thin-walled tubes in axial compression and in pure bending”, (Doctor of Philosophy (Faculty of Engineering)), 1998

Giffedeeder¹, M., “Irrigation bay processes leading to salt export”, (Doctor of Philosophy (Faculty of Engineering)), 1998

Hagcroft, R., “Engineering education with hypertext”, (Doctor of Philosophy (Faculty of Engineering)), 1998

Jarred¹, D., “The tendon/grout interface performance of grouted threaded bar ground anchors”, (MEngSc (Research)), 1998

Kiew¹, K-P., “Experimental and finite element investigation of the longitudinal fillet welds in C450 rectangular hollow section members”, (MEngSc (Research)), 1998

Locher¹, H., “Sediment storage and transport in the King River, Tasmania”, (Doctor of Philosophy (Faculty of Engineering)), 1998

Mitchell¹, G.V., “Development of an urban water balance model to assess the re-use potential of stormwater and wastewater”, (Doctor of Philosophy (Faculty of Engineering)), 1998

Munckaster¹, S.H., “The potential of continuous hydrologic modelling for design flood estimation”, (MEngSc (Research)), 1998

Poh¹, K.W., “Behaviour of load-bearing members in fire”, (Doctor of Philosophy (Faculty of Engineering)), 1998

Ravishanthan¹, A., “Behaviour of high strength concrete walls with side supports”, (MEngSc (Research)), 1998

Smith¹, W., “Estimation of pollution accumulation in stormwater washoff modelling”, (Doctor of Philosophy (Faculty of Engineering)), 1998
Sun', X., "Hydrological application of weather radar for catchment rainfall and flood estimation", (Doctor of Philosophy (Faculty of Engineering)), 1998

6. STRATEGIC DIRECTIONS FOR THE FUTURE

The Department shares the aims of both the Faculty of Engineering and the University in innovation, engagement and internationalisation.

In terms of innovation the strategic directions embrace a revitalised curriculum through student centred learning, the development of courseware for flexible learning, the introduction of education programs for industry and of an articulated path through a Bachelor of Technology (Infrastructure - design, construction and management), and the identification and fostering of key research strengths.

In terms of engagement the strategic directions involve building upon present links with industry for the practical grounding of the undergraduate curriculum and for the development of effective linked research programs. The newly established Industry Advisory panel is one key factor in this process. The strategic directions also involve a commitment to the established research centres in the department.

In terms of internationalisation the strategic directions include the development of cross institutional links for student and staff exchange, currently being actively pursued in Sweden, Japan and Indonesia, and the formation of international research alliances. Finally, the courseware for flexible learning and distance education is being developed in a form which can be appropriate to any culture or environment in which it is offered.

7. PROFESSIONAL ACTIVITIES

7.1. Conference Attendance

Al-Mahaidi, R.  Australasian Structural Engineering Conf. Auckland, September-October

Bouazza, M.  6th Int. Conf. on Geosynthetics, Atlanta, USA, March

3rd Int. Congress on Environmental Geotechnics, Lisbon, Portugal, September

Codner, G.P.  Hydrastorm 98, Int. Symp. on Stormwater Management Adelaide, September.

Int. Conf. on Hydraulics in Civil Engineering, Adelaide, September.

Daly, P.  AUSTROADS Int. Road Safety Audit Forum, Melbourne, May

Road Safety Research, Policing and Education Conf., Wellington, November

19th ARRB Transport Research Conf: Sydney, December


Grundy, P.  14th ISSC Technical Committee Meeting, London, April

Bulk Carriers Conf., London, April/May

8th Int. Conf. on Offshore and Polar Engineering, Montreal, May

8th Int. Symp. on Tubular Structures, Singapore, August

Euromech 385 Colloquium, Aachen, Germany, September

Australasian Structural Engineering Conf., Auckland, September-October

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Grzebieta, R.H.  *Int. Conf. on Enhanced Safety of Vehicles*, Windsor, Canada, June
  *Conf. on Pedestrian Safety*, Australian College of Road Safety & Victorian Parliamentary Committee, Melbourne, June.
  *Int. Crashworthiness Conf.*, Dearborne, Michigan, USA, September
  *National Road Safety Summit*, Canberra, September
  *1998 Automotive Industry Outlook Conf.*, Melbourne, October,
  *Road Safety Research, Policing and Education Conf.*, Land Transport Safety Authority, Wellington, New Zealand, November

