

Monitoring on Subsidence Claims

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Subsidence Claims Manager

Zurich HelpPoint

Key Milestones



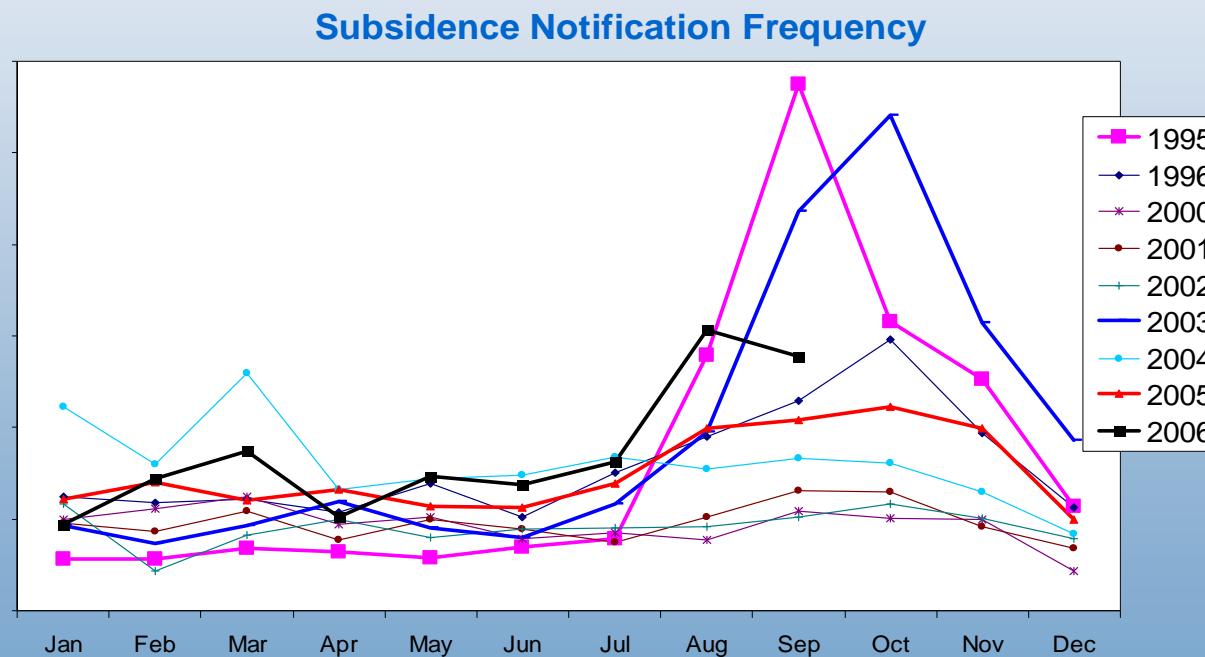
- Subsidence cover 1972
- Surge of claims 1989/1990/1991
- Project Management 1992 onwards
- Mitigation
- Surge 1995/2003
- Delegated authority Schemes

What are the challenges for the industry in a changing market?

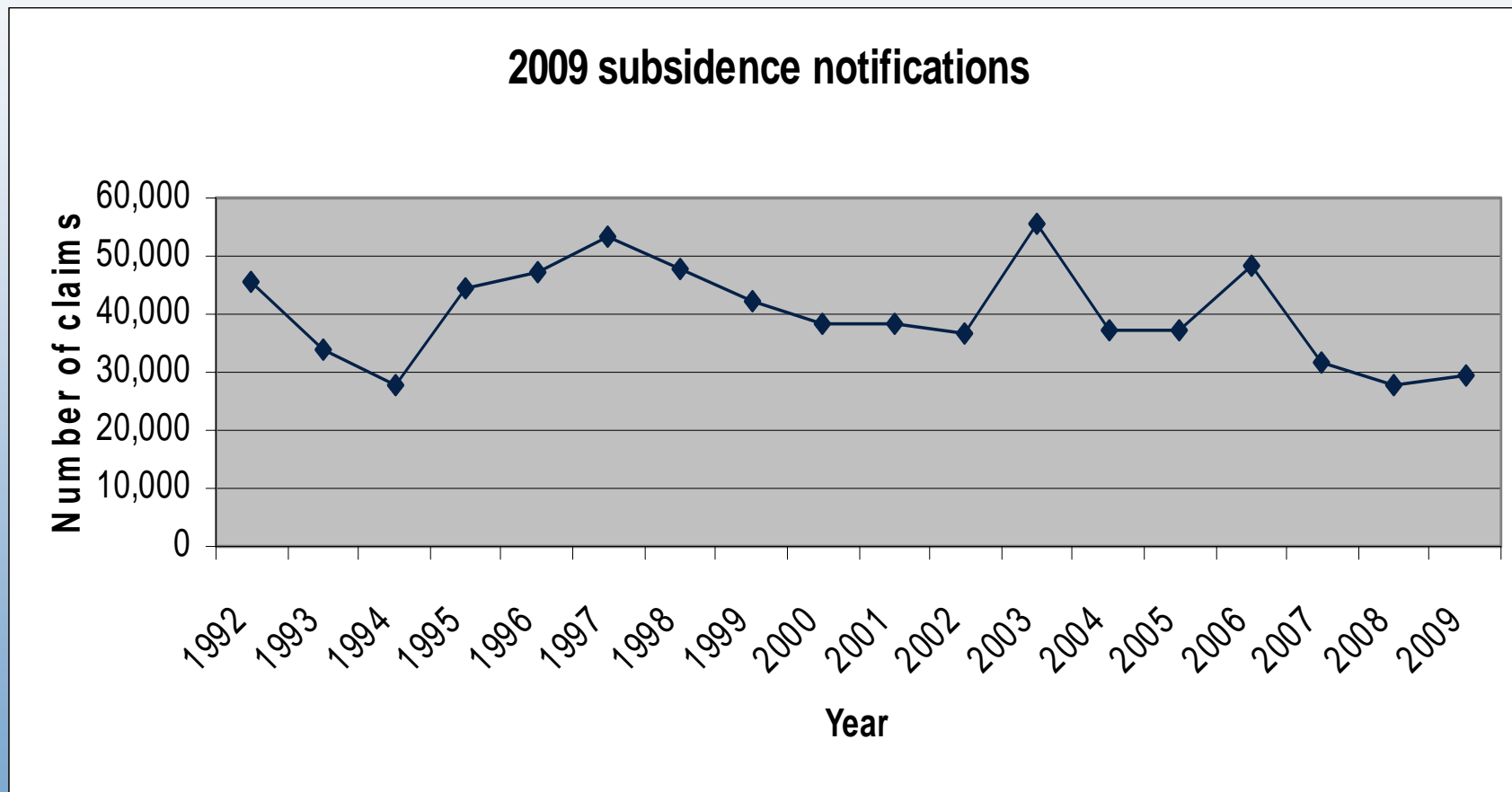


2006 challenges

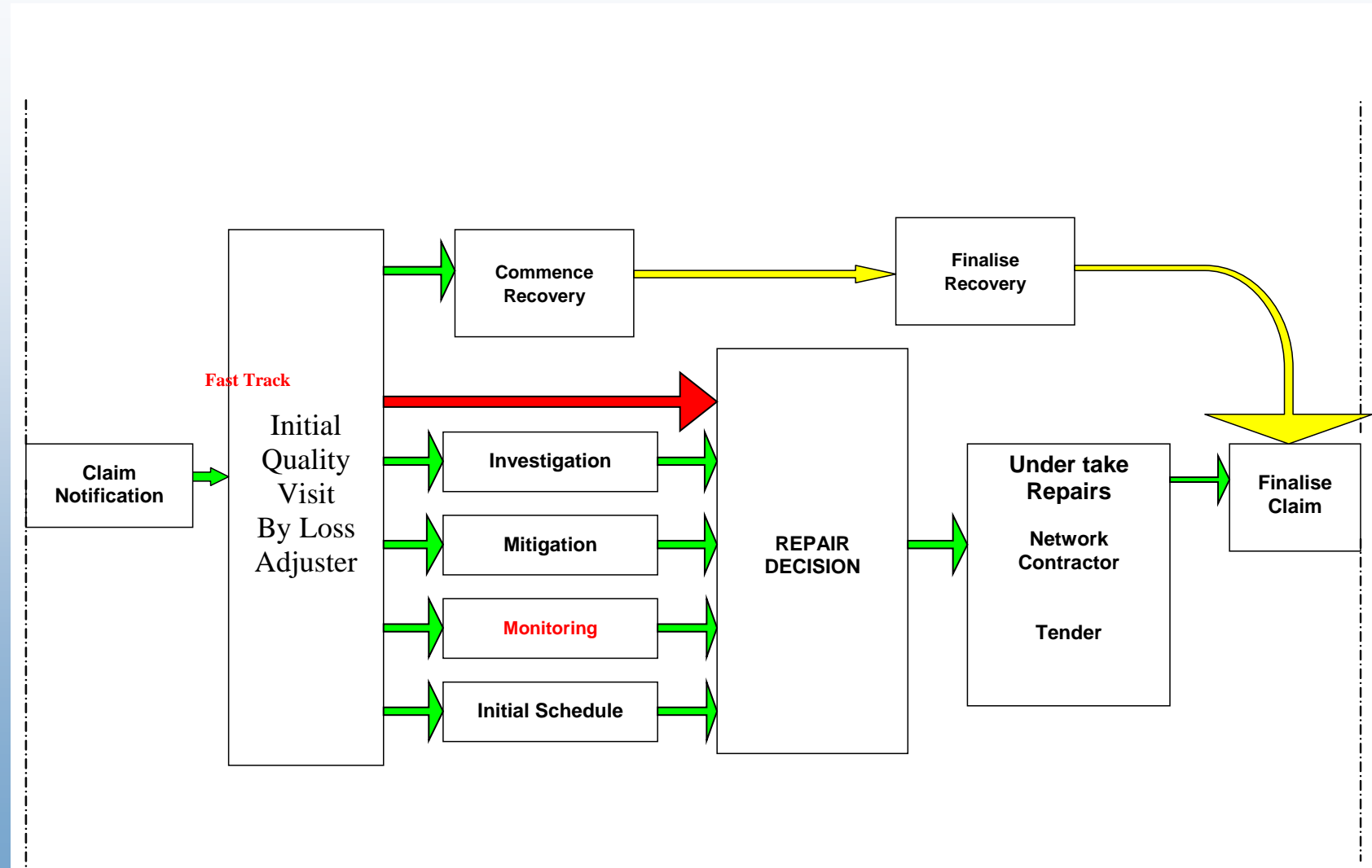
Up to 50,000 notifications and £450 Million Spend



