Geotechnical BIM: Applying BIM principles to Geology
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BIM Principles
Traditional Process

Site Investigation

Often viewed as an overhead and tick box requirement at the start of the project
Traditional Process
The need for Geotechnical BIM

37% of project overruns cite ground problems as a major contributor

National Economic Development Office

70% of public projects were delivered late and 73% were over the tender price

National Audit Office
Typical BIM?
Earlier Knowledge Reduces Risk

Ability to impact cost

Cost of changes

Traditional decision process

Preferred decision process

P. MacLeamy, Effort Curve, HOK
“Early investigation allows the identification of any ground-related risks associated with a development so that they can be effectively managed and associated costs controlled”

AGS Guidelines for Good Practice in Site Investigation
Keynetix: Geotechnical Data Journey

DATA
HoleBASE SI

INTERPRET

ANALYSE

REPORT

PREPARE

INVESTIGATE

TEST
Standardised methods and formats to capture data
Standard methods and formats to capture data

The golden rules

1. Enter data only once
2. Get someone else to do it

Log as close to source as possible and use electronic transfer
M1 J19 – J16 – Smart Motorway

ATKINS

- 125 boreholes
- 31 “sites”
- SI design modified as work progressed
Build upon and refine previous knowledge
1. Build upon and refine previous knowledge

• Why start from Scratch?
Previous Projects
Site plans and drawings
Lidar
Silvertown Tunnel:
By kind permission of Transport for London
Silvertown Tunnel – Previous Investigations

- Dockland light Railway
- Millennium dome
- Cable Car (same alignment as tunnel)
- Only 3 additional boreholes across the river was required
- Estimated saving around £100,000 (on SI)
3D Digital Collaboration
Better understand and visualise data in context

• Rapidly view down hole data
• In context with the proposed site plan
• Better understand where potential problems may occur
Silvertown Tunnel:
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HoleBASE SI, AutoCAD Civil 3D and Navisworks
3 Tunnel route Options in Brisbane

HoleBASE SI
AutoCAD Civil 3D
Keynetix Products

- HoleBASE SI Geotechnical Data Management
- KeyLab Geotechnical Lab Management
Geotechnical
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