Haberfield, C.M.  *3rd ANZ Young Professional's Conf.*, Melbourne February
  *Int. Conf. on Geomechanics, Ground Control in Mining and Underground Construction*, Wollongong, July
  *2nd Int. Symp. on Hard Soils and Soft Rocks*, Napoli, Italy, October
  *3rd Int. Seminar on Bored and Augured Piles*, Ghent, Belgium, October

Hadgraft, R.G.
  *1st UICEE Annual Conf. on Engineering Education*, Melbourne, February
  *10th Australasian Conf. on Engineering Education*, Gladstone, September

Holgate, A.
  *9th Australian Conf. on The Engineering Heritage*, Ballarat, March

McKenry, K.  *Australasian Structural Engineering Conf.*, Auckland, September-October

Keller, R.J.
  *Int. Conf. on Hydraulics in Civil Engineering*, Adelaide, September
  *Int. Conf. on Monitoring, Testing and Modelling of Hydropower Plants*, Aix-en-Provence, October

Li, C.Q.  *Australasian Structural Engineering Conf.*, Auckland, September-October

Mein, R.G.  *CRC Assoc. Conf., Adelaide*, April
  *Victorian Catchment Management Conf.*, Shepparton, June

Milner, H.R.  *World Timber Engineering Conf. 98*, Montreux, Switzerland

Rose, G.  *ITS World Congress*, Seoul, Korea, October

Sanjayan, J.G.
  *Int. Conf. on High Performance High Strength Concrete*, Perth, August

Seidel, J.P.
  *Bored and Augered Piles*, BAP III, Ghent, Belgium, October

Taplin, G.R.  *Euromech 385 Colloquium*, Aachen, Germany, September

Taylor, S.
  *Heavy Vehicle Weights and Dimensions Symp.*, Maroochydore, Qld., March-April
  *Institute of Transportation Engineers Annual Meeting*, Toronto, Canada, August
  *20th CAITRE*, Sydney, December

Weinmann, P.E.
  *Hydromitr 98, Int. Symp. on Stormwater Management*, Adelaide, September
  *Int. Conf. on Hydraulics in Civil Engineering*, Adelaide, September

Wong, B.
  *8th Int. Symp. on Tubular Structures*, Singapore, August
7.2. Official Contribution to Professional Organisation

Al-Mahaidi, R.
Member, ACI-ASCE Committee 447: Finite Element Analysis of Reinforced Concrete Structures.

Bouazza, M.
Member, ISSMGE-TC5: Environmental Geotechnics
Member, IAEG commission 14 on Waste Disposal
Committee Member, Australian Geomechanics Society, Victorian Branch
Member Scientific Committee, 3rd International Congress on Environmental Geotechnics, Lisbon, Portugal
Co-Chairman workshop on Triaxial Testing of Soils, 6th IGS, Atlanta, USA

Codner, G.P.
Member, National Board, The Environmental Engineering Society, IEAust.
Invited Member, Environmental Engineering Society, Victorian Chapter Committee

Daly, P.
Secretary, Executive Board, Institute of Transportation Engineers (ITE) Australia and New Zealand
Convenor, Monash Student Chapter, Institute of Transportation Engineers (ITE)

Fenton, J.D.
Member, Int. Assoc. of Hydraulic Research

Grundy, P.
Member, ME/S/15 Standards Australia Subcommittee - Crane Runways
Member, Int. Institute of Welding Commission XV-E, Tubular Joints
Chair, ISOPÉ Technical Committee, Tubular Structures

Grzebieta, R.H.
Chairman, Organising Committee for Conf. on Pedestrian Safety, Australian College of Road Safety & Victorian Parliamentary Committee
Member Organising Committee, 15th Australasian Conf. on the Mechanics of Structures and Materials
Member, National Australian Standards Committee CE/33 Road Safety Systems Barriers (AS/NZS 3845)
Corresponding Member, National Committee on Transport, IEAust.
Member, National Executive Committee of the Australian College of Road Safety
Past Chairman and Member of Executive Committee of the Australian College of Road Safety, Victorian Chapter
Haberfield, C.M.  Member, ASTM, Committee on Pressuremeters D18.02.07, USA
Chair, National Committee, Australian Geomechanics Society
Ex-Officio, Victoria Group Committee of the Australian Geomechanics Society
Member, Organising Committee, GeoEng2000 - Int. Conf. on Geotechnical and Geological Engineering, Melbourne 2000
Mentor, Organising Committee, 3rd ANZ Young Professional's Conf., Melbourne, 1998
Chairman, Technical Committee, GeoEng2000, Int. Conf. on Geotechnical and Geological Engineering, Melbourne 2000
Member, Society Consultative Committee, IEng Aust.