Actual Claim Figures 2009



Subsidence Process



Monitoring- Objectives



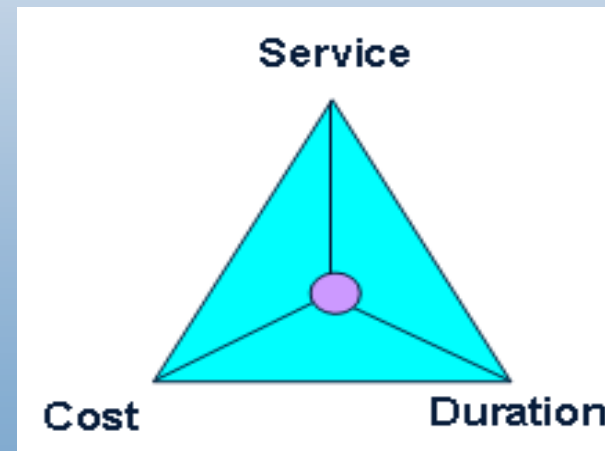
- 1. Monitoring to confirm that the cause of damage is not subsidence.*
- 2. Monitoring to establish the cause of subsidence (incl gaining evidence for a recovery.)*
- 3. Monitoring to establish on going movement*
- 4. Monitoring to check the success of mitigation /remedial action*

**MONITORING IS NOT A MEANS OF DELAYING
OR AVOIDING SOME OTHER DECISION**

But it has a bad reputation



- Used to be a way of managing surge;
- When you think about the drivers then it causes delay;
- Excessive use and delay mean it is very much;
'monitoring by exception'



When not to monitor



In some cases we should go straight to repairs;

- Leaking drain and damage less than 5mm.
- Policyholders tree and damage less than 3mm.

On other occasions we should repudiate;

- If the damage is not consistent with subsidence.

How ?

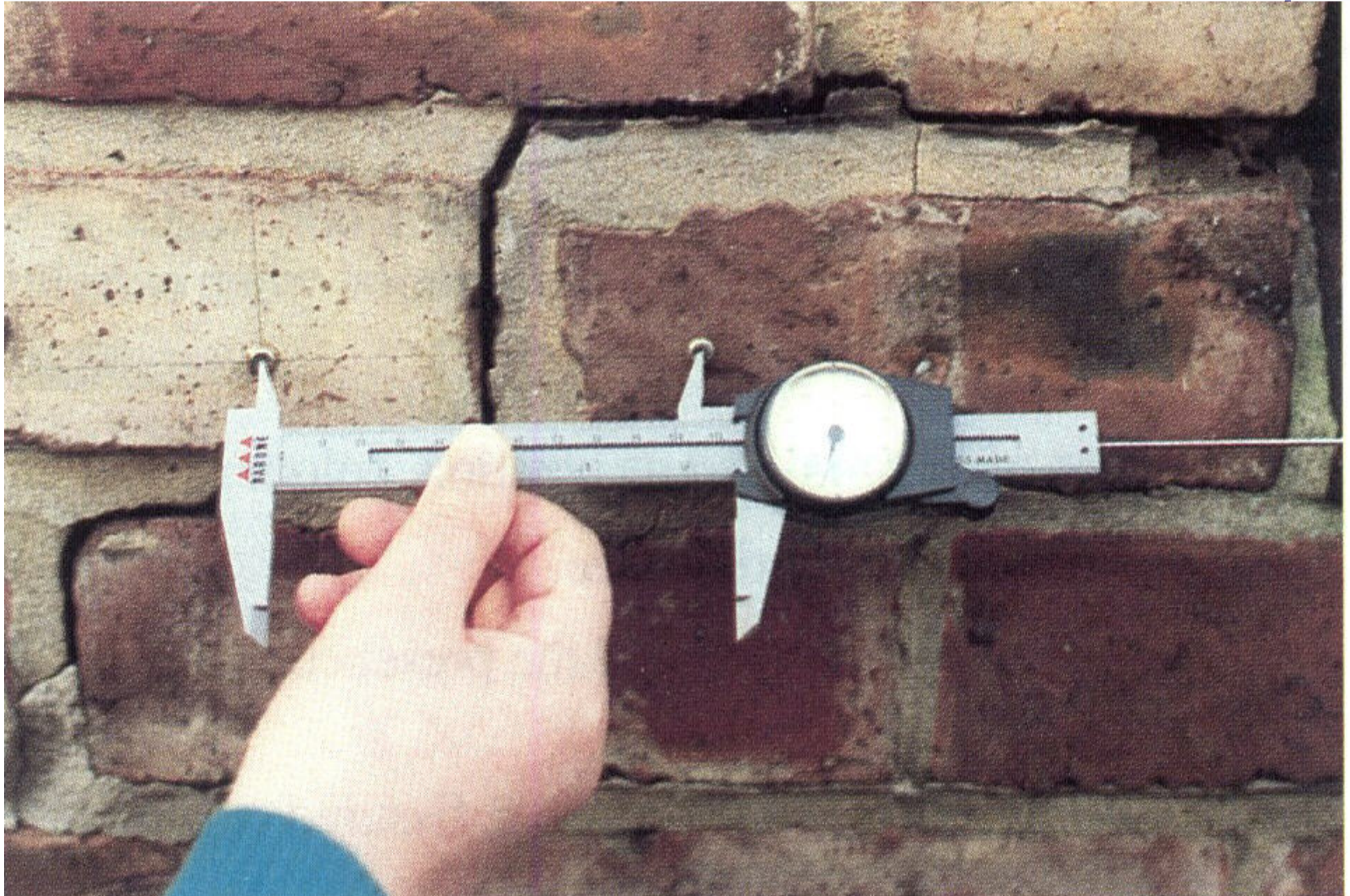


Traditional Crack Monitoring

- Demec Studs
- Take an initial reading
- Set up the template and ask technician to monitor.



Crack Width Monitoring

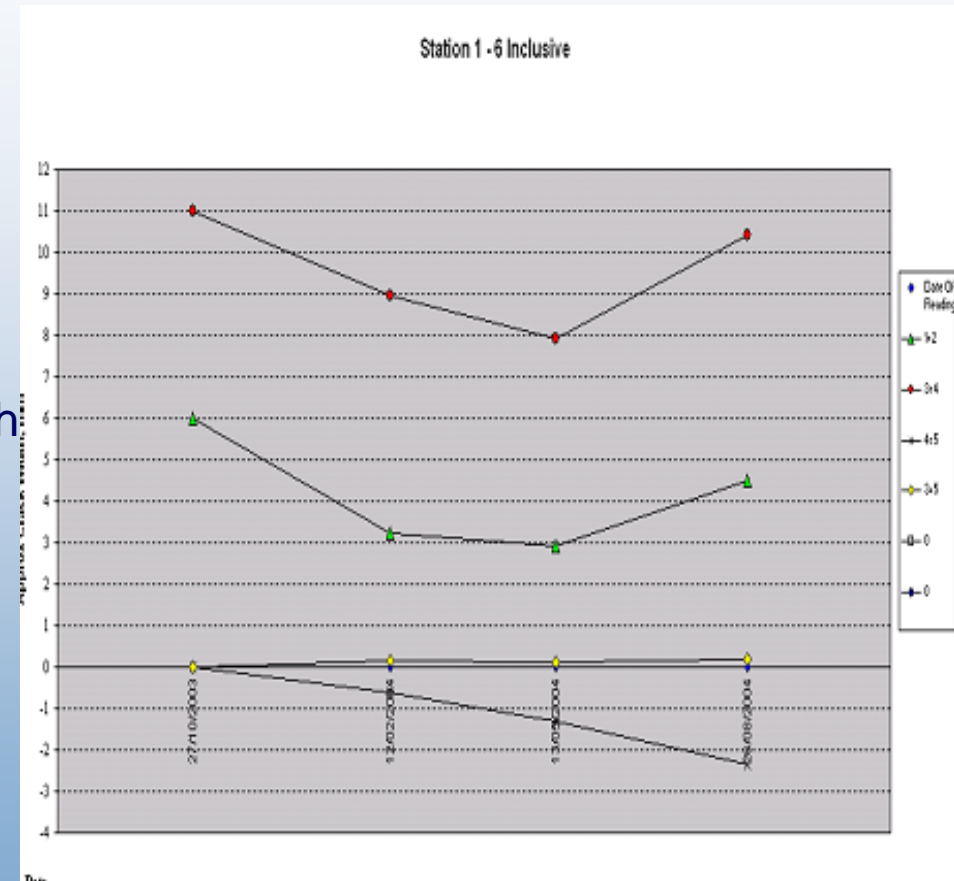


Crack Monitoring



Monitoring Services - Results

- Crack Width Left Hand side mm
- Months across the bottom
- For clay shrinkage cracks close in the winter and open in the summer.
- If it's moving more than 1mm we need to find out why?



