

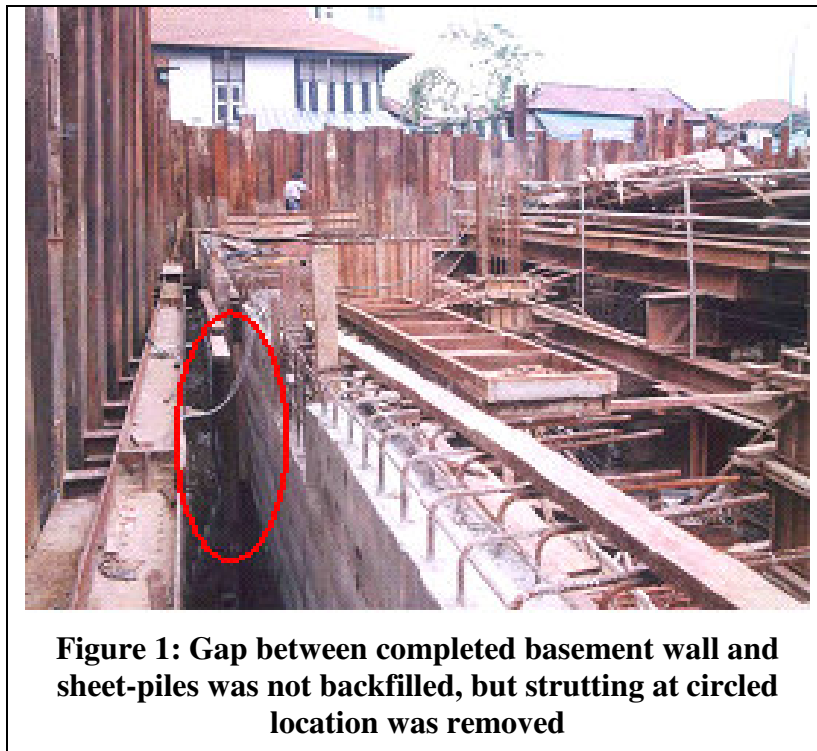
FAILURE OF SHEET PILE RETAINING WALL WHEN STRUTS WERE REMOVED

Type of building work

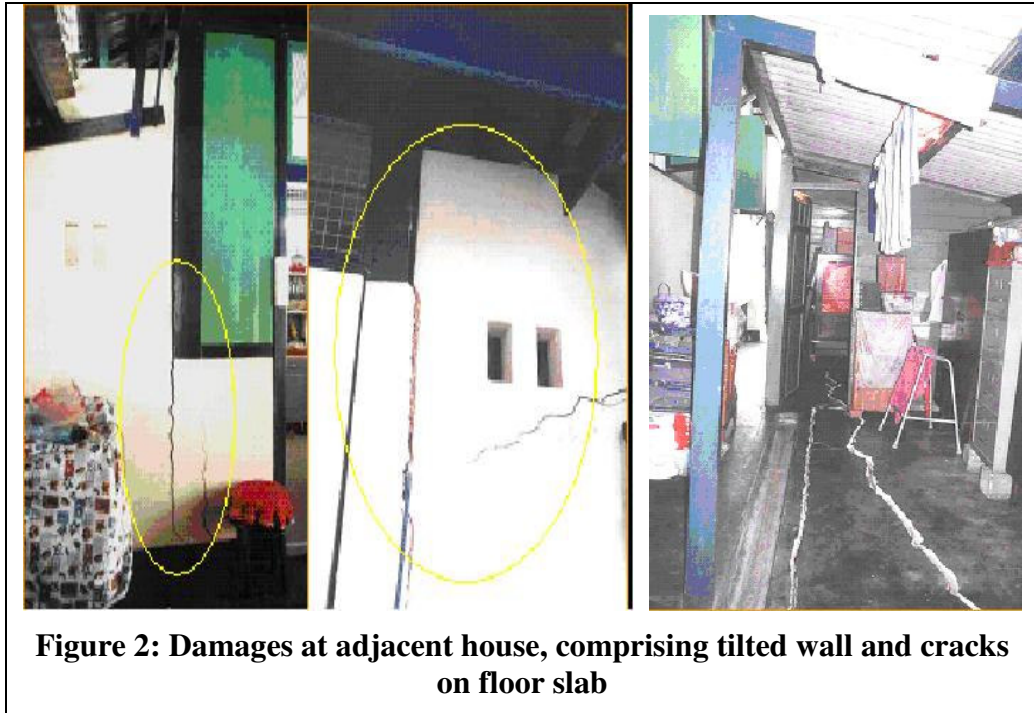
This involves construction of a two-level basement for an extension to a temple. The site was adjacent to a single-storey detached residential house. Sheet piles with walers and struts were installed for the basement excavation.

What went wrong

The basement wall had been completed up to underside of the 1st level struts. Before the gap between the sheet piles and the basement wall were backfilled, workers proceeded to remove the struts and walers to facilitate construction of the next level.



As a result, the sheet pile yielded, causing lateral movement and settlement of the adjacent detached house. The detached house suffered substantial damage, such as cracking and tilting of brick walls and wide cracks on the floor slab.



Learning points

- a) Temporary earth retaining works require close supervision as the sequence of work must be very carefully adhered to.
- b) Gaps between the temporary earth retaining wall and permanent wall must be carefully backfilled and adequately compacted before the struts are removed.
- c) Before removal of key elements, such as struts and walers, the builder must consult the professional engineer who designed the temporary earth retaining structures to ensure that the works would be safe after the removal of key structural elements.