

Director & Independent Specialist Consultant
Survey Management - Geotechnical Engineering
 Engineering Geology



1. PERSONAL DETAILS

Date of Birth : London, 27th February 1954
 Nationality : British
 Languages : English
 Indonesian / Malaysian (fluent)
 Polish (passive)

2. SPECIALISED EXPERIENCE

- * Set up managed own survey company for past 11 yrs in Geoindo & Trikonex
- * Specialist Advisor to **Oil & Gas** Industry
- * Geotechnical Reviews & Geotechnical Audits
- * Rapid site appraisals for feasibility studies
- * Reconnaissance surveys & engineering geological mapping.
- * Planning, supervision, interpretation, reporting of **ground investigations** and **geotechnical design** for foundations, roads, **pipelines**, earthworks, airports, power stations, buildings, harbours, offshore structures, slope stabilisation, mineral and aggregate surveys.
- * Tropical residual soils.
- * Specialist insitu testing including pressuremeter, PDA / PIT and plate load testing.
- * Management and Quality Assurance in geotechnical engineering.
- * Claims, litigations & contractual issues

3. EDUCATION AND PROFESSIONAL STATUS

1975 Bsc, Geology - University of Liverpool
 1985 Small Business Studies Course - Waltham Forest College, London
 1993 Postgraduate Certificate in Practical Hydrogeology - University of Newcastle
 1994 International Trade : Import / Export - Euro - Asia Management Institute, London

European Engineer (Eur. Ing), Chartered Engineer (C. Eng), Chartered Geologist (C. Geol)
 Member of the Institute of Mining & Metallurgy (MMM) Fellow of the Geological Society (FGS)
 ASTM Committee D18 : Soil and Rock Testing
 HATTI : Indonesian Geotechnical Society

4. EMPLOYMENT HISTORY

2002 to date	Independent Consultant / Director with Trikonex Ltd , Winchester UK
1995 - 2002	Specialist Advisor / Director of PT. GEOINDO Giri Jaya , Indonesia - one of Indonesia's major surveying, geotechnical engineering and specialist testing consultants.
1993 - 1994	Independent Consultant, London.
1988 - 1993	Chief Engineering Geologist with geotechnical consultants Rendel Geotechnics , London.
1982 - 1988	Engineering Geologist, then Senior Engineering Geologist from 1984 with Civil Engineering Consultants Rendel Palmer & Tritton , London.
1980 - 1982	Engineering Geologist with consulting engineers Ove Arup , London.
1981	Geotechnical Engineer on secondment to research establishment at the Building Research station (BRE), Watford.
1977 - 1980	Engineering Geologist with consulting engineers Ove Arup & Partners , Edinburgh, Scotland
1977	Assistant Resident Engineer (responsible for earthworks) at Shotts, Scotland for Ove Arup & Partners .

1975 - 1976

Geologist / Driller with site investigation company **Strata Surveys** of Northwich, Cheshire.

5. SUMMARY OF EXPERIENCE

In over 29 years of professional experience Bob has worked in the field of **geotechnics** and **engineering geology** for various companies including a site investigation contractor, a research establishment (Building Research Station), various consultants, as well as an independent consultant and as a founding director of PT. Geoindo, Indonesia where he set up, ran and managed a **survey** & geotechnical engineering **company** with up to 100 employees and annual turnover of \$½ to 1 million.

He now provides independent consultancy services worldwide to the oil & gas industry as a technical director of Trikonex Ltd specializing in geotechnical overview and **management of land & marine survey services**. He has worked both onshore and offshore in the UK and overseas in some 8 countries. He has had 8 technical papers published to date.

Oil company clients have included Petronas Carigali, Amerada Hess, Exxon Mobil, Conoco, Coparex, Unocal, Vico, Santos, Santa Fe, Kalrez, Devon Energy, Continental Energy, Premier Oil. Petrochina, Kufpec, Badak LNG.

One year (1975 - 1976) with Strata Surveys Ltd. as a geologist and driller for a site investigation contractor. **Four years** (1977 - 1980) with Ove Arup, Scotland as engineering geologist, with 1 year as assistant Resident Engineer responsible for earthworks & foundation construction Shotts, Scotland.

Two years (1980 - 1982) with Ove Arup, London as engineering geologist, with 6 months seconded to Building Research Station as a geotechnical engineer to work on " Offshore Tension Leg Piling Research Project ". **Eleven years** (1982 - 1993) with Rendel Palmer & Tritton, London initially as engineering geologist, then 1984 as senior engineering geologist and from 1988 as chief engineering geologist for Rendel Geotechnics.

