

Dr HILSON DENEYS SCHREINER

Technical Director, Geotechnical Engineering



This is a general purpose version of a CV for an Expert Appointment or Expert Report.

EDUCATIONAL QUALIFICATIONS

BScEng (Civil) 1974
MScEng (Geotechnical) 1976
DIC 1989
PhD (Soil Mechanics) 1989

PROFESSIONAL ASSOCIATIONS

CEng, Chartered Geotechnical Engineer, UK 1984
MICE, Member of the Institution of Civil Engineers 1984

CORE SKILLS

- Expansive and unsaturated soils
- Rail and road foundations
- Piles and anchors
- Slope stability
- Foundation Designs
- Soil-Structure Interaction
- Compaction and earthworks

Present and past posts

I am currently a Technical Director in the Geotechnical group in Arcadis UK

In this post I provide senior input on geotechnical engineering and design matters to members of the group and to our Clients. I am responsible for managing risk to Arcadis and to our Clients by providing safe geotechnical designs.

I have previously held the following posts:

Technical Director, WorleyParsons, London, 2012 - 2015
Technical Director, URS, London, 2009 - 2012
Principal Geotechnical Engineer, Atkins, London, 2009
Head of Geotechnical Engineering, Jeffares & Green, South Africa, 2003 - 2008
Professor of Geotechnical Engineering, University of Natal, South Africa 1992 - 2007
Research Assistant, Imperial College, London, 1985 - 1992
Senior Engineer, McClelland Engineers, London, 1983 - 1985
Associate, Ove Arup and Partners, South Africa, 1980 - 1983
CBI in-service training scholarship, United Kingdom, 1979 - 1980
Soils Engineer, DL Webb and Associates, South Africa, 1977 - 1979

Principal professional specialism

My primary training is in Civil Engineering. I followed my Civil Engineering degree with specialisation into Geotechnical Engineering via a research degree in piled foundations. I have remained in this specialism to the present day.

My geotechnical engineering specialisation extends over a wide range of geotechnical analyses and designs. These include: rail and station designs, road design from factory access through heavy mine haul roads to motorways, ground investigation and designs for major pipelines, piles for ground conditions ranging from expansive and collapsing soils in dry countries to soft and stiff offshore clays for oil and gas installations and marine structures; rock anchors for a stress ribbon bridge; shallow spread foundations for low rise structures, reservoirs and viaducts; basements in saturated sands, alluvium, stiff clays and glacial tills; retaining structures for natural and made ground; landfill foundations and linings; expert witness services and ground investigations for various types of development projects.

Selected recent expert witness experience

Old Harbour Bay Expert Witness, Jamaica

I provided expert witness services to claimant in arbitration for a claim for additional geotechnical piling works due to alleged differences between the ground investigation report provided by the client and the ground investigation undertaken by the contractor. My services included advice to the legal team and claimant, meetings with the defendant's expert and preparation of our joint statement, preparation of my expert report and giving evidence to the Arbitration Panel. Details remain confidential. Dates: 2021 - 2022.

Avonmouth Warehouse

I worked on the geotechnical aspects of the £200million claim for about 5 years, initially as an advisor to the Design and Build Contractor and for the final year and a half as the Expert Witness instructed by RPC on behalf of the Design and Build Contractor. The primary geotechnical failure related to piles passing through soft alluvium adjacent to a large estuary supposedly into dense sand. Extensive ground investigation and pile capacity and settlement analyses were undertaken to determine the cause of excessive settlement of the pile supported floor slab. Considerable agreement was reached between the 6 parties prior to commencement of the Court proceedings. I prepared a full Expert Report as did the experts for the other parties. The dispute was settled out-of-court after completion of the expert report to the satisfaction of Counsel, court preparation and commencement of court proceedings. 2010-2015

Motorway cutting failure, Scotland

I was appointed as expert witness to the Contractor for an Adjudication on a claim against the designer where a failure had occurred on one of the cutting slopes. My investigation considered the information available to the designer and the use that was made of the information in order to assess the cause of the failure. My expert report opined that the failure was due to a sequence of omissions and incorrect design choices which, in part, were consequences of a significant failure to assess the ground conditions properly from the available information. 2018-2019

M60 motorway foundation

I provided advice to the Contractor in relation to the preparation of expert witness services for the defence against a claim by the Client regarding inadequate construction on a UK Motorway. The geotechnical part of the claim related to inadequate quality of the materials used in the upper layers of the foundation and the capping layer and alleged consequent damage to the motorway pavement. The claim also addressed the risk of potential future damage. My opinion at the stage that the work ceased was that both parties had contributed to the outcome of the construction. The Claim did not proceed to Court and therefore I was not instructed as an Expert Witness. 2014

Residential Development foundation design

Details of parties remain confidential. The claim related to the extent and quality of a ground investigation and interpretative report for a housing development on expansive soils and the presence of trees on the site in east Sussex. My role was to advise the Developer on the works undertaken by the ground investigation contractor which included recommendations on foundation types. It was alleged that the recommended foundation solutions did not take adequate account of the expansiveness of the ground and the desiccation due to the presence of trees. The claim was not taken further. 2015-2016

