

Urban deep foundation pit structure

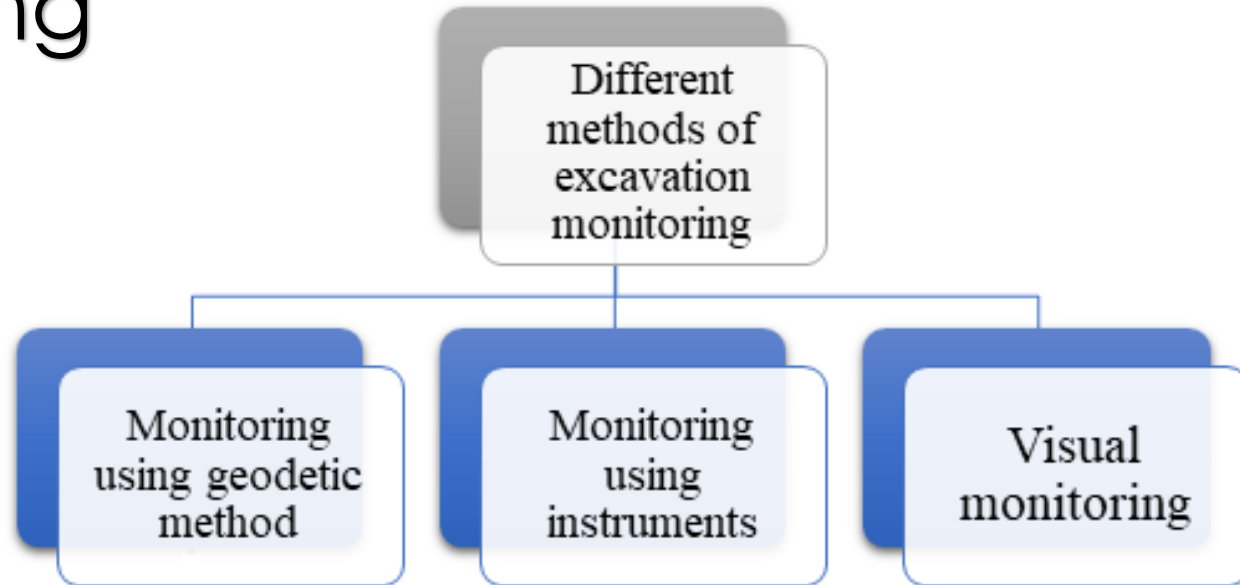
Instrumentation and Monitoring

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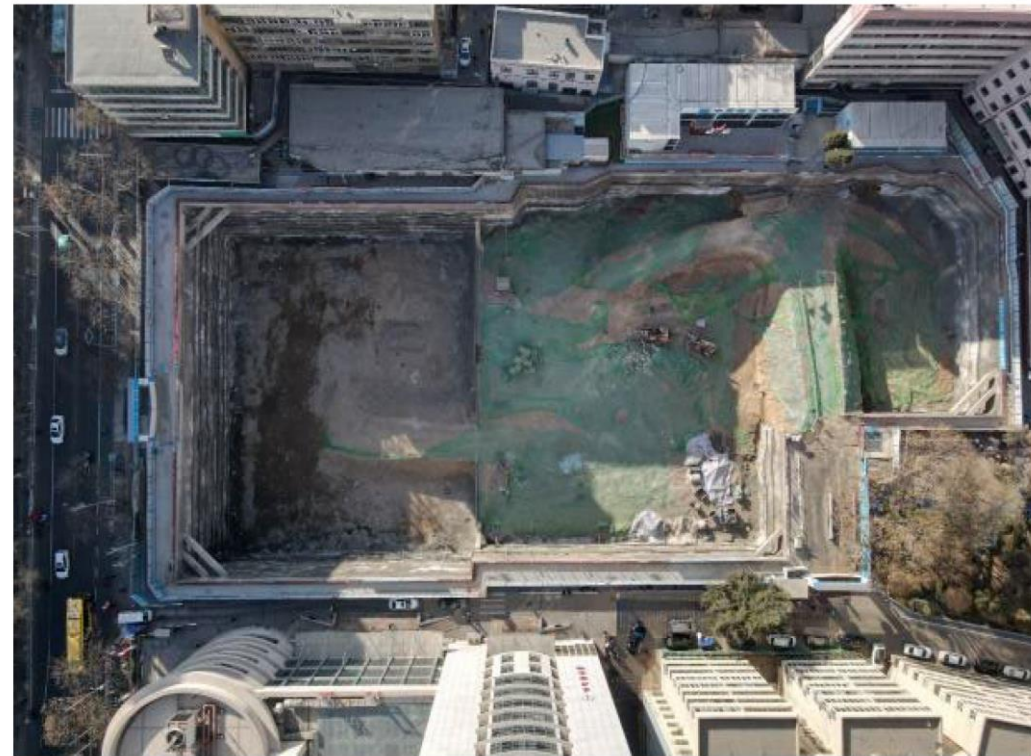


