
THE PROPOSED MINING PERMIT APPLICATION FOR THE PROPOSED MINING OF AGGREGATE ON A PORTION OF PORTION 15 ON THE FARM RIETSPRUIT NO. 437, MSUKALIGWA LOCAL MUNICIPALITY, MPUMALANGA PROVINCE (MP30/5/1/3/2/13080MP)

31 March 2022

PROJECT DESCRIPTION

The proposed development entails a mining permit application for the proposed mining of aggregate on a Portion of Portion 15 on the Farm Rietspruit No. 437, Msukaligwa Local Municipality, Mpumalanga Province.

Inzalo Crushing and Aggregates (Pty) Ltd, applied for environmental authorisation (EA) and a mining permit to mine aggregate/ gravel on a portion of Portion 15 on the Farm Rietspruit No. 437, Msukaligwa Local Municipality, Mpumalanga Province.

The proposed mining footprint will be 4.9 ha and will be developed over an undisturbed area of the farm. The mining method will make use of blasting in order to loosen the hard rock; the material will then be loaded and hauled to the crushing plant where it will be screened to various sized stockpiles. The aggregate will be stockpiled until it is transported from site using tipper trucks. All mining related activities will be contained within the approved mining permit boundaries.

The proposed mining area is approximately 4.9 ha in extent and the applicant, intends to win material from the will be used for construction industry in the vicinity. The depth of the quarry will be approximately 35m with a possibility of going deeper. The proposed quarry will therefore contribute to the upgrading/ maintenance of road infrastructure and building contracts in and around the Ermelo area.

The mining activities will consist out of the following:

- Stripping and stockpiling of topsoil;
- Blasting;
- Excavating;
- Crushing & Screening;
- Stockpiling and transporting;
- Sloping and landscaping upon closure of the site; and,
- Replacing the topsoil and vegetation the disturbed area.

The mining site will contain the following:

- Drilling equipment;
- Excavating equipment;
- Earth moving equipment;
- Static crushing and screening plants;
- Access Roads;

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- Site Office (Containers);
- Site vehicles;
- Parking area for visitors and site vehicles;
- Vehicle service area;
- Wash bay;
- Workshop (Containers);
- Salvage Yard;
- Bunded diesel and oil storage facilities;
- Generator on bunded area;
- Ablution Facilities (Chemical Toilets);
- Weigh Bridge; and,
- Demarcated general and hazardous waste area.

The proposed area can be seen in Figure 1 and Figure 2 below.



Figure 1. Google Earth Image of the proposed mining area in Ermelo, Mpumalanga Province indicated in yellow.