Alternative Level Monitoring



- To record foundation movement and assist in the diagnosis (or to prove the absence) of subsidence or heave within the terms of the insurance policy.
- It is considered a superior method to the use of proxy measurements (i.e. recording crack widths) or predictive assumptions (soils analysis).
- Required on TPO Tree cases

Level Monitoring



Traditional Frequency

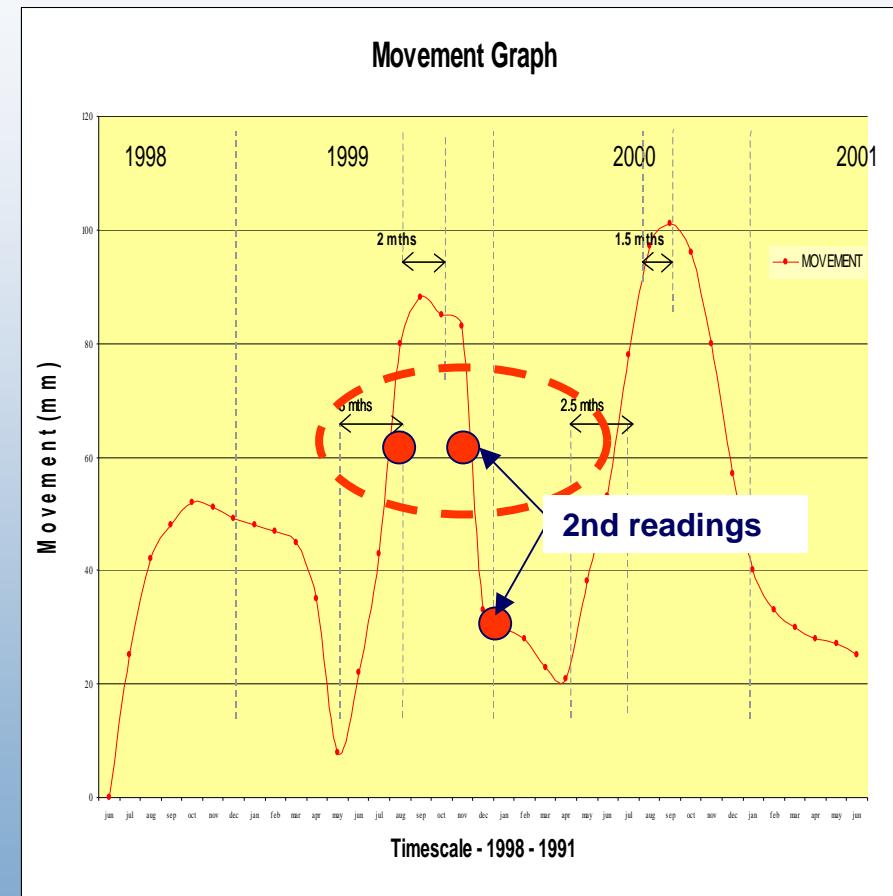


- In cases where we suspect seasonal root induced clay shrinkage, the first reading would typically be taken at the onset of cracking between August and the end of September. The second reading will be taken 3 months later – November through to mid-December.
- Further readings will only be taken in contentious or difficult cases, when it is likely they will be supported by site investigations. We need to ensure second visits are not over-looked.

Caution



There is a potential for erroneous readings if we take the first and second readings prior to, and just after the 'peak' when they could (in theory at least) be similar, suggesting the building to be stable, when in fact very large movements are taking place.



Results



- Results require interpretation
- We are measuring deflection rather than crack damage
- Deflection Ratio - deflection/length = $0.2 \text{ to } 0.4 \times 10^{-3}$ before cracking develops (Burland and Wroth 1974)
- To more simple souls 10mm at foundations = 1mm crack.

Level Monitoring



Level monitoring has been costly

- But it is a very powerful forensic tool.
- It provides a very clear picture of movement.

Example

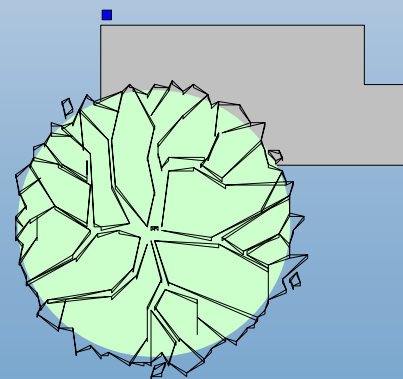


Huge Beech Tree
Lots of damage

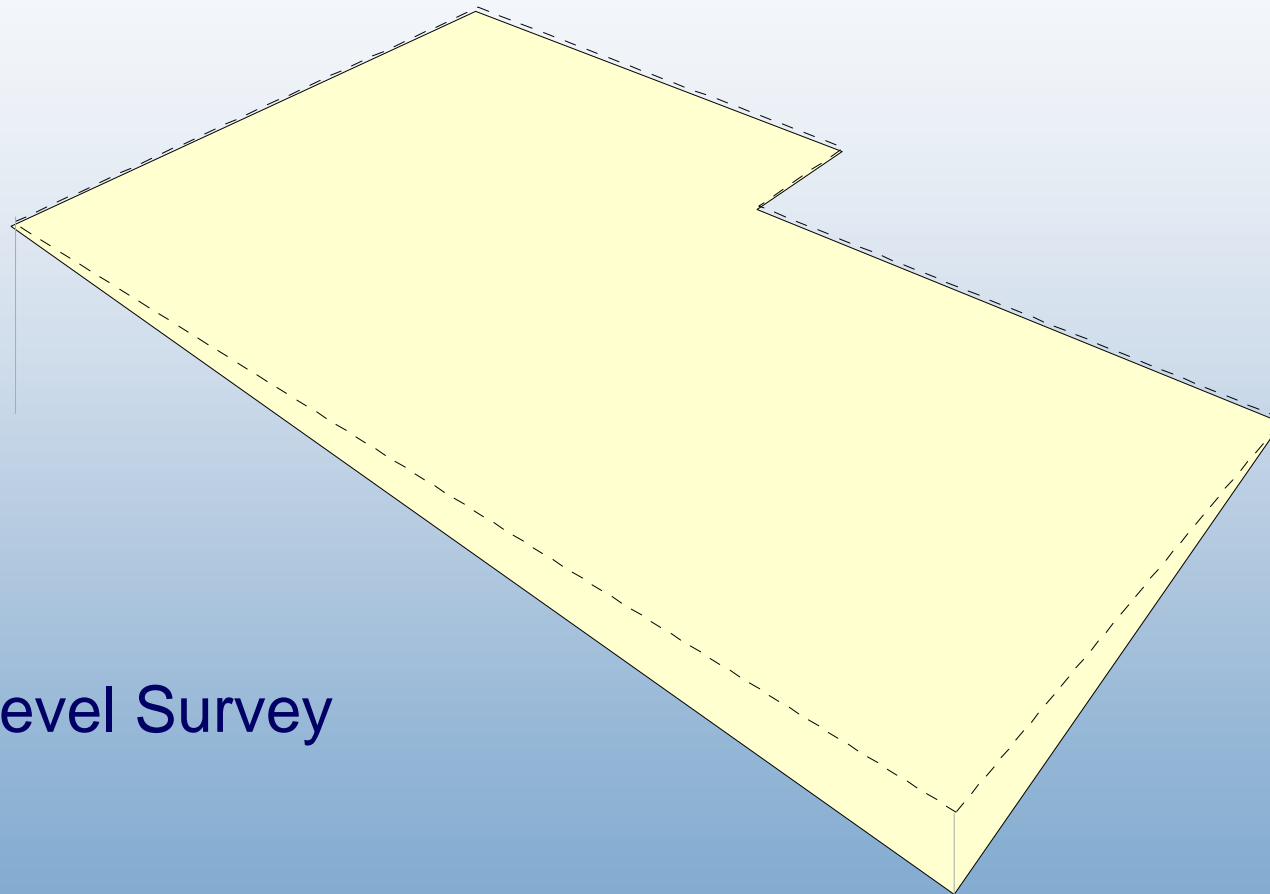
We all agree it's the
Beech.

Whole house piling?

£160,000?



Example



The Level Survey

What does it reveal?

Example



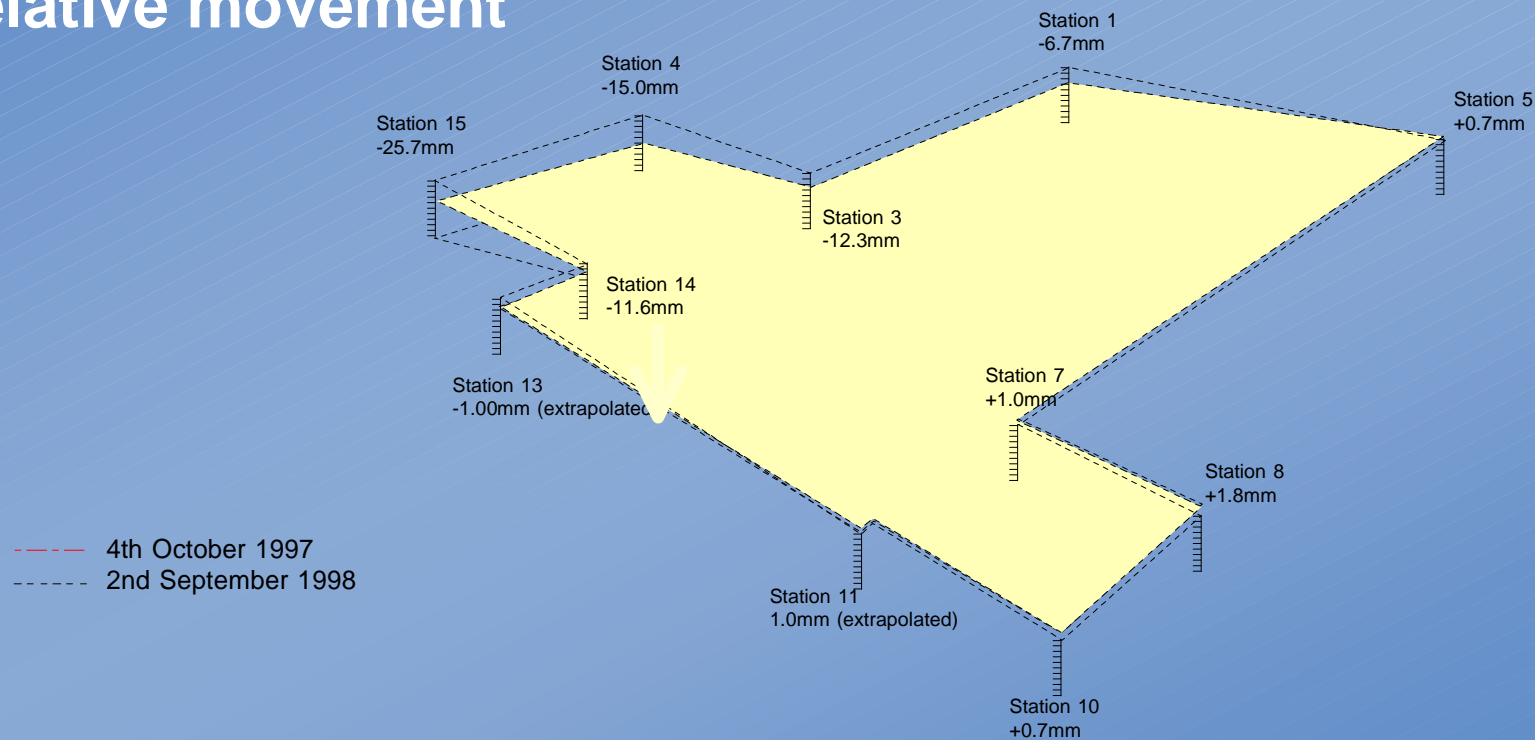
Low Shrinkage Clay
P.I.'s < 20%

R.W. entering ground -
not connected to system.?

Crack movement of 1.4mm
only - maximum.

