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Council for Geoscience

Our Reference: F5731.1
Gerhardsville Ext. 2
Your Reference: None
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No. of Pages: 4

03 July 2019

Tshwane Metropolitan Municipality
Department Roads and Stormwater: Geology Section
Centurion Offices
P O Box 14013
Lyttelton
0140

Attention: **Deputy Director: Geological and Geotechnical Engineering Management**
Mrs. Ashika Sudu

By Email: ashikas@tshwane.gov.za

The Deputy Manager: Regional Spatial Planning
Mrs. Pat de Vos

By Email: patdv@tshwane.gov.za

Dear Madame,

PROPOSED NEW DEVELOPMENT: GERHARDSVILLE EXTENSION 2.

The firm, Louis Kruger Geotechnics CC (LKG) submitted their report: "Report on the dolomitic stability investigation for the proposed new development – Gerhardsville Extension 2 situated on a part of Portion 16 and part of Portion 66 of the farm Knopjeslaagte 385 JR" dated May 2019 to this office for comment on behalf of their client, WFA Christian Business School, on 14 June 2019. This office acts as an agent to state authorities in reviewing dolomite stability investigations on their behalf.

The site was previously investigated by LKG during 2007 and then again during 2019. The purpose of the current investigation was to provide the client with an indication of the types of development that maybe considered suitable for the site since the site layout has not been finalized.

Board Members:

Dr H Mathe (Chairman) | Mr M Mabuza (Acting CEO) | Mr K Menoe | Dr M Mayekiso | Ms D Mochothli | Ms R Mdubeki
Dr J Mahachi | Mr X Mvinjelwa | Mr K Koloi | Mr O Willcox | Mr K Ramokgopa | Mr T Motaung | Mr B Gerrys

The site covers approximately **18 ha**, at present the site is undeveloped and is situated on a part of Portion 16 and part of Portion 66 of the farm Knopjeslaagte 385 JR.

The proposed land use consists of a college combined with dormitories and associated sports facilities, **C3** type development in terms of SANS 1936:2012.

The following is noted from the LKG's report:

- 1) According to the 1:50 000 scale geological map, 2528 CC Lyttelton, the site is underlain by dolomite of the Chuniespoort Group, Transvaal Supergroup and syenite. The geology was confirmed during the investigation, both dolomite and syenite were encountered in the boreholes.
- 2) In Section 10 of the report, LKG indicates that the ground water level was measured between 6 m and 14 m below surface on this site. No dolomite residuum is present below the water level and therefore, lowering of the water level would not affect the stability of the site.

The groundwater information from the four boreholes, situated about 3 to 4 km from site, was obtained from the National Groundwater Archives (NGA) of the Department of Water Affairs. However, due to the presence of a major east-west striking syenite sill and the distance from site, the water levels from these boreholes are not considered relevant to the site.

- 3) A total of 12 percussion boreholes were used during the current site evaluation, i.e. three from the previous investigation and nine from the current investigation. These boreholes were drilled to depths between 10 m and 35 m below the surface and they generally intersected:
 - Residual soils (dolomite & syenite) from surface to 27 m depths.
 - Weathered to solid bedrock (dolomite) between 5 m and 35 m depths.
- 4) Based on the available information, LKG has divided the site into two inherent hazard class (**IHC**) zones, namely:
 - **Zones (10m radiuses) around L7 & L8: IHC 6//6**, with a **D3** dolomite area designation, **D4** for residential.
 - **Remainder of the site: IHC 3/4/5//3/4/5**, with a **D3** dolomite area designation.
- 5) LKG has made recommendations in Section 15 of the report to be implemented on site to bring the development to an acceptable risk.

This office would like to comment as follows:

- a) This office is broadly in agreement with the hazard classification and assessment of the site. LKG has classified the site as follows:

- **Zones (10m radiuses) around L7 & L8:** IHC 6//6, with a **D3** dolomite area designation, **D4** for residential and this is supported.
 - **Remainder of the site:** IHC 3/4/5//3/4/5, with a **D3** dolomite area designation and this is supported.
- b) LKG has indicated that the proposed land use is a college combined with dormitories and associated sports facilities, **C3** type development. According to Table 2 of SANS 1936:2012, **C3** type developments are permissible up to **IHC 6** land, subject to **D3** precautionary measures and footprint investigations:
- The drilling of 12 boreholes across the **18 ha** site is considered adequate and meets the SANS 1936:2012 minimum drilling requirements.
 - This office confirms that the geological conditions as revealed by the drilling results on this site are considered suitable for proposed development.
- c) The recommendations in Section 15 of the report are generally supported.

Therefore this office confirms **provisional support** of the proposed college combined with dormitories and associated sports facilities, **C3** type development in Gerhardsville Extension 2 situated on a part of Portion 16 and part of Portion 66 of the farm Knopjeslaagte 385 JR, subject to the points above and the following:

- d) No residential development is supported within **10 m radiuses** around borehole **L7** and **L8**.
- e) A certified site development plan (SDP) should be submitted to this office for co-signing.
- f) Once the SDP has been finalized, additional investigations, including FPI's where necessary, must be conducted and the results thereof, submitted to this office for further comments, prior to any construction on this site.
- g) LKG or the professional team involved are to certify that additional investigations, the development proposal and precautionary measures are in accordance with SANS 1936:2012 requirements.
- h) A Dolomite Risk Management Plan in accordance with SANS 1936-4:2012 must be compiled and implemented for this site. The owners/responsible persons must be made aware of the risks involved in building on dolomite, and be informed about how to be vigilant and act pro-actively by applying sound water management principles.
- i) The Local Authority must implement a risk management system. Commenting on the suitability of sites within its jurisdiction is based on the premise that this system will be implemented.

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,



S NGUBELANGA
Engineering Geologist

Proposed new Development: Gerhardsville Extension 2 (F5731.1)

CC: Louis Kruger Geotechnics

ATTENTION: Mr L Kruger

By email: lkgeo@mweb.co.za