

Institution: University of Birmingham

Unit of Assessment: UoA 14 – Civil and Construction Engineering

a. Overview

This submission is from the School of Civil Engineering at the University of Birmingham. All staff within the School contribute to one or both of the overarching research themes; **Railway Engineering** and **Sustainability and Resilience**. The work on railway engineering is undertaken under the auspices of the Birmingham Centre for Railway Research and Education (BCRRE), an inter-disciplinary research centre mainly consisting of staff from the Schools of Civil Engineering and Electrical, Electronic and Computer Engineering, directed by Baker. The civil engineering aspects of this work include railway aerodynamics, geotechnics, climate resilience, asset management studies, and structural analysis of railway infrastructure such as bridges and switches. The work on Sustainability and Resilience includes water engineering and river management; utility service provision; buried infrastructure structural performance, assessment and mapping; transport (walking, cycling, roads, climate impacts); and extreme wind loads on buildings. This theme is overseen by Baniotopoulos and Rogers, the latter also leading a major multidisciplinary research programme on Sustainable Urban Environments with co-investigators from a number of other Schools within the University and from other HEIs. To support the work of the themes, all research staff within the School are also members of one or more research groups – **Fluid Mechanics, Environmental Engineering, Transport Engineering** and **Structural Engineering**. The groups provide a flexible structure that enables the School to respond to new, interdisciplinary research opportunities whilst also maintaining strong capabilities within the traditional sub disciplines of Civil Engineering. The School is part of the College of Engineering and Physical Science (EPS) which, through its nine Schools, incorporates all of the STEM subjects within one academic structure and provides seamless access to a wide variety of **facilities and intellectual capabilities**. This structure enables the School's research to grow and often acts as a catalyst for **innovative research solutions**

b. Research strategy

The School's **research vision** focusses on the *delivery of innovative interdisciplinary research via a centre of excellence which addresses the societal vital issues associated with urban infrastructure and environments in the 21st and 22nd centuries*. Underpinning this vision are two focussed **objectives**:

- to provide academic staff, research fellows and postgraduate researchers with the facilities, opportunities and resources such that their intellectual curiosity enables world-leading research to be undertaken.
- to ensure that the research undertaken within the School has significant impact upon, and is directed towards solving, key societal issues.

The vision and associated strategic objectives have enabled pioneering work by the School's staff (across all grades) to lead solutions in a variety of areas. For example, Rogers has led and continues to lead multiple RCUK and industry-funded, interdisciplinary projects that are moving us towards a paradigm shift in the embedding of resilience and sustainability into decision-making processes. Baker's research has transcended traditional subject boundaries and ensured that rail transport is considered as an integrated whole rather than a series of silos. Bridgeman's work on fluorescence spectroscopy has enabled the rapid assessment of water quality in disaster and poverty-stricken areas, the benefits of which will stretch into the future.

The above examples (drawn from a much larger pool) were possible as result of the School making a strategic decision to focus on two broad themes and noted areas of excellence which both have a crucial role in future societies: '**Railways**' and '**Sustainability and Resilience**'. The driving force behind the decision to was to provide an intellectually stimulating environment in which impactful research could be undertaken for the benefit of society. In addition, the School sought to maintain excellence around areas of research for which it had critical mass and an international reputation (e.g., Wind Engineering).

Building from the School's previous research base described in RAE 2008, the **railway engineering** theme encompasses aspects of the School's work on Smart Infrastructure Monitoring and Combined Engineering Computation together with the Railway Engineering work, whilst the

sustainability and resilience theme covers aspects of the work on Smart Infrastructure Monitoring and Combined Engineering Computation together with the work on Wind Engineering and Sustainable Engineering. Research in Sustainability and Resilience has also proved a **catalyst for multidisciplinary research** across the University. Investment in new staff is already starting to bear fruit in this area and from the research proposals currently under consideration with RCUK, Europe and Industry the school envisages a diversification in its research portfolio in terms of funder and investigator. As outlined below, the School has been successful in increasing the entrepreneurial activities of its staff and expects to see further expansion of such activities.