Another Example

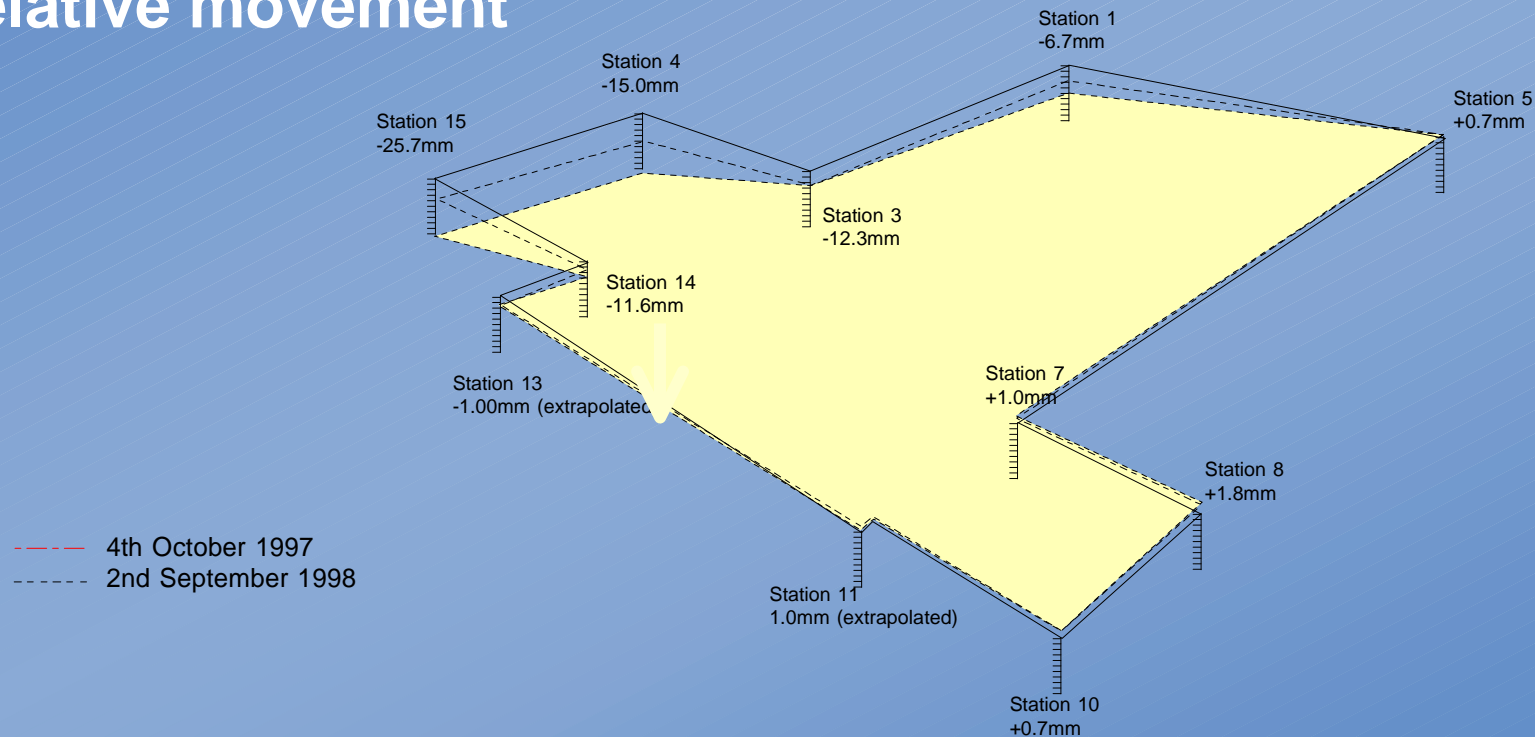
No expensive deep datum just
relative movement



Another Example

“If it goes down and then comes up...”

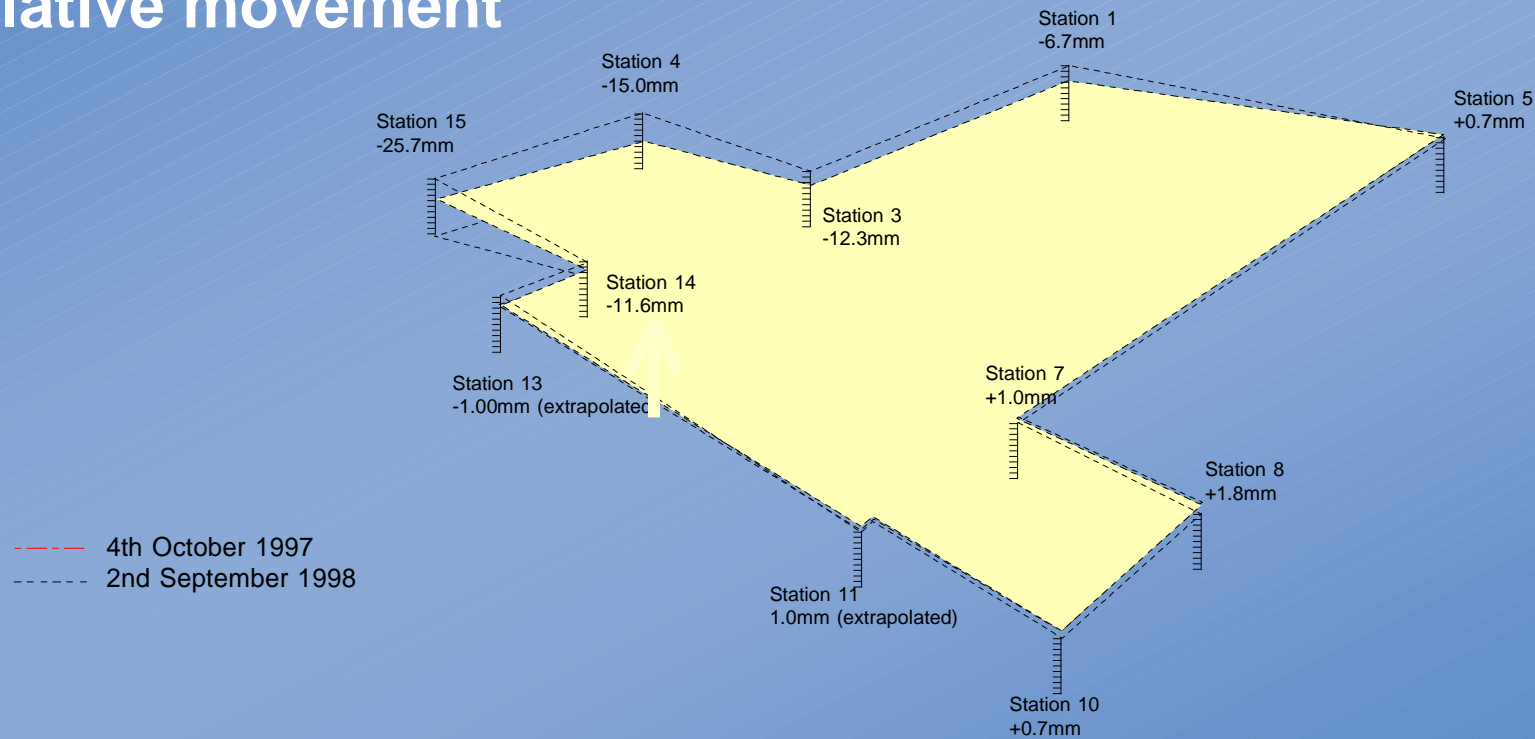
No expensive deep datum just
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Another Example

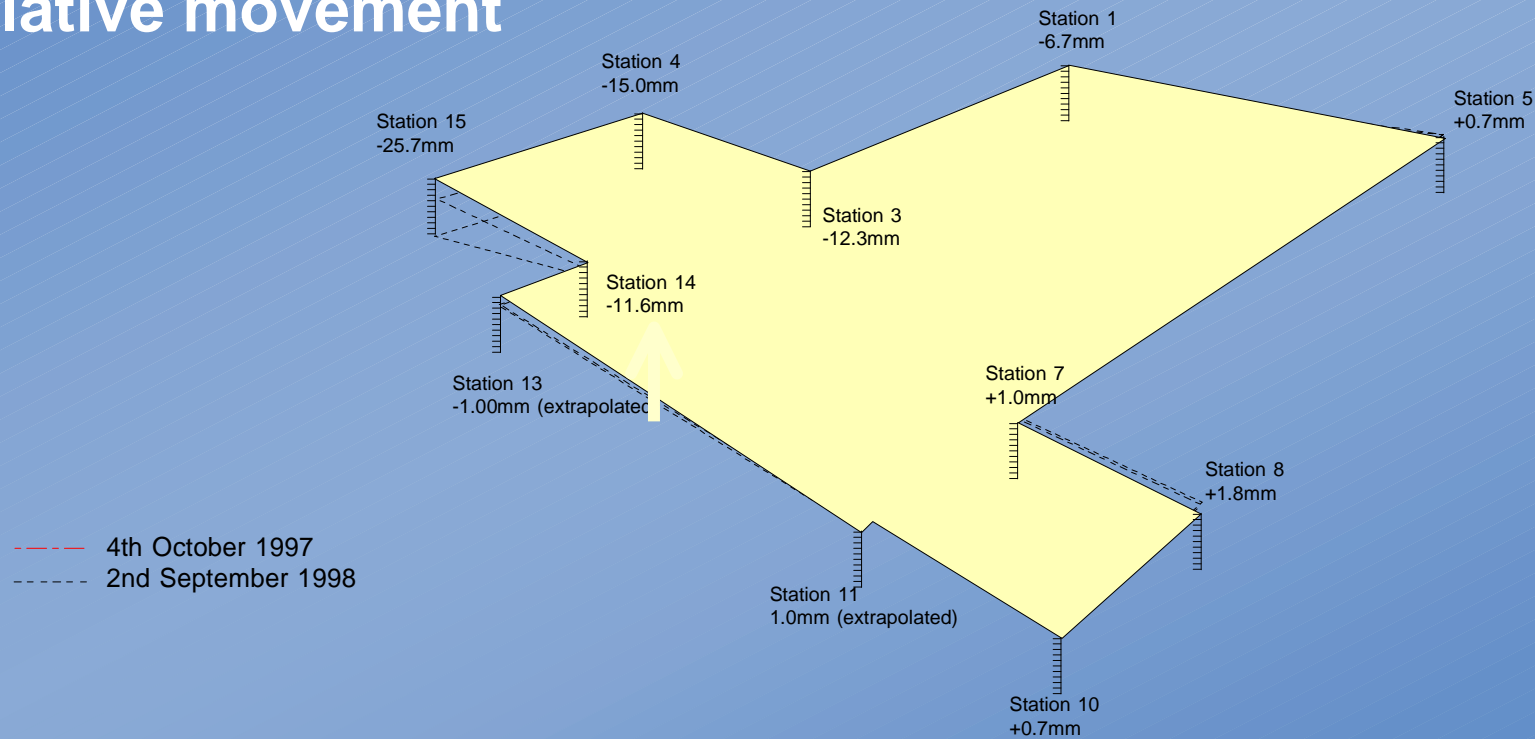
No expensive deep datum just
relative movement

