Engineering Group of The Geological Society

Managing Risk

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MAKING TOMORROW A BETTER PLACE

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Introduction

Operations Director Carillion Civil Engineering

- 25 years experience in Civil Engineering
- Rail
- Roads and Bridges
- Airports
- Marine Structures

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Managing Risk

- What is Construction Risk
- Key areas of Risk
- How can risk be mitigated
- Who can manage Risk

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What is Risk

Any event that has potential to impact on

- **Safety**
- **Quality**
- **Environment**
- **Reputation**
- **Programme**
- **Cost**

Key Areas of Construction Risk

Geotechnical and Ground Condition Risks

- Contamination
- Deep foundations
- Earthworks
- Shallow foundations
- Unforeseen voids
- Services

Contamination

- Can occur in ground water or excavation
- Heavy Metals
- Hydro Carbons
- Chemical
- Asbestos

Deep Foundation

Risks

- Ground Movements from D-wall, secant wall
- Obstructions
- Deep tunnels
- Local changes
- Inadequate depth of GI

Earthworks and Shallow Foundations

Risks

- Live and redundant services
- Quantity changes due to inaccurate GI
- Buried structures
- Contamination

Unforeseen Void

Risks

- Collapse of ground or adjacent structure
- Overturning of plant
- Delay due to redesign
- Delay due to infilling

Unforeseen Voids

Unforeseen Voids

Buried Services

Risks

- Safety of Workforce and Public
- Interruption of Supply to Public
- Redesign to avoid services
- Disruption to traffic
- Damage to reputation
- Delay to programme

Risk Mitigation

- Risk management process
- Risk software
- Staff and training
- Input of Integrated Team
- Key high impact-low probability risk
- Timing of intervention

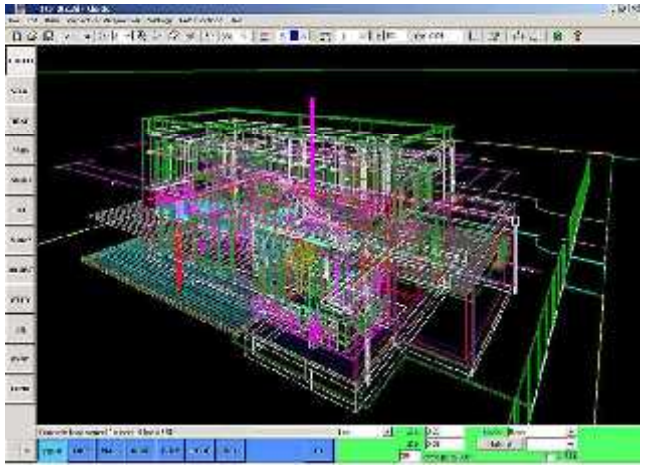
Risk Mitigation

- Desk top study at feasability stage
- Comprehensive GI and testing at Preliminary design
- Additional GI and testing at Detailed design
- Allocation of time and funding pre construction
- Integrated 3D model

Who can manage these risks

Contractors

- Engage with clients and designers pre construction
- Carry out physical investigation to confirm conditions
- Allocate resources and train staff



Designers

- Greater use of 3D models
- Review adequacy of information each stage of design

Who can manage these risks

Clients

- Allow sufficient time during pre construction for investigation
- Allocate budgets pre construction to carry out thorough investigation
- Greater use of ECI and integrated delivery teams

Thank You

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