4D Survey and Geotechnical Monitoring
Achieving Enhanced project Outcomes for Construction

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Overview 4d Monitoring

What is 4d Monitoring
- When
- Why
- Where

How
- Who
- Technology
- Conclusions
What is 4d Monitoring

MONITORING ON STEROIDS!

- More Frequent
- Delivers Faster
- Safe Environment
- Highly Accurate
- Fixed Costs
- Single data provider (Survey and Geotech)
When is it used?

- High Risk Construction
- Unstable Environments
- Safe Access Constraints
- Significant Public Risk
- Response Time is Critical
- Periods of >6 weeks
- Fixed Cost is Needed
Why is it used?

- Better Information
- Better Collaboration
- Minimises Risk
- Enhances Safety
- Saves time and money!
Where is it used?

✓ Excavations
Where is it used?

☑ Rail Lines and Infrastructure
Where is it used?

✓ Tunnels
Where is it used?

- Buildings/ Structures
Where is it used?

- Sewerage Plants/Tanks
Where is it used?

☑ Water Reservoirs/ Infrastructure
How does it work?

- Design/Plan
- Install
- Maintain/Report
- Remove
Who?

Structural Engineers / Owners

Builders/Contractors

Consulting Surveyors/Geotechnical Engineers
Who (Internal)?
Technology?

Land Solution – S8 Monitoring Setup

Trimble S8 Robotic Total Station integrated pressure sensor on custom bracket

Fixed ADSL connection

Server operating T4D software

Provision for 2.4 GHz solution if redundancy is required at a later date.

4G Network

Total Station Comms Box

Temperature Sensor

Device Server

CAT 6E
Geotech/Structural Sensor Installations?

- Shapeaccelarrays
- VW Crack meters
- Geophones
- Accelerometers
- IP Inclinometers
Total station Installations?

- Water tanks
- Sewerage Plants
- Tunnels
- Buildings
- Railways
Data Delivery Reporting

- Automated Notification alerts SMS/Email
- Fully customised user login and access
- Analysis, logs charts and reports on demand or automated
- Combine Geotech and Survey and environmental sensors automatically
Conclusions

✓ ‘We are in a New Paradigm’
✓ Precise observation for high risk at any frequency on any scale
✓ Cellular networks and solar power make possible almost anywhere

✓ A ‘new world’ of precise kinematic sensor technology is here
✓ Dawn the ‘Age of the Robot’ and the consultant who controls them.
Thank you

‘Please read or paper titled’

’4D Survey and Geotechnical Monitoring Achieving Enhanced Project Outcomes for Construction’

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