“It is vegetation - clay shrinkage”



Another Example

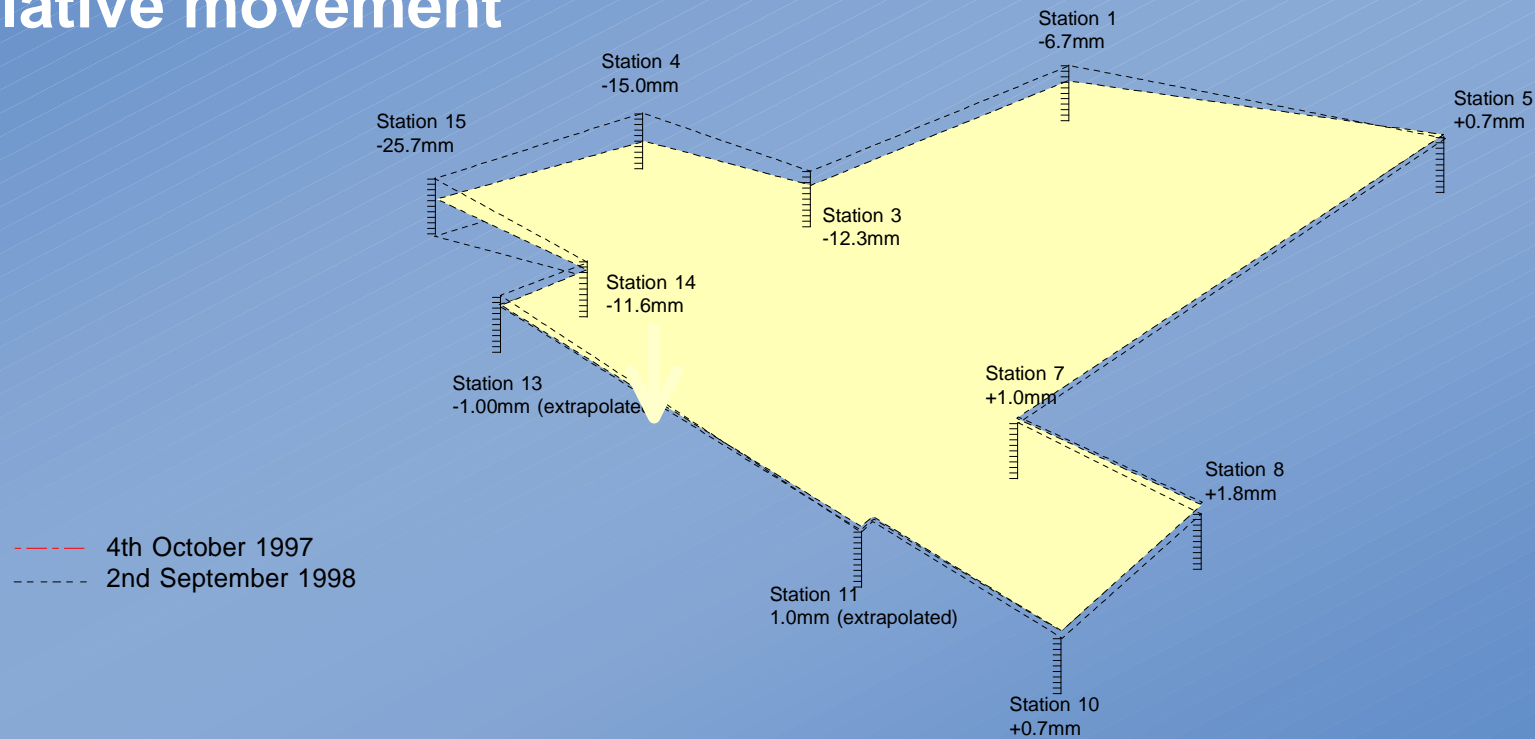
No expensive deep datum just
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Another Example

“If it keeps going down, it’s poor ground/water”

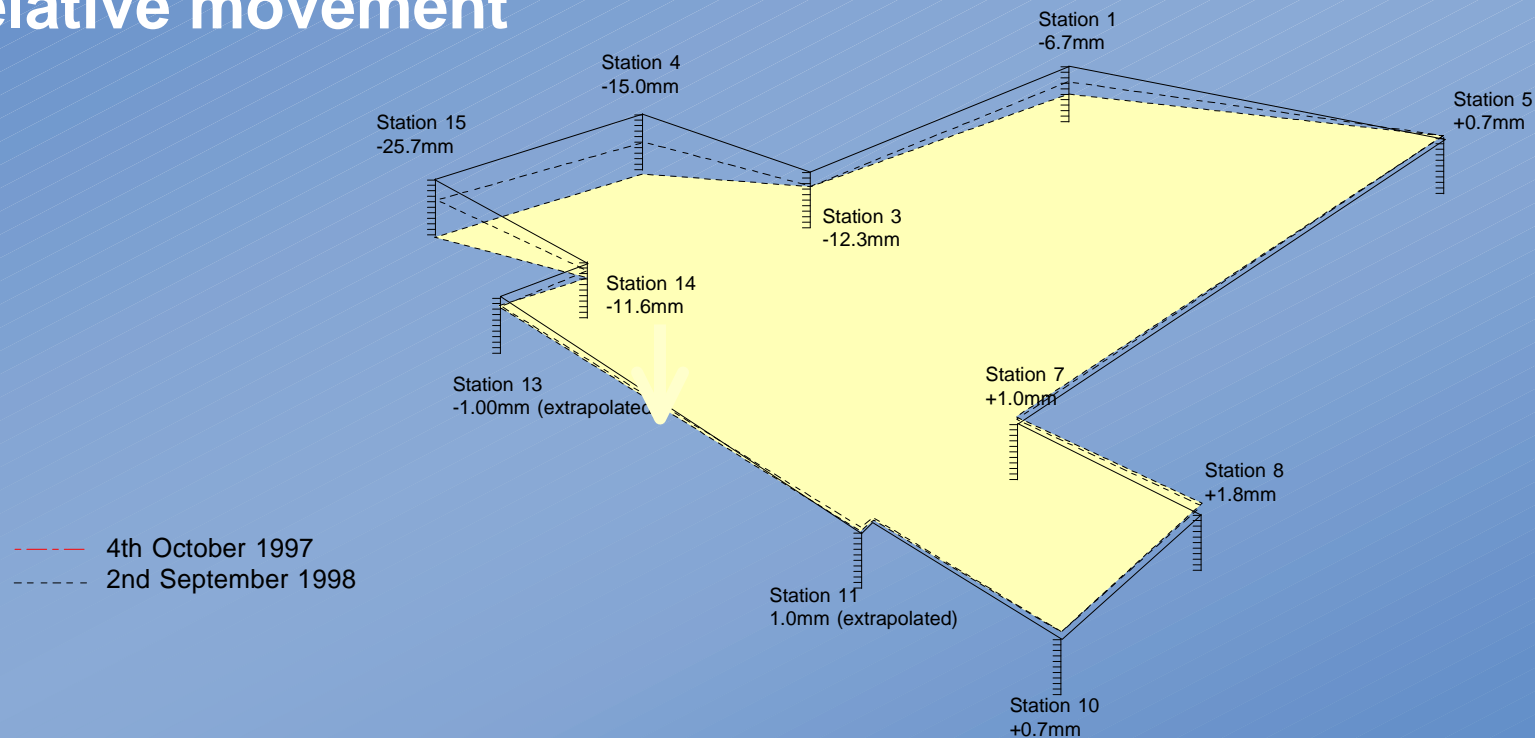
No expensive deep datum just
relative movement



Another Example

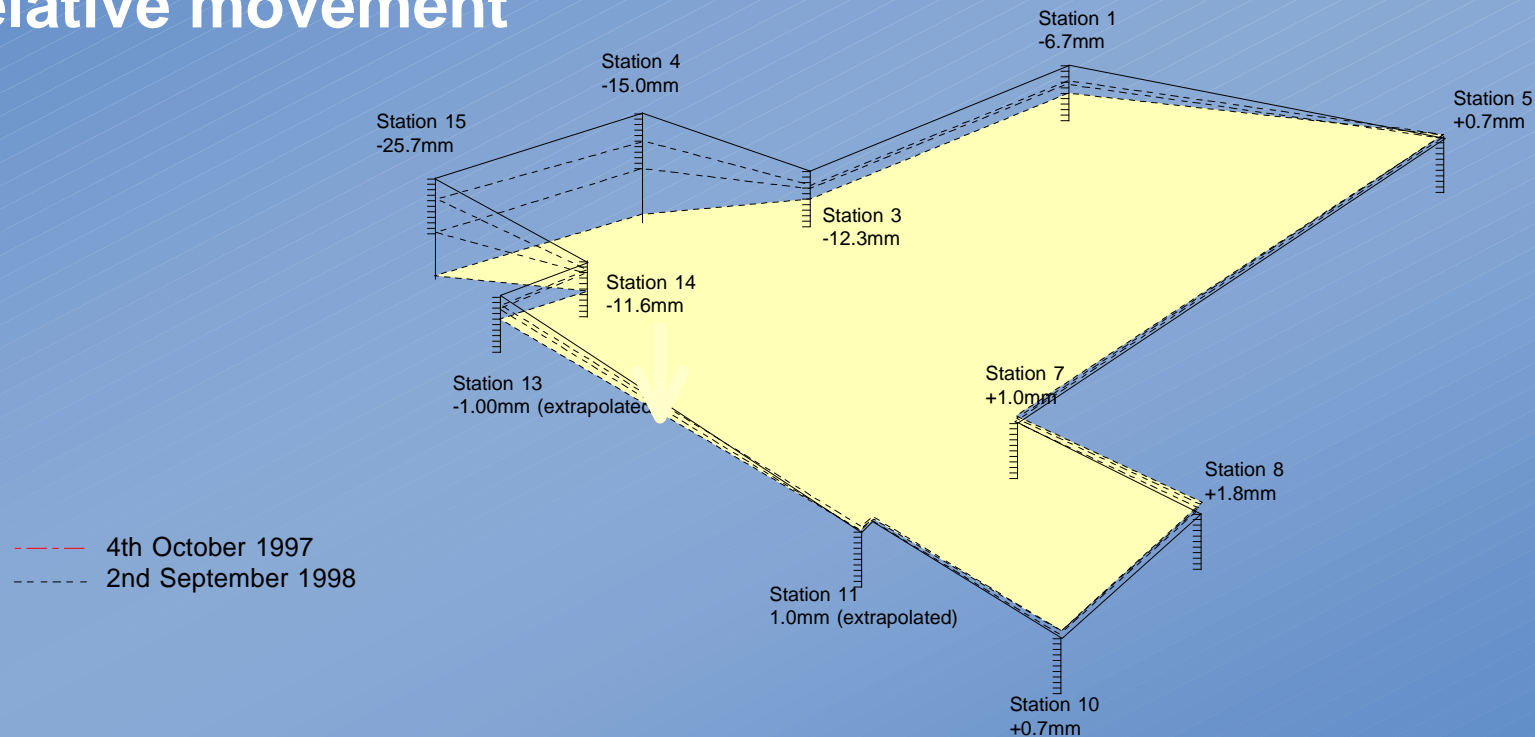
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Another Example