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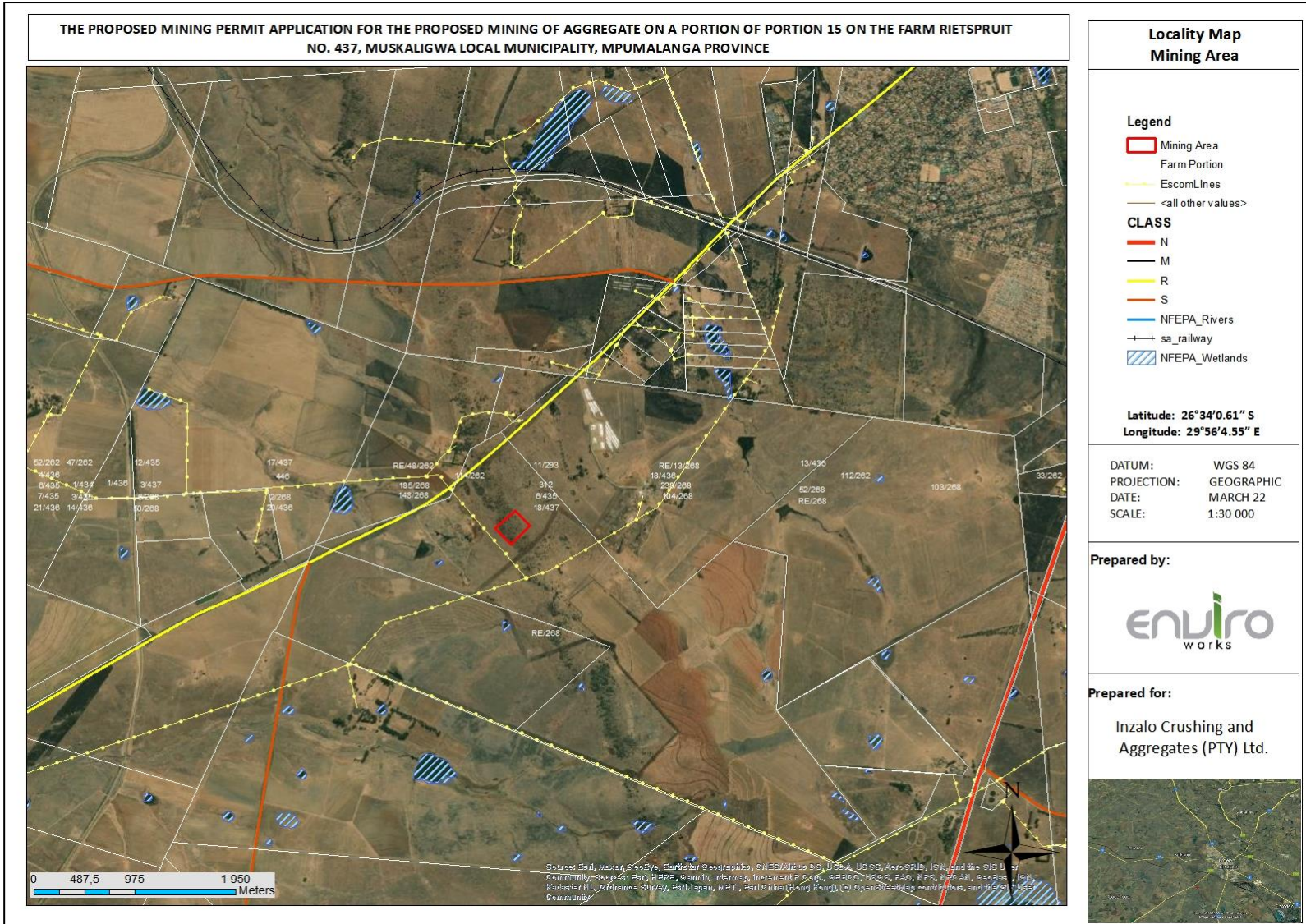


Figure 2. The locality map of the proposed mining area.

REGIONAL ENVIRONMENT

GEOLOGY

The Geology of the proposed mining area are classified as Karoo Supergroup, Karoo Dolerite Suite, which mainly consist of Dolerite and minor ultrabasic rocks as illustrated in Figure 3. These sediments associated with the proposed area are made up from the Vryheid Formation, which mainly consist of Sandstone, shale and coal seams (CapeFarmMapper; 2022).

This Geology corresponds with the Geohydrological Map of South Africa (2526 – Johannesburg) (Barnard, 1999).

GEOHYDROLOGY

The main type of aquifers identified by the Geohydrological Map of South Africa (2526 – Johannesburg) are intergranular and fractured rock aquifers with an expected yield of 0.1 – 0.5 L/s with an approximated groundwater quality of 0 – 70 mS/m with respect to Electrical Conductivity (EC) values (Barnard, 1999). The EC corresponds with the EC Values from CapeFarmMapper as indicated in Figure 4.

The water table identified in the area is approximately 9.32 mbgl. (meters below ground level) and the aquifer has been classified as poor (CapeFarmMapper, 2022).

The overall Groundwater Vulnerability as seen by Figure 5, indicates that the Groundwater Vulnerability of the proposed mining area can be classified as least vulnerable which is confirmed by the low anticipated aquifer susceptibility and aquifer classification (CapeFarmMapper; 2022).

