Personal Details

Nationality Irish

Year of Birth 1987

Profession Principal Engineering Consultant

Specialisation Applied Research

Capability Statement

I am a civil engineer with 9 years of experience in academic & industrial research, and consulting/engineering design in infrastructure and tunnelling projects. I approach engineering with an emphasis on sustainability and durability and on how we can create a lasting and adaptable infrastructure. My experience with research and data analysis will be an asset for projects using innovative approaches or investigating little-known subjects – delivering value engineering and introducing innovation on time and on budget. I am also an Honorary Research Fellow at the University of Warwick.

Key Projects and Achievements

Thames Tideway West, Thames Water, £450m

- Design of tunnel/shaft linings and Lead Durability Designer for shafts and tunnels. This involved the delivery of materials specifications and testing schedules, the introduction of innovative concrete mixes (including steel fibre reinforced [SFRC] and sprayed concretes), a substantial durability assessment of steel and concrete structures, including probabilistic modelling of carbonation propagation, and an assessment of Microbial Induced Corrosion (MIC) and chloride induced corrosion. I was involved in the design of a pressurised SFRC double-lined 2.6m ID tunnel on a very tight alignment passing under the river Thames and in close proximity to significant developments – using FEA and other design methods.

Lee Tunnel, Thames Water, £650m

- Design of temporary works and remediation strategies for construction defects in a value engineered, fibre reinforced tunnel lining. Design of permanent structural works to support large diameter pipework tests and static bypass pipework and valves. Analysis of strength and strain data in steel fibre reinforced beams, to support design value engineering proposals assisted by physical testing.

Crossrail C510, £250m

- Study of complex twin-tunnel interaction for both short- and long-term surface and in-tunnel settlements above the SCL tunnels at Whitechapel station. This work was undertaken to help mitigate the effects of tunnelling activity on the surface and damage to properties of third-party stakeholders thus reducing the risk to the contract. This incorporated a state-of-the-art study of the current knowledge published in the field.

Other

- Writing technical papers for publication in journals, data analysis, numerical modelling, and automation of calculations using Matlab programming.

Education:

- MEng (Hons) in Civil Engineering, 1st Class, University of Warwick (2006-2010)
- PhD in Engineering, University of Warwick (2010-2014)

Professional Status

- Chartered Engineer – Institution of Civil Engineers (2018)

Employment Record

April 2019 – present

Principal Engineering Consultant – CECL Global

In my current role, I work with a wide range of Clients to deliver value engineering to tunnelling and underground related projects, including:

- Research and development
- Benchmarking and cost studies
- Construction support

I am also an Honorary Research Fellow at the University of Warwick, collaborating with industrial partners on industry-led challenges, including geotechnical and tunnelling/underground space projects.

2016-2019

Morgan Sindall Engineering Solutions Limited - Senior Design Engineer

As part of my role, I led the durability/materials design for the permanent tunnel and shaft structures for Thames Tideway West, which comprised an assessment of the steel and concrete materials used on the project. To meet the 120 year design life, the assessment was required to go above and beyond compliance with current codes of practice, and combine the most up-to-date industry guidance, model codes, and probabilistic assessment models to obtain design parameters for structural elements.

I was also lead designer on the King George's Park worksite (Thames Tideway West) – overseeing and coordinating the delivery of the permanent works, comprising a segmental shaft, SFRC shaft secondary lining and internal works. I was also involved in the design of a pressurised SFRC double-lined 2.6m ID tunnel on a very tight alignment passing under the river Thames and in close proximity to significant developments.

During this time, I was also seconded to the Joint Venture BMB on the Thames Tideway West project, to facilitate the implementation of the Designer's requirements during the construction phase.

2014-2016

UnPS Limited – Tunnel Design Engineer

I was involved in a range of projects, including the structural design and checking of temporary and permanent elements for the Lee Tunnel shafts and tunnel lining. I also analysed ground movements caused by tunnelling at Whitechapel station, as part of Crossrail C510 project. Other projects have included the design of repair works, numerical analysis of the behaviour of tunnel linings, a Front End Engineering Design for a cable tunnel, and the publication of two papers – one on the behaviour of steel fibre reinforced concrete, the other on the settlement behaviour around tunnels.

2010-2014

University of Warwick - PhD researcher (+ external projects in collaboration with industry)

Working towards my PhD, I designed and ran a physical experimental programme to model tube sampling disturbance. I worked closely with industrial partners and was involved in a separate experimental project with Morgan Sindall Underground Professional Services, using Particle Image Velocimetry to measure crack widths and strains in concrete and fibre reinforced concrete beams under flexural testing. During this time, I also took on teaching responsibilities in a range of undergraduate modules, including Surveying, Geotechnical Engineering and Structural Engineering, and won an award for my teaching. I produced three publications, including a paper in Geotechnique Letters (2013), and participated in an academic research exchange with Tsinghua University (China).

Publications

Hover, E.D., Ni, Q. and Guymer, I. (2012). Investigation of tube sampling disturbance using Transparent Soil and Particle Image Velocimetry, Proceedings from the 11th Australia – New Zealand Conference on Geomechanics, Melbourne

Hover, E.D., Ni, Q. and Guymer, I. (2013). Physical Modelling of Tube Sampling Disturbance in Clays Proceedings of the 5th International Young Engineers' Conference, Paris, 415-418

Hover, E.D., Ni, Q. and Guymer, I., 2013. Investigation of centreline strain path during tube penetration using transparent soil and particle image velocimetry. Géotechnique Letters, 3(2), pp.37-41.

Hover, Eyre D. (2014) The investigation of tube sampling disturbance using transparent soil and particle image velocimetry. PhD thesis, University of Warwick.

Hover, E., & Psomas, S. & Eddie, C. (2015). Short, Mid and Long-Term Tunneling-Induced Settlements at Whitechapel Station. Ground Engineering.

Hover, E., & Psomas, S., & Eddie, C. (2017). Estimating crack widths in steel fibre-reinforced concrete. ICE Proceedings – Construction materials.