13 July 2023

To whom it may Concern,

Visual Opinion: Section 24 G of NEMA: Development of Lodges and other Tourist Infrastructure in Qwabi Private Game Reserve, Limpopo Province

1. Background

During the period of 2012-2022, the Applicant, SARPHC Properties, carried out activities listed under the various EIA Regulations. All of these developments were constructed without the necessary environmental authorization and the Applicant is now applying for *ex post facto* approval. It must be noted that the previous land owners carried out activities listed under the EIA regulations as well pre 2007.

SARPHC Properties has expanded both the Letamo and Babohi Lodges, of which the former has now been made a commercial lodge, open to the public since December 2022. Babohi lodge will also soon be open to the public as well. Additionally, staff accommodation, two helipads, river crossings and new roads have also been developed. In order to construct these various developments, approximately 66 Ha of indigenous vegetation was cleared within areas classified as Critical biodiversity areas 1 and 2 and Ecological support areas 1 and 2. The various properties affected are inclusive of the following: Meletse 706 KQ, Rookpoort 450 KQ, Rhenosterhoekspruit 466 KQ and Weltevreden 478 KQ

The developments consist of the following:

- Letamo Lodge:
  - Sleeps 116 guests and 14 staff
  - Reception area and curio shop
  - lounge, bars and swimming pools
  - dining areas
  - spa and gym
  - vehicle parking (guest and game drive vehicles)
  - brick walkways
  - sewage treatment facility
- Babohi Lodge
  - Sleeps 98 guests and 51 staff
  - Reception area
  - lounge, bar and swimming pool
  - dining area
  - spa and gym
  - vehicle parking
  - sewage treatment facility
- Staff Village (Senior)
  - Sleeps 14 staff
  - Sewage treatment facility
- Management houses
- Entrance gates
- Admin office block
- Two helipads where a total of 6 helicopters can land

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- Gravel pit
- River crossings and dams
- Approximately 230 km of access roads and game drives roads

2. Scope

A visual screening was undertaken during the operational stage of the project and is based on information available at that time. This screening report and all associated mapping for the developments has been undertaken according to the worst case scenario typical to that specific site. All sites were mapped for a typical 3-storey building with roof (measuring approximately 9m).

As the support infrastructure (i.e. roads, parking, bulk services, helipads, etc.) has no vertical dimension (i.e. it is located at ground level), no viewshed maps have been generated for these. It is assumed that this ground-level infrastructure will not be visible beyond the boundaries of the site.

This report sets out to identify and quantify the visual impacts of the Lodges, Roads and other Tourist Infrastructure in Qwabi Private Game Reserve.

3. Methodology

The study was undertaken using Geographic Information Systems (GIS) software as a tool to generate viewshed analyses and to apply relevant spatial criteria to the proposed development. A detailed Digital Terrain Model (DTM) for the study area was created from 5m interval contours from the National Geo-spatial Information data supplied by the Department: Rural Development and Land Reform.

The approach utilised to identify potential issues related to the visual impact included the following activities:

- The creation of a detailed digital terrain model (DTM) of the potentially affected environment;
- The sourcing of relevant spatial data to develop an understanding of the existing visual character and quality of the receiving environment. This includes cadastral features, vegetation types, land use activities, topographical features, site placement, etc.;
- The identification of sensitive environments upon which the proposed development could have a potential visual impact;
- The creation of viewshed analyses from the proposed development area in order to determine the visual exposure and the topography's potential to absorb the potential visual impact. The viewshed analyses take into account the dimensions of the proposed structures.

The following methodology has been followed:

Determine potential visual exposure

The visibility or visual exposure of any development is the point of departure for the visual screening. It stands to reason that if the development were not visible, no impact would occur.

Viewshed analyses of the development components indicate the potential visibility.

Determine the visual absorption capacity

This is the capacity of the receiving environment to absorb the potential visual impact of the developments and infrastructure. The VAC is primarily a function of the vegetation, and will be high if the vegetation is tall, dense and continuous. Conversely, low growing sparse and patchy vegetation will have a low VAC.

The VAC would also be high where the environment can readily absorb the structure in terms of texture, colour, form and light / shade characteristics of the structure. On the other hand, the VAC for a structure contrasting markedly with one or more of the characteristics of the environment would be low.

The VAC also generally increases with distance, where discernible detail in visual characteristics of both environment and structure decreases.

The digital terrain model utilised in the calculation of the visual exposure of the development does not incorporate the potential visual absorption capacity (VAC) of the natural vegetation of the region. It is therefore necessary to determine the VAC by means of the interpretation of the vegetation cover and other landscape characteristics.

4. Results

4.1. Visual absorption capacity

Visual Absorption Capacity (VAC) is the capacity of the receiving environment to absorb the potential visual impact of the existing development. VAC is primarily a function of the vegetation, and will be high if the vegetation is tall, dense and continuous. Conversely, low growing sparse and patchy vegetation will have a low VAC.