He worked as an Independent Consultant for a year before founding PT. Geoindo Giri Jaya who provide survey, geotechnical & engineering services in Indonesia. Director for business development and client relations. He was with them almost **ten years** before returning to UK.

Bob Bacciarelli is currently back in UK and working for Trikonex as an independent consultant again. He still acts as advisor to PT. Geoindo.

During these periods was responsible for numerous feasibility studies, reconnaissance and walkover engineering geological surveys as well as contractual and technical administration of land and marine investigations in UK, Saudi Arabia, Bahrain, UAE, Sudan, Libya, S. Ireland, North Sea, Malaysia and Indonesia. Business development in USA, Holland and SE Asia. He has extensive experience throughout Indonesia including Batam, Sumatra, Kalimantan, Java, Madura, Timor - Timor, Seram, Bali and Sulawesi.

Comprehensive experience of project management, site investigation including field testing, geotechnical design through to supervision of earthworks / foundation construction for civil engineering projects. Field testing experience includes static cone penetration testing, conventional and selfboring pressuremeters in soil and rock, plate and pile load testing, permeability and pumping tests, geophysical surveys. Instrumented trial embankments and compaction trials. Ground anchors. Investigation and treatment of old mine workings.

Soil and rock engineering experience covers a wide range of building and civil engineering projects including **oil & gas exploration & development**, roads, airports, bridges, buildings, power stations, sewer outfalls, ports, dams, tunnels, backfilled and reclaimed land, offshore structures as well as numerous research projects, claims and litigation work. Compilation of technical reports for all aspects of foundation and road design, slope stability, ground improvement works.

Geologically associated work includes surveying, mapping for engineering purposes (geology / geomorphology), rock mechanics, air photograph & satellite imagery interpretation, rock slope, materials resource surveys, natural hazard including volcanic and seismic risk, environmental impact assessment studies.

6. PROFESSIONAL RECORD

2002 to date Independent Consultant – Trikonex Ltd, UK office.

Independent consultant working for oil & gas clients worldwide. Selected project experience :

Block 5A, S. Sudan

Client : Petronas Carigali

Geotechnical consultant. Design & supervision of ground investigations for CPF & associated facilities, 170km long export pipeline, bridge / river crossings. Provided advice related to pipeline route selection, construction & field development, liaison with contractors, tender documents, onsite supervision of fieldwork & ongoing geotechnical advice.

Block 5A, S. Sudan

Client : Petronas Carigali

Survey consultant. Management & coordination of upto 7 survey teams (DGPS & total station) for topographic survey of 170km pipeline route & main facilities and survey support to their drilling / exploration, construction & field development. Included satellite imagery interpretation & thematic maps / plans for GIS database.

Offshore S. Sumatra, Indonesia

Client : Petrochina

Client representative involved in supervision of offshore geotechnical investigation and followup reporting.

Citanduy & Cimeneng River Diversions, Java Indonesia

Client : Black & Veatch

Specialist consultant to solve embankment failures & instability built on soft clays Cu 6 kPa for 1.5 km river diversion.

Pangkajene, Surabaya Indonesia

Client : Amerada Hess

Geotechnical aspects of marine soft clays on peninsular assessed for oil well sites and roads / access. Also pile driving design audit & advice given for offshore piling of monotube oil production platform.

1995 – 2002 Geoindo Giri Jaya, Bandung, INDONESIA

Director of young and dynamic Indonesian company with over 70 staff providing survey, geotechnical and engineering services throughout Indonesia.

The company provides survey & CAD / GIS bureau services. The company has also undertaken soil investigations using its own drill rigs, dutch cone rigs, insitu test equipment including plate load testing and own fully equipped laboratory in Bandung. The company also provides specialist pile testing including Pile Dynamic Analysis (PDA), Pile Integrity Testing (PIT) and static load tests on piles.

Some of the major projects for which Bob has had direct input or technical responsibility over the past few years include :

◇ Environmental Studies

- Baseline UKL / UPL studies at Wayang Windu Geothermal Project
- Saguling Waterfront City, Bandung

◇ Power stations and power generation studies

- Earthworks & access road design & build for waste dump power generation project, Bandung
- Power Station site selection and reconnaissance studies, Wayang Windu

- Geotechnical investigations for power stations including design at Wayang Windu, W. Java; Patuha Units 1 + 2, W. Java; Dieng 2, Central Java
- Road and earthwork investigation and design for exploration drill sites and access roads at Wayang Windu and Dieng
- Geothermal power projects - Wayang Windu; Patuha; Bali; Kamojang; Karaha; Dieng.

