

## **Jamie R Standing**

**Professor of Ground Engineering, Department of Civil & Environmental Engineering,  
Imperial College London**

### **Education**

BSc (Hons) Civil Engineering – University of Dundee - 1983

MSc Soil Mechanics – Imperial College, University of London - 1987

DIC (Diploma of Imperial College) - 1987

PhD Geotechnical Engineering (thesis: Interface resistance of soil nails) - 1997

MICE CEng – Institution of Civil Engineers – 1999

FGS – Fellow of the Geological Society - 2022

### **Teaching background**

Professor Standing teaches Soil Mechanics and Geotechnical Engineering at MEng and MSc level. He is an active researcher who has supervised a large number of MSc and PhD projects and has published numerous papers mostly relating to ground and structural response to tunnelling and full-scale field monitoring but his interests and papers also cover many other elements of geotechnical engineering such as field instrumentation, piling and ground strengthening, soil characterisation, unsaturated soils and engineering geology.

### **Academic background**

Member of academic staff in the Geotechnics Section of the Department of Civil and Environmental Engineering at Imperial College since 2002 (Lecturer, Senior Lecturer, Reader and now Professor) and before that University Lecturer for three years in the Engineering Department at Cambridge University (1999 to 2002) and Fellow of Downing College, Cambridge. Visiting professor at the Beijing University of Technology (2008-2011)

### **Professional background**

Fugro Ltd – Geotechnical Engineer – 1984-1987 (with one year interruption to study for MSc)

Arup Geotechnics – Geotechnical Engineer – 1987-1989

Imperial College – Research Assistant – 1989-1994

Imperial College and London Underground (Jubilee Line Extension Project) – Research Fellow 1994-1999

Geotechnical Consulting Group – Associate – 2001 to present

### **Current scientific research**

Tunnelling- and deep excavation-induced ground movements, the effects of tunnelling on the urban environment (surface and subsurface structures, services etc.) including piled foundations and existing tunnels; monitoring of the ground and structures (surveying, instrumentation etc.); soil nailing and reinforced earth; soil structure interaction and small-scale modelling; natural and intrinsic behaviour of London Clay (especially with respect to its divisions) and other soils; residual and tropical soils; unsaturated soil mechanics, tailings dams.

### **Primary past research**

Principal Investigator for two EPSRC grants (Engineering and Physical Sciences Research Council) relating to tunnelling: one in conjunction with the Channel Tunnel Rail Link (CTRL) project (research project completed in 2002) and with the Crossrail project in London which was completed in 2014.

JRS has also been an investigator on several other projects. He was Team Leader of the LINK CMR project (Construction, Maintenance and Refurbishment), *Ground and structural response to tunnelling: prediction, protection and repair* run in conjunction with the Jubilee Line Extension Project (JLEP) from 1994-1998. These three projects investigated the London Clay ground response to tunnelling and so also included detailed characterisation of this geological formation, including an extensive programme of advanced laboratory testing for the Crossrail project. He also ran the LUL-funded project to investigate reasons for the large tunnelling-induced volume losses from the JLEP tunnelling in London Clay at Westminster from 1998-1999.

Many of JRS's research interests are closely linked with industry and Civil Engineering practice. He maintains close relations with industry through his GCG connection and also with other companies such as Arup, Atkins and Mott MacDonald. He has also worked on consulting projects through the Imperial College consulting group, ICON. Many of these projects have involved the interpretation of ground investigation and laboratory testing results and monitoring the ground and structures and the detailed engineering

interpretation of the field data.

### **Academic and professional positions**

Member of COST C7 (Co-operation in Science and Technology, Committee 7), 1998 to 2001.

Member of the ISSMGE's Technical Committee 204 (formerly TC28), Underground Construction in Soft Ground, 2002 to present (Secretary from 2001-2012). Co-opted member of Executive Committee of the British Geotechnical Association, 2003 to 2006 and 2013 to 2016.

Visiting Professor at Beijing University of Technology, 2006 – 2010.

Member of Executive Committee of the British Tunnelling Society 2014 to 2017.

Member of Géotechnique Advisory Panel 2006 to 2008.

