

### **1) Why does the NHBRC require a specialised geotechnical site investigation before construction in dolomitic areas such as Centurion and Kempton Park?**

- a) To ensure the site receives adequate storm water drainage from the municipality
- b) To identify the risk of sinkholes and ground subsidence affecting foundation stability
- c) To confirm whether the site qualifies for alternative building plans
- d) To ensure the most cost effective house building project costs

#### **Explanation:**

Dolomitic areas—such as Centurion, Kempton Park, and parts of Mogale City—contain soluble rock that can dissolve underground and create cavities over time. These cavities can collapse and form sinkholes or lead to gradual subsidence, posing a serious risk to building foundations. A specialised geotechnical investigation assesses these collapse risks, classifies the site, and determines the appropriate geotechnical solutions such as improved stormwater control, deep foundations, raft foundations, or specific compaction requirements. Without this investigation, the structure may be exposed to severe structural failure. **Therefore, the correct option was: b) To identify the risk of sinkholes and ground subsidence affecting foundation stability. (NHBRC Dolomite Risk Management Guidelines)**

---

### **2) According to the NHBRC soil site classifications, which one of the following soils expands considerably when water is added?**

- a) Clay soil
- b) Rocks
- c) Dolomite
- d) None of the above

#### **Explanation:**

Clay soils have a high plasticity index, meaning they undergo significant volume changes, when water or moisture content is added. When water is added, these clays swell dramatically, causing upward pressure on foundations. This expansion–shrinkage cycle is one of the main reasons clay soil foundation site classification require reinforced or stiffened foundations. Rock sites do not expand, and dolomite area foundation sites are just prone to structural collapse-risk areas. **Therefore, the correct option was: a) Clay soil.**

---

### **3) What does the dolomite condition mean?**

- a) A white mineral often tinted by impurities, found in sedimentary rocks and veins. It is used in the manufacture of cement and as a building stone (marble)
- b) An acidic type of soil
- c) A rock formed from volcanic conditions
- d) A Sinkhole

**Explanation:**

Dolomite is a carbonate rock that dissolves gradually when exposed to water movement underground. Over time, this dissolution creates voids and cavities, which can collapse suddenly or settle gradually. This collapse or subsidence leads to the formation of sinkholes, making dolomitic areas such as Centurion, Kempton park and Mogale City as high-risk zones requiring specialised geotechnical investigations, proper storm water control, and specific foundation designs. The NHBRC explicitly links dolomitic ground to potential sinkhole formation due to the instability caused by dissolution cavities. **Therefore, the correct option above was: d) Sinkhole.**

---

**4) According to the NHBRC, a wall crack of more than 25 mm is classified as?**

- a) Very severe
- b) Severe
- c) Moderate
- d) Mild

**Explanation:**

In residential buildings, cracks wider than 25 mm indicate significant structural movement, often due to foundation failure, differential settlement, heave, or severe moisture imbalance in the soil. According to the NHBRC, such cracks fall under the “very severe” category because they typically require major structural repair, including underpinning, partial rebuilding of wall sections and extensive correction of the underlying cause. These cracks go far beyond cosmetic defects and are considered a structural risk. **Therefore, the correct option was: a) Very severe.**

---

**5) ..... is when a housing unit has a floor level of less than 150 mm above finished surface level?**

- a) A raft slab
- b) An upper surface
- c) A slab on the ground
- d) A semi basement

**Explanation:**

A semi-basement refers to a condition where the finished floor level of the housing unit is less than 150 mm above the surrounding finished ground level. This reduced height causes the structure to partially sit below or close to ground level, increasing moisture risk, damp penetration, drainage challenges, and potential structural complications if not properly detailed. This condition is identified in foundation design and site classification requirements because it influences damp-proofing, stormwater management, and wall construction detailing. **Therefore, the correct option was: d) A semi basement.**

---

**The paid version continues with this detailed teaching approach, offering practical questions and detailed explanations that cover, all of the technical requirements evaluated in the NHBRC's Technical Assessment.**

**[www.nhbrctest.co.za](http://www.nhbrctest.co.za)**