Excavatability for road drainage

I provided advice to a contractor on the interpretation of available ground information in relation to the excavatability of ground for drainage trenches. It was alleged that the excavatability encountered on site was less easy than had been predicted in the tender documentation. Extensive re-assessment of the excavatability of the sandstone led to the conclusion that there

had been sufficient information available to the contractor at the Tender stage to plan the excavation plant requirements appropriately. 2015

Tender design vs design for construction, details confidential

I prepared an expert report on a claim relating to a significant difference between a tender design for a motorway underpass in Scotland and the design for construction. My assessment considered the viability of the tender design and the requirements for the significant increase in the provisions of stabilising components in the design for construction. Although the finding was that the tender design had been inadequate, the claim did not proceed to formal submission because my client, part of the Construction JV, ceased trading. 2016

Selected recent design experience

Technical Director, Arcadis, Bristol

HS2 Geotechnical Design for C2 and C3, UK

Provision of Geotechnical Design technical leadership and quality control for the DJV Team for the Detailed Design of earthworks and structure foundations for sections C2 South and Central. This part of the HS2 route for the 360km/hr high speed rail system crosses several major geological formations and several lesser formations. Particular problems include large predicted ground heave in deep, cuttings (max 30m depth), settlement of high and very wide embankments, design of piles in heaving ground to support structures and transmission of Rayleigh waves in relation to the 360km/hr train speed. Dates: 2017 – ongoing

Jeddah Metro, Saudi Arabia

I served as the Lead Geotechnical Engineer for the Foster+Partners Team for the Preliminary Design of specified Elevated and Underground Stations. Elevated stations required innovative design of foundations for single line of column supports with very large vertical and overturning loads. A bespoke spreadsheet was developed to analyse barrette foundation groups for axial, lateral and moment loading. Underground Stations required interaction with structural engineers responsible for the internal structure and with the design consultant responsible for the design of the ground supporting diaphragm walls. Use was made of Finite Element software and simpler analytical packages as appropriate to address the soil-structure interaction. Dates: 2015 to 2016

Bryn Cowlyd AMP6, Wales

As part of my overall responsibility for geotechnical aspects of the AMP 6 projects, was the geotechnical lead involved with the planning, design and construction of the new water treatment works at Bryn Colwyd in the Conway Valley. The geotechnical scope included the desk study, planning and supervision of the ground investigation and technical design support to the civil engineering team. Ground conditions proved exceptionally complex and adaptations have been made to the design during construction. The work was undertaken in an alliance of the client, the contractor and ourselves as the designer. Dates: 2015 2018

Cardiff Intersection Bridges

I served as the Geotechnical CRE for the design and construction of enabling works for track lowering under two bridges near Cardiff Station. A particular challenge was to support the existing rail overbridge when replacing the culvert near to and below the bridge foundations. A tied back retaining wall was designed to limit movement of the foundation and protect the overbridge. Dates: 2017-2018

Technical Director, WorleyParsons, London

TANAP pipeline

I was the Reviewer for all Geotechnical aspects of the EPCM detailed design work for an 1800km pipeline across Turkey. Geohazards included earthquakes, landslides, Karst, fault crossings, subsea mudmounds and soft ground, liquefaction, landfall design and shallow groundwater. Foundation solutions for compressor and metering stations were developed to suit the local ground conditions which ranged from steep potentially unstable slopes to potentially liquefiable loose sands. Areas of identified landslides were

avoided by re-routing the pipeline. Extensive use was made of field visits by multidisciplinary teams with design decisions made on site. Particular attention was paid to fault crossings to assess likely movement and mitigation measures. 2013-2015

Sullom Voe Gas Plant, Shetland Isles

I was the Lead Geotechnical Engineer for the planning and execution of the ground Investigation for the proposed addition of a gas cleaning plant adjacent to the live main plant. Sea water supply and discharge pipelines were routed adjacent to and across existing high pressure gas pipelines and a process critical water discharge pipeline. The ground conditions were complicated by previous usages which included an uncontrolled dump for the infilling of a sea inlet along the proposed seawater and gas pipeline routes and previous excavation in the underlying granite under part of the new plant site. Dates: 2012 – 2013

Technical Director, URS, London

Crossrail Paddington Station

Lead Geotechnical Engineer for the RIBA E detailed design of the Paddington Station deep excavation and associated ground engineering. The multi-level station box was constructed by top down construction inside a diaphragm wall. Existing adjacent structures impose severe constraints on the magnitudes of acceptable movements in the ground outside the structure. The bored tunnels pass through the part complete station requiring assessment of the interaction between the two construction processes. Geotechnical FE analysis undertaken with structural engineers to analyse the soil and structure together. Dates: 2010 to 2012

Professional Responsibilities

I served on the South African Institution of Civil Engineering's Geotechnical Division Committee and chaired the committee for 2 years.

I served on the Education Accreditation Committee of the Engineering Council of South Africa.

