

PHILIP J. N. PELLIS

FTSE BSc(Eng) MSc DSc(Eng) DIC CPEng MASCE FIEAust

Educational Qualifications:

BSc (Eng), Cape Town, 1966
MSc (Eng), London, 1968
DIC (Soil Mechanics), London, 1968
DSc(Eng), Cape Town, 1993

Professional Associations:

Fellow, Engineers Australia
Fellow Australian Academy of Technological Sciences and Engineering
Member ASCE

Awards:

1972 SA Inst of Civil Eng – Best Paper in Transactions
1993 EH Davies Memorial Lecture, Australian Geomechanics Society
2003 Australian Centenary Medal for Services to Civil Engineering
2008 Allen Neyland Award, Aus IMM

FIELDS OF SPECIALISATION:

- tunnels and mining rock mechanics,
- earth and rockfill dams, and tailings dams,
- hydrogeology,
- foundations, slope stability and design of stabilisation works
- haul road and heavy duty pavements

EMPLOYMENT:

2009

Principal, Pells Consulting

1993 - 2009

Principal, Pells Sullivan Meynink Pty Ltd
Adjunct Professor of Civil Engineering, University of NSW

1981 - 1993

Director, Coffey Partners Pty Ltd, Sydney
Manager, New South Wales

1975 - 1980

Senior Lecturer in Rock Mechanics, University of Sydney

1971 - 1974

Senior Research Officer, Rock Mechanics Division, CSIR
Senior Research Officer, National Institute for Road Research, CSIR

1967 - 1970

Design Engineer, Ninham Shand & Partners, Cape Town - Assistant Resident Engineer, Xonxa Dam

PROJECTS RELATED TO HARD ROCK TUNNELS, UNDERGROUND MINES AND DEEP BASEMENTS

1970-1975

Major Projects

Drakensberg Pumped Storage Scheme	South Africa	Two and three-dimensional finite element analysis for determining optimum shape and layout of power chamber for 1000MW hydro-electric scheme.
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Other Projects

- Overvaal Railway Tunnel, Richards Bay Line, South Africa
- Lonehill Sewer Tunnel, Johannesburg, South Africa
- Waterval Boven Freeway Tunnel, South Africa
- Ruacana Hydro-Electric Scheme, Namibia

1980-1993

Major Projects

Elura Mine	Cobar, NSW	Design of underground open stope mine, including stress analysis and stability analysis of crown and rib pillars. Design of support system for 4 m wide decline tunnel. Monitoring of rock mass movements around decline tunnel. Design permanent lining for upper section of main shaft.
Monasavu Hydro-Electric Scheme	Fiji	Provision of expert opinion to Contractor relating to rock mass conditions within the 800 m long, 2.3 m diameter, 45° inclined penstock shaft.
Ocean Outfall Tunnels, Malabar, Bondi and North Head	NSW	Engineering geological interpretation, evaluation of stand-up times, design of primary support.
Sydney Harbour Tunnel	Sydney	Geotechnical investigations and geotechnical design studies for the tunnel beneath Sydney Harbour.
Avon Tunnel Maldon Dombarton Railway	NSW	Review on behalf of the SRA of geotechnical investigations and reports prepared for the tunnel contract.
Gordonstone Coal Project	Queensland	Report on subsidence aspects of the proposed mine.
Hassans Walls	Lithgow	Study on cracking and cliff failure due to full extraction in the Lithgow Valley Colliery.
Bennelong Car Park	Sydney	Site investigation for 17.5m span underground cavern, rock mechanics analyses, primary and permanent support design, instrumentation installation and monitoring, construction control.
Skitube	Snowy Mountains	Evaluation of permanent support requirements, leading to recommendations for rockbolt positions and spacings and shotcrete requirements.

