

Colleen McCreddie
The Environmental Practice

07 February 2022

Dear Madam

Geological Review – Get Alloys Foundry

Rock & Stock was engaged to provide a high level geological review of the proposed site of the Get Alloys foundry in Germiston Knights, Gauteng (Figure 1). The site boundary supplied falls within the farm Driefontein 87IR and lies immediately south of Shaft Road, measuring approximately 8,104m² (0.8Ha). A primary concern of the mandate was the occurrence of any dolomite on or proximal to the site which could have an adverse affect on any planned construction or the long term stability of any built structures.

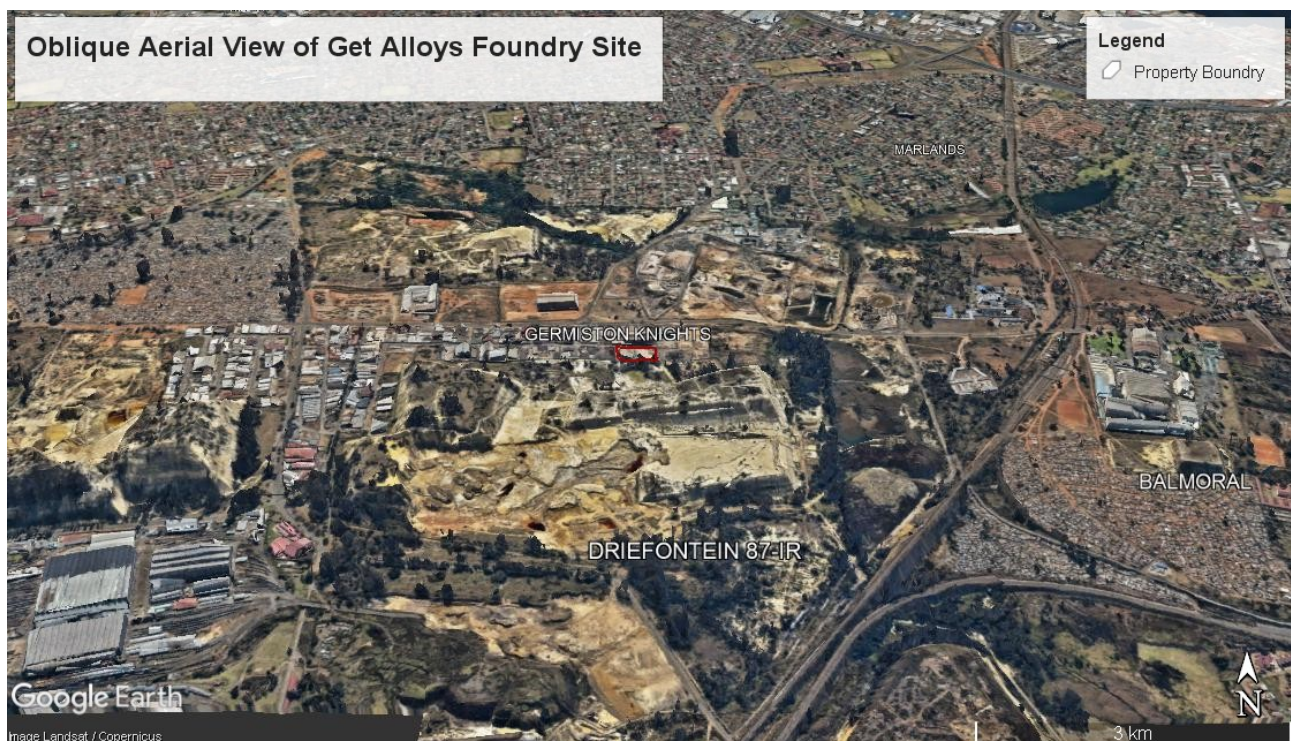


Figure 1: Oblique Aerial View of Get Alloys Proposed Foundry Site in Germiston Knights.

1 Regional Geology

A review of the property shows that it is located at the eastern end of the Central Rand Gold Field and an overlay on the regional geology shows that the property is entirely underlain by

Directors: J.P. Hattingh, C. Hattingh

the Johannesburg Subgroup of the Central Rand Group of the Witwatersrand Supergroup (Figure 2). The Johannesburg Subgroup predominantly comprises quartzites and quartzitic conglomerates. Regional dip of the stratigraphy is towards the south. There are no dolomites underlying or proximal to the site. Dolomite will not impact the proposed construction.

