RESEARCH FELLOW

DEPARTMENT/UNIT
Department of Civil Engineering

FACULTY/DIVISION
Faculty of Engineering

CLASSIFICATION
Level A

WORK LOCATION
Clayton campus

ORGANISATIONAL CONTEXT
Everyone needs a platform to launch a satisfying career. At Monash, we give you the space and support to take your career in all kinds of exciting new directions. You’ll have access to quality research, infrastructure and learning facilities, opportunities to collaborate internationally, as well as the grants you’ll need to publish your work. We’re a university full of energetic and enthusiastic minds, driven to challenge what’s expected, expand what we know, and learn from other inspiring, empowering thinkers. Discover more at www.monash.edu.

The Faculty of Engineering is one of the best in Australia, renowned worldwide for the quality and calibre of our teaching, research and graduates. We offer a comprehensive range of undergraduate, graduate, postgraduate and higher degree by research programs in a wide range of engineering disciplines. Our research activities provide a platform for establishing a thriving educational enterprise and our staff are committed to creating a dynamic learning environment. The research activities range from fundamental studies to research with a strong applications orientation. To learn more about the Faculty of Engineering, please visit our website.

The Department aims to provide high quality Civil Engineering education, research and professional services globally for the mutual benefit of the students, the staff, the University, industry, the profession and the wider community. We offer several undergraduate degrees as well as postgraduate coursework degrees via Off-Campus Learning. The Department actively pursues innovative and significant multi-disciplinary research to address the challenges for engineering in the 21st century. For more information about us and the work we do, please visit our website.

Smart Pavements Australia Research Collaboration (SPARC Hub) is a partnership between Monash and 7 other Australian Universities and 20+ Industry Partners. SPARC Hub is embarking on a range of exciting research projects focused on innovative pavement materials and modelling, smart pavement construction and rehabilitation systems, environmental footprint minimisation, advanced pavement condition assessment techniques, and future transport demand and safety including autonomous vehicles adaptation. The Hub comprises newly established research teams lead by excellent researchers in pavements with many national and international collaborations.
POSITION PURPOSE
The Research Fellow will work in unbound and subgrade material related projects within the ARC Smart Pavements Hub – SPARC. The objective of the project is to develop suitable models for unbound and subgrade materials by incorporating both climatic effects (including moisture variation) and a suitable laboratory-to-field shift factor for the better prediction of in-service life of pavement layers subjected to repeated heavy traffic loading. The Research Fellow performs and oversees a range of significant and complex research activities that play a critical role in supporting the achievement of the advancement and innovation in the development of suitable models for unbound and subgrade materials. This includes managing, overseeing and undertaking tasks such as drafting and preparing research papers, undertaking fundamental research, developing research protocols and procedures, undertaking complex modelling and analysis, laboratory and field experiments, case studies and investigations, supervision assistance of postgraduates and undergraduates, providing expert advice and training, writing complex procedures and testing, while ensuring a compliant and safe research environment. The Research Fellow is expected to be able to carry out independent research under the supervision of the lead chief investigator (LCI).

Reporting Line: The position reports to SPARC Hub Director

Supervisory Responsibilities: Not applicable

Financial Delegation: Not applicable

Budgetary Responsibilities: Not applicable

KEY RESPONSIBILITIES
Specific duties required of a Level A research-only academic may include:

1. Plan and manage a research program or projects including applying research methodology, managing risks, study design, execution of experiments, theoretical development, modelling and data analysis, interpretation of results and reporting to meet study objectives, research protocols, timeframes and regulatory compliance requirements

2. Management of multiple research projects on unbound and subgrade materials to deliver high-quality research outputs and presentation of results to SPARC Hub industry partners and liaise on Research & Development activities

3. Limited administrative functions primarily connected with the SPARC Hub activities

4. Development and contribution to; papers for publication, research or technical procedures, grant applications, reports, literature reviews, data analysis and supporting patenting, copyright or licensing activity

5. Occasional contributions to teaching in relation to their research project(s)

6. Experimental design and operation of advanced laboratory and technical equipment or conduct of advanced constitutive modelling and analysis

7. Attendance at meetings associated with research or the work of the organisational unit to which the research is connected

8. Develop, pursue and maintain strong partnerships, collaborations and networks with academic and other staff, relevant research bodies, SPARC Hub industry partners, service providers and functional areas

9. Involvement in professional activities including, subject to availability of funds, attendance at conferences and seminars in the field of expertise

10. Provision of advice and support within the field of the staff member’s research to postgraduate and undergraduate students
KEY SELECTION CRITERIA

Education/Qualifications

1. The appointee will have:
   - A doctoral qualification in Civil Engineering, Materials Engineering, Geotechnical Engineering or a closely related field with extensive relevant experience

Knowledge and Skills

2. Extensive research experience in numerical modelling of soil (or unbound granular material) subjected cyclic loading along with the provision of expert, strategic advice, leadership, large scale testing and analysis and consulting at the highest levels
3. Demonstrated computer literacy and proficiency in the production of high-level work using software such as MATLAB and specified University software programs, with the capability and willingness to learn new packages as appropriate
4. Experience in implementation of constitutive models in numerical schemes such as finite element method
5. Ability to solve complex problems by using discretion, innovation and the exercise diagnostic skills, and expertise in the relevant field
6. Demonstrated analytical and manuscript preparation skills; including a solid track record of relevant research publications in reputable journals
7. Well-developed planning and organisational skills, with the ability to prioritise multiple tasks and set and meet deadlines while working under pressure in a large, complex project
8. Excellent written communication and verbal communication skills with proven ability to produce clear, succinct reports and documents and ability to work independently
9. A demonstrated awareness of the principles of confidentiality, privacy and information handling
10. A demonstrated capacity to work in a collegiate manner with other staff and students in the SPARC Hub

OTHER JOB-RELATED INFORMATION

- Travel to other campuses of the University may be required
- There may be a requirement to work additional hours from time to time
- There may be peak periods of work during which taking of leave may be restricted
- Travel to SPARC Hub local/overseas partners may be required
- Participation at various SPARC Hub events will be required

LEGAL COMPLIANCE

Ensure you are aware of and adhere to legislation and University policy relevant to the duties undertaken, including: Equal Employment Opportunity, supporting equity and fairness; Occupational Health and Safety, supporting a safe workplace; Conflict of Interest (including Conflict of Interest in Research); Paid Outside Work; Privacy; Research Conduct; and Staff/Student Relationships.