PROJECTS RELATED TO HARD ROCK TUNNELS, UNDERGROUND MINES AND DEEP BASEMENTS

Bondi Pumping Chamber	Sydney	Design of permanent support of major underground pumping chamber.
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Other Projects

- Bylong Railway Tunnel, NSW
- First Point Outfall, Gosford, NSW
- Ivanhoe No. 2 Colliery/Boulder Road, NSW
- Cable Tunnel Pyrmont to Beaconsfield Survey, NSW
- Pedestrian Tunnels QVB, Sydney
- Wintinna Mine, South Australia
- Vickery Project, Gunnedah, NSW
- D2 Underground Carpark, Sydney
- Carrangbush Building, George Street near Town Hall, Sydney
- Wheao Tunnel, New Zealand
- Gas Extraction Shaft, Winton, NSW
- Malabar Outfall Tunnel, Sydney
- Park Street Tunnel, Sydney
- Gordonstone Coal Mine, Queensland
- Wynyard Station Pedestrian tunnel, Sydney
- Boomerang Creek Tunnel, Wyong NSW
- Airport Rail Link Tunnel, Sydney
- Raisebore Shaft, Rosebery, Tasmania

1993-2000

Major Projects

Grace Bros Redevelopment	Sydney	Investigation for deepening basement beneath existing building; analysis of impact of excavation on adjacent rail tunnels.
Ballarat Goldfield NL	Victoria	Formulation of geotechnical model and design of primary and permanent support for 250m deep 1 in 8 decline in weak rock where ground yielding led to sidewall convergence of up to 600mm.
NW Sewer	Melbourne	Assessment of basis of possible claim by Transfield Tunnelling in connection with 4km section of 4m diameter TBM tunnel in mixed face of basalt, sand and quartzite with high water inflows.
Cannington Mine Eastern Distributor, Sydney	North Qld	Design of conventional and raisebore shafts. Development of concept of piggyback tunnel including upper carriageway carried on prestressed concrete planks supported by narrow ledges of rock. Design of permanent support for tunnels in project. Provision of technical advice during construction.

PROJECTS RELATED TO HARD ROCK TUNNELS, UNDERGROUND MINES AND DEEP BASEMENTS

Other Projects

- Crinum Mine, Queensland
- Schmitz Ore Body, Kambalda Nickel Mines, WA
- Hotel Development, Rose Bay, Sydney
- City Link Tunnels, Melbourne
- Bannockburn Mine, WA
- Elouera Colliery, Port Kembla, NSW
- Ulan Underground Colliery, NSW

2000-2011

Major Projects

Bakun Hydro Tunnel	Philippines	Review of the requirements for steel lining of the high pressure tunnels; assessment of permanent support requirements for non-steel lined length of headrace tunnel.
Burnley Tunnel, City Link	Melbourne	Retained in December 1999 to review the causes of failure of the nearly completed 3.5km long, 3-lane tunnel. In April 2000 retained as principal consultant responsible for design and construction supervision of remedial structural works and subsequent cement and chemical grouting of the stabilised lining. The work included more than 5000 permanent 1000 kN ground anchors and a 3-month grouting programme; total cost in excess of \$120 million.
Brisbane North South Bypass Tunnel	Queensland	Chairman of Engineering Taskforce established by the Mayor of Brisbane to assess technical feasibility, construction programme, construction costs and project risks. The project included feasibility level design of 5km long twin 2-lane tunnels. Member Project Executive Group
Cable Tunnel, Surry Hills to Haymarket	Sydney	Advice to the Principal regarding groundwater inflows, grouting and a potential Latent Conditions Claim.
Transgrid Cable Tunnel, St Peters to Ultimo	Sydney	Expert advice to Principal in regard to ground and groundwater conditions encountered in 3.6m diameter TBM drive; advice in regard to microfine cement grouting; expert advice in respect to Latent Conditions claims and Professional Indemnity claims.
City West Cable Tunnel	Sydney	Development of Geotechnical Baseline Report for inclusion in contract. Audit of conditions encountered during construction.
RTA, Hume Highway	Picton	Assessment of subsidence impacts of proposed longwall mining, at a depth of 450m, on the highway pavements and bridge structures.

