



Name:

Dr. Burt Look

Contact details:

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Areas of expertise:

Earthworks and compaction; Subgrade assessment; Characterisation of soil and rock properties; Expansive Clays; Ground Improvements; Bridge foundations; Slopes and landslides; Retention Systems; Buried Pipes; Geotechnical assessment; Risk assessment, Queensland site characterisation, Geotechnical concept designs.

Post Nominals

BSc, MSc, DIC, PhD, DGE, FIEAust, NPER, CPENG, MAGS, MASCE, PE, RPEQ.

Qualifications:

- BSc (Honours) Civil Engineering, 1982, University of the West Indies
- MSc Soil Mechanics and Engineering Seismology, 1985, University of London
- DIC (Diploma of Imperial College), 1985, Imperial College of Science and Technology, London
- PhD Civil Engineering, 1996, The University of Queensland
- Graduate Certificate in Philosophy (Critical Thinking), 2001, The University of Queensland

Professional Memberships & Affiliations:

- Fellow of the Institution of Engineers of Australia (FIEAust) ; Chartered Professional Engineer (CPENG)
- Member of the Australian Geomechanics Society (MAGS); Member of the International Society for Soil Mechanics and Foundation Engineering
- Member of the American Society of Civil Engineers (MASCE); Professional Engineer (PE)
- Registered Professional Engineer of Queensland, RPEQ
- Past Chairman of the Queensland Chapter, Australian Geomechanics Society (1999-2000); Chairman (2004–07) of Organising Committee for 10th Australia – New Zealand Conference in Geomechanics, Brisbane 2007

Honors and Awards:

- Queensland Professional Engineer of the year 2014
- Finalist Australia Professional Engineer of the year 2014
- Diplomate of Geotechnical Engineering (DGE) – Academy of Geo Professionals
- Technical Excellence and innovation – 2013 Regional Winner SKM (now Jacobs)

Career Overview:

Dr Burt Look has 33 years professional Engineering experience with his early years in structural designs and civil works. He has over 30 years specialisation in geotechnics, and Queensland based for the past 27 years. He is widely recognised in the areas of earthworks, expansive clays, landslides, ground improvement, buried pipes, risk assessment and site characterisation, and has been called upon as an expert witness in some of these areas. He has introduced many innovations in testing and design in some of these areas which have been widely adopted in



various specifications and procedures within Queensland and Australia wide.

Burt has published 3 geotechnical engineering books and over 65 technical publications within Australia and internationally, and has been a regular invited speaker for IEust, and Industry lectures. He is the past Chairman of the Queensland Chapter of the Australian Geomechanics Society and a Fellow of The Institution of Engineers. He was previously the Practice Leader in SKM, and the Knowledge and Service Line Geotechnical Group leader at Aurecon. He is the 2014 Queensland Professional Engineer of the year. Burt is a strong advocate in learning and development and sharing of experiences. He has developed and presents “Earthworks” a 2 day course (2006 to 2014 and ongoing) for Engineering Education Australia (EEA), and over 1,000 professionals have attended to date. He has also developed and presents an associated 1 day course on “Earth Structures”.

Employment History

Foundation Specilaist Group Pty Ltd

2014 to current – Principal Geotechnical Engineer

Sinclair Knight Merz, Brisbane, Australia. (Acquired by Jacobs - December 2013)

2010 to 2014 – Executive and Principal Geotechnical Engineer; Practice Leader for global business and executive involved in business and technical development. Integration of geotechnical issues into design. Technical review and RPEQ sign of for final reports and designs.

Aurecon (formerly Connell Wagner), Brisbane, Australia.

1997 to 2010 - Project Engineer → Executive Associate → Senior Associate → Principal and Geotechnical Knowledge, Service and Delivery (KS&D) Group Leader responsible for developing the geotechnical business across Australia, New Zealand and south - east Asia. Staff management and Section Leader. Technical and project management of site investigation projects, establishing procedures and minimum acceptable standards in the extent and quality of any geotechnical work, coordinating the investigations, and the review of reports, and implementation of the geotechnical findings into the design. Technical review and RPEQ sign off on final reports and designs.

Soil Surveys Engineering Pty Ltd, Brisbane, Australia.

1996 to 1997 and 1988 to 1989 – Senior Geotechnical Engineer involved in investigation, reporting, and review of outgoing reports, mainly on site investigations and assessment.

Queensland Department of Transport and Main Roads, Brisbane, Australia

1989 to 1996 - Geotechnical Engineer (Materials and Development) involved in research and development for testing and specifications for roadwork projects as well as day-to-day design, analysis and reporting functions for major road developments on slope stability, subgrade assessments and foundations. Part time studies for the PhD degree at the University of Queensland.

Selected Major Projects:

Koo Wee Rup Bypass; Vic Roads and Lend Lease

Design Reviewer Geotechnical Engineer. Review of detailed design for soft ground treatment designs and associated drawings, working within a design and construct team. Required ground improvements included wick drains, surcharging and geotechnical instrumentation, which required integrating the site characteristics with varying heights of embankments as well as proximity to structures to minimise differential movement and total movements



North Coast Region Landslides; Queensland Transport and Main Roads

Lead Geotechnical Engineer. Lead team of engineers in the emergency works landslip repairs for the Queensland Main Roads. Many of these repairs occurred during a 3 month emergency phase following extensive 2011/2012 summer rainfalls. Project Manager responsible for the assessment, investigation and design of remedial measures for over 60 landslides. Subsequent detailed investigation, design and documentation for other high risk landslides not required in the emergency phase.