Different methods of excavation monitoring



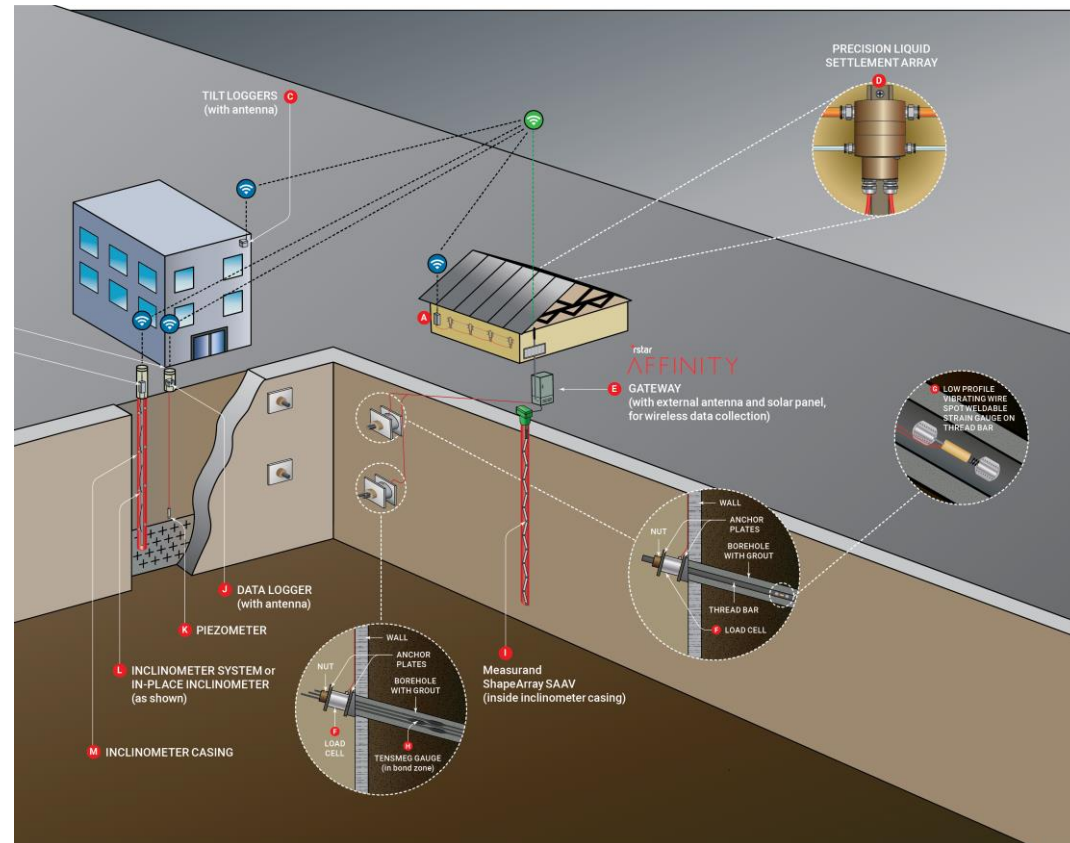
Essential Parameters to Monitor

- Displacement
- Settlement
- Inclination
- Internal force
- Porewater pressure
- underground water levels
- Vibration