Member of Editorial Panel of Quarterly Journal of Engineering Geology and Hydrogeology, 2013 to 2018 (Assistant Scientific Editor 2015 to 2018).

Member of the International Board of Experts (IBE) for the Zelazny Most copper mine tailings dam, Poland, 2016 to 2021.

External examiner for the MSc course in Engineering Geology at the University of Leeds (2017 to 2021).

Member of the ISSMGE's Technical Committee 301, Geotechnical engineering of historic sites, 2020 to present.

Member of the ISSMGE's Technical Committee 220, Field Monitoring in Geomechanics, 2020 to present.

Member of the ISSMGE's Technical Committee 204, Underground construction in soft ground, 2020 to present.

### **Selection of relevant publications**

Burland J.B., Standing J.R. and Jardine F.M. (eds): *Building response to tunnelling. Case studies from the Jubilee Line Extension, London, Volume 1, Projects and methods*, CIRIA Special Publication 200. CIRIA and Thomas Telford, London, 2001.

Burland J.B., Standing J.R. and Jardine F.M. (eds): *Building response to tunnelling. Case studies from the Jubilee Line Extension, London, Volume 2, Case studies*, CIRIA Special Publication 200. CIRIA and Thomas Telford, London, 2002.

Jacobsz, S.W., Standing, J.R., Mair, R.J., Soga, K., Hagiwara, T. and Sugiyama, T. (2004). Centrifuge modelling of tunnelling near driven piles. *Soils and Foundations*, Feb 2004, Vol. 44, No.1 pp 51-58. (original Toulouse [Paper awarded Jennings Award, 2002](#))

Standing, J.R. and Burland, J.B. (2006). Unexpected tunnelling volume losses in the Westminster area, London. *Géotechnique*, Vol. 56, No. 1, pp 11-26.

Han, X., Li, N. and Standing, J.R. (2007). An adaptability study of Gaussian equation applied to predicting ground settlements induced by tunnelling in China. *Rock and Soil Mechanics*, Vol. 28, No. 1, pp 23-28. (Chinese Journal published in Chinese)

Han, X., Li, N. and Standing, J.R. (2007). Study on subsurface ground movement caused by urban tunnelling. *Rock and Soil Mechanics*, Vol. 28, No. 3, pp 609-612. (Chinese Journal published in Chinese)

Choy, C.K., Standing, J.R. and Mair, R.J. (2007). Stability of a loaded pile adjacent to a slurry-supported trench. *Géotechnique*, Vol. 57, No. 10, pp 807-819.

Han, X., Standing, J.R. and Li, N. (2009). Modified stiffness approach to predict deformation of buildings induced by tunnelling. *Chinese Journal of Geotechnical Engineering*, Vol. 31, No. 4, pp 539-545. (Chinese Journal published in Chinese)

Han, X., Standing, J.R. and Li, N. (2010). Analysis of tunnelling-induced twist in buildings. *China Civil Engineering Journal*, Vol. 43, No. 1, pp 82-88. (Chinese Journal published in Chinese)

Han, X., Li, N. and Standing, J.R. (2010). Studying characteristics of structural deformation caused by urban excavation. *China Civil Engineering Journal*, Vol. 44 (Supplement), pp 135-141, 229. (Chinese Journal published in Chinese) ([3rd class best paper award from the Chinese Society of Civil Engineering](#))

Han, X., Liu, C. and Standing, J.R. (2012). Structural settlement of existing tunnels caused by new tunnel excavations underneath. *Chinese Civil Engineering Journal*, Vol. 45, No. 1, pp 134-141. (Chinese Journal)

published in Chinese)

Puzrin, A.M., Burland, J.B. and Standing, J.R. (2012). Simple approach to predicting ground displacements caused by tunnelling in undrained anisotropic elastic soil. *Géotechnique*, Vol. 62, No. 4, pp 341-352. ([Paper awarded the Geotechnical Research Medal](#))

Standing, J.R. and Selemetas, D. (2013). Greenfield ground response to EPBM tunnelling in London Clay. *Géotechnique*, Vol. 63, No. 12, pp 989-1007.

