## TSC Category
Discipline Engineering Specialisation

## TSC
Geotechnical Engineering Management

## TSC Description
Manage the design, technical specification, selection, modification and troubleshooting of geotechnical equipment, structures and systems to provide geotechnical engineering discipline support to construction, maintenance and project teams

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<tr>
<th>TSC Proficiency Description</th>
<th>Level 1</th>
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<tbody>
<tr>
<td>Interpret designs, technical specifications, modification designs, constructability methods, and maintenance procedures to provide geotechnical engineering support to construction, maintenance and project teams</td>
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## Knowledge

- Local and international geotechnical engineering standards and regulations
- Geotechnical, civil and structural engineering principles and concepts
- Geotechnical drawings, site plans and maps
- Principles of geotechnical investigations and monitoring
- Principles of geotechnical constitutive modelling
- Principles of ground engineering and ground improvement
- Pile foundation and earth retaining structures principles and concepts
- Building and damage impact assessment
- Geotechnical engineering technology
- Principles of sustainability in geotechnical engineering
- Local and international geotechnical engineering standards and regulations
- Geotechnical design review principles
- Geophysical methods and geotechnical analysis and monitoring methods
- Advanced ground improvement principles and concepts
- Analytical and numerical methods in foundation engineering
- Principles of pile foundation design, problems and impact
- Principles of underground space, excavation methods and support systems
- Construction equipment and methods
- Principles of construction project management
- Local and international geotechnical engineering standards and regulations
- Geotechnical construction and maintenance strategies
- Geotechnical design and modification practices
- Principles of project quality management
- Principles of environmental planning
- Concepts of hazard identification and evaluation
- Principles of robotics technology and application
- Industry best practices in civil and structural engineering

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### Abilities

- Select and apply appropriate geotechnical standards and regulations
- Analyse geotechnical designs including plans, drawings and specifications
- Validate site sampling and in-situ testing
- Interpret site features and geotechnical conditions
- Analyse soil behaviours, soil mechanics and earth pressure
- Select excavation methods, ground improvement techniques, and field evaluation and specifications
- Design rigid and flexible earth retaining structures and deep supported excavations
- Apply construction methodologies and technologies
- Incorporate green practices to ensure sustainability in geotechnical works for pollution control, and energy, waste and noise management

### Technical Skills & Competencies (TSC) Reference

- Principles of hazard and environmental risk assessment
- Validate compliance of geotechnical works with legislative requirements and safety standards
- Review, validate or re-validate designs for geotechnical works
- Recommend site sampling and testing equipment and materials, and validate results
- Validate site features and geotechnical conditions
- Recommend appropriate methods and techniques for ground improvement
- Recommend appropriate methods and techniques for excavation and trenches
- Provide engineering support for selection of suitable construction methods and technologies depending on the site condition, time and cost
- Validate design and construction of geotechnical works against environmental risk and hazards
- Manage the development and implementation of organisational safe working procedures
- Provide discipline engineering support for engineering, construction and maintenance of geotechnical works
- Set organisational safety standards for geotechnical works
- Endorse geotechnical designs including plans, drawings and specifications
- Review and endorse designs and technology selection for geotechnical works
- Provide expertise to ensure adherence to safety regulations and mitigation of hazards associated with geotechnical works
- Strategise planning processes, policies and design methods to minimise environmental issues and problems
- Review and endorse quality of geotechnical works
- Drive adoption of geotechnical engineering technology and robotics in the organisation based on industry best practices
- Review and endorse the organisational safe working procedures