PROJECTS RELATED TO HARD ROCK TUNNELS, UNDERGROUND MINES AND DEEP BASEMENTS

MK1 Transfer Station Chuquicamata	Chile	Independent investigation and reporting in regard to the collapse of the MK1 Cavern that stopped production from the in-pit crushers. Work done together with SRK Chile.
Wotton Kearney Insurance Lawyers	Singapore	Expert report in relation to design and construction of shafts and TBM tunnel.
Herbert Geer Lawyers	Sydney	Expert report in relation to deep basement in sand supported by secant piles.
Giannakopolous Lawyers	Melbourne	Expert report in relation to secant pile wall basement support at Sydney.
Allens Arthur Robinson	Brisbane	Assessment of insurance claim in relation to 6 level basement in Brisbane CBD.

Other Projects

- Pipejack Tunnel Collapse, Manilla
- Village Cinema Site Redevelopment, Sydney
- Building Damage and Surface Settlements, Melbourne
- Lane Cove Tunnel, Sydney
- EastLink Tunnel, Melbourne
- Sydney Desalination Plant, Kurnell
- Landowners affected by longwall mining, Ulan
- Landowners affected by old mine workings, Maitland
- City East Tunnel, Sydney

PROJECTS RELATED TO THE FOUNDATIONS OF BRIDGES, MAJOR BUILDINGS AND MARITIME STRUCTURES

1970-1980

Major Projects

Diepsloot Arch Bridges	Johannesburg	Detailed investigation and analysis of foundation displacements for two, 1 km long three span arch bridges.
Bobbejaansrivier Gorge Bridge	Cape Province	Rock foundation behaviour for large span arch bridge carrying eight lane freeway.
Regent Hotel	Sydney	Construction supervision and design advice for pad footings on sandstone.
Gateway Bridge	Brisbane	Investigation, design recommendations and construction advice and inspections for rock socketed foundations for Pier 7.

Other Projects

- Tooths Brewery, Sydney
- Greenway Square Development, Sydney
- Elura Mine, Cobar
- Caringbah Development, Sydney

1980-1993

Major Projects

State Bank	Martin Place, Sydney	Site investigation, design recommendations for foundations, checking of foundation conditions during construction.
D2 Development	Harrington Street, Sydney	Site investigation, design recommendations for 30 m deep excavation, and foundations, analysis of effect of excavation on existing rail tunnel.
Aussat Earth Station	Belrose, Sydney	Site investigation, design recommendations for antennae foundations on fill, supervision of earthworks.
Nepean River Bridge, Maldon-Port Kembla Railway	Indonesia	Geotechnical investigation, design recommendations for foundations and excavations, subsidence analysis.
Selangor Turf club	Kuala Lumpur	Site selection for proposed new race course at Sungei Besi, evaluation of settlements and earthworks requirements for construction on an abandoned tin mine site.
Darling Harbour Monorail	Sydney	Site investigation and geotechnical analysis and reporting.
Kaltim Prima Coal, East Kalimantan	Indonesia	Site assessment for dirty coal crusher and preparation of constraints for design and construct contract.

PROJECTS RELATED TO THE FOUNDATIONS OF BRIDGES, MAJOR BUILDINGS AND MARITIME STRUCTURES

Other Projects

- Ramada Renaissance Hotel, Sydney
- Georges River Bridges, East Hills Railway, Sydney
- Plaza Perangsang, Shah Alam, Malaysia
- Maritime Museum, Darling Harbour, Sydney
- Lot 10, Jalan Sultan Ishmail, Kuala Lumpur
- Yuen Long, New Territories, Hong Kong
- Darling Park Stage 1, Sydney
- Market City Project, Haymarket, Sydney

1993-2011

Major Projects

East Arm Wharf	Darwin	Geotechnical design and review consultant for the Thiess Barclay Mowlem JV for the 480m long x 23m high sheet pile wall wharf structure.
Andoom Dump Facility	Weipa	Assessment of geotechnical and groundwater conditions which caused the major failure of the inground facilities in March 1996. Assistance with the design of the temporary sheet pile wall remedial measures.
Yandicoogina Bridge, Area C, Pilbara	WA	Specialist advice in regard to stability against toppling and sliding of pier foundation on edge of gorge, including recommendations for rock mass reinforcement.
Village Cinema Site Redevelopment	Sydney	Site investigation, advice on shoring and rock mass reinforcement for 24m deep basement and associated tower structure.
Karuah Bypass Bridges	NSW	Expert to RTA in dispute relating to construction of the bridge foundations.
Douglas Park Bridge	NSW	Member of RTA technical review panel to assess potential impacts of longwall mining and associated far field movements.
BHP Billiton Site Hunter River	Newcastle	Specialist review of wall stability and design of SBMA system in sand.