Sustainability and Resilience has flourished under two primary themes: sustainable urban regeneration, embracing utility service provision and mobilities, and buried and surface infrastructures. These areas of strength have grown substantially over the review period and each has exemplary cross-disciplinary, multi-institution collaboration which, at its most effective, is resulting in **trans-disciplinary research**. The sustainability research, led by Rogers, has included social and environmental scientists, architects, ecologists, economists, psychologists and political scientists alongside engineers of various disciplines, has produced outputs of major practical importance (e.g. *Designing Resilient Cities*, BRE IHS Press), is generating politically informing outputs (e.g. Birmingham *Future Cities* Policy Commission, chaired by Lord Shipley; Rogers is the Academic Lead), is informing city practices (Birmingham City's Smart Commission, Green Commission, mini-Stern Review) and institutional practices (Rogers chairs the ICE Futures Group) and is reaching out internationally (e.g. shaping Milan's policy of decentralisation via the *Urban Futures* methodology). While the buried infrastructure research combines the same wide range of disciplines, the utility mapping and infrastructure assessment research is limited to a variety of physical sciences and engineering disciplines, allied to archaeology.

The railway engineering research theme has made a major contribution to the Birmingham Centre for Railway Research and Education, which is the largest railway research group in the UK and one of the largest in Europe. Its mission is to carry out high quality fundamental and applied research relevant to the UK and international railway industries. This centre enables holistic, impactful research to be undertaken and ensures that staff at Birmingham continue to drive forward the **railway research agenda**, in line with the railway technical and research strategies approved by the industry's Technical Strategy and Leadership Group. Significant investment from the University is planned to expand and further increase the internationalisation agenda of this group. This investment is in the form of appointments (at all levels) with a view to increase the current turnover to £5m pa. by the 2015/2016 financial year. Advanced discussions are underway with a number of strategic partners which will ensure that the planned growth is sustainable.

Whilst working within our recognized areas of strength, the two strategic themes also enable the School to play a fundamental role in the University's research strategy. Working under the Energy at Birmingham initiative (an interdisciplinary multi school research theme encompassing energy generation and demand, affecting all parts of our environment, from ecology and hydrogeology to atmosphere and air pollution, in urban and natural environments, where we assess how we design and adapt our cities to minimise negative impacts and to cope with our energy infrastructures), the School plays the leading role in the areas of railways and roads, in addition to developing work in Sustainable Energy. This theme not only enables a holistic view of the energy research at Birmingham to be developed but dovetails with the resilience research undertaken in the School. The University initiative also provides a forum in which challenging research issues can be tackled by a wide variety of people who bring expertise from their appropriate disciplines.

As outlined in section (c), the School has invested heavily to attract both **established and emerging talent** to support its research, in order that it should retain its position as a leading centre and destination of choice for world-leading research in the two cross-cutting themes. Whilst broad-ranging and multidisciplinary in nature, the School has played a pivotal role in the development and ongoing success of University-wide research in these areas, particularly in studies of transport resilience in a changing climate, and of sustainable urban environments, through collaborations with other Schools such as Geography, Earth & Environmental Science, and the Business School.

The School's two overarching themes are supported by four research groups; Fluid Mechanics (7 people), Environmental Engineering (7 people), Transport Engineering (5 people) and Structural

Environment template (REF5)

Engineering (6 people). Some staff operate flexibly within more than one research group to service both of the cross-cutting themes. This enables the School to respond quickly to new initiatives whilst also maintaining a robust and stable performance in underpinning activities (e.g., Bridgeman's collaborations with the School of Geography, Earth & Environmental Science related to fluorescence spectroscopic water quality analysis). This approach means we are able to utilise our core disciplinary skills and expertise in order to develop, maintain and enhance our cross-cutting research themes. These themes impact significantly upon the built and natural environments, and our work helps to improve the standard of living for the general public. Thus, whilst being careful to respect and maintain our core strengths, we have developed a strategy which enables us to apply those disciplinary strengths to some of the most challenging multi-disciplinary issues facing 21st and 22nd century societies, such as climate change and requirements for urban stability.

