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Date: Monday, 06 May 2024
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Attention: Ms. Prashika Reddy

RE: VISUAL COMPLIANCE STATEMENT FOR THE PROPOSED SAMANCOR TUBATSE PHASE 2 SOLAR DEVELOPMENT NEAR STEELPOORT, LIMPOPO PROVINCE.

1 INTRODUCTION AND BACKGROUND SETTING

Scientific Aquatic Services (Pty) Ltd (SAS) was appointed to conduct a Visual Compliance Statement for the proposed 40MW Solar Photovoltaic (PV) Plant (Samancor Tubatse Phase 2 Solar Development) on the Farm Goudmyn 337 KT near Steelpoort in the Limpopo Province. The "Phase 1" Samancor Tubatse Solar development has been previously authorised, however the applicant intends to apply for environmental authorisation for additional generating capacity to allow the proposed intended generation capacity to be met. Hence a number of additional development parcels located immediately adjacent to some of the various Phase 1 development sites, have been proposed for the development of PV solar panel arrays and associated infrastructure including overhead power lines for Phase 2.

The area of assessment for the Phase 2 project consists of five (5) separate development sites:

- Site 2 extension (Site 2B) (47.49 ha);
- Site 3B (2.37 ha);
- Site 3C (1.71 ha);
- Site 4B (5.52 ha); and
- Site 5B (2.14) ha.

The sites, along with the proposed power line alignments are collectively referred to as the 'study area'. For a visual representation of the location of the study area, please refer to Figures 1 and 2.

A scoping phase visual impact input report was compiled in October 2023 to assess the baseline characteristics of the receiving visual environment in the study area and surroundings and to identify potential impacts associated with the proposed development on the visual receiving environment. The scoping report provided a baseline description of the visual environment within which the study area is situated as well as a site sensitivity report in association with the Department of Forestry, Fisheries and

the Environment (DFFE) Web-based Screening Tool. This EIA-phase visual report will assess the degree of visual impact and landscape change that is associated with the Tubatse Phase 2 Solar Development. As the study area has been verified to have a low degree of visual sensitivity (see Appendix A below), a visual compliance statement will be undertaken. The visual compliance statement will consider the visual context of the study area and will consider receptor-based visual impacts, in particular related to the elevated southern parts of Site 2B. Impacts will be rated according to the RHDHV impact rating matrix, and all requisite mitigation measures will be stipulated.

2 LEGAL, POLICY AND PLANNING CONTEXT FOR VIA'S

Oberholzer (2005) indicates that current South African environmental legislation governing the EIA process, which may include consideration of visual impacts if this is identified as a key issue of concern, is the National Environmental Management Act (NEMA) (Act 107 of 1998). This includes the 2014 NEMA EIA regulations as amended (published in General Notice (GN) No. R.982 as well as R 983 Listing Notice 1, R 984 Listing Notice 2 and R 985 Listing Notice 3).

In addition, the following acts and guidelines are applicable (Oberholzer, 2005):

National Environmental Management: Protected Areas Act (Act No. 57 of 2003)

This act was developed in 2003 for the protection and conservation of ecologically viable areas representative of South Africa's biological diversity and its natural landscapes and seascapes:

- Restricted activities involving national and protected parks:
- 48(1) Despite other legislation, no person may conduct commercial prospecting, mining, exploration, production, or related activities–
  - (a) in a special nature reserve, national park, or nature reserve
  - (b) in a protected environment without the written permission of the Minister and the Cabinet member responsible for minerals and energy affairs; or
  - (c) in a protected area referred to in section 9(b), (c) or (d).

According to the **SAPAD (2023, Q3) database**[1], the study area is located within 10 km of the following protected areas: Apiesboomen Private Nature Reserve, Luiperdhoek Private Nature Reserve and Glen Ora Private Nature Reserve (Figure 3). The undulating terrain, relative distance and height of the solar panels, result in no clear line of sight from the above mentioned private nature reserves and the study area, hence the proposed development will not have a visual impact on the protected areas.