Other Projects

- Chancellor Court, Saigon
- President Place, Saigon
- 363 George Street, Sydney
- Yarra's Edge Promenade, Melbourne
- Tower Development, Market Street, Sydney

PROJECTS RELATED TO ROADS AND RAILWAYS

1975-1993

Major Projects

Boulder Road, Mt. Piper		Site investigation, recommendations for cuttings, earthworks specification, pavement design, pavement materials evaluation.
Charbon Colliery Access Road	NSW	Investigation, design and construction supervision for 2 km long coal mine access road.
East Hills – Campbelltown Railway	NSW	Geotechnical investigations, materials evaluation and bridge foundation design for new railway through southern and western suburbs of Sydney.

Other Projects

- Bayswater Interchange, New England Highway, NSW
- State Highway 23, Newcastle Road to Pacific Highway, NSW
- Ambarvale Subdivision, Campbelltown NSW
- Baal Bone Colliery, NSW
- Heathcote Subdivision, NSW
- Water Police Centre, Pyrmont
- International Terminal, Mascot Airport, NSW
- Hunter Valley No. 2 Coal Mine, NSW

1993-2011

Major Projects

Kaltim Prima Coal, East Kalimantan	Indonesia	Preparation of design charts for haul road pavements for 240 tonne dump trucks.
Rio Tinto Technical Services	International	Preparation of pavement design part of Rio Tinto's design and construction guidelines for haul roads within Rio Tinto's international operations.
RTA New South Wales and BHP Billiton	New South Wales	Analysis of impacts of longwall mining beneath the Hume Highway on pavement performance and design of mitigation measures.

Other Projects

- Bengalon Mine, East Kalimantan, Indonesia
- Cadia Mine, Orange, NSW
- Very Fast Train Sydney-Canberra, NSW
- Lane Cove Tunnel, Sydney

PROJECTS RELATED TO SLOPE STABILITY AND OPEN PIT MINES

1970-1993

Major Projects

De Beers Open Pit Diamond Mine	Kimberley, NSW	Analysis of movements in side slopes of old open pit diamond mine.
Burraborang Valley	NSW	Analysis of stability of escarpment above Nattal North Colliery, monitoring of slope movements, design of rockfall protection system.
Hassans Walls	Lithgow	Evaluation of ground cracking and cliff falls due to full extraction beneath the Hassans Walls reserve.
State Highway 23	Newcastle, NSW	Design of slope stabilisation measures for two deep cuttings.
State Rail Authority	NSW	Classification of landslip risk areas on the North Coast Line from Maitland to the Queensland border, including the branch line from Casino to Murwillumbah. Design of remedial measures for stabilising several existing areas of landslip and provision of advice during construction.
Kaltim Prima Coal Mine East Kalimantan	Indonesia	Investigation and measurement of the strengths of weak mud rocks forming major waste dumps up to 120m high; preparation of design charts for the assessment of allowable waste dump angles for use in mine planning; assessment of design parameters of weak alluvial valley infill materials which form the foundation of some of the waste rock dumps.
Bengalon Coal Prospect, East Kalimantan	Indonesia	Terrain evaluation and preparation of detailed designs for out-of-pits waste dumps including catchment diversion requirements and control of acid generation.