Mihler, H.R.  
Member, TM/1 Standards Australia Committee on Timber Structures
Chair, TM/4 Standards Australia/Standards New Zealand Committee on Glued Timber Products
Member, TM/5 Standards Australia/Standards New Zealand Committee on Reconstituted Timber Panel Products
Member, Timber Standards Coordination Group, M/4 Standards Australia
Member, International Standards Organisation (ISO) Technical Committee TC165 on Timber Structures
Chair, Working Group WG6 of ISO TC165 on Finger Jointed Timber
Board Member, Gippsland Timber Development Limited
Member, Timber Promotion Council R &D Committee

Rose, G.  Immediate past Chair, National Committee on Transport, IEng Aust.
Member, Victorian Transport Branch Committee, IEng Aust

Sanjayan, J.G.  
Member, Concrete Institute of Australia Committee, Victorian Branch
Member, Structural Branch, IEng Aust.

Seidel, J.P.  
Member, Standards Committees
Member, Engineering Education Sub-Committee, GeoEng 2000, Melbourne

Taplin, G.R.  
Member, Standards Committee BD/32/2 - Composite Beams

Taylor, S.  
Member, World Conf. on Transport Research Society
Member, National Research Council Transportation Research Board Urban Goods Movement Committee
Secretary, World Conf. on Transport Research Society, Special Interest Group on Urban Goods Movement
Member, International Advisory Committee, Portland Metropolitan Area Commodity Flow Study
Member, Institute of Transportation Engineers (ITE) Australia and New Zealand Section
Member, Transport Branch Committee of Institution of Engineers Australia (Victorian Division)
Chair, Institute of Engineers, Transport Branch, Victoria Division
Member, Victorian Board Institution of Engineers, Australia

Wong, B.  
Member, Australian Institute of Steel Construction, Victorian Committee
Wong, T.  
Member, American Society of Civil Engineering  
Member, International Association of Water Quality  
Member, Australian Water and Wastewater Association  
Chairman, National Committee on Water Engineering, IEAust  
Member, International Association of Hydraulic Research/International Association on Water Quality working group on Sewer Systems and Processes

Young, W.  
Member, Scientific Committee of the 9th Int. Assoc. for Travel Behaviour Conf. (1998-2000)  
Member, International Technical Committee, Int. Conf. on Transportation in the next Millennium, Singapore (1997-1998)  
Member, Programming Committee of the Int. Symp. on Automotive Technology and Automation ISATA, (1998)  
Fellow, Chartered Institute of Transport, United Kingdom  
Fellow, Institute of Transportation Engineers, U.S.A.  
Member, Chartered Institute of Transport  
Member, Transport Research Centre (RMIT University) Advisory Committee  
President, Executive Board, Institute of Transportation Engineers Australia & NZ Section  
Member, Advisory Committee, Transport Research Centre, Royal Melbourne Institute of Technology  
Member, Parking Association of Australia  
Fellows of the Chartered Institute of Transport

Zhao, X.-L.  
Member, International Institute of Welding, Subcommission XV-B Tubular Structures  
Member, CIDECT Working Group - Joints Behaviour and Fatigue  
Member, CIDECT Working Group - Stability and Fire Resistance  
Member, Standards Australia Committee CS/23 - Security Screen Doors

7.3. **Visits to Other Institutions**

Al-Mahaidi, R.  
Department of Civil Engineering, University of Oakland, New Zealand, September

Bouazza, M.  
Colorado State University, Fort Collins, USA, March  
LNEC Research Center, Lisbon, Portugal, September

Codner, G.P.  
Universidad Nacional del Litoral, Santa Fe, Argentina, June

Grzebieta, R.H.  
Wayne State University, Bioengineering Centre, Detroit, USA, December