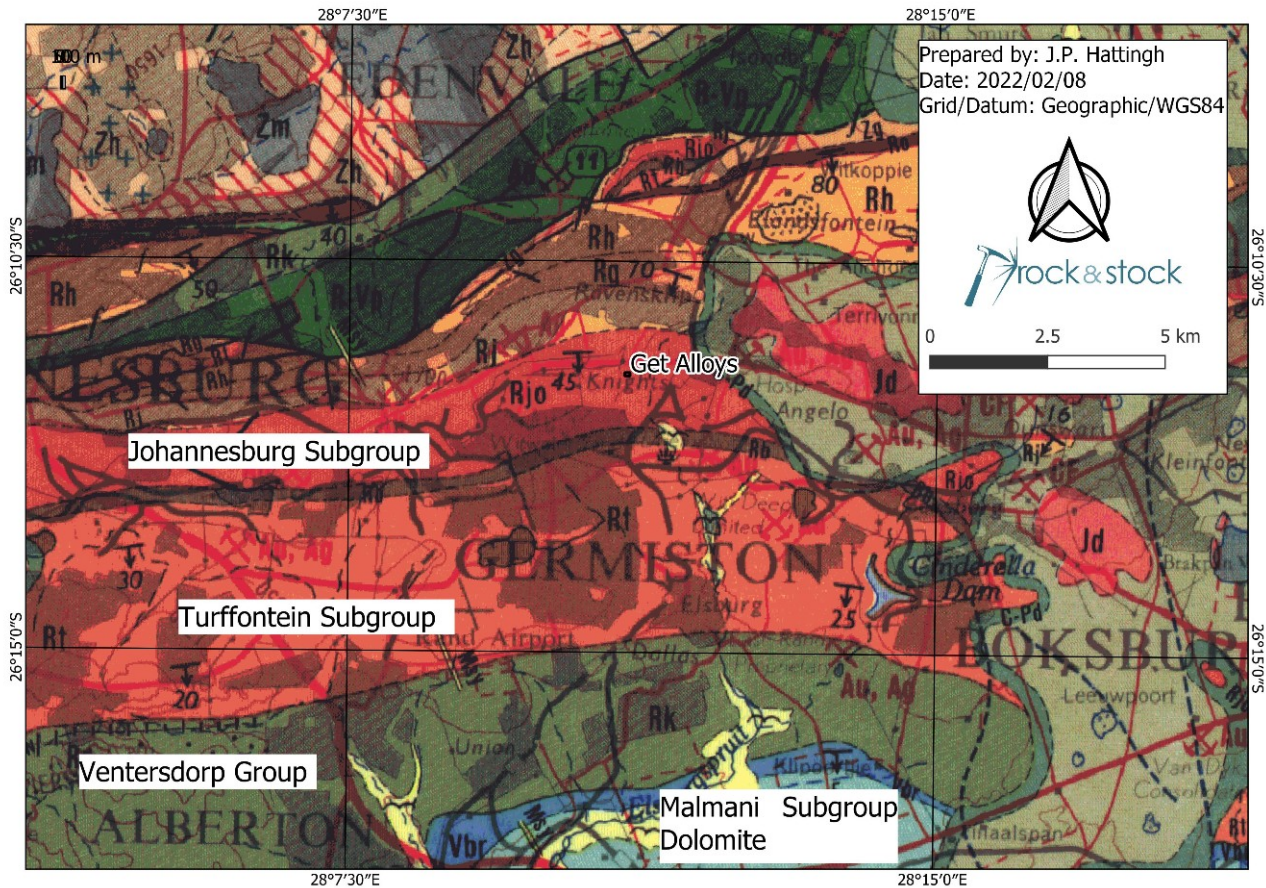


Figure 2: Position of Get Alloys property in Knights Germiston overlain on 1:250000 geology map.