The VAC would also be high where the environment can readily absorb the development in terms of texture, colour, form and light / shade characteristics of the structure. On the other hand, the VAC for a development contrasting markedly with one or more of the characteristics of the environment would be low.

The VAC also generally increases with distance, where discernible detail in visual characteristics of both environment and development decreases.

Overall, the Visual Absorption Capacity (VAC) of the site and surrounds is high due to the nature of the vegetation (i.e. thicket and woodland) and the topography.

VAC will be taken into account within the Reserve owing not only to the fact that the vegetation lends itself to a high VAC but also as a result of visual impact having already taken place.

Figure 1: High VAC and shielding effects of the mountains

4.2. Visual Exposure

The results of viewshed analysis and potential observer proximity for the developments are shown on **Map 1** to follow.

A visibility analysis for the developments was generated from all of the developed sites has been undertaken according to the worst case scenario typical to that specific site. All sites were mapped for a typical 3-storey building with roof (measuring

approximately 9m).The receptor height within the receiving environment was set at 2m above average ground level, which is representative of a person standing upright.

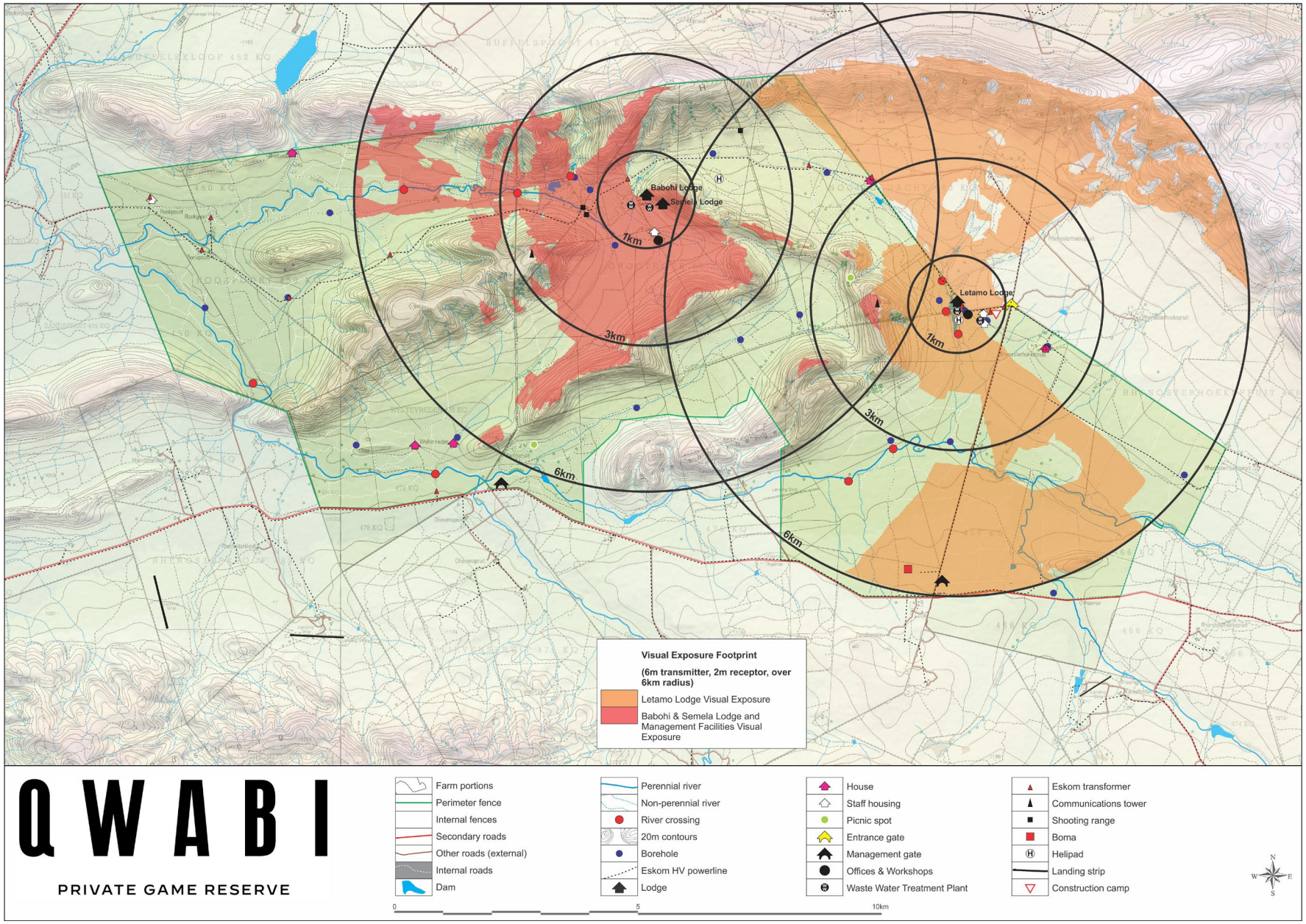
This was done in order to determine the general visual exposure of the area under investigation, simulating the maximum heights of buildings associated with the existing development in order to determine the developments current visual impact.