National Heritage Resources Act (Act No. 25 of 1999)

This provides legislative protection for listed or proclaimed sites, such as urban conservation areas, nature reserves and proclaimed scenic routes.

Advertising on Roads and Ribbons Act (Act No. 21 of 1940)

Visual pollution is controlled, to a limited extent, by the Advertising on Roads and Ribbons Act (Act 21 of 1940), which deals mainly with signage on public roads.

[1] **SAPAD (2023):** The definition of protected areas follows the definition of a protected area as defined in the National Environmental Management: Protected Areas Act, (Act 57 of 2003). Chapter 2 of the National Environmental Management: Protected Areas Act, 2003 sets out the "System of Protected Areas", which consists of the following kinds of protected areas - 1. Special nature reserves; 2. National parks; 3. Nature reserves; 4. Protected environments (1-4 declared in terms of the National Environmental Management: Protected Areas Act, 2003); 5. World heritage sites declared in terms of the World Heritage Convention Act; 6. Marine protected areas declared in terms of the Marine Living Resources Act; 7. Specially protected forest areas, forest nature reserves, and forest wilderness areas declared in terms of the National Forests Act, 1998 (Act No. 84 of 1998); and 8. Mountain catchment areas declared in terms of the Mountain Catchment Areas Act, 1970 (Act No. 63 of 1970).

Municipal Systems Act (Act 32 of 2000)

In terms of the Municipal Systems Act (Act 32 of 2000), it is compulsory for all municipalities to initiate an Integrated Development Planning (IDP) process in order to prepare a five-year strategic development plan for the area under their control. The IDP process, specifically the spatial component is based in certain areas and provinces on a bioregional planning approach to achieve continuity in the landscape and to maintain important natural areas and ecological processes. The study area is situated within the Greater Tubatse Local Municipality and the Greater Sekhukhune District Municipality, of which both IDPs for 2023/2024 are available.

Department of Forestry, Fisheries and the Environment (DFFE)'s National Environmental Screening Tool (2023).

According to the "Protocols for the Assessment and Minimum Criteria for Reporting on identified Environmental Themes ("the Protocols") published in Government Gazette No. 43110 on 20 March 2020 and Government Gazette No. 43855 on 30 October 2020, the Environmental Assessment Practitioner (EAP) must verify the current use of the site in question and its environmental sensitivity as identified by the Screening Tool to determine the need for specialist inputs in relation to the themes included in the Protocols. The Protocols are allowed for in terms of Sections 24(5)(a) and (h) and 44 of the National Environmental Management Act, 1998 (Act No. 107 of 1998) ("NEMA"). The Protocols must be complied with for every new application for Environmental Authorisation that is submitted after 9 May 2020.

Refer to Appendix A for the site sensitivity verification report.

Other

- Visual and aesthetic resources are also protected by local authorities, where policies and by-laws relating to urban edge lines, scenic drives, special areas, signage, communication masts, etc. have been formulated.