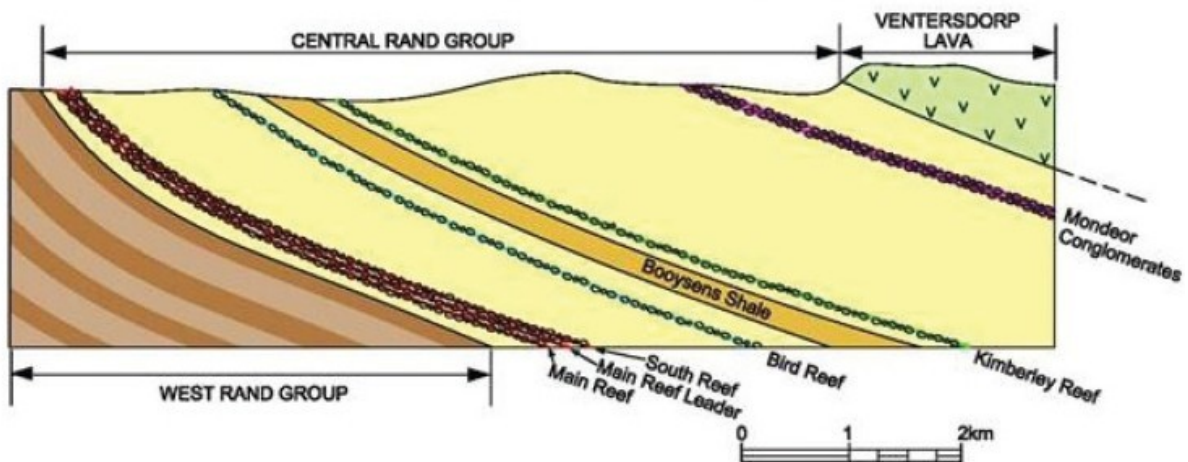


Figure 3: North-South, generalised cross-section of the Central Rand Group: Johannesburg Subgroup, overlain by Booyens Subgroup, overlain by Turffontein Subgroup (Viljoen, 2009). Quartzites in yellow.

2 Local Geology

A site investigation did not form part of this review but it is clear that:

1. The site is not affected by dolomites and;
2. That the site is underlain by Johannesburg Subgroup which contains the majority of the historically mined auriferous reefs in the greater Johannesburg area. Accordingly it is highly probable that the location is undermined on at least one of the reefs which form part of the Johannesburg Subgroup.

The rocks of the Central Rand Group are good founding rocks. Any problems associated with founding on them are generally related to historical subsurface mining.

3 Geotechnical Considerations

A report dated 15 March 2011, by Bear GeoConsultants (Pty) Ltd (BGC) indicates that the area which they investigated, which largely overlaps the Get Alloys Foundry site, is undermined on at least two reef horizons with the depth to reefs from surface being approximately 350m to 400m. Unfortunately as detailed by them, the plan utilised by them was of poor quality and accordingly precise georeferencing is not possible. Reef elevation contours suggest a dip of 35° to 50° for the reefs and strata towards the south.

The BGC plan from the report was subsequently georeferenced and overlain with the Get Alloys site (Figure 4) and it is apparent the site may be affected by mining related issues – most notably subsidence related to closure of underground excavations and tension cracking around mining created fulcrum points. The plan available shows mining at medium depths (350m to 400m below surface) which should cause little to no problems (depending of course on the proposed development); the only concern is that Connor Shaft is indicated on the eastern side of the property and from the poor quality map it is difficult to ascertain if it was a sublevel or surface shaft (ie was it excavated from the current surface or was it excavated at depth being accessed from lower mine levels?).

Information pertaining to undermining on the Get Alloys property was requested from the Department of Mineral Resources and Energy (DMRE). They have informed that once an application for development is made then they can confirm information via the Survey Department in Pretoria. Alternatively we can make a direct request from the Survey Department in Pretoria.

