

# Teretek® Helps West Australian Homeowner Avoid Having to Replace Wall

PROJECT PROFILE

W17D102

mainmark



## INDUSTRY

Residential

## STRUCTURE

Single-storey family home

## PROBLEM

Building footing  
subsidence, cracks in wall

## LOCATION

Merriden, WA, Australia

## DURATION / YEAR

1/2 day / August 2017

## TECHNOLOGY

Teretek®

## BUSINESS UNIT

Mainmark Australia

## Summary

The owner of a private residence in the West Australian town of Merriden observed a large stepped crack growing in an exterior wall of an elevated corner section of the home. The crack continued to grow over a two-year period.

After considering various options including re-building the damaged area, the owner consulted Mainmark to address the issue.

Mainmark assessed conditions surrounding the property and identified a leaking downpipe had caused the reactive clay soil beneath the affected section of the home to become oversaturated. The resulting ground subsidence had led the affected wall to settle by as much as 33mm along a distance of 10 lineal metres.

Over-saturation can cause clay soils to lose strength, resulting in the building footings bearing down through the weakened soil and settling. As the soil dries out, the footings sink even further. Merriden, located in the Central Wheatbelt between Perth and Kalgoorlie, has a hot semi-arid climate with hot summers, mild winters, and minimal precipitation which can impact the ground conditions.

To help rectify the cracked wall and provide a long term solution to strengthen the ground, Mainmark recommended treating the soil beneath the affected area of the home with its proprietary engineered resin injection solution, Teretek®, to increase ground bearing capacity and reduce the risk of further subsidence.

The work was completed within 4 hours, with minimal disruption to the homeowner, avoiding any need for excavation or traditional underpinning methods which can be costly, time consuming, disruptive and invasive.

Teretek® Helps West Australian Homeowner Avoid Having to Replace Wall continued

## Objectives

Mainmark was required to raise, re-level, and re-support the footings across the affected wall area which spanned 10 lineal metres. The overall objective was to return the affected wall as near as possible to level, to close the stepped crack and prevent damage to the interior of the home, including the kitchen and one bedroom.

It was important for the solution to strengthen the underlying foundation ground and maximise the soil's bearing capacity beneath the home, to prevent further subsidence and movement.

Works needed to be delivered with minimal disruption to the occupants, avoiding the need for any excavation or drilling that would potentially damage the garden or the building interior.

## Solution

In a process that is likened to keyhole surgery, Teretek engineered resin was injected 2-3 metres deep into the ground beneath the footings through 10 carefully selected points along the affected wall.

On entering the ground, the polymer resin solution quickly expands, strengthening the subsoil, filling any voids and maximising ground support to re-level the building quickly and efficiently. The process is fast, clean and unobtrusive.

Due to its controlled application process, Teretek avoided the risk of undue stress on the building during the lifting process. The home was gently returned back to level under the supervision of Mainmark technicians, who continually monitored the building, correcting the 33mm settlement and closing the step crack that had appeared in the wall.



Wall cracks before and after injection of Teretek® engineered resin

Works were successfully completed within 4 hours, and the results were visible almost immediately as the cracks in the bricks began to close. The homeowner was extremely happy with the results:

*“From the moment I contacted Mainmark, I was made to feel at ease. The clear advice, instructions and time frames were understandable and lived up to. They arrived on time, knew exactly what they were doing, using high tech laser equipment. Drilling the many, many 2-3 metre deep injection holes and then precisely pumping the product in such a controlled way that just lifted the house back to where it was in the first place. That huge 33 mm gap in the brickwork became a fine hairline crack. This was all done at a fraction of the cost of the traditional rebuild. They completed what I thought was a mammoth task in three and a half hours and left no debris, the clean-up was perfect.”*