Proximity radii for the developed sites was created in order to indicate the scale and viewing distance of the development and to determine the prominence of the structures in relation to their environment. The proximity radii are based on the anticipated visual experience of the observer over 6km distances. The analysis does not include the potential shielding effect (i.e. VAC) of the existing environment, and does not take into consideration the limitations of the human eye, therefore signifying a worst-case scenario.

For the purpose of this study, a combined viewshed analysis was generated for all of the developed sites and management infrastructure. The findings of the various generated viewsheds are detailed below.

- The visual exposure for Babohi Lodge and the Workshop, APU and Management house is predominately concentrated within the Reserve owing to the screening properties of the mountain/ ridges to the north and south of the developments.
- The visual exposure for Letamo Lodge, Staff accommodation and Admin block is confined within the Reserve to the South and outside of the Reserve to the north up to 6 km. Sensitive visual receptors that may be affected outside of the Reserve are farmsteads and other lodges, both local and neighbouring. It should be noted that there is already an existing visual impact in these areas owing to the fact that the construction of these buildings has already taken place and have been in operation for many years.

Since this visual impact has already taken place, it is expected any sensitive visual receptors in the area are expecting or accustomed to the impact. This, together with the inclusion of the High VAC of the surrounding area has resulted in a negligible visual impact considered for areas outside of the Reserve and low for the areas within the Reserve.



Map 1: Viewshed analysis for Qwabi Reserve

5. Best Practice Mitigation Measures

The following best practice mitigation measures will further contribute to reducing the magnitude of the visual impacts discussed in this report:

- Some mitigation of primary and secondary impacts may be achieved by ensuring that the preservation and / or re-introduction of vegetation be allowed for. These measure will help to soften the appearance of the facility within its context. Such mitigation includes the following:

    - Retain / re-establish and maintain large trees, natural features and noteworthy natural vegetation in all areas outside of the development footprint.
    - Retain natural pockets (wetland, river and other sensitive vegetation zones) as buffers within the development and along the perimeter.
    - Retain vegetation in all areas outside of actual built footprints wherever possible.
    - Soften hard spaces and parking areas through the retention of existing vegetation or the introduction of appropriate indigenous planting.
    - Make use of muted earth tones, matt surfaces and natural materials rather than primary colours, reflective surfaces and high-tech finishes for all buildings, structures and infrastructure.
    - Tilt large window areas to negate reflection impact.
    - Avoid large areas of un-shaded reflective and hard paving surface.
    - Avoid the placement of unsightly services and infrastructure in visually prominent areas.
    - Appropriately screen service areas.

- Mitigation of other lighting impacts includes the pro-active design, planning and specification lighting for the development. The correct specification and placement of lighting and light fixtures will go far to contain rather than spread the light. Additional measures include the following:

    - Shielding the sources of light by physical barriers (walls, vegetation, or the structure itself);
    - Limiting mounting heights of lighting fixtures, or alternatively using foot-lights or bollard level lights;
    - Making use of minimum lumen or wattage in fixtures;
    - Making use of down-lighters, or shielded fixtures;
    - Making use of Low Pressure Sodium lighting or other types of low impact lighting.
    - Making use of motion detectors on security lighting. This will allow the site to remain in relative darkness, until lighting is required for security or maintenance purposes.

- The maintenance of the buildings and infrastructure is critical, and will ensure that the development does not degrade or become an eyesore.

These mitigation measures should be implemented and maintained on an on-going basis.

6. Conclusion and Recommendations

The operation of the various developed sites within QPGR has a low to negligible visual impact on the scenic resources of the study area. The implementation of the best practice mitigation measures are recommended and will go far in reducing the magnitude of visual impacts discussed by softening the appearance of the development within its context. The recommendations made should be followed and implemented on an ongoing basis.

Considering all factors, it is concluded that the development is appropriate within its context from a visual perspective, and that the experienced visual impacts are neither unacceptable in nature nor excessive in magnitude. The resultant visual impacts are therefore not considered to be a fatal flaw for this type of development.

Since this visual impact has already taken place it is expected any sensitive visual receptors in the area are expecting or are already accustomed to the impact. The relatively limited extent of visual receptors in the area and the high to VAC of the area is a strong consideration in this regard. The visual impact is considered negligible for areas outside of the Reserve and low for the areas within the Reserve.

The author has no objection to the application for authorisation under Section 24G in respects to the visual impact, subject to the implementation of the best practice mitigation measures recommended.

Yours sincerely,

Peter Velcich