Fearnhead, N., Maniscalco, K., Standing, J.R. and Wan, M.S.P. (2014). Deep excavations: monitoring mechanisms of ground displacement. *Proceedings of the Institution of Civil Engineers-Geotechnical Engineering*, Vol. 167, GE 2, pp 117-129.

Fong, F.H.Y., Standing, J.R. & Bourne-Webb, P.J. (2014). Observations of building response to adjacent deep basement construction – a case study. *Proc. ICE - Geotechnical Engineering*, Vol. 167, GE 2, pp 130-143.

Choy, C.K., Standing, J.R. and Mair, R.J. (2014). Centrifuge modelling of diaphragm wall construction adjacent to piled foundations. *ASTM International, Geotechnical Testing Journal*, Vol. 37, No. 4, pp 567-584.

Wan, M.S.P. and Standing, J.R. (2014). Lessons learnt from installation of field instrumentation to monitor ground response to tunnelling. *Proc. ICE - Geotechnical Engineering*, Vol. 167, No. GE5, pp 491–506. (<http://dx.doi.org/10.1680/geng.13.00054>)

Hauswirth, D., Puzrin, A. M., Carrera, A., Standing, J.R. and Wan, S.P.M. (2014). Application of fibre optic sensors for simple assessment of ground surface displacements during tunnelling. *Géotechnique*, Vol. 64, No. 10, pp. 837–842. (<http://dx.doi.org/10.1680/geot.14.T.0009>)

Yu, J., Standing, J.R., Vollum, R., Potts, D. M. and Burland, J.B. (2015). Stress and strain monitoring at Tottenham Court Road Station, London, UK. *Proc. ICE – Structures and Buildings*, Vol. 168, No. SB2, pp 107–117. (<http://dx.doi.org/10.1680/stub.14.00012>)

Avgerinos, V., Potts, D.M. and Standing, J.R. (2016). The use of kinematic hardening models to predict tunnelling-induced soil movements in London Clay. *Géotechnique* Vol. 66, No. 2, pp 106 – 120. (<http://dx.doi.org/10.1680/jgeot.15.P.035>) ([Paper awarded the Geotechnical Research Medal](#))

Yu, J., Standing, J.R., Vollum, R., Potts, D.M. and Burland, J.B. (2017). Experimental investigations of bolted segmental grey cast iron lining behaviour. *Tunnelling and Underground Space Technology*, Vol. 61, pp 161-178.

Wan, M.S.P., Standing, J.R., Potts, D.M. and Burland, J.B. (2017). Measured short-term ground surface response to EPBM tunnelling in London Clay. *Géotechnique* Vol. 67, No. 5, pp. 420-445.

Afshan, S., Yu, J.B.Y., Standing, J.R., Vollum, R.L. and Potts, D.M. (2017). Ultimate capacity of a segmental grey cast iron tunnel lining ring subjected to large deformations. *Tunnelling and Underground Space Technology*, Vol. 64, pp 74-84.

Tsiampousi, A., Yu, J., Standing, J.R., Vollum, R. and Potts, D.M. (2017). Behaviour of bolted cast iron joints. *Tunnelling and Underground Space Technology*, Vol. 68, pp 113-129.

Standing, J.R. and Lau, C. (2017). Small-scale model for investigating tunnel lining deformations. *Tunnelling and Underground Space Technology*, Vol. 68, pp. 130-141.

Wan, M.S.P., Standing, J.R., Potts, D.M. and Burland, J.B. (2017). Measured short-term subsurface ground displacements from EPBM tunnelling in London Clay. *Géotechnique*, Vol. 67, No. 9, pp. 748-779. ([Paper awarded the Telford Gold Medal](#))

Avgerinos, V., Potts, D.M. and Standing, J.R. (2017). Numerical investigation of the effects of tunnelling on existing tunnels. *Géotechnique* Vol. 67, No. 9, pp. 808-822.

Selemetas, D. and Standing, J.R. (2017). Response of full-scale piles to EPBM tunnelling in London Clay. *Géotechnique* Vol. 67, No. 9, pp. 823-836.