The success of this strategy is apparent in the manner in which the research grant funding has been maintained during recent years and in the increased number of research students over the REF period. Over the last three years, new grant awards (not yet fully reflected in the REF4 figures), has increased - £1.09m in 2010/11, £2.87m in 2011/12 and £4.27m in 2012/13 (recent intelligence suggests this trend will continue into 2013/14 and beyond). What is not included in these figures are the entrepreneurial activities of staff. For example, Burrow has attracted £1.56 million since 2008 from non-governmental organisations, such as the World Bank, African, Asian and Caribbean Development Banks. This funding has resulted in research dissemination and training of senior industrialists through the School's Senior Road Executives Programme. This example illustrates how the research environment created within the School enables new initiatives to develop and encourages academics to consider impact widely.

c. People

i. Staffing policy and staff development

The staffing policy of the School is focused on **recruiting high quality** engineers with either a proven track record of research, or evidence of an exceptional ability to excel in research and teaching. Each member of staff is part of a research group and appointments have been made in most of the research groups since the last RAE (see below).

Fluid Mechanics. Wind Engineering is an acknowledged strength at Birmingham (forming the dominant part of the Fluid Mechanics research group) and the appointments of Baniotopoulos and Matinez-Vazquez (although primarily members of the Structures group – see below), have strengthened the group's expertise in the areas of structural wind loading and wind energy. Hemida was appointed, as part of a BCRRE investment case, to extend the group's capabilities in terms of numerical simulations. The part time appointment of Letchford (from Rensselaer Polytechnic, NY) has also enhanced the full scale and physical model scale research in this area and has provided access to large scale, unique facilities in North America. Also, Sharifi (from The Catholic University of America) has been appointed as a lecturer in Water Engineering to further strengthen and diversify the School's capabilities. Sharifi brings expertise in the form of hydro-environmental modelling using Bayesian parameter estimation. This appointment brings new breadth to the work of the group and fills a research gap in groundwater flow. The School has continued to nurture its staff in this area as evident in the promotion of Sterling to chair (L in 2007) and Quinn to SL (L in in 2010).

Environmental Engineering. Excellent early career researchers in the form of Royal and Hunt have been appointed to join this strong research group headed by Jefferson. Also, members of this group have been promoted as their research profiles continue to grow (e.g. Bridgeman from SL to Chair, Metje and Carliell-Marquet from L to SL). Thus, a sustained approach to continuing career development has been established and has strengthened the School's links with Physics (through Metje and a joint EPSRC award EP/I036877/1) and Chemical Engineering and Biosciences (via Carliell-Marquet).

Structural Engineering. The appointments of Baniotopoulos (Professor of Sustainable Energy Systems), Letchford, Dirar, Ling and Martinez-Vazquez have strengthened this research group significantly and have provided cross cutting capabilities with the FM group. Baniotopoulos (from the University of Thessalonica), is an expert in steel structures with particular emphasis on wind

Environment template (REF5)

energy, Dirar (from the University of Cambridge), Martinez-Vazquez (National University of Mexico) and Ling (from the University Technology of Malaysia) are early career researchers with promise and have opened up new areas of research, e.g., the integration of phase change materials with concrete.

Transport Engineering. Transport Engineering has seen investment in the form of Tight (Professor of Transport, Energy & Environment from ITS Leeds) to lead the successful (non-railways related) activities within the School. Tight provides an added dimension to the group's acknowledged strength in mainstream civil engineering and has enabled a variety of new collaborations and funding opportunities to be realised, specifically in the developing fields of cycling and walking. (Tight is lead on a large multi University multi industry RCUK proposal). Resources have been invested to enable this group to grow its entrepreneurial activities (see (b)) in order to ensure its continued success and future growth.

Career Development for academic staff and PDRFs

In 2010-11 the University reviewed the opportunities and general environment for research staff at Birmingham and implemented an action plan that includes recruitment and retention, career development and equality and diversity to ensure that the Concordat to Support the Career Development of Researchers is delivered. The University also provides central funds to enable maternity and paternity cover, which helps to ensure that staff do not feel pressurised in returning to work early under such circumstances.