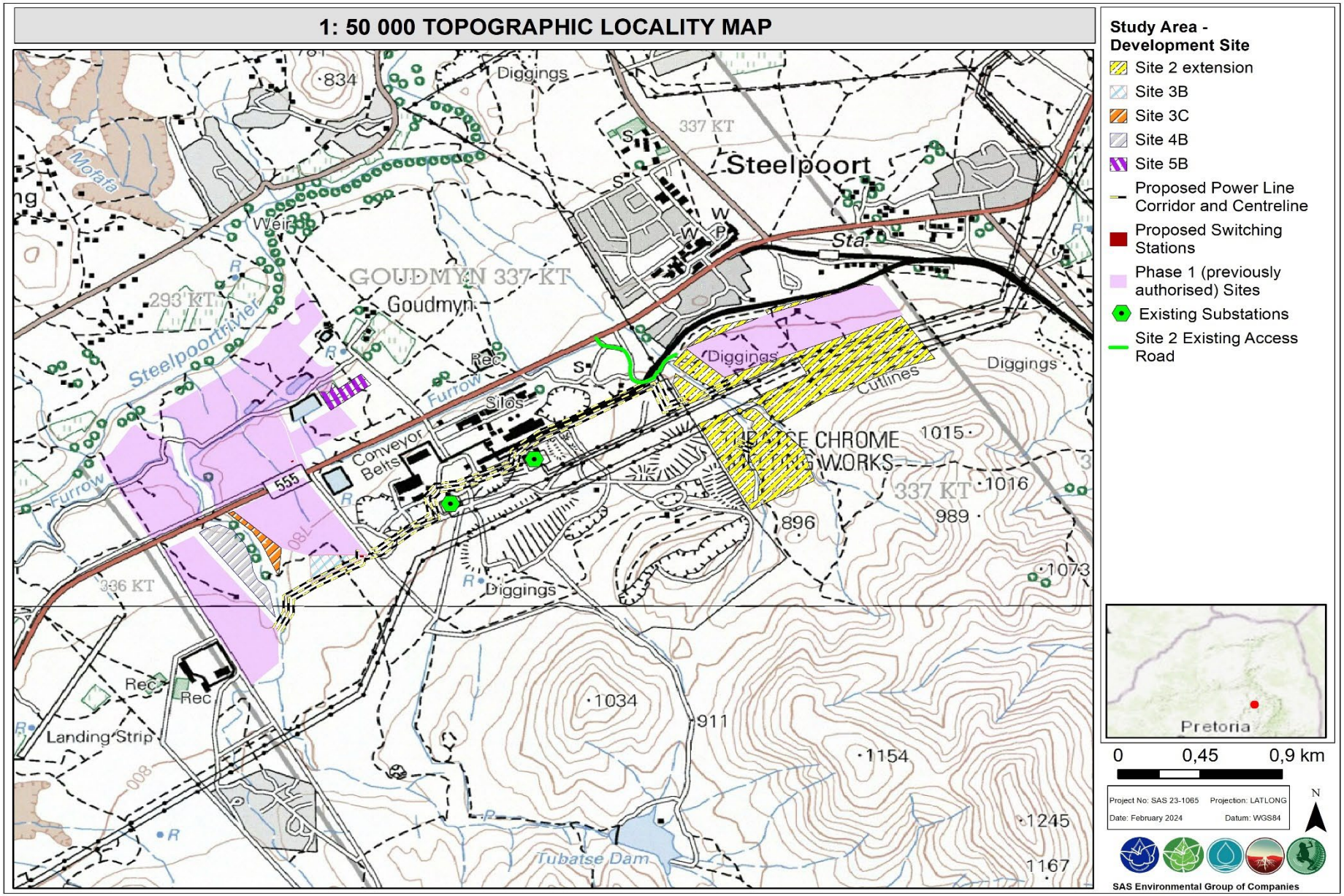


Figure 1: 1:50 000 Topographical map depicting the location of the studyarea in relation to the surrounding region.

