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**From:** Philip Irwin <phil@rectify.com.au>  
**Sent:** Friday, January 12, 2024 6:31:19 pm  
**To:** jimmydobbs@hotmail.com <jimmydobbs@hotmail.com>  
**Cc:** Joshua Carmichael <josh@rectify.com.au>  
**Subject:** 16 Aaran Close Endeavour Hills - summary

Hello James & Deirdre

Thank you for the opportunity to look over your Endeavour Hills property on Thursday 11 January. My colleague Joshua has previously been to site and upon the recommendation of the builder appointed by Allianz to undertake the rectification works, quoted for chemical underpinning of the front portion of the perimeter strip footing.

The reason this was specified was because of the storm irrigation of the subfloor area which would have saturated the foundation zone soil horizon and potentially softened the cohesive clay, allowing settlement of the footing. Measurements taken across the floor of the building in August 2023 revealed a slope toward the front of the property. A subsequent measurement of the perimeter brick work in January 2024 also indicated a gradient toward the front of the building totalling 21mm.

Due to the incorrect installation of patio paving at the east side of the home that allows surface runoff to discharge toward the house wall and ultimately be directed under the dwelling via the subfloor access door, there is continued wetting that would be affecting the foundations. According to the CSIRO document BTF 18 (attached) "Saturation of clay foundation soil may occur where subfloor walls create a dam that makes water pond. It can also occur wherever there is a source of water near footings in clay soil. This leads to a severe reduction in the strength of the soil which may create local shear failure."

Given the current slope on the house, there is a likelihood that some settlement has already developed due to the loss of cohesive strength in the foundation zone clay soil. As the soil moisture has remained in the vicinity of the footings as a result of the constant wetting from surface runoff discharging under the building, there will be a degree of continued support from the swollen clay. Once the repairs to the patio are

facilitated, the moisture source will be removed and the soil moisture levels will begin to equilibrate. This will result in drying and progressive shrinkage of the clay and a potential further settlement of the footings that had been affected by the excess water.

It is therefore recommended to undertake the landscape correction and let the property stand for a sufficient length of time to enable the soil moisture to return to a normal level consistent with the rest of the allotment. This would typically be considered as a 12-18 month period, depending upon the current climatic conditions. In our experience it would be advantageous to intervene and undertake the foundation treatment before ambient moisture levels are achieved. The ground should not be saturated, but waiting till it has dried could allow additional shrinkage driven settlement that may result in further distress to the building, beyond its current condition.

Anticipate leaving the building for no more than 6 months following the correction of the surface run off before treating the ground using the chemical underpinning process. This will consolidate and compact the in-situ soil, filling voids and fissures, as well as adding additional volume to achieve alignment correction of the structure to alleviate stresses as a consequence of any settlement.

Kind regards

**Dr Phil Irwin**

*Business Development Manager*



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