For the School, career development is an issue of high priority and is embedded within the development plan of all staff. The School's success in obtaining research funding has required it to **recruit and retain** excellent PDRFs. This approach is part of the School's culture and is evidenced by Hemida, Hunt, Quinn, Martinez-Vazquez, Sterling, Metje and Tang (i.e., 30% of the current academic staff) having once been PDRFs in the School - Sterling is now Head of School indicating the quality of such appointments. The School prides itself on the level of support given to early-career researchers, as evidenced by their rates of publication and rapid career development (e.g., 174 citations listed by Google Scholar for Ling since 2008). In addition to the project specific training opportunities, PDRFs and recently-appointed members of staff are able to register for development courses provided by the University in a range of subjects including presentation skills, scientific writing, leadership development, academic management, project management, industrial engagement, IPR, writing grant applications, ethics and research governance, as well as a variety of teaching methodology courses that can lead to externally accredited teaching qualifications. All staff have attended courses, with 10 having achieved Fellowship of the Higher Education Academy.

All staff within the School are provided with a **mentor**, whose aim is to discuss in an informal manner a variety of issues including career development. All members of academic staff participate in a yearly review that covers a variety of aspects including career development. This review is undertaken by either the Head of School or the Head of College. The School employs a **transparent** work-load model which allocates time between research, teaching and development. Where specific development opportunities arise, these are dealt with via a flexible approach outside of the work-load model.

The University has a strong commitment to **equality and diversity**, as evidenced through its Equality Scheme and membership of organisations such as the Athena SWAN Charter (Bronze membership) and Stonewall. The University has staff groups for disabled, LGBT and minority ethnic staff, which are promoted to staff at induction and through the intranet. There is evidence to illustrate that such support works - senior positions within the School are held by staff who fall into one of the aforementioned categories. All staff are expected to complete an online equality and diversity training programme.

The School is flexible with its resources and has used resources generated from external income to create headroom for academics in order to undertake development opportunities, for example by buying in short term cover for specific activities. Female members of staff have access to a senior female academic mentor outside the School, and there is flexibility in the scheduling of meetings and teaching hours to accommodate caring responsibilities. In addition to this, female academic staff have been encouraged to attend a series of College focus groups with the aim of identifying barriers to career progression. This has led to the development of a College Academic Women's

Network, offering personal and professional development activities, such as promotions workshops. Our **Athena SWAN** commitment is also highlighted in the “further particulars” for our research and academic vacancies and the School’s recent award of Bronze membership. The School works hard to ensure that all staff have the appropriate support to ensure that their careers flourish irrespective of race, gender or creed.

ii. Research students

Research students in the School are recruited on the basis of **academic excellence**. In line with the recommendations of the Woolf Report and QAA Quality Code B11, all students are required to have an undergraduate degree, usually with class 2:1 or equivalent in a relevant subject or a relevant master's qualification, and all are interviewed prior to appointment. Students are funded from a variety of sources, including EPSRC Doctoral Training Grant, industrial CASE awards, and overseas funding agencies. **University scholarships** are available for highly qualified students on a competitive basis. These scholarships are from two sources – those allocated directly to the School and those allocated on a competitive basis within the College of EPS. The School has a history of success in attracting high quality students to both.

The School values its close links with industry partners (e.g., Network Rail partner university rolling research grant for Railways research across a number of Schools) and so is able to source cash and in-kind support from these partners, and encourages close liaison, including periods of secondment, with industry. Research student progress is monitored closely throughout the period of registration. The School’s QA procedures require that all research students have a written record of at least one formal meeting with their supervisors every four weeks. In reality, the degree of interaction between supervisors and students is far greater than that. All research students are assessed formally by academics other than their supervisors on an annual basis, via written report and viva. PhD students are only permitted to proceed to the following year of study on completion of a successful annual review. The University has a University Graduate School (<http://www.graduateschool.bham.ac.uk/>) which coordinates a strong central programme of development opportunities in key transferable skill areas (e.g. project management, entrepreneurial skills, academic writing). These central activities support and complement those of the College and more subject specific provision made available to PhD students. All research students are strongly encouraged to attend appropriate courses.