Expert Witness Training

I have completed a 5 day course provided by The Academy of Experts, London, 2023

Technical Papers and courses

Journals and refereed proceedings

- Packer M.L., d'Agostimo, S.J. & Schreiner, H.D. (2021) Systematic field test of non-destructive techniques for driven cast in situ pile lengths, Geotechnical Engineering, ICE, London
- Schreiner H.D. & Habte, K.B. (2008) A Universal method for assessing the intrinsic expansiveness of soils. SAICE Problem soils seminar, Nov 3.
- Vicente, E. M.; Jermy, C. A. & Schreiner, H. D. (2006). Urban Geology of Maputo, Mozambique. International Association of Engineering Geologists Congress. Nottingham, 12 pp.
- Schreiner H.D. & Meiring, J. (2001) The Selection of soil parameters for limit state and factor of safety designs. Journal SAICE. Vol.43, No.1, p19-23
- Schreiner H.D. & Gourley C.S. (1995). Description of moisture content in soil profiling. Quarterly Journal of Engineering Geology, Vol.28, p195-8.

Conferences

- Packer M.L., d'Agostino S.J., Schreiner H.D., Webber I. and Newman R.L. (2020) Site trial of non-destructive techniques for identifying driven casit in situ pile toe depths. Pilling 2020
- Schreiner H.D. & Habte, K.B. (2015). On the intrinsic expansiveness of soils. XVI European Conference on Soil Mechanics and Geotechnical Engineering, Edinburgh
- Schreiner H.D. (2013) Basement delivery: how should they be delivered at the front end. Basements and Underground Structures Conference, London
- Schreiner, H.D., Norris, J.C., Speirs, T, and Melvill, A.L. (2009). Non-Erosion filtration tests for dam filter design. Proc South African National Committee on Large Dams.
- Schreiner, H.D. (2008). Rock Anchors pass the test. Civil Engineering, SAICE magazine Special Issue on Geotechnical Engineering, April 2008.

- Schreiner, H.D. & Okonta, F. (2002). The effect of shear induced collapse on pile capacity. Proc UNSAT2002, Brazil
- Schreiner H.D. (1999). A new approach to the determination of the expansiveness of soils. Proc 12 African Reg Conf SMGE, Durban p405-13.
- Popescu, M. Rosenbaum, M. Schreiner, H.D. and Nathaniel, P. (1998). Regional scale assessment of expansive soils as a geo-hazard, Symposium on Problem soils, Tohoku, Japan. p283-88
- Gourley C.S. & Schreiner H.D. (1995). Field measurement of soil suction. Proc 1st Int Conf on Unsaturated Soils, Paris.
- Schreiner H.D. & Popescu M.E. (1995). Some engineering characteristics of expansive and collapsible soils. Proc 11th Reg Conf for Africa on SM & FE, Cairo.
- Schreiner H.D Burland J.B & Gourley C.S (1994). Swell and collapse of a partially saturated expansive soil, Proc 13 ICSMFE, New Delhi, Vol. 4, p1501-6.
- Gourley C.S. Newill D. & Schreiner H.D. (1994). Expansive soils: TRL's research strategy, Proc Int Symp on Eng Chars of Arid Soils, London. P247-60
- Crilly M.S Schreiner H.D & Gourley C.S (1991). A simple field suction measurement probe, Proc 10 African Reg Conf SMFE, Lesotho, 1991, p291-8.
- Schreiner H.D. & Burland J.B. (1991). A comparison of the three standard swell tests, Proc. 10 African Reg Conf SMFE, Lesotho, p259-66.
- Schreiner H.D. (1991). Sample preparation, stress and suction history and microfabric in the development of a model for unsaturated soils, Colloque sur les soils non satures, Ecole Polytechnique Federal de Lausanne. 6pp
- Schreiner H.D. (1987). The use of predictive methods in expansive soil engineering, Proc 9 African Conf. SMFE, Lagos, p135-152.
- Schreiner H.D. (1987). The measurement of solute suction in soils of high plasticity, Proc. 9 African Conf. SMFE, Lagos, p163-172.
- Schreiner H.D. (1987). Swelling of soils compacted dry of the plastic limit, Proc. 6 Int Conf. on Expansive Soils, New Delhi, p395-398.
- Schreiner H.D. & Burland J.B (1987). Stress paths during swelling of compacted soils under controlled suction, Proc. 6 Int Conf. on Expansive soils, New Delhi, p155-160.
- Oloo S.Y, Schreiner H.D. & Burland J.B (1987). Identification and classification of expansive soils, Proc 6 Int Conf. on Expansive soils, New Delhi, p23-29.

Specialist Courses

Contributor

- CE evening lectures, South Branch (2013) Basement design
- URS in-house training (2013) Eurocode 7 Drafted retaining wall module and presenter in southern region.
- SAICE half day course on Lateral Support (2006) Presenter
- SAICE half day course on Insitu Testing (1995) Course Organiser and Presenter of Plate Load Testing module
- Schreiner H.D. & Vaughan P.R. (1987). Tropical and Residual Soils, delivery of CPD 3 day course at Imperial College