Haberfield, C.M.  
Wollongong University, July  
University of Turin, October
Hadgraft, R.G.  
University of South Australia February  
University of New South Wales, August  
Ballarat University, November  
Canberra University, May & June  
University of Queensland, September  
Distinguished Teacher Fellowship at Luleå University of Technology, Luleå, Sweden November - December  
Council for the Renewal of Undergraduate Education, Stockholm, December  
Swedish Foundation for International Cooperation in Research and Higher Education (STINT), December

Mein, R.  
Griffith University, July & December  
Sydney University, November

Rose, G.  
Institute of Transport Studies, University of California, July  
INRETS, France, October

Sanjayan, J.G.  
Curtin University of Technology, Perth, August

Seidel, J.P.  
University of Houston, October

Taplin, G.R.  
ICOM Construction Metallique, EPFL, Lausanne, Switzerland, August - December

Wong, B.  
Nanyang Technological University, Singapore, August  
Hong Kong Polytechnic University, December

Wong, T.  
Guest Professor, Department of Civil Engineering, University of Essen, Germany May - July

Young, W.  
Centre for Transportation Studies, Nanyang University, Singapore, September  
Department of Human Ecology and Design, Michigan State University, Michigan USA, October  
Department of Civil and Environmental Engineering, Michigan State University, Michigan USA, October

Zhao, X-L.  
Hosser, Hass + Partner, Braunschweig, Germany, February  
Delft University of Technology, Delft, The Netherlands, March  
TNO Building and Construction Research, The Netherlands, March  
British Steel, Corby, UK, March  
The Steel Construction Institute, UK, March  
ICOM, Lausanne, Switzerland, April  
Technical University of Milan, Italy, April  
Voest Alpine Tube Company, Austria, April  
Technical University of Berlin, Berlin, Germany, April  
Tubeurope, Paris, France, May  
Helsinki University of Technology and VTT Building Technology Laboratory, Finland, May  
Lappeenranta University of Technology, Finland, May  
Mannstadt Werke GmbH, Germany, July
### 7.4. Editorial Services

<table>
<thead>
<tr>
<th>Name</th>
<th>Position/Role</th>
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| Al-Mahaidi, R. | Reviewer, *Australian Civil Engineering Transactions*  
|               | Reviewer, *International Journal of Engineering Structures*  
|               | Reviewer, *Australian Journal of Structural Engineering*  
|               | Reviewer, *Intl. Conf. on Mechanics of Structures, Materials and Systems*  
| Bouazza, M.   | Member, Editorial Board, *Int. Jnl. of Geomembrane & Geotextile*  
|               | Reviewer, *6th Int. Conf. on Geosynthetics*  
|               | Reviewer, *Int. Jnl. of Geomembrane & Geotextiles*  
|               | Reviewer 8th ANZ Conference on Geomechanics  
| Fenton, J.D.  | Member, Editorial Board, *Coastal Engineering*  
| Grundy, P.    | Member, Editorial Board, *Jnl. of Marine Structures*  
|               | Member, Editorial Board, *Jnl. of Strain Analysis*  
| Grzebieta, R.H.| Member, Editorial Board, *Int. Jnl. of Crashworthiness*  
|               | Reviewer, *Australian Civil Engineering Transactions*  
|               | Reviewer, *Journal of Accident Analysis and Prevention*  
|               | Reviewer, *Int. Journal of Applied Finite Elements and Computer Aided Engineering*  
|               | Reviewer, *Australian Journal of Structural Engineering*  
|               | Reviewer, *Int. Journal of Solids and Structures*  
|               | Reviewer, *Australian Civil Engineering Transactions*, IEAust.  
|               | Reviewer, *Int. Jnl. of Rock Mechanics*  
|               | Reviewer, ASCE, Geotechnical Engineering Division  
|               | Reviewer, 8th ANZ Conference on Geomechanics  
| Keller, R.J.  | Associate Editor, *Int. Jnl of Hydraulic Research*  
| Li, C.Q.      | Member, Editorial Board, *Int. Jnl. of Building Research and Information*  
| Rose, G.      | Editor-in-Charge, *Transport Engineering in Australia*  
| Seidel, J.P.  | Technical Editor, Fulcrum, Deep Foundations Institute  
|               | Reviewer, *Australian Civil Engineering Transactions*  
|               | Reviewer, ASCE Jnl Geotechnical Engineering Division  
|               | Reviewer, ATSM, Jnl of Geotechnical Engineering  
|               | Reviewer, Canadian Geotechnical Journal  
|               | Reviewer, 8th ANZ Conference on Geotechnical Engineering  
| Young, W.     | Associate Editor and member, Editorial Advisory Board, *Int. Jnl Transportation*  
| Zhao, X-L     | Member, Editorial Group, *CIDECT Design Guide for Tubular Joints under Fatigue Loading*  
|               | Reviewer, *Intl. Jnl. of Structural Engineering & Mechanics*  