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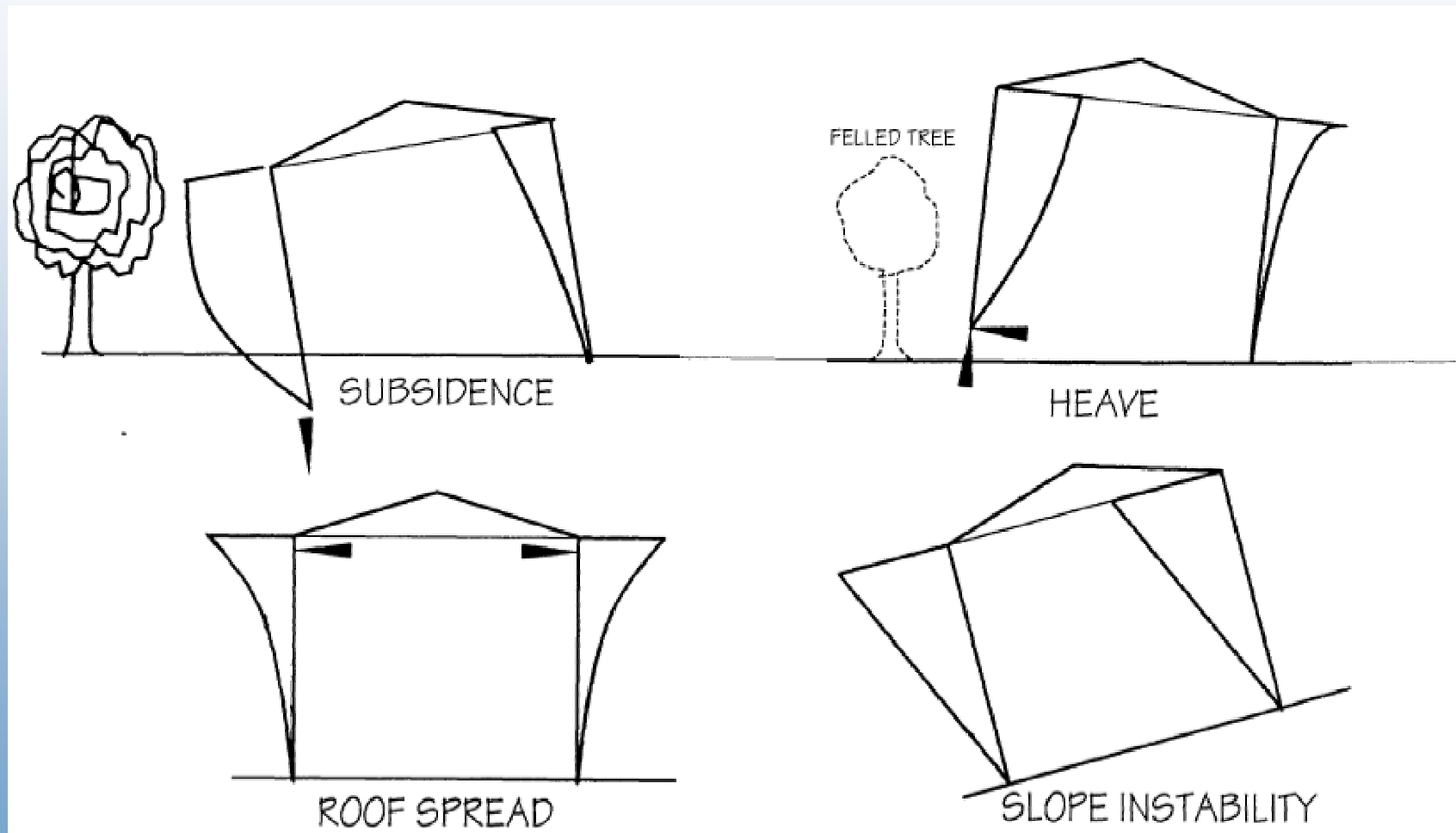


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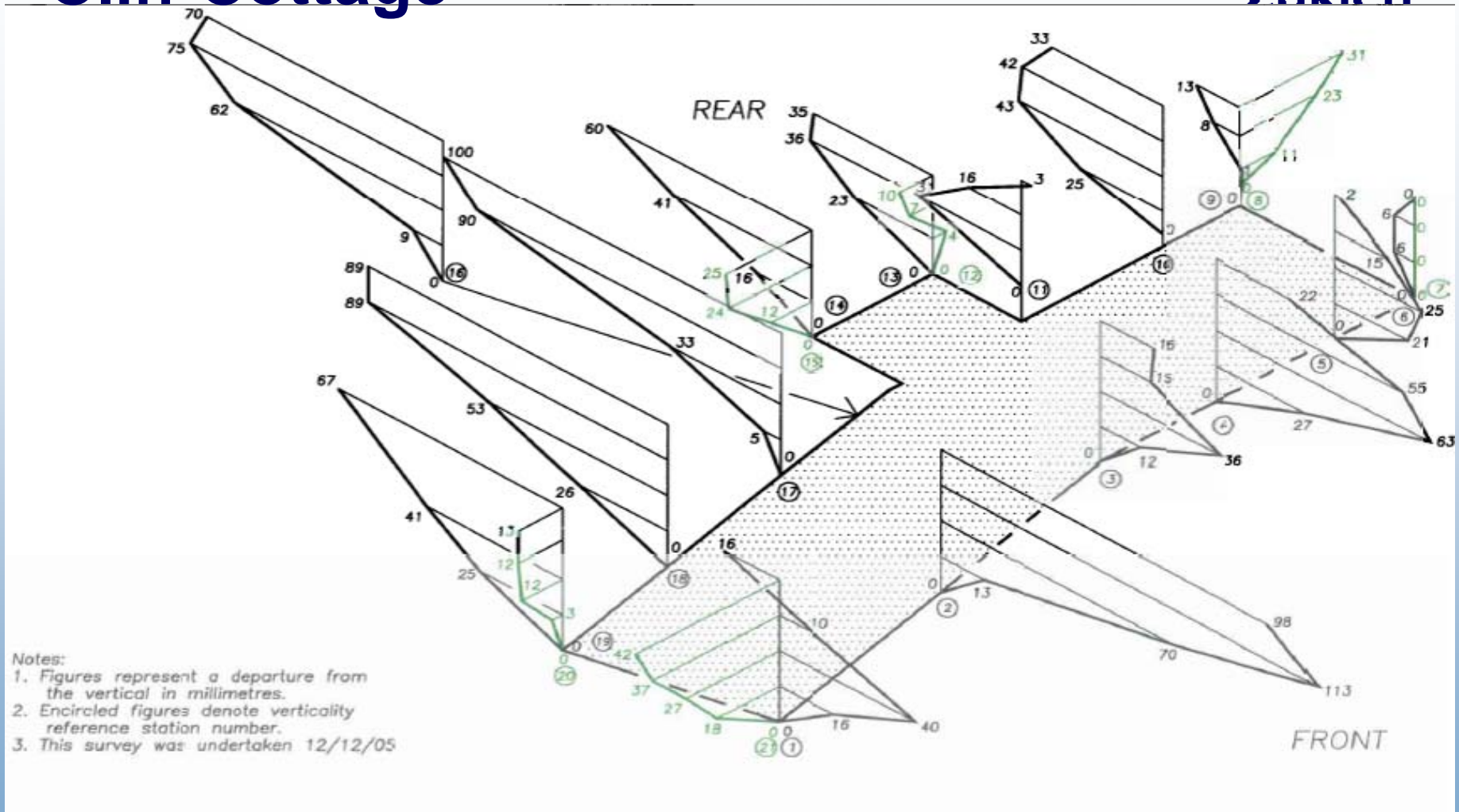
Distortion Surveys