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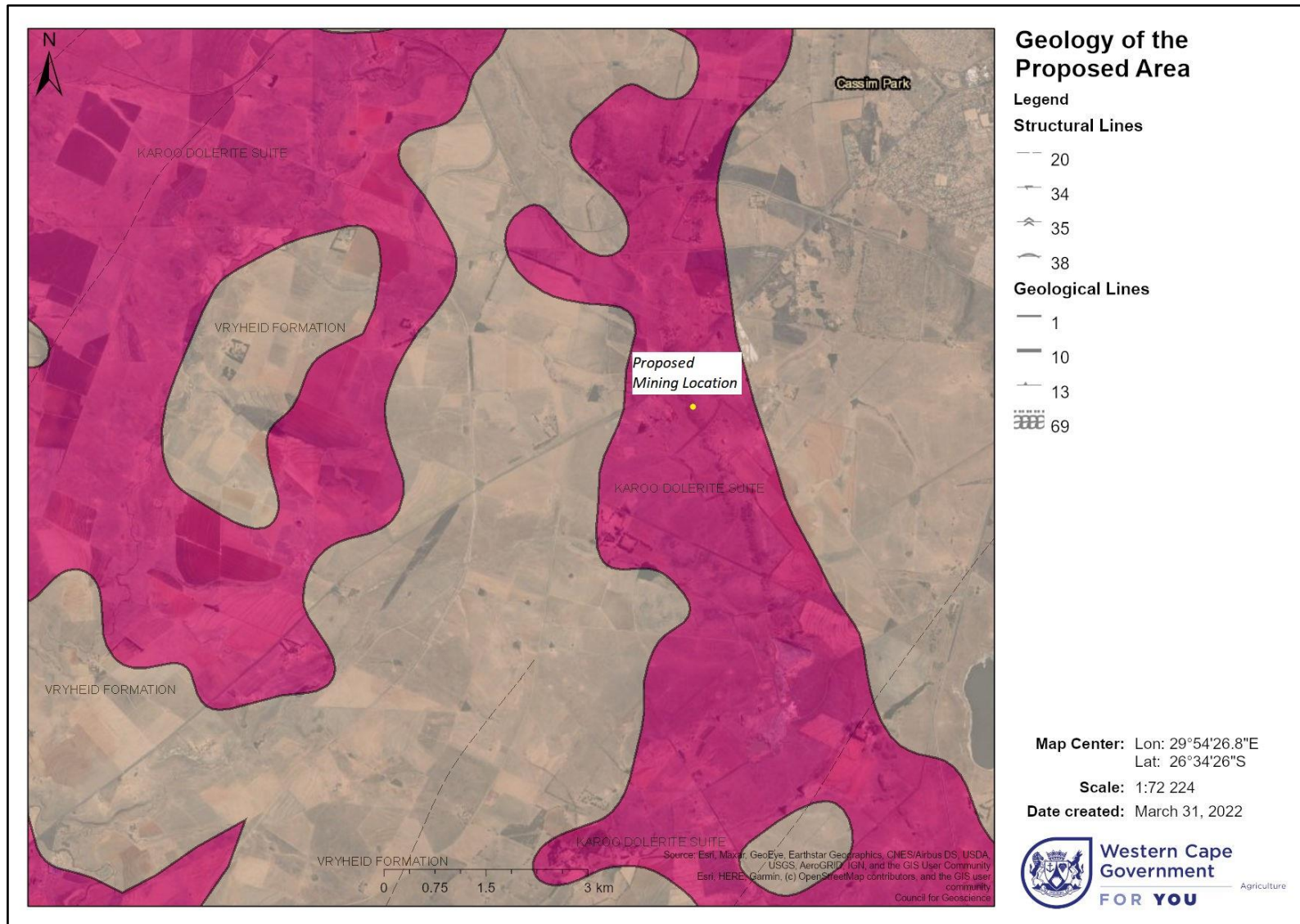


Figure 3. The Geological Map of the proposed mining area (CapeFarmMapper, 2022).