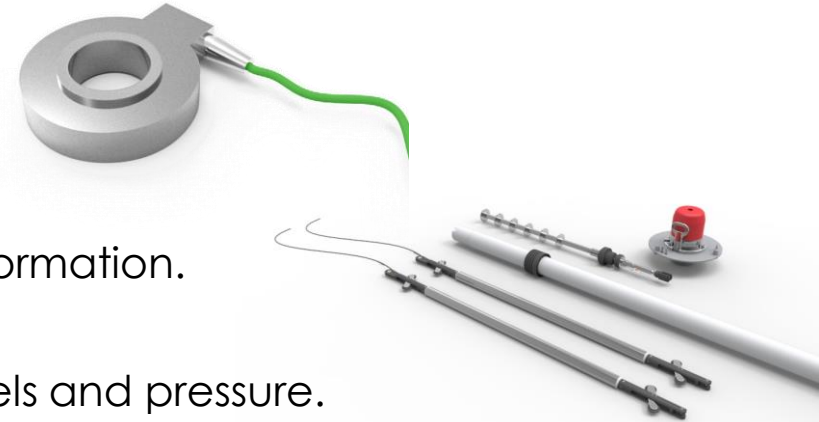
Different parts of excavation monitoring plan

- Foundation Pit Structure Support
- surrounding structures
- surrounding surface subsidence
- Porewater pressure & underground water levels



Types of Instrumentation

Load Cell: Measure Support & anchor internal force.



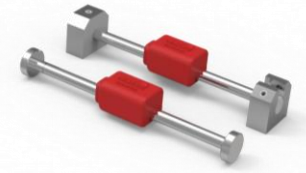
Inclinometers: Measure ground movement and deformation.

Piezometers: Monitor groundwater levels and pressure.



Settlement gauges: Track settlement of nearby structures.

Strain gauges: Measure stress and strain in soil and structures.



Extensometers: Monitor displacement of retaining walls.



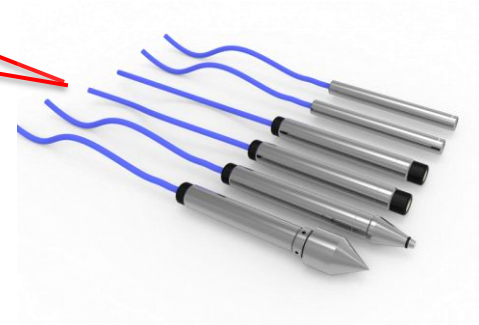
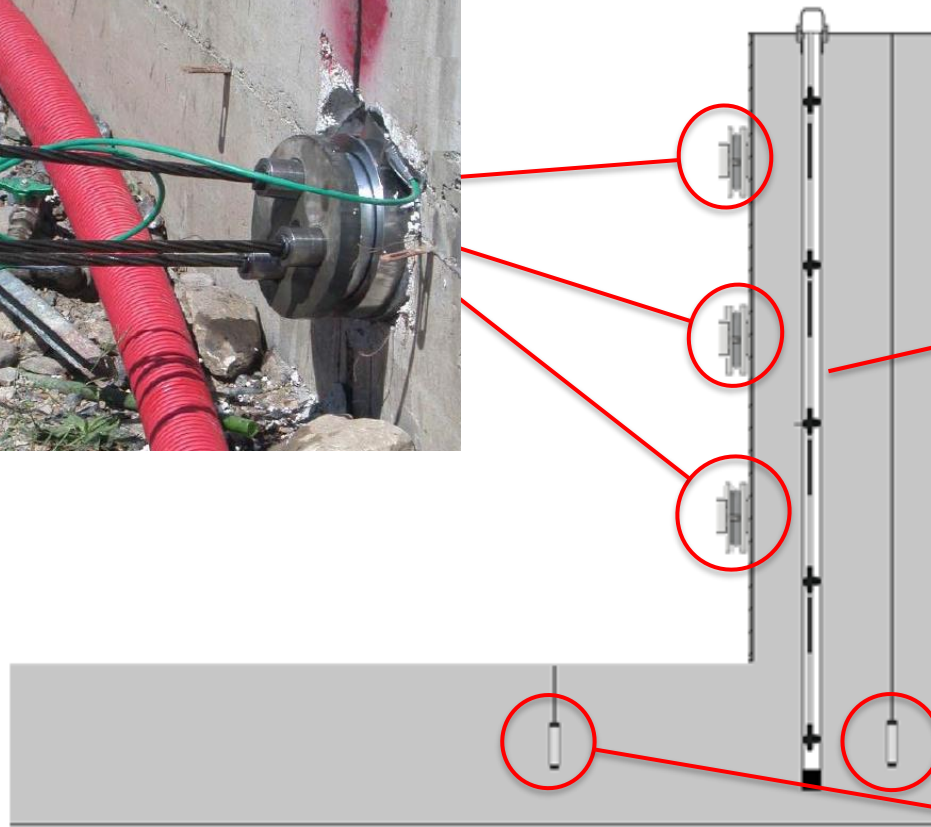
Tiltmeter: Measure the inclination of surrounding buildings.



