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# Council for Geoscience

**Our Reference:** F3827
Boichoko Township, Postmasburg
**Your Reference:** J10-050/2
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**No. of Pages:** 3

**21 October 2010**

Bear GeoConsultants
P.O. Box 28334
Kensington
2101

**Attention: Mr AG A'Bear**

*By tell: (011) 614 1372*

Dear Sir

**BOICHOKO TOWNSHIP, POSTMASBURG.**

The firm, Bear GeoConsultants (BGC) submitted their report: "Geotechnical investigation for housing projects in Boichoko, Postmasburg", dated September 2010 on behalf of their client, Assmag Ltd, to this office for comment on 15 October 2010. This office acts as Agent to your Municipality in auditing the geoscientific work and emanating recommendations. The report is in support of the proposed Housing Development to be erected on site.

The site cover's a total surface area of **31893.18m2 (~3.2ha).** The Boichoko Township is located to the western side of Postmasburg as shown on the Locality Plan Map (J10-050/3).

A gravity survey was carried out by Engineering and Exploration Geophysical Services in June 2010, which was followed by drilling of eight percussion boreholes and excavation of eleven test-pits as part of the near surface geotechnical investigation. The original water level is considered to be located at a depth of approximately 15m below surface in this area.

According to the geology map, the site is underlain by dolomite and chert formations of the Ghaap Group, Campbell Sub-group, which have been intruded by a dyke. A geological profile of the site comprises Hillwash soil horizon, hardpan calcrete horizon and these materials overlies the dolomite bedrock at depths between 0,0m to 1,5m depth.

Having reviewed the report, we submit that:

a) BGC has classified the site into a single primary Inherent Hazard area, namely:
   - **IRC: 1//1**. All percussion boreholes were drilled on this zone. These reflect a low Inherent Hazard rating in terms of the potential for sinkhole and subsidence developing. The site also reflects a low Inherent Hazard of any size sinkhole with respect to groundwater drawdown. BGC indicated in Section 7.2 of the report that no restrictions in terms of density development are required on site.

   This Office is broadly in agreement with the risk assessment of the site.

   Our support to the risk assessment and classification of the site is based on the following:
   - ✓ No cavities, loose or porous material encountered during drilling on site. However, we take note that this does not imply that cavities do not exist in this area.
   - ✓ There is a complete absence of completely weathered dolomite or wad in the profiles.
   - ✓ There is a continuous thick layer of calcrete across the site that has effectively sealed the many joints and grykes found in this area as seen in a picture attached to Postdene report.
   - ✓ There is a limited pinnacle and gryke development in this area as opposed to the well developed pinnacle and wad environment occurring in the Gauteng region.
   - ✓ The depth to bedrock is fairly uniform with limited variation as seen from borehole profiles.
   - ✓ There was a continuous refusal at shallow depths (<1m) during test-pit excavation on site.

b) BGC indicated in Section 5 of the report that only one borehole was dry at the time of backfilling.

c) In Section 7.1.1 of the report, BGC indicated that conventional strip foundations may be employed on site.

This Office confirms support to the proposed housing development of Boichoko Township, Postmasburg, conditional to the following:

d) The development as such must be build in accordance with the NHBRC requirements for residential development on dolomite. All buildings must be founded on conventional strip foundations as recommended.

e) The development densities as stipulated in **Draft SANS 1936-1 for Dwelling Houses** must be adhered to during the development of this site.

f) The wet services engineer must ensure that strict water precautionary measures and design are implemented during construction on this site.

g) A dolomite Risk Management System should be implemented by the local authority.

h) The developer must inform the professional team when the service/ foundation trenches are open for inspection to takes place. The results of these inspections must be recorded in a construction report (copy to the Local Authority, NHBRC and this Office).

i) The professional team involved shall carefully consider the appropriate water precautionary measures and then ensure and finally certify that these have been implemented.

j) Wet services may not be laid underneath the structures. The developer or his appointed professional team should certify that they have been placed as indicated in the drawing presented to the Local Authority and to this Office. The Home Owner must also have a copy of the exact plan presented to this Office.

k) Adequate paving around the structures, gutters and down pipes should always exist and all storm water must be discharged in the municipal storm water system. Roof water may thus not cascade off the apron and directly into the soil. The property should be landscaped in a way that the storm water is channelled away from the structures and in principle as shown on the drawings submitted. The Competent Person should, during the first year after completion of construction, visit the site after heavy rain storms to check that the storm water control system works effectively and should implement changes as deemed necessary.

This letter reflects the Council for Geoscience's view and approach to development on dolomite at this time, as reflected by the above date. These comments may not be viewed as open-ended. If a property changes ownership or land-use changes are made, the comment may in part or wholly no longer apply. This Office should be informed of such changes and the Competent Person responsible for the dolomite stability investigation should be given the opportunity to indicate the influence such changes could have on the overall stability.

If you have any further queries, please do not hesitate to contact this office.

Yours faithfully,

**G J HEATH**

**ENGINEERING GEOSCIENCE UNIT**