



**SYNEVO Inspections (Pty) Ltd**

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# SINKHOLE INFO SHEET

PG 1 Of 3

## Contacts

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## SINKHOLES

Sinkholes can cause sudden failures of the soil supporting a building or land and are a serious concern to property and life.

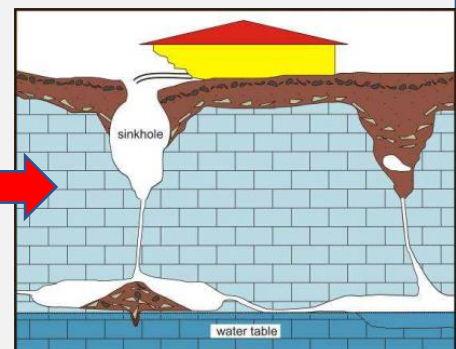
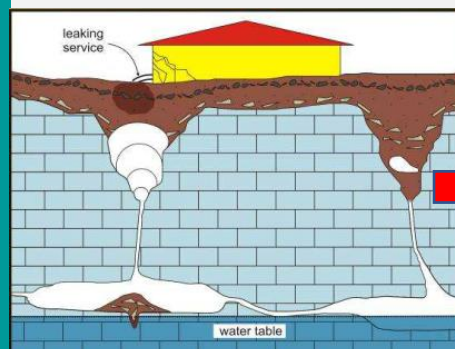


The following is a description of two common mechanisms of sinkhole formation as well as a guideline of what to look out for if there are concerns that sinkholes have or may be forming on your property.

## HOW THEY FORM

### Sinkholes as a Result of Dolomites

- Sinkholes are often caused by the deterioration / cavitation of the underground dolomitic rock by means of ground water flowing over or through the dolomite formations.
- The water dissolves the dolomitic rock causing underground caverns to form.
- Active subsurface erosion, caused by concentrated water ingress, will result in the transportation / movement of materials into the caverns.
- Once the eroded cavity reaches a size where it can no longer support itself, it will collapse inwards causing a sinkhole to form.



Images Extracted from: "**Sinkholes and Subsidence in South Africa**", A.C Oosthuizen and S. Richardson, Council for Geoscience Report number: 2011-0010



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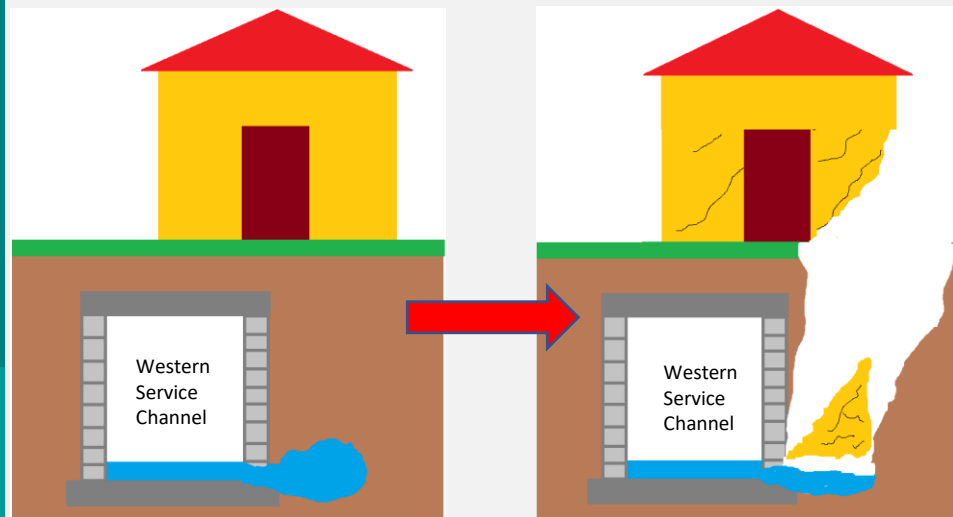
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## Sinkholes as a Result of Damaged Infrastructure and or Services

- Damaged sewer or stormwater systems and or leaking pipes can cause sinkholes to form through soil being washed away (transported) from a particular underground zone. This mechanism is known as transportation cavitation.
- This occurs when soil particles are carried away by flowing water causing cavities to form underground. As the cavities grow they collapse in on themselves causing settlement (best case) and or sinkholes (worst case) to form.
- The problems experienced within the Orange Grove and Houghton areas, along the **Western Service Stormwater Channel**, are as a result of this failure mechanism.
- The Western Service Stormwater Channel has deteriorated to a point where it can no longer contain the stormwater flowing within it.
  - This results in water escaping the channel and eroding the soil, on the outside of the underground channel, away.
  - As the soil is washed away by the water, the underground cavities grow and eventually collapse in on themselves.



Photos taken above and inside a cavity that has formed on the outside of the **Western Service Stormwater Channel** due to underground soil erosion. Eventually the cavity will reach a size where it can no longer support itself and will collapse.



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## WHAT TO LOOK OUT FOR



**Unusual depressions  
in the ground surface**

**Diagonal, vertical or  
horizontal cracks in walls**



**Re-entrant cracks at windows  
and door frame corners**

**Cracks in hard surface  
floors**



## WHAT TO DO IF YOU ARE CONCERNED

- Make contact with a competent geotechnical and or structural professional to conduct further investigations.
- Minimize exposure to risk area by reducing access to such areas. Cordon off the problematic zones if possible.