◇ Mining

- Geotechnical investigation and piled foundation design for conveyor load out at PT. Bukit Asam, Tanjung Enim, S. Sumatra. Including supervision of piling contract.
- BHP / Arutmin at Satui, S. Kalimantan - slope stability studies for major river diversion and Nakula / Sajuna coal pits. Diversion of major haul road and new underpass structure.
- Gunung Kuda, Java - survey for gold exploration.
- BHP / Arutmin at Petangis S. Kalimantan - slope stability and environmental rehabilitation.
- Danau Mas Hitam, Bengkulu - survey and drafting services.
- Bengkulu, S. Sumatra - coal exploration and mine design.
- Kupang, West Timor - marble quarry.
- Aurora Gold, Indomuro Kencana, Kalimantan - materials testing.
- Kelian - survey services
- Koba Tin, Bangka - lab. Testing & slope stability parameters
- Cilegon, W. Java – andesite quarry survey & mine design

◇ Oil and Gas

- Exxon Mobil – Aceh, Sumatra. Advisor on slope stability problem.
- Exxon Mobil, Cepu, Java – topographic survey (600 ha.) and geotechnical investigation (boreholes, pits, insitu & lab. Testing) for new oil field development. Included visit to Houston as advisor to Exxon / Fluor Daniel project team.
- Lematang Field, Singa concession, Sumatra - well positioning, survey and earthworks design for Amerada Hess.
- Lematang Field, Harimau - as built surveys for environmental rehabilitation for Amerada Hess.
- Genindo, E. Kalimantan - foundation design for berth.
- Baru Field, stability assessment for drilling rig for Santos Petroleum Ltd.
- Site visit, reconnaissance engineering geological mapping and desk study for geotechnical assessment of Santa Fe Energy Resources Jabung Ltd.
- Geotechnical Investigations for facilities at Jabung Block, Santa Fe Energy Resources Jabung Ltd. Pile Testing of foundation piles - PIT / PDA.
- Rembang 2 in Central Java - survey and earthworks design for well site and access road for Coparex.
- Vico, East Kalimantan - Rig Foundation studies for all their concessions in E. Kalimantan.
- Ngawi, central Java - survey, investigation, design & construction of well site and access road.
- Devon Energy, Tuban - survey, investigation, design & construction of banded well pad to prevent flooding, access road & 20 m river bridge.
- Kufpec, Seram - slope stability
- Premier Oil - offshore oil facility design.
- Conoco - survey services
- Devon Energy, Jabung - land & bathymetric survey and geotechnical investigation for drag anchor design & new off loading facility.
- Devon Energy, Jabung - 30 km pipeline route survey & reconnaissance.
- Devon Energy, Jabung - specialist advisor for offshore geophysical & geotechnical survey.
- Unocal, Balikpapan - survey & drainage design at Lawe-lawe.

◇ Airports

- Geotechnical study for Asian Development Bank for proposed new airport at Medan, Sumatra.
- Tomia Island, Wakatobi Diving Resort - survey, geotechnical and civil design for airstrip.
- Surabaya Airport expansion - survey.

◇ Railways

- Foundation design for substations for W. Java Rail Road Improvements in Bandung.

◇ Roads and Bridges

- Cikampek - Padalarang Toll Road, W. Java includes feasibility, preliminary and detailed design investigations and design since 1986 upto present
- Ciawi - Sukabumi Tollroad, W. Java
- Tuban Petrochemical Plant access road design
- Riau Pulp Mill - Simpang Koran access road S. Sumatra - low embankments over swamp
- Saguling Waterfront City, Bandung - main access roads. Geotechnical investigation / design.
- Bandung elevated road - geotechnical engineering and foundation design.
- Porong - Gempol Bypass, Surabaya - road & earthworks design.
- Airport Toll Road, Jakarta - geotechnical investigation.
- Lamongan, E.Java - geotechnical investigation.