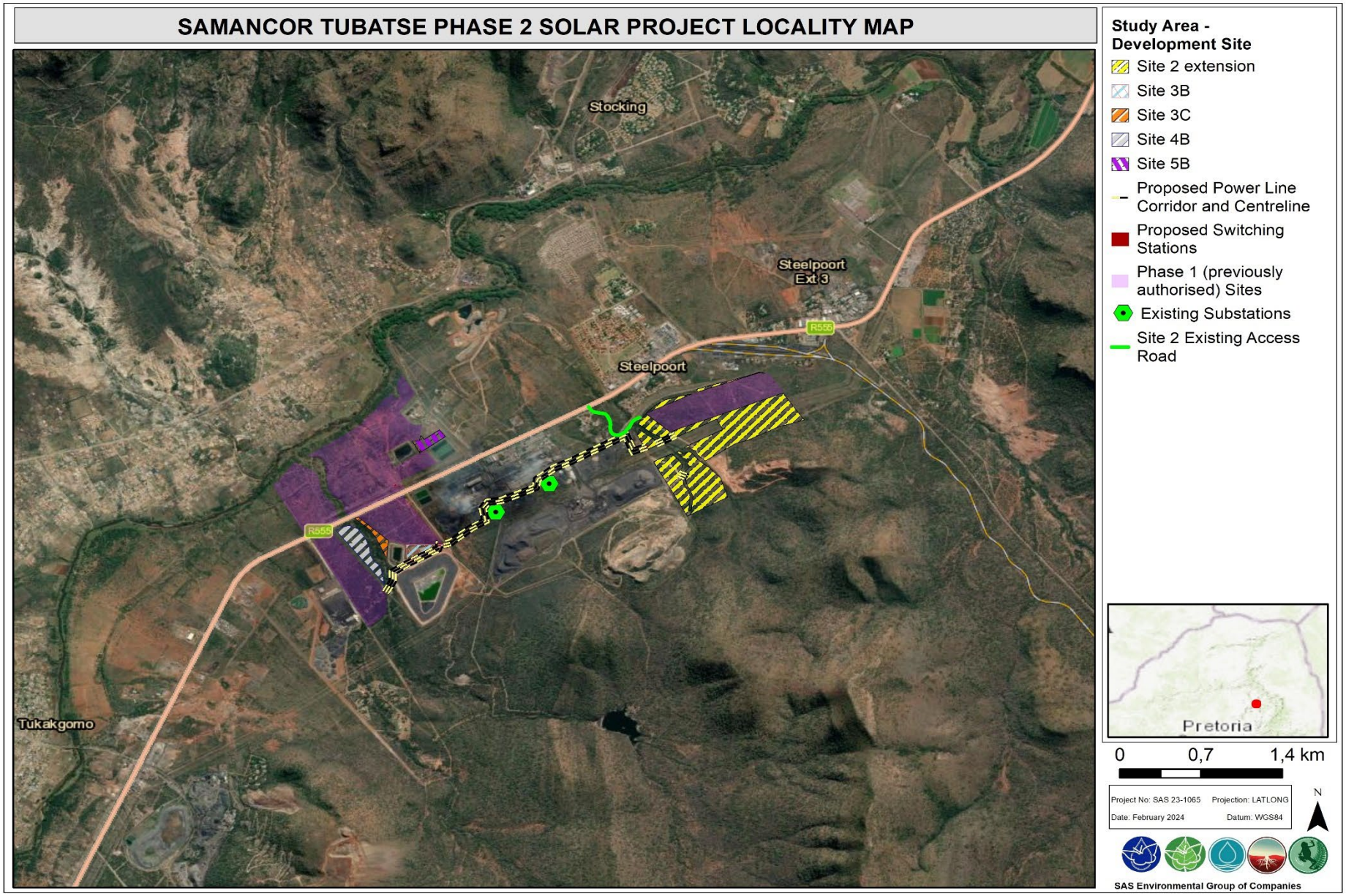


Figure 2: Digital satellite image depicting the location of the study area in relation to the surrounding region.