The College of Engineering and Physical Sciences Graduate School (directed by Bridgeman) uses its Postgraduate Development Fund allocation to support a wide range of College, School and PhD student-run activities and training events. In 2010, the School of Civil Engineering (via Bridgeman and others) undertook a complete redesign of the PhD student training within the School. As a result, an integrated programme of training specifically aimed at PhD students in the School was developed with training composed of ten discrete but linked elements, starting with a “How to get a PhD” session for new students, followed by sessions on The Annual Review, Information Retrieval, Critical Reading, Writing Good Journal Papers, Research Methodology, Data Analysis and Interpretation, Writing up and the Viva, a two day School PGR conference, and a career development session run with the University Careers Service. In addition, the School also operates a PhD student-led external seminar series, where students are responsible for sourcing and hosting eminent external speakers, and a presentation skills competition.

As a result of attracting high quality students, high quality research supervision and the training outlined above, the School’s postgraduate students have a history of excelling. For example:

- **Spinout companies.** Two researchers within the School, Cooper (EPSRC CASE studentship) and Orozco (PDRF), registered a spin out private limited company “Resource Recovery Technologies Limited” on 13 August 2013 through the B-SEEN programme (<http://www.b-seen.biz/>).
- **Prizes.** Runthankit and Liu won an IStructE prize in 2010 and 2011 respectively; Smith and Oikonimidis were awarded the ICE Robert Alfred Carr Prize for Best Paper (Oct 2011).
- Ishaq and Roussel wrote successful KTS proposals and are now spending 12 months seconded to industry.

d. Income, infrastructure and facilities

Specialist infrastructure and facilities

The School has invested in its physical infrastructure to support the Fluid Mechanics group including: the recent construction of an atmospheric boundary layer wind tunnel; a transient wind

Environment template (REF5)

simulator (constructed using funds obtained from the **Royal Society** and the largest facility of this kind in the world); a wind engineering field site in Bedfordshire which contains two full-scale, fully instrumented low-rise buildings (enabling full-scale measurements to be undertaken); an internationally unique moving model aerodynamics facility (<http://www.youtube.com/watch?v=8dqh936Bp-I>) which is capable of firing 1:25 scale model trains at 80 m/s; and PIV instrumentation and extensive state of the art acoustic Doppler current profiler instrumentation for flow measurement at laboratory and full scales.

For Geotechnics, research specialist facilities include a test pit for the testing of railway track formations. The Mapping the Underworld (MTU) project has resulted in the development a **£2m national test facility** created by the University's partner, JK Guest, for underground utility mapping, that will be extended to accommodate research activities for the ongoing Assessing the Underworld project. The aim of the facility is to upskill practitioners as well as to provide testing facilities for the MTU team. MTU assisted JK Guest with the development of NVQ accredited skills modules, which were released in June 2012. Hence, the greatest effect and benefit for the construction industry as a whole has been to allow these companies to measure the competence of the individuals and companies they employ to carry out their surveys, whilst providing a unique research facility for academic investigators.

The School will benefit from the University's **£175m transformation** of its historic Edgbaston campus. The investment will include a new library which will benefit staff and students by ensuring access to research information in a state of art environment. Also, the investment in a new sports centre is likely to have positive benefits for the School's research (e.g., Sterling and Hamedia are currently working with colleagues in the School of Sport and Exercise Science on cycle aerodynamics).

Research funding portfolio and plans

Working within the cross-cutting themes of Railways and Resilience, staff have secured some notable successes in terms of grant income and associated indications of major and influential global research presence. As a result of these successes, the School is supported by core funding (see section (a)) drawn from EPSRC, EU and many industrial companies and bodies. Recent awards suggest that, even in the current challenging period for research funding, the average annual income will continue at and above this level until mid-2017 as a result of baseline funding already secured.

The University is one of four Network Rail Partner Universities, with a specialisation in the field of data optimisation and analysis. Within the Birmingham Centre for Railway Research and Education, the rolling research grant income is around **£3m per annum** (which includes income from its constituent Schools of Civil Engineering, Electrical, Electronic and Computer Engineering and Materials and Metallurgy), and is increasing. A range of new funding mechanisms are becoming available for railway research (the DfT / TSB Enabling Innovation fund, the Transport Catapult Centre, the SHIFT²RAIL EU technological platform) and the prospects for future income in this field are bright. Major civil engineering-based research grants gained by BCRRE in the current REF period include the EU sponsored AeroTRAIN project looking at a wide range of train infrastructure aerodynamic issues, the EPSRC sponsored FUTURENET project, investigating aspects of transport resilience in a changing climate, and industrially sponsored work on novel track forms for the Crossrail project. There are many **opportunities to expand** this research portfolio, both in the UK with the developments of formal partnerships with industrial partners and internationally where partnerships are being formed with organisations and institutions in China (Beijing Jiaotong University, Central South University and Hefei province). It is envisaged that these partnerships will expand the work of the centre in most of its current areas of technical expertise.