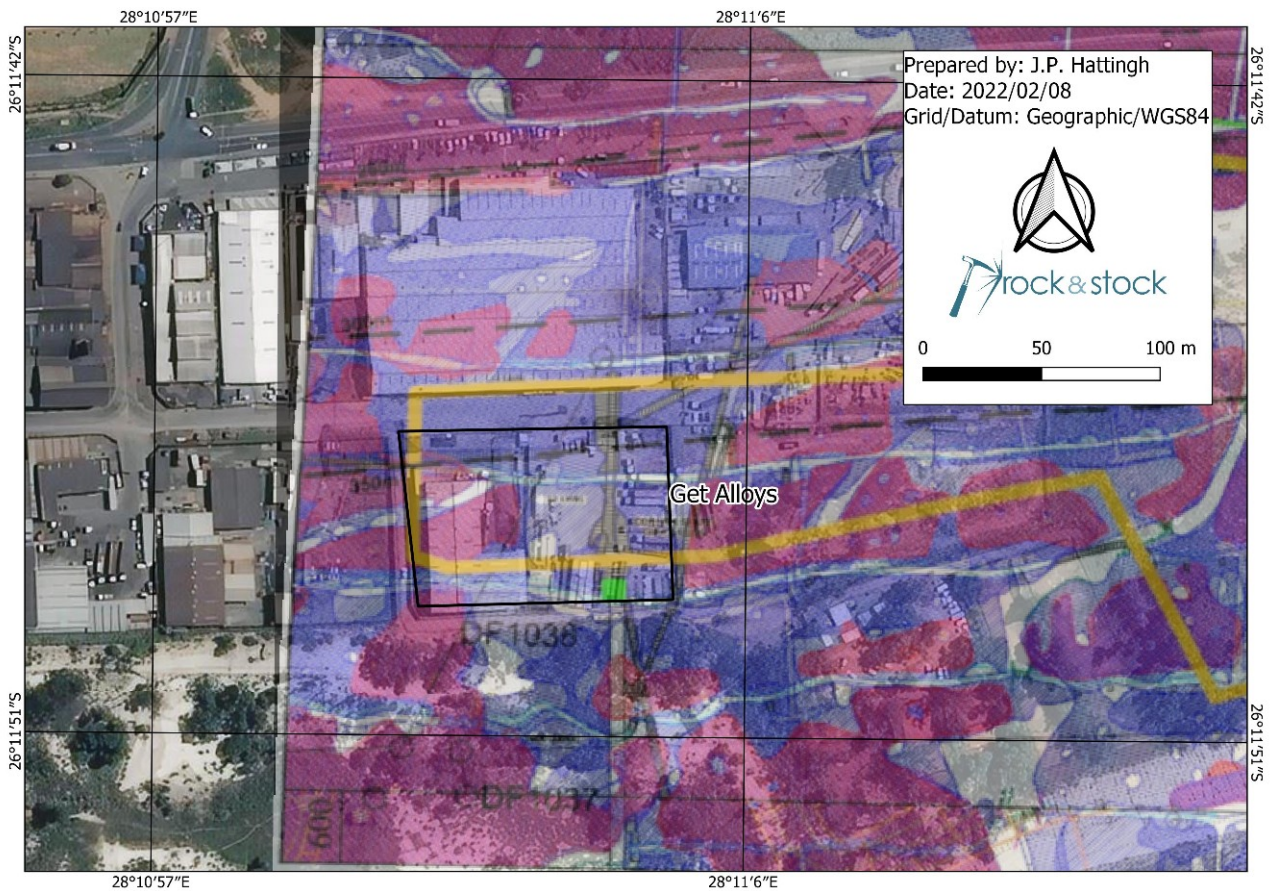


Figure 4: BGC map excerpt with Get Alloys property boundary in black superimposed on mine plan. Mined areas in pinks and purples. Green square is the approximate position of the historic Connor Shaft.

4 Concluding Remarks

The site is not affected by dolomite. The site is underlain by quartzites of the Johannesburg Subgroup of the Central Rand Group. At the 350m to 400m depths indicated by the BGC plan, there should be no building restrictions (Brink, 1979), unless specifically imposed by authorities. The shaft indicated on the BGC plan could be of concern should it be a surface shaft which was capped in the past (though this seems less likely than a sub-level shaft). Furthermore notwithstanding the general absence of specific restrictions due to the mining being at intermediate depths, engineering design should take cognisance of the possibility of differential subsidence on the site related to closures at depth.

As a final note, the site is surrounded by old mine dumps, which due to oxidation of contained pyrite, result in acidic (sulphuric) waters draining from them. Adequate protection must be provided for concrete in contact with soils on the site.

Yours sincerely,



J.P. Hattingh


BSc (Hons.), *Pr.Sci.Nat.*, FGSSA

DECLARATION OF THE SPECIALIST

Note: Duplicate this section where there is more than one specialist.

I, **Joshua Hattingh**....., as the appointed Specialist **providing input into the proposed new Get Alloys aluminium and copper foundry on Remainder of Portion 1 of Farm Driefontein No. 87-lr, Germiston, GDARD Ref. No. Gaut 002/21-22/10002**), hereby declare/affirm the correctness of the information provided or to be provided as part of the application, and that:

- In terms of the general requirement to be independent:
 - other than fair remuneration for work performed in terms of this application, have no business, financial, personal or other interest in the development proposal or application and that there are no circumstances that may compromise my objectivity; or
 - am not independent, but another specialist (the "Review Specialist") that meets the general requirements set out in Regulation 13 of the NEMA EIA Regulations has been appointed to review my work (Note: a declaration by the review specialist must be submitted);
- In terms of the remainder of the general requirements for a specialist, have throughout this EIA process met all of the requirements;
- I have disclosed to the applicant, the EAP, the Review EAP (if applicable), the Department and I&APs all material information that has or may have the potential to influence the decision of the Department or the objectivity of any Report, plan or document prepared or to be prepared as part of the application; and
- I am aware that a false declaration is an offence in terms of Regulation 48 of the EIA Regulations.



Signature of the Specialist:

14 February 2022

Date:

Rock and Stock Investments (Pty) Ltd

Name of company (if applicable):