Avgerinos, V., Potts, D.M., Standing, J.R. and Wan M.S.P (2018). Predicting tunnelling-induced ground movements and interpreting field measurements using numerical analysis: Crossrail case study at Hyde Park. *Géotechnique* Vol. 68, No. 1, pp. 31-49.

Wan, M.S.P., Standing, J.R., Potts, D.M. and Burland, J.B. (2019). Pore water pressure and total horizontal stress response to EPBM tunnelling in London Clay. *Géotechnique*, Vol. 69, No. 5, pp. 434-457.  
<https://doi.org/10.1680/jgeot.17.P.309> (Paper awarded the Telford Gold Medal and the BGA medal)

Avgerinos, V., Potts, D.M., Standing, J.R., Wan M.S.P., Ieronymaki, I., Boukin, K. and Whittle, A.J. (2019). Discussion on: Predicting tunnelling-induced ground movements and interpreting field measurements using numerical analysis: Crossrail case study at Hyde Park. *Géotechnique* Vol. 69, No. 10, pp. 936-939. <https://doi.org/10.1680/jgeot.18.D.008>

Standing, J.R. (2020). Identification and implications of the London Clay Formation divisions from an engineering perspective. *Proceeding of the Geologists' Association*. Vol. 131, pp. 486-499.  
<https://doi.org/10.1016/j.pgeola.2018.08.007>

Standing, J.R. and Buss, S.R. (2020). Measurement and monitoring. *Quarterly Journal of Engineering Geology and Hydrogeology*, Vol. 53, No. 3, pp 349-351.  
(<https://doi.org/10.1144/qjgegh2020-119>)

Standing, J.R. (2020). John Burland's deep-excavation- and tunnelling-related research and industry involvement. *Geotechnical Engineering Journal of the SEAGS & AGSSEA*, Vol. 51 No.3, pp 44-51.

Wan, M.S.P., Standing, J.R., Potts, D.M., Burland, J.B., Parker, S. and Thomas, I. (2021). Discussion on Pore water pressure and total horizontal stress response to EPBM tunnelling in London Clay. *Géotechnique*. Vol. 71, No. 4, pp 368-372. (<https://doi.org/10.1680/jgeot.19.D.007>)

Standing, J.R., Vaughan, P.R., Charles-Jones, S. and McGinnity, B.T. (2021). Observed behaviour of old railway embankments formed of ash and dumped clay fill. *Géotechnique*, Vol. 71, No. 11, pp 938-956.

Lopez, A.R., Tsiampousi, A., Standing, J.R. and Potts, D.M. (2022). Numerical investigation of a segmental grey cast iron tunnel ring: validation with laboratory data and application to field conditions. *COGE*, Vol. 141, 104427, 19p.

Le, T., Airey, D. and Standing, J.R. (2021). Influence of shearing strain rate on the mechanical behaviour of three different structured clays. Submitted to *Géotechnique* September 2021. Accepted September 2022. Available ahead of print. <https://doi.org/10.1680/jgeot.21.00277>

Le, T., Standing, J.R. and Potts, D.M. (2024). Reassessing variations in the small-strain stiffness of London Clay. *Géotechnique*, Vol. 74, No. 4, pp 383-397. <https://doi.org/10.1680/jgeot.21.00292>

Lopez, A.R., Tsiampousi, A., Standing, J.R. and Potts, D.M. (2023). Numerical characterisation of the rotational behaviour of grey cast iron tunnel joints. *COGE*, Vol. 159, 105460, 17p.

Lopez, A.R., Tsiampousi, A., Standing, J.R. and Potts, D.M. (2022). The influence of tunnel joints on the present-day condition of a grey cast iron tunnel. *COGE*, Vol. 164, 105701, 18p.

Foo, C., Le, T., Bailie, P. and Standing, J.R. (2023). Back-analysis of an embedded retaining wall in stiff clay. *Proc. ICE - Geotechnical Engineering*. <https://doi.org/10.1680/jgeen.22.00072>

Lopez, A.R., Tsiampousi, A., Standing, J.R. and Potts, D.M. (2024). A new model for simulating the behaviour of grey cast iron tunnel joints with structural elements. *Engineering Structures*, <https://doi.org/10.1016/j.engstruct.2023.1173>