The Sustainability and Resilience portfolio of research has grown strongly, with Assessing the Underworld being supported by 63 formal project partners committing in-kind support of more than **£16m**, its annual events consistently attracting >100 delegates and staff members being consulted on government directions (Rogers invitations to the Armitage Review Roundtable, BIS CISAC Futures Group on the Construction industry in 2050). Both of these areas of research are attracting major interest internationally, and particularly from Europe where a number of partnerships and bids are being formulated such that this growth in RCUK funding can be extended by funding from EU (i.e.

to build on the current Marie Curie award) and other sources.

Consultancies and Professional Services

Much of the applied work of the School, being at a high level and containing a significant research element, is carried out through normal research contract procedures. However, the University allows each member of staff, with suitable permission, to carry out private consultancy work. This is usually done through the University's consultancy firm Alta Innovations. Such work enables staff to stay in close touch with practical issues in their discipline and is of value to both further research and teaching. Notable recent examples include advice offered for the calculation of wind forces on a Hong Kong MTU train (Hemida), wind measurements made at the Olympic Stadium (Quinn), the re-design of HMS Ltd asset management software (Burrow), advice on road sector reforms to the Caribbean Development Bank (Burrow); Expert witness advice to Wakefield Coroner (Baker) and advice on wind tunnel testing of trains to RSSB (Baker).

e. Collaboration or contribution to the discipline or research base

Research collaborations

The School of Civil Engineering makes a substantial contribution to the research base of the discipline in a number of ways. It has active international collaborations with a range of university partners – Central South University, Changsha (Train aerodynamics - Baker, Hemida), University of Auckland (Wind Engineering - Sterling); University of South Australia (Water treatment - Bridgeman); TERI University New Dehli (Wastewater treatment – Carliell-Marquet), ETH Zurich (Wastewater treatment – Carliell-Marquet); LTU Lulea University of Technology (Wind Energy Structures – Baniotopoulos); Concordia University Montreal (Wind Engineering - Baniotopoulos); together with a very wide range of academic and industrial contacts and partnerships through EU funded projects. In the UK the School has a wide range of collaborative partnerships with many Universities and industrial bodies, including the Universities of Bath, Birmingham City, Bradford, Cambridge, Coventry, Exeter, Lancaster, Leeds, Loughborough, Manchester, Nottingham, Strathclyde, Sheffield, Southampton, Winchester, HR, BGS and TRL. The above are selected examples from its wide portfolio to give an indication of the School's diversity.

Interdisciplinary activities

In interdisciplinary terms the School leads a number of research activities that are very broad in scope involving specialists from a wide range of disciplines. Of particular note are Sustainable Regeneration: from Evidence-based Urban Futures to Implementation (EPSRC - £3.2m – Rogers); Liveable cities (EPSRC £6.1m – Rogers); Mapping the Underworld and Assessing the Underworld (EPSRC £5.8m, Rogers, Metje, Chapman and Jefferson). Future Resilient Transport Networks (EPSRC / ARCC £1.5m Baker, Quinn), Assessing the Underworld (EPSRC £5.9m – Rogers); iBUILD (ESRC/EPSRC £3.5m Rogers, Baker). The work of BCRRE is also very diverse and multi-disciplinary, with Civil Engineering staff working closely with staff from a range of other railway related disciplines.

Leadership in the academic community

Conference chairs.

- Baker - International Workshop on Train Aerodynamics, Birmingham 2012.
- Baniotopoulos - Strengthening and rehabilitation interventions in modern and historical buildings using structural steel – an international workshop, JUST, Irbid, 2009.
- Bridgeman - Conference of the UK Network on Potable Water Treatment and Supply; Cheltenham 2011.
- Rogers - International Conference on Ground Penetrating Radar, Birmingham 2008.
- Sterling - European and African Conference on Wind Engineering, Cambridge 2013 (and guest editorship of a special edition of the Journal of Wind Engineering and Industrial Aerodynamics containing selected papers from the conference proceedings).

