



# SEMINAR

School of Civil, Environmental & Mining Engineering

## “Design of buried pipes and culverts”

Monday July 13<sup>th</sup> at 4pm in Room N132, Engineering North

### Presented by Ian D. Moore, PhD, PEng, FCAE, FEIC

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#### Abstract

Over the past decade, a number of developments have been made in buried pipe design, based on laboratory testing and computer analysis. These rely on improved understanding of soil-pipe interaction, and new information regarding the strength limits of metal, fibre reinforced cement, thermoplastic and composite pipes. Various aspects of buried pipe and culvert design are outlined, and explained in the context of both experiments and design equations. Examples include the effect of soil support on circumferential shortening, global and local buckling in profiled thermoplastic pipes, three dimensional effects under vehicles in long span structures, and consideration of backfill placement and compaction on metal and polymer pipe structures. These findings have been or are being incorporated into AASHTO and other culvert and sewer design standards.

#### Biographical Notes

After training at the University of Sydney, Dr Moore held appointments at the University of Newcastle and the University of Western Ontario. Since 2001, he has been Professor and Canada Research Chair at Queen's University in Kingston, Ontario. Dr Moore's more than 200 technical publications examine conventional and trenchless installation and replacement of buried metal, concrete and thermoplastic pipes, contributing to North American and other codes of practice. Recent projects use computer analysis and specialized testing facilities to clarify soil and pipe limit states in culvert and sewer structures, and for cast in place liners and polymer pipes pulled into place using slip lining, pipe bursting and horizontal directional drilling. Dr Moore has been director of the GeoEngineering Centre at Queen's – RMC since its inception in 2002. He is active on various Editorial boards and technical committees, including his work as Editor of the Canadian Geotechnical Journal. Dr Moore has been recognized with honours from Professional societies in North America and beyond, including the American Society of Civil Engineers, the Canadian Geotechnical Society, and the North America Society of Trenchless Technology. Dr Moore has been elected as Fellow of both the Engineering Institute of Canada and the Canadian Academy of Engineering.