◇ Real Estate Developments

- Lippo Village Karawaci, W. Java. Tollroad interchange failure and redesign.
- Saguling Waterfront City, Bandung included preliminary and detailed design surveys, geotechnical investigations and design. Slope stability analyses and grading plan input.
- Resort Dago, Bandung - access road and major embankments.
- Bumi Adipura, Bandung - survey work.

◇ Structures

- 25 storey high rise development in Medan. Geotechnical investigations and piled raft foundation design.
- Telecommunication Towers (> 500) in Java and Kalimantan. Supervision, investigation and foundation design.
- 40 km long transmission power line, Lampung S. Sumatra. Survey and geotechnical investigations.

◇ Dams

- Saguling Waterfront City, Bandung - geotechnical investigation for 3 No. sub - dams.
- Thermal Pond No. 2, Wayang Windu - monitoring and leakage studies for Sumitomo.

◇ Port and Harbours

- Supervision and management of geotechnical investigation for jetty at TPPI marine facility, Tuban, E. Java.

◇ Claims

- Limestone cavities beneath cement works near Ujung Pandang, S. Sulawesi.
- Karawang Industrial Estate - steel coil factory affected by bearing capacity failure and damage to foundations.

◇ Construction Supervision

- Design supervision of driven piling at Tanjung Enim, S. Sumatra.
- Earthworks design and supervision at Resor Dago, Bandung.
- Instrumentation and settlement monitoring at Patuha Unit 1 cooling towers.
- Laboratory testing and Quality Control materials, soils and rocks.
- Earthworks, road & bridge construction - Bojonegoro, E. Java.
- Well pad & access road design & build in Ngawi, C. Java.

◇ Slope Stability

- Karawaci Interchange, West Java.
- Saguling Waterfront City, Bandung.
- Failure of 20 m high earth retaining wall, Patuha.

◇ **Topographic Surveys** - GPS and total station surveys using our 13 No. survey teams and softdesk / ACAD engineering drafting teams. Including earthworks and road design, cut / fill, volume calculations. Construction surveys and control on site, etc. Experience throughout Indonesia including Sumatra, Kalimantan, Timor - Timor, Sulawesi, Java and Bali. Rig positioning services. Hydrographic surveys (inc. bathymetric)

◇ Specialist Pile Testing

- Pile Dynamic Analysis (PDA) testing > 50 tests in Java.
- Pile Integrity Tests (PIT) > 1000 tests in Java.
- Static load testing.

◇ Drafting Services

- Drum Cross Farm, UK - design of earthworks for factory complex.
- RC design and detail drawings using Multisuite software.

1993 to 1994**Independent Consultant**

Selected project experience includes :

A40 Headington Bypass Oxford

Client : Rendel Palmer & Tritton

Supervision of ground investigation for bypass scheme.

Skye Bridge Scotland

Client : Ove Arup and Partners

Rock discontinuity mapping and redesign of 15 m high approach road embankment to Skye Bridge, together with supervision of bulk and pre - split blasting for rock cuttings.

Keith Bypass, Scotland

Client : Ove Arup and Partners

Interpretative Geotechnical Report, including design of earthworks and rock cuttings. Design, schedule of quantities and tender documentation.

1982 – 1993**Rendel Palmer & Tritton (now Rendel Geotechnics), London**

Manager and Senior Engineering Geologist involved as either specialist or project manager in business development, bids and proposals, feasibility studies, contract documentation, ground investigations, materials resource surveys, geotechnical design and engineering geological aspects of civil engineering projects, including research projects, claims and litigation work.

Selected project experience includes :

Lahad Datu - Bakapit Road, Sabah, Malaysia

Construction claim, including fieldwork onsite, related to poor road subgrade and cutting instability.

Cikampek - Purwakarta Tollroad, Java, Indonesia

Main ground investigation including geophysics, permeability, pressuremeter and plate load testing for 20 kms. of toll road with major landslide problems. Detailed engineering design of cuttings, embankments, slope stabilisation measures and bridge foundations. Design, construction to failure and monitoring of an instrumented trial embankment and cutting.

Industrial Estate, Bekasi, Java, Indonesia

Walkover engineering geological survey and design of site investigation for industrial estate sited on transported volcanic tropical soils. Design of remedial measures for embankment failure.

Suryamas Development, Bogor, Java, Indonesia

Feasibility study (1991 / 1992) including walkover geotechnical survey and site investigation for hotel complex, golf course and tourist village development, followed in 1992 by main ground investigation, detailed geotechnical design, specification and engineering drawings for major earthworks contract.