Example Cliff Cottage



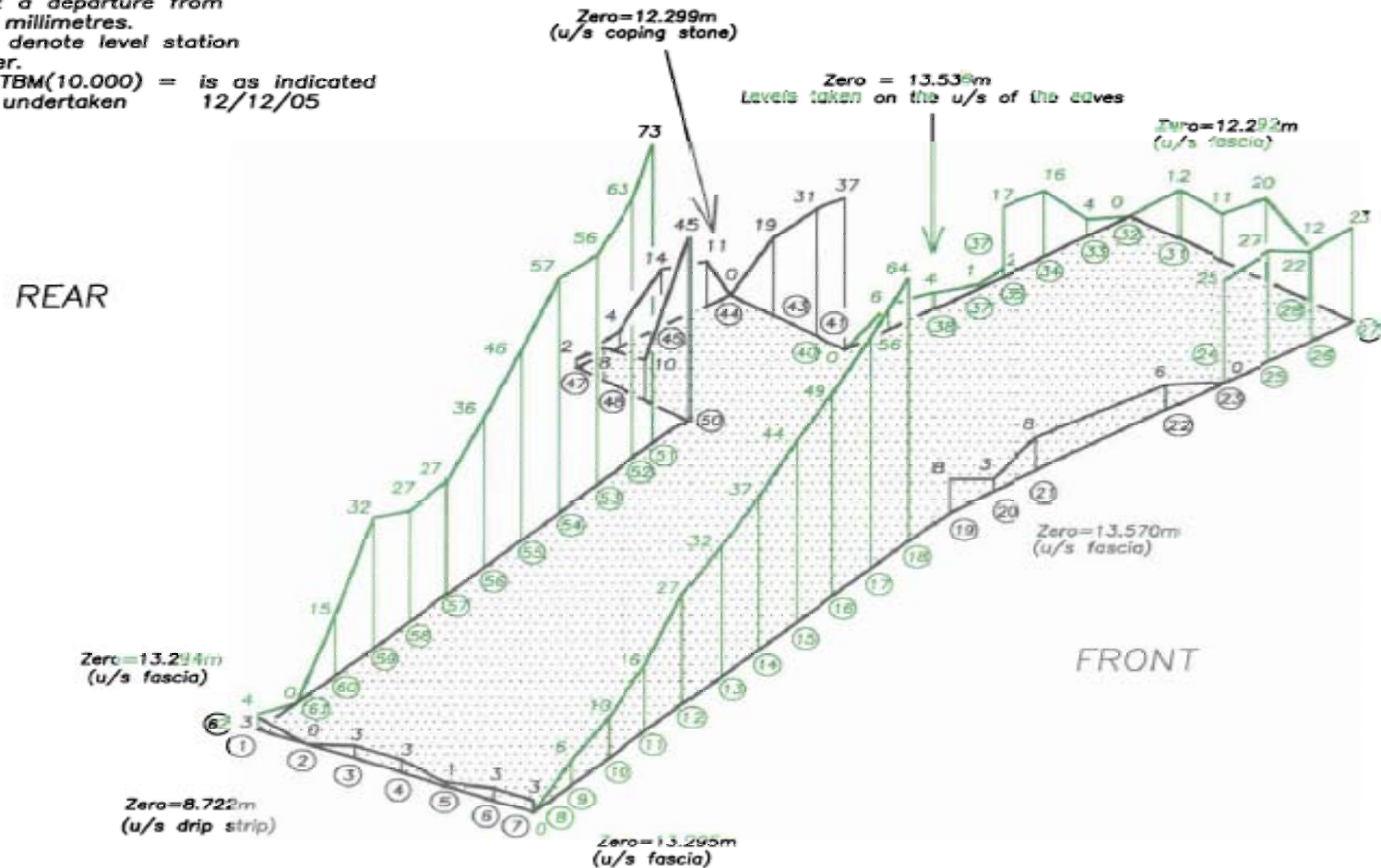
Cliff Cottage



Cliff Cottage

Notes:

1. Figures represent a departure from the horizontal in millimetres.
2. Encircled figures denote level station reference number.
3. Zero relative to TBM(10.000) = is as indicated
4. This survey was undertaken 12/12/05



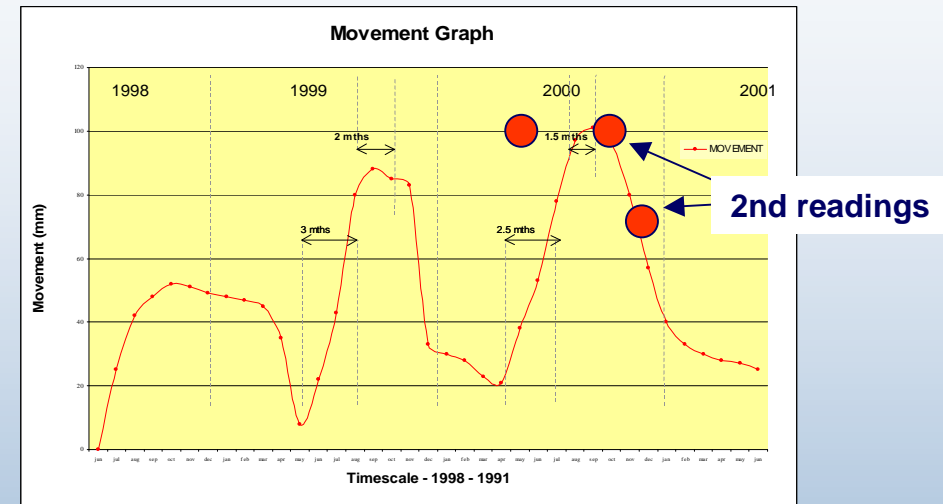
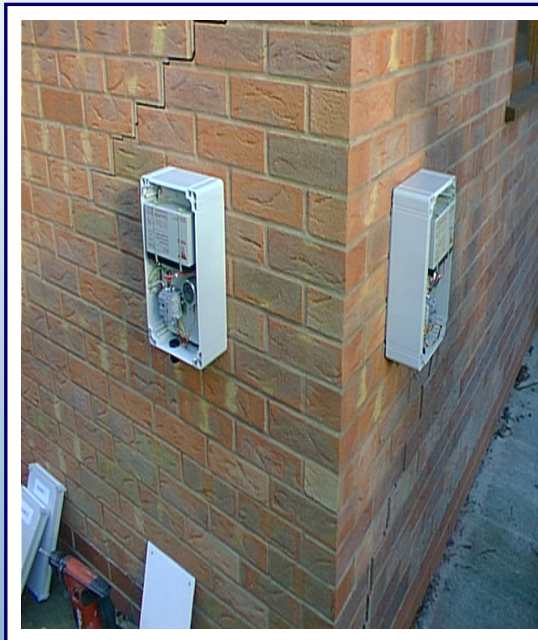
How do we meet the challenges



- Innovation
- Education
- Collaborative working



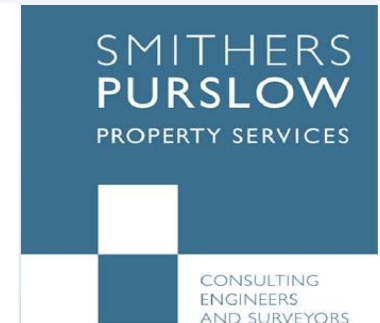
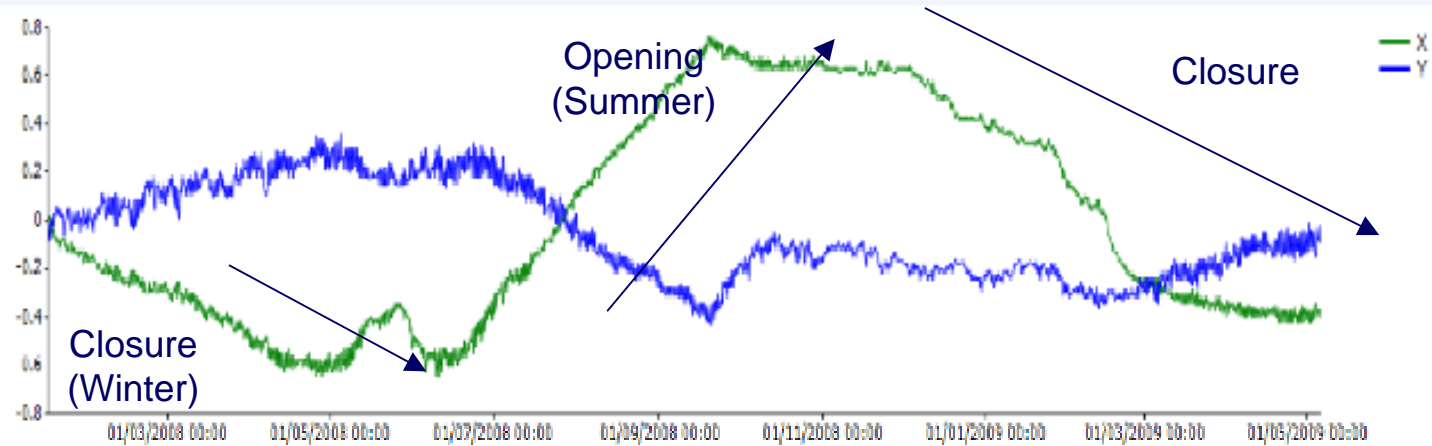
Innovation - Remote monitoring



- Speed, don't miss the peak readings
- But can it compete on cost?