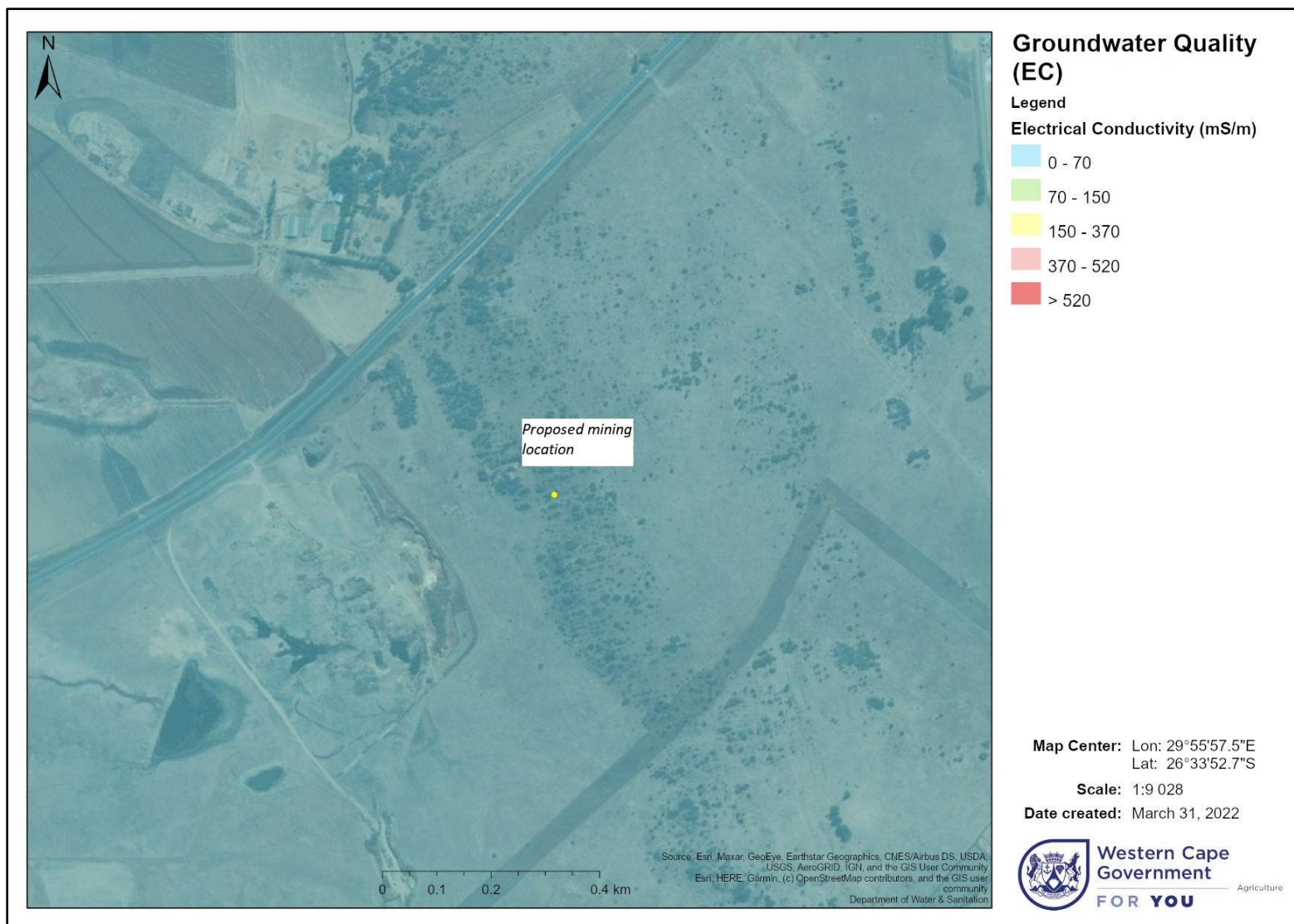


Figure 4. The expected Groundwater Quality of the proposed area in terms of EC (CapeFarmMapper, 2022).



Figure 5. The expected Groundwater Vulnerability of the proposed mining area (CapeFarmMapper; 2022).