Gateway Upgrade South / South East Busway Extension (GUSBUS); Queensland Transport and Main Roads

Design Reviewer Geotechnical Engineer. Geotechnical Investigation and design reports associated with the underpass structures and driven pile bridge foundations, slope stability and remediation works. Implementation of Light Falling Weight Deflectometer (LFWD) as a construction QA control tool, where standard density control techniques were not applicable - a Queensland first

Gateway Upgrade Project; Queensland Transport and Main Roads

Technical Advisor. Geotechnical assessment for the EIS and planning phases. Evaluation of the ground improvement options in the area north of the Brisbane River. Evaluation of foundation options for the Gateway Bridge. Reliability based analysis for rock sockets and slope stability assessment. Assessment of Tender options. Technical Advisor to Queensland Motorway Limited for the detailed design and construction phase for the bridge and ground improvement design.

Trackstar rail upgrade – Caboolture to Beerburrum Upgrade (6km); Queensland Rail

Lead Geotechnical Engineer. Evaluation of subgrade conditions and earthworks design and specifications. Procedures to standardise proof roll testing. Beerwah Rail Overpass - Zoned embankment design and specification development to optimise usage of on-site materials

Bauhinia Regional Rail Upgrade; Abigroup

Lead Geotechnical Engineer. Coordination of geotechnical investigation for 110 km rail line study in Central Queensland, with over 24 bridges and underpasses. Design assessment of foundation conditions, cut slopes, embankments, and subgrade conditions.

Pacific Motorway Upgrade: Queensland Transport and Main Roads

Analysis and reporting of bridge foundation investigations. Geotechnical Investigation and Assessment. Pacific Motorway Upgrade: Analysis and reporting of bridge foundation investigations for Albert River, Oxenford Interchange, Foxwell Road, Hotham Creek, Coomera overflow Bridges, Nerang Broadbeach Interchange and Logan River. Geotechnical advice for bridge foundations, approach embankments and retaining walls

Redirection of Heroes Avenue Sewer Redirection and Sewage Pump Station; Brisbane City Council

Geotechnical Advisor. Investigating options for a rising main re-diversion pipeline approximately 4 km long. The re-diversion involved crossing the Brisbane River in two locations (400 m each) and directional drilling and pipe-jacking alternatives were considered. Assessment of slope stability and stabilisation of walls along a constrained pipeline corridor with known areas of instability along the Brisbane River. Preparation of a Geotechnical Baseline Report. Assessment of founding conditions, seepage cut-off for the South Brisbane side diaphragm wall with instrumentation requirements. Assessment, design input and construction monitoring of 30 m Shaft for a jacked tunnel below the Brisbane River.

Terrain evaluation of the S1 sewer alignment; Brisbane City Council

Geotechnical Advisor. Geology assessment led to shifting the alignment to optimise the tunnelling works, to avoid an alternating sequence of rock and alluvium and resulted in rock tunnel boring machines at one end and soft ground machines at the other end. Assessment of the ground movements due to tunnelling and groundwater lowering for the S1 sewer tunnel, Brisbane.



GS1B Mine Water Dam Remediation; BHP Billiton – Mitsubishi Alliance (BMA)

Lead Geotechnical Engineer. Remedial design of 7.5GL mine 18.5 m water storage dam. Assessment of material parameters and design sections to optimise capacity and reduce costs for remediation, including use of HDPE liner and various operational drawdown conditions

Red Mud Dam No. 2; Queensland Alumina Ltd (QAL)

Geotechnical Engineer. Safety Inspection for QAL Red Mud Dam No. 2 dam safety review prior to dam raising (1997 and 2000 for stages 4 and 5, respectively) for licensing requirements. Assessment of wall stability for dam wall raising: Involved selection of seismic design parameters, and included evaluation of the operational basis earthquake (OBE) and the maximum credible earthquake (MCE); attenuation from the seismic source zones to the site and analysis of the response of the dam to the OBE and MCE. Probability based analysis was also carried out for the slope stability modelling. Planning of geotechnical instrumentation, preparation of tender documents and evaluation of instrumentation tenders. Instrumentation was required to provide an early warning monitoring system to be in place and to monitor the effects of construction. Stress and deformation analysis was subsequently carried out to evaluate the likely response of the dam during the dam raising. Assessment of instrumentation monitoring of Dam response during loading (raising of dam wall and water levels). Seepage and slope stability assessment for a problem area identified from the inspections. Rectification measures based on the results of the analysis. For this operational dam, the design included a geosynthetic clay liner on the upstream slope face extending into a bentonite cut-off wall. The downstream face included a stabilising toe berm with a horizontal drainage blanket. Preparation of specifications for the cut-off slurry trench walls. Construction inspections. Stability assessment of the dam wall during earthquake events. Liquefaction assessment of tailings.

Confidential site; Carter Newell Lawyers

Expert Witness. Assessment for buried flexible pipes for a storm water treatment plant

Confidential site; Sparke Helmore Lawyers

Expert Witness. Assessment for a failed building on expansive clays. Compaction and permeability issues.

Confidential site; Carter Newell Lawyers

Expert Witness. Assessment for a partially failed retaining wall.

Port of Brisbane

Working Platforms for wicking machines on very soft ground

Landslide Zonation studies; Whitsunday Shire Council and Pine Rivers Shire Council

Geotechnical Advisor. Landslide Hazard Assessment for both Shires using GIS based methods

Landslip investigation; The University of Queensland

Geotechnical Engineer. Landslip investigation, analysis and design of remedial measures for the landslip on the Brisbane River at the University of Queensland. This included preparation of contract documents, and construction supervision.

Publications

- Look B G (1994), Introduction to Spreadsheet Geomechanics, Balkema Publishers.
- Look B G (2007), Handbook of Geotechnical Investigation and Design Tables, Taylor and Francis Publishers.
- Look B G (2014), Handbook of Geotechnical Investigation and Design Tables, 2nd edition Taylor and Francis Publishers
- Over 60 technical papers published to 2015