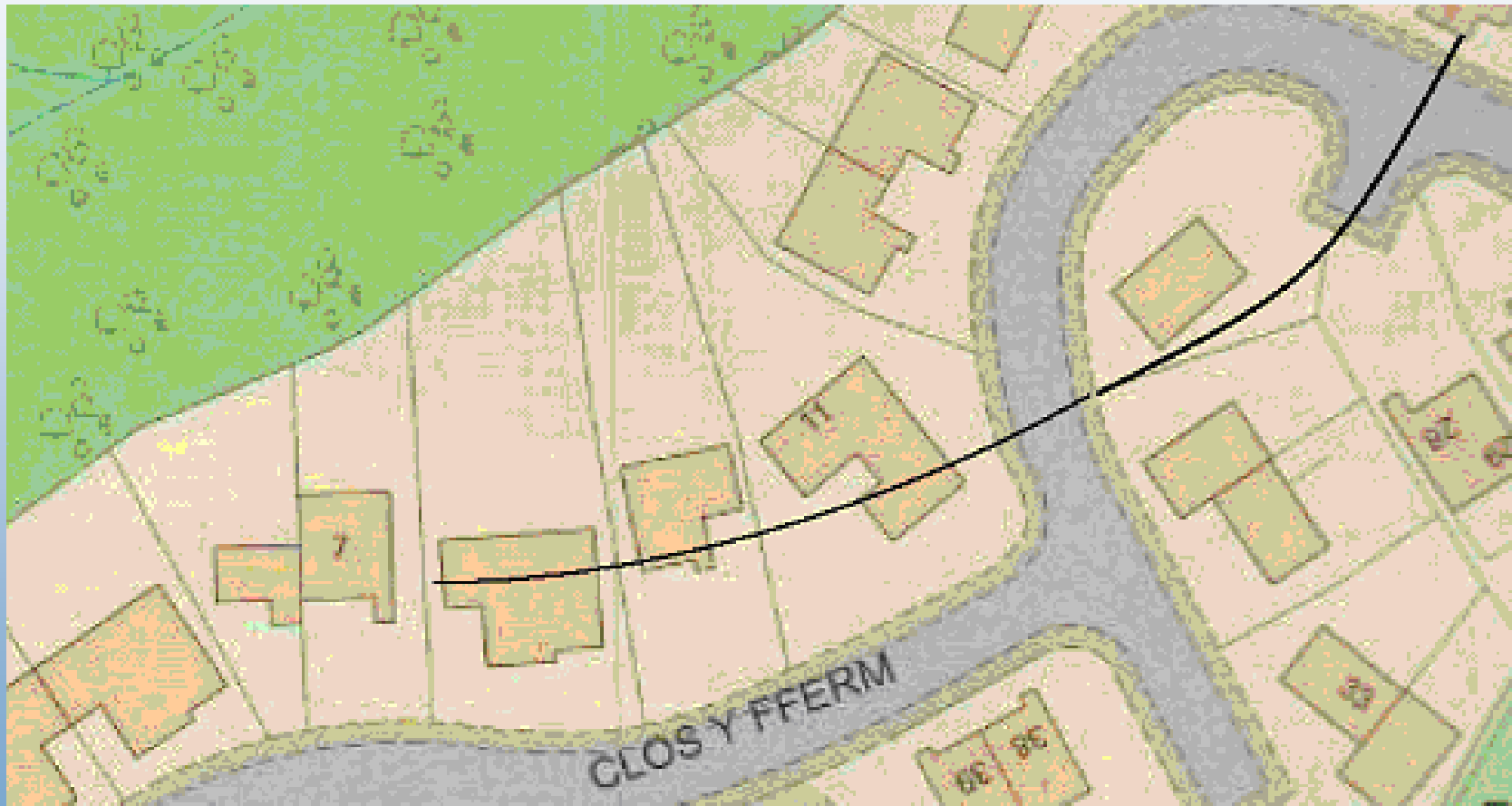
The Power of Real Time Data

Clay Shrinkage Seasonal Movement

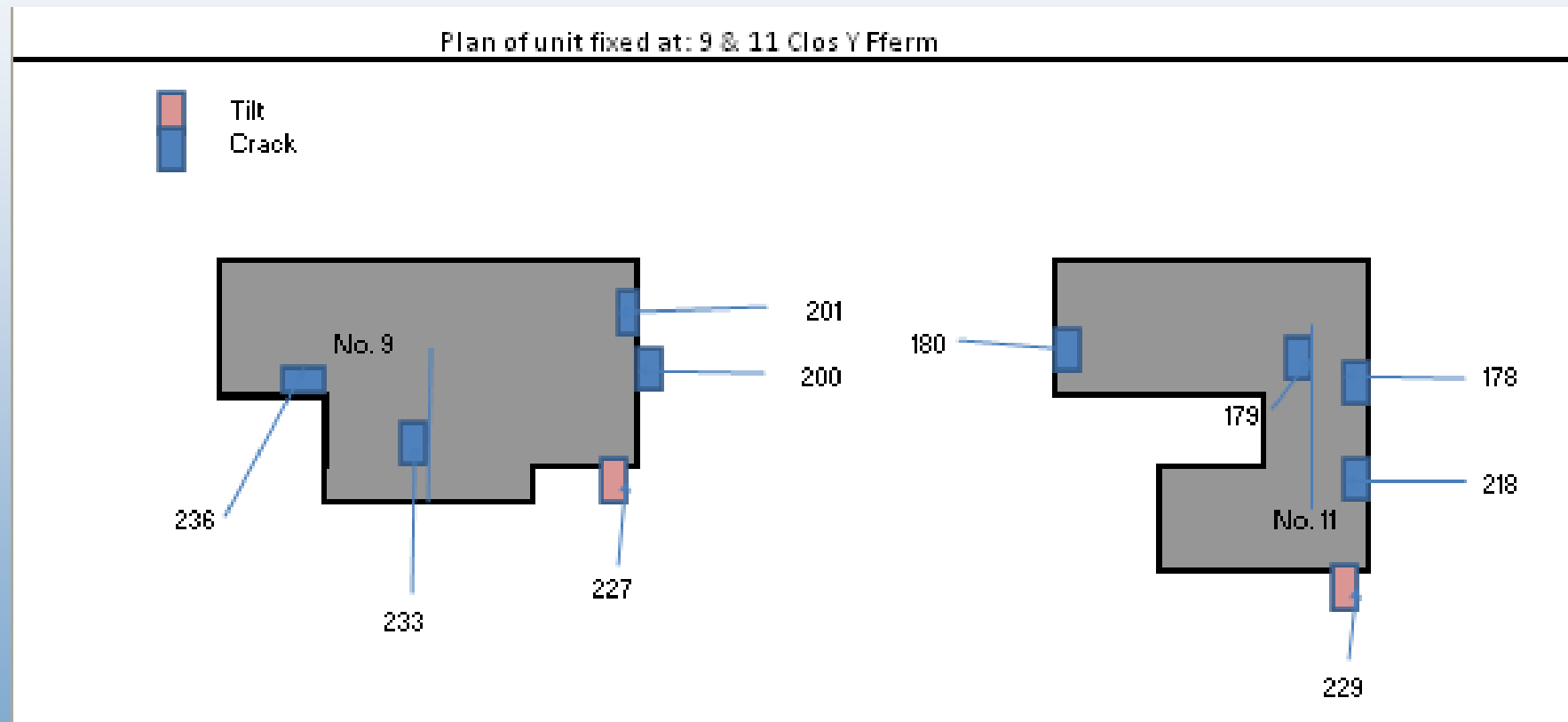


Kent

Site Plan-Landslip



Plan of monitoring Locations



Crack Damage - Landslip



Crack Damage - Landslip

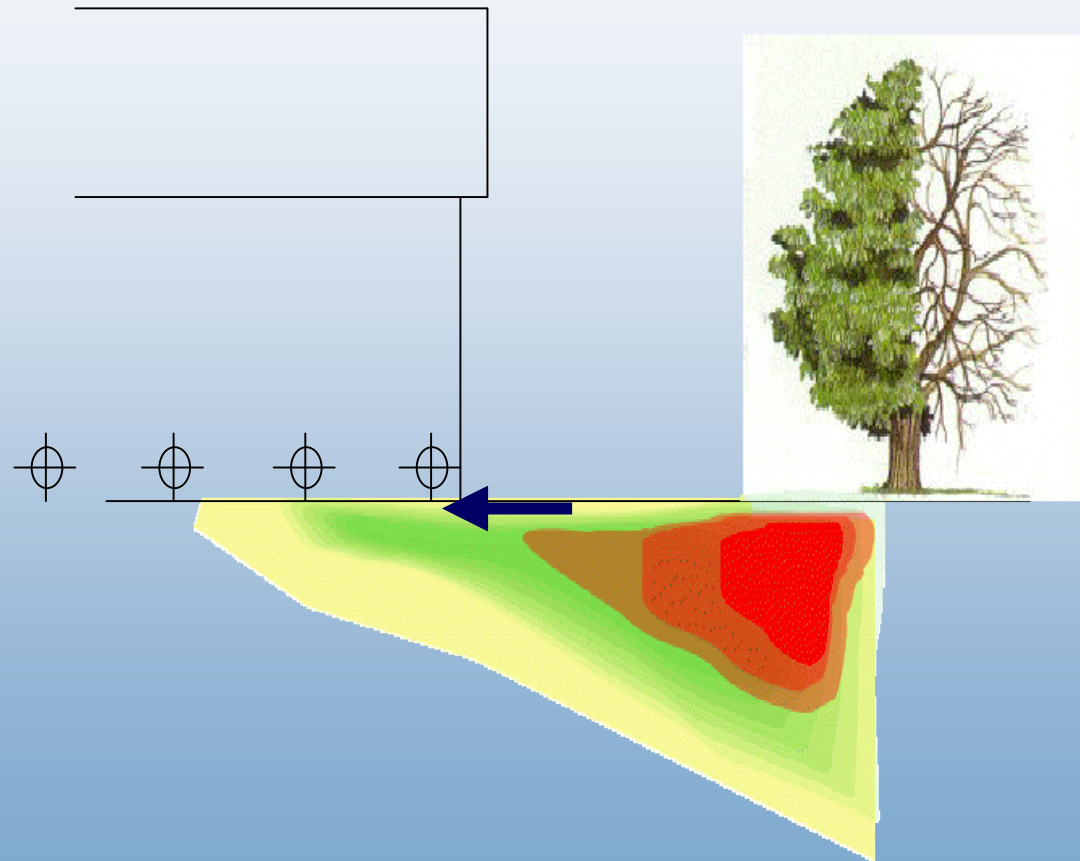


Landslip Case – Remote monitoring



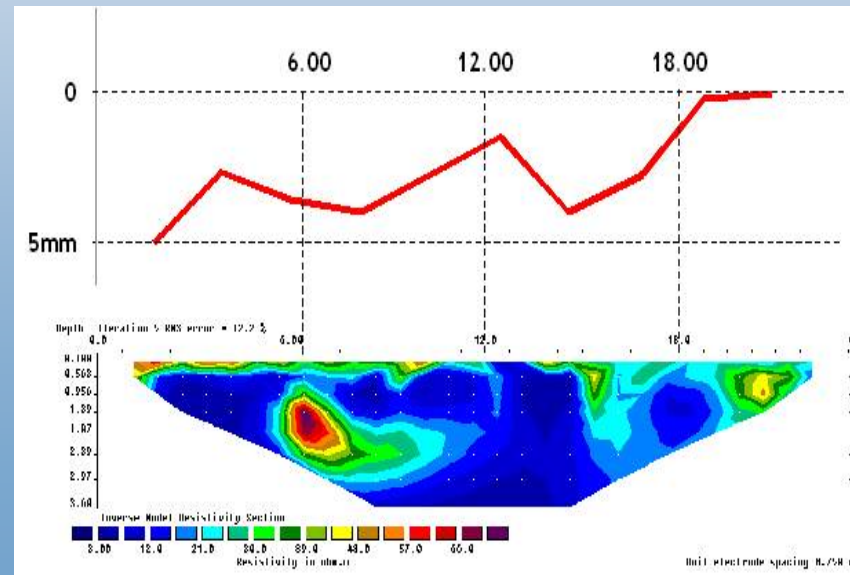
Tilt Sensors

*3.30pm, Wednesday, 20th April,
the Ash tree made the house move.*



Level and Time Domain Reflectometry (TDR) Dielectric Sensors

SP Monitoring Services have been working closely with the **'clay research group'** to evaluate "Level" and TDR (which measures moisture content in the ground) sensor technology.



Remote - The Benefits!



- Sensor technology enables an early warning system of movement
- Reduced touch claim handling
- Accurate reporting and less opportunities for human error
- Web accessible by all interested parties in the claim process
- Fewer site visits - less disturbance to Policyholder
- Greater capability to handle increased volumes.?
- Tool to validate and compliment desk top risk assessment models
- Pre-claim applications

Collaboration



- Needs to be an industry wide agreement
- Subsidence Forum
- BRE
- CILA
- RICS