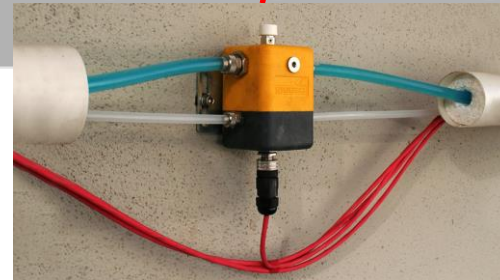
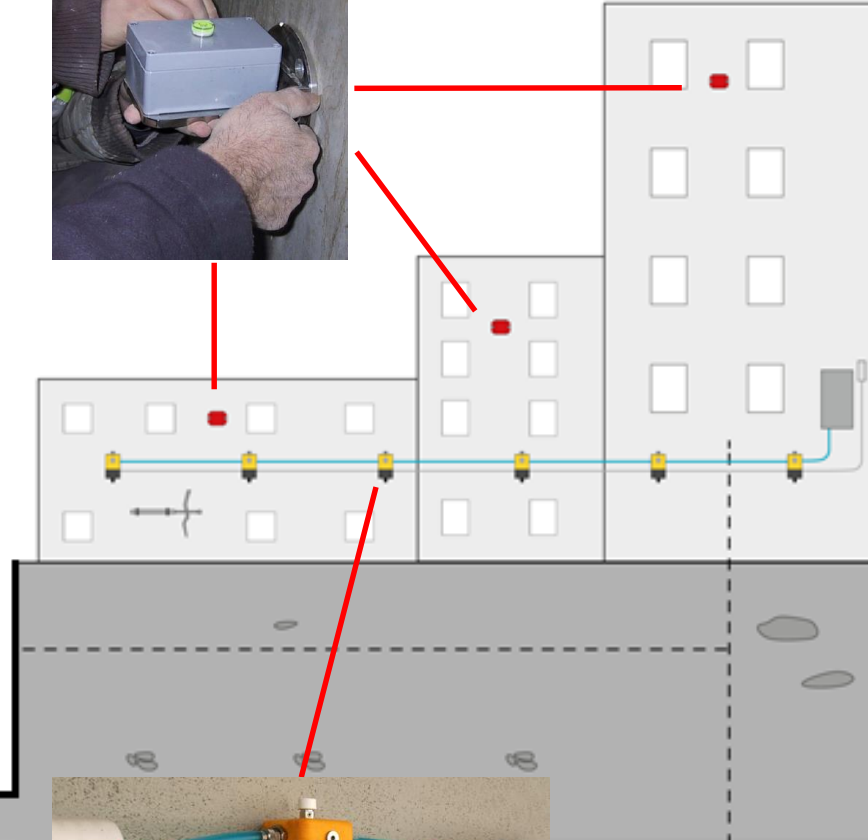
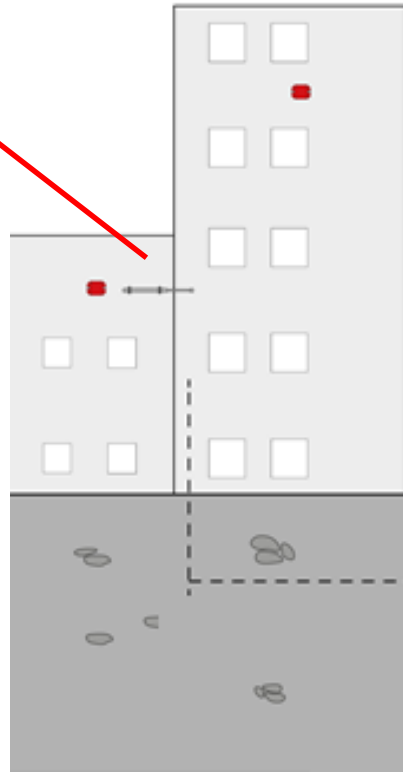
Crackmeter: Monitoring points of building and surface cracks.