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7.5. Services to Expert Bodies

Seidel, I.P.  
Member of IEAust accreditation panel for Engineering Associations

Young, W.  
Education Program in Parking Management developed for the Parking Association of Australia
Transport, Cities and the Environment course developed for Engineering Education Australia as part of the Graduate Diploma in Engineering (Professional Development)
Adviser to Australian Railways
Adviser to Department of Infrastructure, Victoria

7.6. External Seminars, Courses & Workshops

Al-Mahaidi, R.  
Seminar, *Shear Strength Assessment of Concrete T-beam Bridge Decks*, AustRoads Senior Bridge Engineers Meeting, VicRoads Melbourne, September

Grzebieta, R.H.  
Short Course, *Biomechanics of Injury and Crashworthiness*, February
Short Course, Finite Element Methods, July

Hadgraft, R.G.  
Workshop, *Problem-Based Learning*, Luleå University of Technology, Sweden, November
Workshop, *Excel*, Luleå University of Technology, Sweden, December

Li, C.Q.  
Short Course, *Timber*, June

Milner, H.R.  

Rose, G.  
Workshop, *Traffic Survey Methods*, Melbourne, October

Weinmann, P.E.  
Workshop, *CRC-FORGE*, Melbourne, February (Repeated, June)

Wong, B.  

Wong, T.  
Workshop, *Planning and Design of Stormwater Management Measures*, May & October
Invited Speaker, *Putrajaya Lake Water Quality Seminar*, Kuala Lumpur, Malaysia, February
Invited Speaker, *Technical Seminar*, Gutteridge Haskine and Davey, November
Invited Speaker, *Stormwater Management Seminar*, Benalla, September
Speaker, *CRC Industry Seminar on Constructed Stormwater Wetlands: “From Design to Construction*, November

Young, W.  
Research Seminar, *Land Use, Transport and Road Pricing*, Nanyang University, Singapore, September
Guest Lecture, *Urban Development in Australia*, Michigan State University, Michigan USA, October
Research Seminar, *Land Use, Transport and Environment*, Land Transport Authority, Singapore, September
7.7. Special Presentations

Haberfield, C.M. Keynote Lecture, *Int. Conf. on Geomechanics and Ground Control on Mining and Underground Construction*, Wollongong, July
Panel Reporter, 2nd *Int. Symp. of Hard Soils and Soft Rocks* Napoli, Italy, October

Mein, R.G. CRC Showcase Presentation, Adelaide, April
Victorian Catchment Management Council, Melbourne, April
CRC Showcase presentation, Sydney, August
AWWA Water School, Mt Eliza Business College, September
Goulburn Murray Water, Tatura, August


Seidel, J.P. Invited Speaker, *Advanced Design of Rock Socketed Piles*, University of Houston, USA, October

Sanjayan, J.G. Invited Speaker, *Fire Performance of Concrete Structures Seminar*, Concrete Institute of Australia, Melbourne, April

Taplin, G.R. Invited Lecture, *Composite Beams under Repeated Loading*, ICOM Construction Metallique, EPFL, Lausanne, Switzerland, August, (repeated December)

Weinmann, P.E. Seminar, *ARRB87 Chapter 13 Revision*, Sydney, October

Wong, T. Keynote Address, “Designing Stormwater Wetland Trap for New Players” *3rd Int. Conf. on Stormwater and Soil Erosion* Melbourne, October
Keynote Address, *Water Research at Monash University* Faculty of Engineering, University of Essen, Germany, July

Young, W. Invited Speaker, “Quality of Life, Road Pricing and the Level of Service of Urban Roads” *Int. Conf. on Transportation into the Next Millennium* Nanyang University, Singapore, September