Other Projects

- Watervale Boven Freeway, South Africa
- Moolarben Open Pit, Ulan, NSW
- Howick South Coal Prospect, NSW
- Bayswater No. 2 Open Pit, NSW
- Garden Island Dockyard, Sydney
- Kelian Gold Mine, East Kalimantan, Indonesia
- Kenmore Shopping Centre, Brisbane

PROJECTS RELATED TO SLOPE STABILITY AND OPEN PIT MINES

1993-2011

Major Projects

Thredbo	NSW	Member of PSM team acting as advisors to the NSW Coroner on the causes of the 1997 landslide at Thredbo.
Hornsby Quarry	Sydney	Team leader for report on geotechnical constraints relevant to possible redevelopment of a 150m deep quarry in the Hornsby diatreme.
Melawan Open Pit, Thiess Indonesia	East Kalimantan	Investigation analysis and reporting on courses of failure of in-pit dump, December 2010.

Other Projects

- Innerwest Hospital, Sydney
- Katherine St, Chatswood
- Cleo, Acacia Resources, WA
- Golden Cross Mine, Waihi, NZ
- Martha Hill Mine, Waihi, NZ
- Tallawang Magnetite Mine, NSW
- Glenorie, NSW
- Marsden Park, Sydney
- Enfield Brick Pit, Sydney
- Stabilised rock face, Vacluse, Sydney
- Blackwall Mountain, Ettalong
- Senakin Coal Mine, East Kalimantan, Indonesia

WATER SUPPLY DAMS, AND TAILINGS DAMS

1967-1993

Major Projects

Xonxa Dam	South Africa	Design of 60m high rockfill dam including reinforcement layout for downstream face. Assistant Resident Engineer during construction.
Laing Dam	South Africa	Design of post-tensioned cable system for stabilising existing 45m high concrete gravity wall. Two and three dimensional numerical analysis of stresses generated in the concrete structure and the bedrock.
Upper Smoke Creek Silt Control Dam, Argyle Mine	WA	Design and documentation of silt control dam - 8 m high flow through rockfill dam and 75 m wide spillway.
Browns Creek Mine	Blayney, NSW	Investigation, design and construction advice for new 15m high tailings dam, engineering advice during construction.
Mt. Annan Botanic Gardens	Campbelltown, NSW	Design of 3 display area and irrigation dams (5 to 12m high), advice and supervision during construction.
Palmer River Gold Project	Queensland	Site selection, survey and embankment design and documentation for alluvial mine water supply dam. Superintendent for construction of the dam (26m high).
Cacow Gold Mine	Queensland	Design and documentation for a 30m high membrane face rock fill tailings dam. Superintendent for construction.
Cowarra Creek Gold Mine	NSW	Engineering advice during construction of membrane faced rock fill dam for gold tailings.
Kaltim Prima coal Mine, East Kalimantan	Indonesia	Investigation, design and construction supervision for 35m high Murung earthfill dam and associated 1.9km long pipeline/channel river diversion system.
Kaltim Prima Coal Mine, East Kalimantan	Indonesia	Investigation and design of 40m high Mentari earth dam.

Other Projects

- Bridle Drift Dam, South Africa
- Mangrove Creek Dam, NSW
- Bayswater Colliery Water Storage Dam, NSW
- Barwon Cotton Farm, NSW
- Woodlawn Mines, Taralga, NSW
- Selwyn Starra Gold Project, Queensland
- Peak Prospect, Cobar, NSW

WATER SUPPLY DAMS, AND TAILINGS DAMS

1993-2011

Major Projects

Kelian Gold Mine, East Kalimantan	Indonesia	Project manager for site investigation design and construction of 55m high earth/rock fill dam for tailings storage. Project also included separate 10m high embankment for waste water pond.
Kelian Gold Mine, East Kalimantan	Indonesia	Site investigation, design and construction advice for a 120m high sloping clay core rock fill dam to be completed in October 1996. This project includes three saddle dams, one 70m high with a vertical core, the other two 12m and 20m high.
Golden Cross Gold Mine	New Zealand	Assessment of major landslide causing movement of an existing 80m high tailings dam. Recommendations for remedial measures including approaches for over-consolidating tailings to a no-flow condition.
Cadia Mine Tailings Dam	NSW	Responsible for investigation, design and construction supervision of 45m high earth/rockfill starter embankment.
Possum Skin Dam, Glennies Creek	Hunter Valley, NSW	Part of PSM design team for investigation, design and technical supervision for 122 ML saline water storage dam.
Xstrata Coal	Australia	Preparation of corporate guidelines for the capping and remediation of coal tailings deposit.
Hume Dam Murray River	NSW	Specialist advice in respect to foundation of the spillway training wall.