Foundation Pit Structure monitoring



Monitoring of surrounding structures



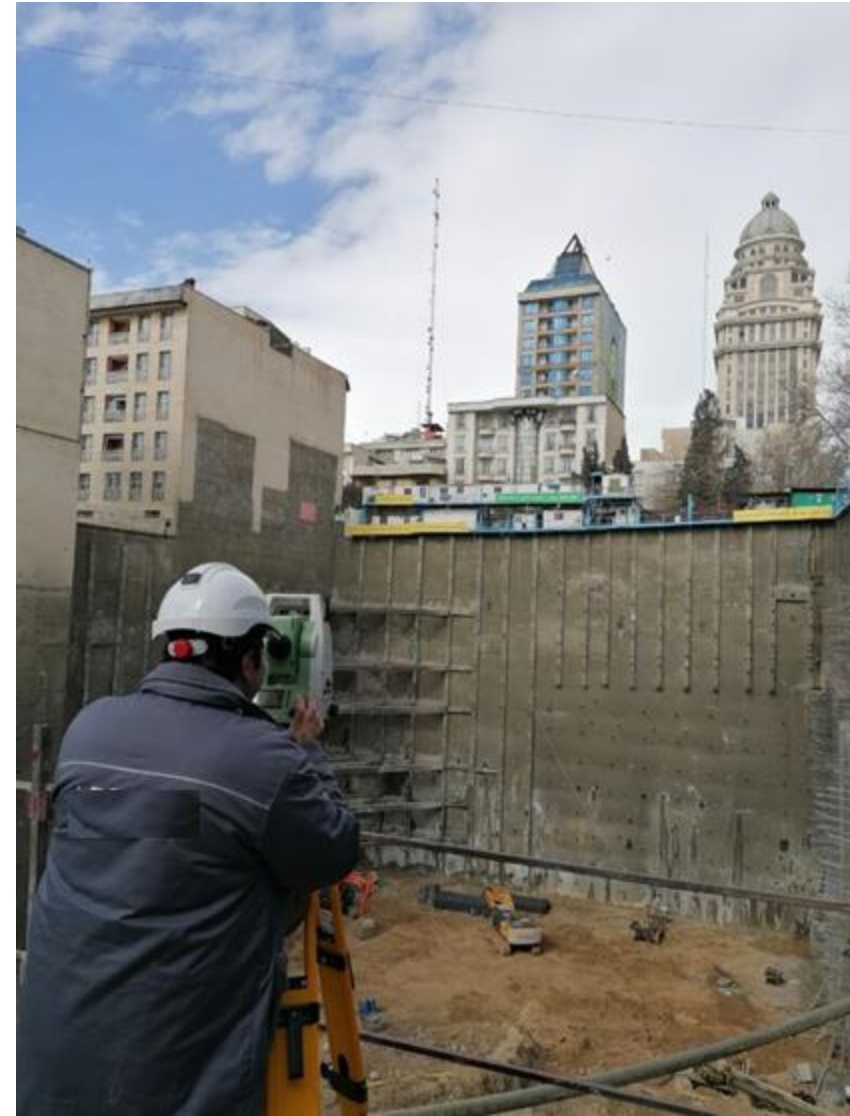
Benefits of Instrumentation and Monitoring

- Early warning of potential hazards.
- Optimization of construction sequences.
- Verification of design assumptions.
- Reduction of project risks and costs.
- Enhanced public safety and community acceptance.



Implementation Challenges

- Initial investment costs.
- Selection of appropriate instrumentation based on project requirements.
- Integration with existing site infrastructure and construction schedule.
- Data interpretation and decision making processes.



Thank you for your attention.

**Let's ensure safer and more sustainable
urban development together.**

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