

## BGA Touring Lecture 2019

MANCHESTER – 11<sup>th</sup> November 2019

GLASGOW – 12<sup>th</sup> November 2019

LEEDS – 13<sup>th</sup> November 2019

# Practical Implications of Subsurface Uncertainty: Lessons from 25 Years of “Dirt Engineering”

**Lisa Coyne**

**Golder Associates, Mississauga, Canada**

### Summary:

In an ideal geotechnical world, we would have subsurface risk-savvy clients and owners, good borehole coverage across our sites, and lots of in situ and laboratory testing including high complexity testing. However, competition for “lowest price engineering” – still common, despite experiential qualification and technical bid evaluation practices on some larger projects – frequently means that we have only Standard Penetration Tests, field vane shear strength tests, some limited index and classification testing, and a couple piezometers assuming competitive pricing doesn’t drive our industry colleagues to avoid these because of environmental regulatory costs related to sealing and decommissioning.

Glacial environments are chock-full of uncertainties due to depositional systems. Uncertainties in the absence of borehole coverage and testing drive conservatism to avoid being sued, leading to increased, yet masked, design and construction costs. At the other end of the spectrum, environments dominated by hard/dense glacial till soils can promote a level of complacency or optimism that can surprise practitioners, potentially leading to challenges with health and safety,



cost overruns associated with delays or changes in construction, increased maintenance costs related to poorly performing structures, and construction claims. So, what’s a ground engineer to do?

With lessons learned from projects criss-crossing Canada’s glaciated terrain – from compressible clays to competent tills, weathered sedimentary bedrock and those pesky “glacial erratics” – we’ll explore some of the state of practice and best practices in educating clients/owners, designing investigation programs and approaching geotechnical engineering to mitigate subsurface risks.

*Biography and venue details overleaf/*

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## Practical Implications of Subsurface Uncertainty: Lessons from 25 Years of “Dirt Engineering” (cont’d)

### Biography

**Lisa Coyne, P.Eng.**, is a senior geotechnical engineer and Principal of Golder Associates. Lisa graduated with a Bachelor of Applied Sciences in Geological Engineering from Queen’s University and has spent 25 years in geotechnical and foundation engineering, primarily for the transportation and infrastructure sectors in Canada. She began her career during a period of transit expansion in Toronto and gained experience through preliminary and detail design and some of the earliest geotechnical baseline report preparation in the country, capping this off with a role as resident geotechnical engineer for deep excavations and underground works. She was excited to subsequently build on her subsurface baseline experience on one of Vancouver’s transit lines, which crossed over and through everything from the softest soils to the hardest rocks. Since that time, she has been extensively involved in geotechnical engineering for highway and bridge rehabilitation, widening and new construction, with hundreds of structures and hundreds of kilometres of highway delivered through conventional design-bid-build and, more recently, alternate procurement contracts. In addition to providing senior and peer review and support during design and construction, she provides geotechnical expertise to value engineering, cost-risk assessment and constructability review workshops on transportation and development projects.



Alongside her love of “dirt” and consulting engineering, Lisa has had the opportunity to manage and lead teams of up to 150 people, and she is passionate about mentoring the next generation of colleagues. She currently serves on Golder’s global Board of Directors.

<p><b>BGA Touring Lecture (Manchester), hosted by the North West Geotechnical Group (NWGG)</b> Monday 11th November 2019, 18:30hrs (refreshments from 18:00) Renold Building – C2, University of Manchester, Altrincham St, M1 7JA</p>
<p><b>BGA Touring Lecture (Glasgow), hosted by the Scottish Geotechnical Group (SGG)</b> Tuesday 12th November 2019, 18:15hrs (refreshments from 17:30) Glasgow Caledonian University, Hamish Wood Building – Room W110, Glasgow G4 0BA</p>
<p><b>BGA Touring Lecture (Leeds), hosted by the Yorkshire Geotechnical Group (YGG)</b> Wednesday 13th November 2019, 18:30hrs University of Leeds, School of Civil Engineering, Woodhouse Lane, Leeds, LS2 9JT</p>

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