Other Projects

- Prospect Dam, Sydney
- Hume Dam, NSW
- Bengalon Coal Project, East Kalimantan, Indonesia
- Lower Cascade Dam, Katoomba, NSW
- Wambo Tailings Dam, Hunter Valley, NSW
- Kestral Colliery Weipa Bauxite Mine Richards Bay Minerals, Queensland and South Africa
- North Parkes Mine, NSW
- Katala Pond, Batu Hijau Sumbawa
- Newlands Coal Mine Bowen Basin, Queensland

PROJECTS RELATED TO KARST FORMATIONS

1967-1974

Major Projects

Yuen Long Development	Hong Kong	Advice to contractor regarding the risks associated with alternative foundation systems proposed for the LRT terminal at Yuen Long.
Lot 10 Jalan Sultan Ishmael	Kuala Lumpur	Site investigation and foundation design for 10 storey development located above the Kuala Lumpur limestone. Risks associated with alternative foundation systems assessed.

Other Projects

- Darwin - Alice Springs Natural Gas Pipeline, NT
- Goliath Cement Factory, Tasmania
- Tindal Airforce Base, NT
- BP Refinery, Kwinana, Perth, WA
- Grain Silo, Transvaal, South Africa
- Kelian Gold Project, East Kalimantan , Indonesia

EXPERT OPINION IN ARBITRATION, MEDIATION AND LITIGATION

1975-1993

Monasavu Hydro-Electric Scheme	Fiji	Relating to rock mass conditions within the 800 m long, 2.3 m diameter, 45° inclined penstock shaft; settled out of court.
Newlands Mine	Queensland	Rock conditions for drilling of bored piles for infrastructure at the Newlands Mine; case heard in Brisbane.
Wheao Tunnel	New Zealand	Tunnelling conditions and tunnel support; settled out of court.
Boomerang Creek Tunnel	Wyong NSW	Compressive and shear failure under high horizontal stresses in 20km 3m diameter tunnel; assistance in preparation of contractual claim; case heard in Sydney.
Tahmoor Colliery	NSW	Construction claims for excavation of the No. 3 shaft; settled out of court.
Crinum Mine	Queensland	Excavation of the conveyor drift and men and materials drift; the drifts pass through a sequence comprising a basalt capping overlying Tertiary clays and Permian sediments; settled out of court.
Transfield Tunnelling NW Sewer	Melbourne	A 4km section of 4m diameter TBM tunnel in mixed face of basalt, sand and quartzite with high water inflows; settled out of court.
Kooragang Island	Newcastle, NSW	A piled foundation for a silo, case heard in Sydney.
Tahmoor Colliery	NSW	Construction claims for excavation of the No. 3 shaft.

1993-2011

Thredbo	NSW	Member of PSM team acting as advisors to the NSW Coroner on the causes of the 1997 landslide at Thredbo; case heard in Sydney.
Glenorie	NSW	A 55m high waste fill, case heard in Sydney.
Pekanbaru	Sumatra	Collapse of wharf structure on the Siak River; case heard in Singapore.
Baal Bone Colliery	NSW	Insurance claim in relation to road pavement failure.
Cataract River	NSW	Action by local residents, against an operating longwall colliery, arising from cracking and damage to the valley of the Cataract River; hearing in Picton, NSW.
Rushcutters Bay	Sydney	Damage to an adjacent building arising out of construction of a basement for a new development in alluvial sediments and sandstone; heard in Sydney.