Journal editorships.

- Bridgeman - editor of the Water and Environmental Journal and Water and Asset Management International, former editor of Water Science and Technology, founding editor of the Water Journal, former Vice Chair of the Editorial panel for the ICE – Water Management.
- Jefferson - the Vice Chair of the ICE Ground Improvement Journal.

Environment template (REF5)

- Rogers is one of three editors, and Chapman and Quinn are associate editors of Tunnelling and Underground Space Technology.
- Sterling has acted as guest editor for a Special Edition of Proceedings of ICE - Structures and Buildings Journal.
- Tight acted as guest editor for a Special Edition of the Journal of the Built Environment.

Conference keynotes.

- Baker - Bluff Body Aerodynamics and its Applications Conference, Milan 2008, International Conference on Wind Engineering, Amsterdam 2011.
- Bridgeman - 7th International Conference on Intelligent Sensors, Sensor Networks and Information Processing, Adelaide, 2011, 13th International Conference on Civil, Structural and Environmental Engineering Computing, Chania, Crete, 2011.
- Chapman- International No-Dig Seminar in Taichung, Taiwan 2010.
- Jefferson -Underground City 2012 Forum, St Petersburg, Russia June 2012.
- Metje - Transportation Research Board 2012.
- Sterling - 6th International Symposium on Environmental Effects on Building and People: Actions, Influences, Interactions, Discomfort – EEBP VI. Cracow, 2010; 2nd Latin American conference on Wind Engineering. La Plata, Argentina 2012.
- Tight - Walk21 Conference (Getting Communities back on their feet), The Hague, 2010.

Advice to Government

- Schmid - “Master classes” in Railway systems Engineering and Operations in a variety of high level contexts including for Sir Roy McNulty in his investigations of the performance of the GB rail industry (2009) and at Etihad Railway Headquarters (2011).

Guest Professorships

- Baker – Central South University, China and Tokyo Polytechnic University.
- Schmid - École Nationale des Ponts et Chaussées, Marne-la-Vallée, France, École Supérieure des Cadres de l'Infrastructure of SNCF, St. Denis, France.

Prizes

- Baker - SAGE prize for best paper in Journal of Engineering Science 2010.
- Carliell–Marquet - ICE Robert Alfred Carr Prize for Best Paper in 2011 in Proceedings of the Institution of Civil Engineers: Water Management.
- Tang - Harold Jan Schoemaker Award (for best outstanding paper published in the Journal of Hydraulics research 2009 and Telford Premium (ICE) in 2009.

National and International Committees

- Baker - CEN working group on Climatic actions; Scientific Advisory Committee of CISIT International Campus on Safety and Intermodality in Transportation, Valenciennes (Chair); Advisory Group on Research in the Rail Industry; DfT committee on climate change in the Railway Industry (Chair); UNECE Expert panel on the effects of climate change on international travel networks.
- Baniotopoulos - Steel Advisory Group of the Research Fund for Coal and Steel (RFCS) of the EC; IKY Committee for CERN (Chair).
- Bridgeman - ICE Water Expert Panel (Vice Chair); IWA Specialist Group on Design, Operation and Maintenance of Drinking Water Treatment Plants (Secretary), IWA Specialist Group on Strategic Asset Management (Vice Chair).
- Chapman - Technical Committee 204 ‘Underground Construction in Soft Ground’, International Society of Soil Mechanics and Geotechnical Engineering (Secretary).
- Jefferson - International Association of Engineering Geology (Vice President); Commission C18 of the International Association of Engineering Geology (Chairman).
- Quinn - DfT committee on climate change in the Railway Industry (Secretary).
- Rogers - ICE Research and Innovation Panel (Chair); EPSRC Implementation Group for Shaping Capability.
- Schmid - Systems Expert Panel for the Crossrail project in London..
- Sterling – Executive Committee of the International Association of Wind Engineering. Vice president (and president elect) Wind Engineering Society (Associated Society of the ICE).