Cikampek - Padalarang Tollroad, Java, Indonesia

Feasibility study, walk / drive over engineering geological survey and site investigation for proposed tollroad with embankments, deep cuttings and up to 100 m high viaducts over volcanic derived tropical residual soils.

A40 Headington Improvement, Oxford

Geotechnical design and report on ground investigation of proposed road with a tunnel option for DTp.

Bandar Sunway, Malaysia

Rock slope mapping and design of stabilisation measures.

Hill Resort Road, Malaysia

Feasibility study and reconnaissance survey for mountain road on granite derived tropical residual soils.

A303 / A30 / A35 Marsh - Honiton and Honiton Eastern Bypass.

Project manager for desk study, contract documentation, design, and onsite supervision of geotechnical investigation, report and design recommendations with special reference to slope instability for proposed road for DTp.

Batam Island, Indonesia

Site selection and evaluation including drive / walk over engineering geological surveys for gas and coal fired power stations.

Fawley B Power Station, United Kingdom

Responsible for management and co - ordination of MRW joint venture consortium in all geotechnical aspects of onshore and offshore site investigations for a coal fired power station.

Medway Immersed Tube Tunnel, United Kingdom.

Involved in geotechnical design and preparation of civil engineering contract documents for both immersed and cut / cover tunnels in chalk and alluvium and associated road bypass.

Claims and Litigation work in United Kingdom and Malaysia

Various claims related to earthworks, dredging, foundations and groundwater.

Karachi Harbour, Pakistan

Design of soil anchors and specification for anchored sheet piled dock wall.

A36 Salisbury Bypass, United Kingdom

Project manager responsible for feasibility study and walkover engineering geological mapping, contract documentation, design and onsite supervision of ground investigation (1986) and detailed geotechnical studies (1990) for major road on chalk, including assessment of embankments, cuttings and foundations for DTp.

[Research projects for British Government](#) (DOE) included (1) project co - ordinator for investigation of Magnesian Limestone as a national mineral resource which involved setting up computer database and dealt with planning issues; (2) contributor on section related to preventative and remedial measures with respect to slope stabilisation for National Landslide Study; (3) specialist for the Applied Geological Mapping of St. Helen's area.

[Hinkley Point 'C' Nuclear Power Station, United Kingdom](#)

Project manager responsible for all geotechnical aspects and onsite supervision of ground investigation including geophysics, pumping tests, plate and pressuremeter tests. Report and design recommendations for power station founded on interbedded mudstones and limestones.

[Container Terminal at Mina Sulman Port, Bahrain](#)

Design, contract documentation, supervision of site investigation, geotechnical design and reporting.

[Moneypoint Coal Fired Power Station, Southern Ireland](#)

Specialist onsite involvement during jetty construction included reappraisal of geology, offshore investigation and pile redesign as a result of geotechnical problems encountered during offshore piling.

[Nantgarw, South Wales](#)

Supervision of restressing operations, assessment of rock anchors designed to stabilise a hill slope and production of maintenance manual report.

[Al Ain, Dubai, United Arab Emirates](#)

Feasibility study, design and control of site investigation for ice rink with low settlement tolerance, included piled raft foundation design.

[Bruton Dam, United Kingdom](#)

Feasibility study included walkover geotechnical mapping, design of earth dam and materials resource survey.

[Waterford Bypass, Southern Ireland](#)

Project manager for site investigation, geotechnical report and design, including slope stability, for a road bypass.

[Taff Vale Trunk Road - Stage 4, South Wales](#)

Geotechnical assessment of bridge foundations and use of " wet " fill in earthworks for road project. Monitoring of Taren Lanslip.

[Jindo and Dolsan Bridges in Korea](#)

Seismic risk and slope stability assessment of rock cuts and deep foundation excavations.

[Esso Oil Storage Tanks, Plymouth](#)

Assessment of limestone cliff stability and design of remedial measures.

1980 to 1982

Ove Arup & Partners, London

Engineering Geologist involved in site appraisals, engineering geological mapping, design & supervision of ground investigations including contract documentation, geotechnical reports, foundation design & provision of advice and recommendations.

Selected project experience includes :

[North Falls Sandbank, Southern North Sea](#)

Design and supervision of offshore site investigation for a proposed radio tower and protective gravity structure, including geotechnical report.

[Offshore tension Leg Piling research Project](#)

Geotechnical engineer on secondment to Building Research Station for collation, analysis and appraisal of offshore site investigation techniques and resultant data.