EXPERT OPINION IN ARBITRATION, MEDIATION AND LITIGATION

City West Link	Sydney	Claim for unforeseen foundation conditions for a 260m long insitu arch over an old railway cutting.
West Ryde Tunnel	Sydney	Latent Conditions Claim for Arbitration on a tunnel project; case heard in Sydney.
City Link Project	Melbourne	Professional Indemnity Claim arising from the design of the Burnley Tunnel; awaiting trial.
Esperanza Mine	Gunpowder, Qld	Latent Conditions claim arising from a contract for excavation of overburden in an open cut mine; settled in Mediation.
Waste Fill	Glenorie, NSW	Provision of expert evidence on behalf of EPA in Criminal Trial.
Proposed Hillside Basement and Building	Rose Bay, Sydney	On behalf of Objectors in Land and Environment Court Hearing; Construction Certificate Refused.
Proposed Hotel	Rose Bay, Sydney	For Developer at Land and Environment Court Hearing; Development Approved.
EA Cable Tunnel	Sydney	Latent conditions claim in regard to water ingress.
Karuah Bypass	NSW	Expert report on behalf of Roads and Traffic Authority for mediation regarding foundation conditions.
Gas Pipeline	Tasmania	Claim by McConnell Dowell against Duke Energy regarding trenching conditions.
TransGrid TBM Cable Tunnel	Sydney	Latent Conditions claim by the Contractor.
Bulk Liquids Berth	Dampier, WA	Foundation conditions for trestle wharf structure.
Fatality, Cross City Tunnel	Sydney	Causes of a fatal roof collapse.
Chuquicamata Mine Codelco	Chile	Collapse of underground transfer chamber on the M1-K1 ore transport system.
Thalanga Copper Mine	Queensland	Open pit landslip and its impact on adjacent public road
Ashton Coal Mine Hunter Valley	NSW	Highwall slip and its impact on Glennies Creek Road.
Festival Site Central Coast	NSW	In respect to site conditions following period of heavy rains.
Offshore Pipeline Great Ocean Road	Victoria	Latent conditions claim affecting a directionally drilled pipeline.
Road Collapse Somersby, Central Coast	NSW	Part of team providing expert opinion to RTA in respect to the causes of the collapse that resulted in five deaths.

EXPERT OPINION IN ARBITRATION, MEDIATION AND LITIGATION

Senoko to Gambas Tunnel	Singapore	Dispute regarding design and construction facets of two shafts and a TBM tunnel, in relation to insurance claims.
Private House, Maitland	NSW	Existing house built above mine workings in the Greta Seam, outside a proclaimed Mine Subsidence District.
Basement, Dee Why	NSW	Dispute in regards to inflows through and beneath a secant pile retention system in sand.
Basement, Geelong	Victoria	Dispute in regard to performance of a secant pile wall in alluvium.
Basement, Brisbane	Queensland	Insurance claim in respect to anchors supporting a six level basement in soil and rock.
Marina, Bribie Island	Queensland	PI claim resulting from a landslip during development of the marina.
Sydney Opera House Car Park	NSW	Dispute in respect to land tax, requiring assessment of extent of excavation and support thereof.
Open Pit, Thalanga	Queensland	Insurance claim in relation to damage to Gregory Development road adjacent to the completed open pit.
Open Pit, Aston Hunter Valley	NSW	Insurance claim in relation to damage to Glennies Creek Road as a result of a pit wall failure.
Embankments on soft clay, Gateway 2, Brisbane	QLD	Dispute in respect to design and construction of new freeway embankments on soft estuarine clay.

DESIGN AND CONSTRUCTION OF SOFT GROUND TUNNELS

1974-1992

Major Projects

Prospect	NSW	Design and construction phase advice for twin jacked culverts through clay fill and weathered shale beneath twin line railway.
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Other Projects

- Durban, South Africa
- Campbelltown, NSW

1993-2011

Major Projects

Cannington Decline	North Queensland	Investigation, preparation of geotechnical model, design of support system and construction supervision for a 300m length of 1 in 8 decline through fissured and sheared, reactive hard clays.
Ballarat Goldfield, NL	Victoria	Formulation of geotechnical model and design of primary and permanent support for 250m deep 1 in 8 decline in squeezing ground comprising extremely weathered siltstone of unconfined compressive strength ranging from 0.5 MPa to 2.5 MPa.
Transfield Tunnelling NW Sewer,	Melbourne	Assessment of basis of possible claim in connection with 4km section of 4m diameter EPBM tunnel in mixed face of sand, basalt, and quartzite, with high water inflows.
New Southern Railway	Sydney	Feasibility level geotechnical assessment of tunnel route through Botany sands, alluvial clay and Hawkesbury Sandstone. Establishment for the EPA of absolute and differential settlement criteria for the project. Assessment of probable settlements associated with 11m slurry TBM beneath a building site in Botany.
Eastern Distributor	Sydney	Design and construction supervision of 120m of pipe canopy supported tunnel through alluvial and residual clays, and two 10m lengths of pipe canopy supported tunnel through extremely weathered Great Sydney Dyke.
Epping to Chatswood Rail Tunnel	Sydney	Part of PSM team responsible for design and construction implementation of twin 120m long Chatswood Dive tunnels in residual and weathered shales.