CONCLUSION

From the Geological map of the area it can be concluded that the area is characterised by low permeability lithology such as shale, sandstone and associated dolerite intrusive rocks, which indicate that the underlying Geology has a low probability for groundwater contamination, however as the expected quarry will be 35 meters deep with the possibility to go deeper the potential of the mining activity to influence the groundwater and cause groundwater pollution exists if mitigation measures are not implemented and managed correctly.

The aquifer in the area can be classified according to the Geohydrological map of South Africa (2526 – Johannesburg) as an intergranular and fractured rock aquifer with a shallow water table of approximately 9.32 mbgl. (Barnard, 1999). This indicates that the probability of the mining influencing the groundwater is high as the excavations are expected to exceed 35 meters below ground surface.

The Groundwater Vulnerability has been identified as least vulnerable which is due to factors such as the low aquifer susceptibility, however the expected groundwater quality in terms of EC is in good condition according to Geohydrological Map of South Africa (2526 – Johannesburg) (Barnard, 1999).

Therefore, from a **Geohydrological perspective taking Geology into account**, it can be concluded that the probability of the proposed mining influencing the Groundwater in the area is **high** irrespective of the low permeability of the geology and the expected low groundwater vulnerability. This is mainly due to the shallow groundwater table and aquifer type. It is important to note that precautionary measures should be taken to assure that groundwater from the mining activity is not contaminated.

Please note that this is a desktop assessment, no site visit was done by the Geohydrologist to confirm these findings. Therefore, this assessment can be regarded as a tool to identify additional studies and factors but cannot be regarded as a comprehensive Geohydrological Impact Assessment. It is therefore recommended that a comprehensive Geohydrological Impact Assessment be undertaken to determine the groundwater pollution potential from the mining activity as well as the anticipated influence on the availability of groundwater quantity. It is important to note that the influence of the existing quarry in close proximity to the mining area on the groundwater quality and groundwater quantity should be assessed as it could provide evidence that previous mining activities in the area could have influenced the groundwater to a certain extent which could be beneficial for the motivation of the proposed mining activity in terms of authorisation.

UNCERTAINTIES & ASSUMPTIONS

The following uncertainties and assumptions were made during the desktop Geohydrological investigation:

- All information provided by the applicant and engineering design team to the specialist was correct and valid at the time that it was provided;
- The desktop study was based on information obtained via literature, google maps, ArcGIS, which is assumed to be correct and of the latest information available;
- The report was written within a specified time frame and any changes that may have occurred after the time of the writing of the report are disregarded in regards with this report; and,
- This Specialist statement by no means substitutes for a comprehensive Geohydrological Impact Assessment as the findings are based on assumptions and limitations. No site visit was undertaken, no groundwater and surface water samples were analysed, no geophysical investigation was undertaken, no borehole tests were performed and no previous existing data from the site were reviewed and assessed.

DECLARATION OF INDEPENDENCE OF THE GEOHYDROLOGICAL SPECIALIST

I, Rolene Lubbe, ID (9503040181087), declare that I:

- Have been appointed as Geohydrological Specialist by Enviroworks;
- act as an independent Specialist Consultant in the field of Geohydrological Impact Assessments;
- am assigned as Specialist Consultant for this proposed project;
- do not have or will not have any financial interest in the undertaking of the activity other than remuneration for work as stipulated in the terms of reference;
- remuneration for services by the proponent in relation to this proposal is not linked to approval by decision-making authorities responsible for permitting this proposal;
- the consultancy has no interest in secondary or downstream developments as a result of the authorisation of this project;
- have no and will not engage in conflicting interests in the undertaking of the activity;
- disclaim responsibility for any changes that may have occurred after the time that the report was written;
- assumed that the information in this report is to be the of the latest available information;
- undertake to disclose to the client and the competent authority any material, information that have or may have the potential to influence the decision of the competent authority required in terms of the Environmental Impact Assessment Regulations 2017; and,
- will provide the client and competent authority with access to all information at my disposal, regarding this project, whether favourable or not.

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