Benghazi Ring and Infrastructure Roads, Libya

Design and supervision of ground investigation to assess sabkha “ soft clays ” and embankment design for road projects. Report on the engineering geology of Benghazi for road design.

Cheddar Gorge, Somerset

Design of temporary rock anchors, specification and supervision of anchor installation, proof testing and stressing.

Resident Engineer, London

Supervised construction of basement retaining wall and foundation piles for two separate building projects in London.

Office Complex in Newcastle

Supervised site investigation including insitu permeability testing to assess long term consolidation behaviour.

1977 to 1980**Ove Arup & Partners, Scotland**

Geologist involved in over 50 site appraisals in UK and overseas, design and supervision of numerous ground investigations, geotechnical reporting. Projects included redevelopment of old industrial areas of which many were undermined by coal / mineral workings. Developed rotary percussive probing techniques for location of mine workings, cavities, shafts and rockhead.

Selected project experience includes :

Islamic University in Riyadh, Saudi Arabia

Geological mapping, joint survey and appraisal of contorted and highly fractured “ collapsed ” Arab Formation limestone.

Methil No. 3 Dock, Scotland

Supervision of diving inspection, geophysics and site investigation for dock reclamation scheme. Geotechnical report including assessment of rock fill.

Riyadh to Damman Expressway, Saudi Arabia

Route appraisal, air photograph interpretation, engineering geological mapping, supervision of site investigation for 600 km highway across desert, mobile / stable sand dunes, wadis and “ Sabkha ”. Aggregate resources survey and assessment of potential quarry sites.

Calton Hill Slope Stability, Edinburgh

Joint survey, probing of colluvium and slope stability analysis.

Hotel Project in Al Kharj, Saudi Arabia

Design and supervision of site investigation of collapsed limestones overlain by wadi sands and gravels. Geotechnical report and foundation design.

United Kingdom

Feasibility studies, air photograph interpretation, design and supervision of site investigations for numerous sites either on “ boulder clay ” or affected by shallow / deep mine workings, “ crown holes ”, shafts and subsidence including subsequent design of remedial measures and foundations.

Landfill Sites in United Kingdom

Investigation and geotechnical assessment including road / foundation design for re-instatement of limestone quarry and also for a development on a reclaimed municipal waste tip.

Office Complex in Damman, Saudi Arabia

Supervision of site investigation of “ Sabkha ” deposits, geotechnical report and foundation design.

1977 Ove Arup & Partner, Scotland

Assistant Resident Engineer on large civil engineering project in Shotts, Scotland. Responsible for earthworks, river diversion, foundation construction and associated road, drainage and building works. Assessment of construction materials and quarry sources.

1975 to 1976 Strata Surveys, Nortwich, Cheshire

Geologist / driller working for site investigation contractor. Practical experience of shell and auger boring and rotary core drilling. Investigations for major pipeline in Home Counties, motorway in Lancashire and numerous sites throughout UK for housing and industrial development.

7. PUBLICATIONS AND PAPERS

- * *Settlement Behaviour of Tropically Weathered Volcanic Soils* (co. author)
5th International Symposium on Field Measurements. Singapore, 1999.
- * *Selection of Deformation Parameters for Settlement Prediction on Tropical Volcanic Soils* (co. author) Indonesian Geotechnics Conference, Institute of Technology Bandung, Indonesia 1998.
- * *Pile Integrity Testing and Quality Control* (co. author)
Indonesian Geotechnics Conference, Institute of Technology Bandung, Indonesia 1998.
- * *Engineering Geology and Slope Stability of Tropical residual Soils in West Java, Indonesia.*
6th International Congress of the International Association of Engineering Geology. Amsterdam 1990.
- * *Keuper Marl : A Revised Classification*
The Engineering geology of Weak Rock. 26th BGS Conference. Leeds 1990.
- * *Settlement of a Heavy Foundation on Layered Rock* VII Pan American Conference on Soil Mechanics and Foundation Engineering - Cartagena, Colombia 1987.
- * *Calibration and Use of a High Capacity Pressuremeter to Determine Rock Stiffness.* 2nd International Symposium on the Pressuremeter and its Marine Applications. ASTM STP950 New College Station, USA 1986.
- * *Planning Constraints and their Influence on Quarrying of the Magnesian Limestone* (co - author) Planning and Engineering Geology Conference, Plymouth, UK 1986.