Other Projects

- Elouera Colliery, Port Kembla, NSW
- LMAQ-3 Project, Manilla
- West Ryde Drainage Tunnel, Sydney

LIST OF PUBLICATIONS

BOOKS

1. **PELLS, P J N (Ed)** - "Structural Foundations on Rock", Balkema, Rotterdam, 1980.
2. **PELLS, P J N (Ed)** - "Engineering Geology of the Sydney Region", Balkema, Rotterdam, 1985.
3. **PELLS, P J N and HAMMON, P** - "The Burning Mists of Time", Phil Square Publishing, Katoomba, 2009.
4. **PELLS, P J N** – "The Sydney Opera House Car Park and The Double Helix, Phil Square Publishing, Katoomba, 2011.

REFEREED PUBLICATIONS

5. **SHAND, N and PELLs, P J N** - "Experience in the Design and Construction of Reinforced Rockfill Dams", Trans 10th ICOLD, Q36, R19, Montreal 1970, pp 291-310.
6. **PELLS, P J N** - "The Instrumentation of the Bridle Drift Rockfill Dam", Tans S.A. Inst of Civil Engineers, October 1971.
7. **PELLS, P J N, MIDGLEY, D C and PITMAN, W V** - "Floods in the East London Region", Trans S.A. Inst of Civil Engineers, January 1972, pp 5-12.
8. **PELLS, P J N and BOOTH, A R** - "The Shear Strength of Some Typical Fill Materials", Trans S.A. Inst of Civil Engineers, June 1973, pp 167-168.
9. **PELLS, P J N and MAUREMBRECHER, P M** - "Cutting Failures Near Waterval Boven", Trans S.A. Inst of Civil Engineers, Vol. 16, No. 5, 1974 pp 180-181.
10. **McKELLAR, D C, NUNN, J and PELLs, P J N** - "Instrumentation of Some Embankment Dams in Southern Africa", Field Instrumentation in Geotechnical Engineering, Butterworths, London 1973.
11. **PELLS, P J N** - "The Behaviour of Fully Bonded Rock Bolts", proc 3rd Int Congress Rock Mechanics, ISRM, Denver 1974, Vol. 11B, pp 1212-1217.
12. **PELLS, P J N** - "Predicted Displacements of the Rock Foundations of a Major Arch Bridge", Proc 6th Regional Conf for Africa on Soil Mechanics and Foundation Engineering, Durban 1975.
13. **PELLS, P J N** - "The Use of the Point Load Test in Predicting the Compressive Strength of Rock Materials", Australian Geomechanics Journal, Vol. G5, No. 1, 1975.
14. **PELLS, P J N** - "Measurement of Engineering Properties of Hawkesbury Sandstone", Australian Geomechanics Journal, Vol. G7, No. 1. 1977.
15. **PELLS, P J N** - "Reinforced Rockfill for Construction Flood Control", Proc ASCE, Construction Division, March 1978.
16. **PELLS, P J N and TURNER, R M** - "Janbu, Bjerrum and Kjaernsli's Chart Reinterpreted", Discussion Canadian Geotechnical Journal Vol. 15, 1978, pp 436-437.
17. **PELLS, P J N, DOUGLAS, D J, RODWAY, B, THORNE, C P and McMAHON, B K** - "Design Loadings for Foundations on Shale and Sandstone in the Sydney Region", Australian Geomechanics Journal G8, 1978, pp 31-39.
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