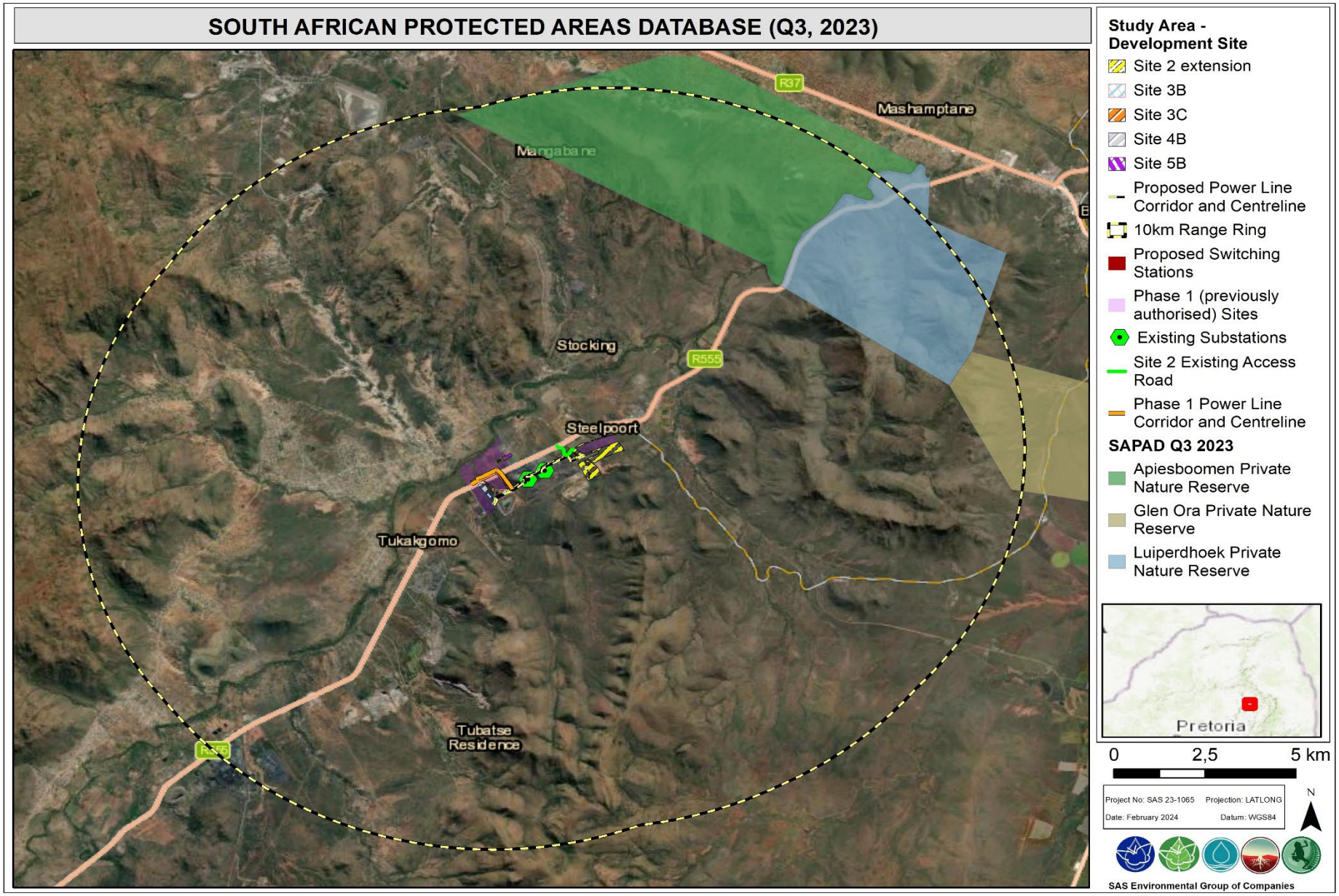


Figure 3: Protected areas within a 10 km radius of the study area, according to SAPAD (Q3, 2023).

3 METHOD OF ASSESSMENT

3.1 Desktop Assessment

The method of assessment for this report is based on a spatial analysis of the study area and the surrounding areas, using Geographic Information Systems (GIS) such as Planet GIS, ArcGIS, Global Mapper as well as digital satellite imagery, photographs, various databases and all available data on the planned infrastructure. The desktop assessment served to guide the field assessment through identifying preliminary areas of importance in terms of potential visual impacts.

The desktop study included an assessment of the current state of the environment of the area including the climate of the area, topography, land uses and land cover with data obtained from the websites of the South African National Biodiversity Institute (SANBI) and the Agricultural Research Council (ARC). All databases used were published within the last 5 years and contain up to date and relevant information.

During the desktop assessment, which took place prior to and in preparation of the field assessment, the 1:50 000 topographical map, as well as high definition aerial photographs from Google Earth Pro were used to identify the dominant landforms and landscape patterns. These resources together with digital elevation data were utilised to establish a parameter within which potential sensitive receptors were to be identified via Google Earth Pro. These parameters can henceforth be referred to as the "visual assessment zone". Based on the rural setting of the area, and the proposed infrastructure on the outskirts of town, the visual assessment zone encompasses a 2 km radius of the study area. The potentially sensitive receptors identified within the visual assessment zone during the desktop assessment was verified during the field assessment.

3.2 Field Assessment

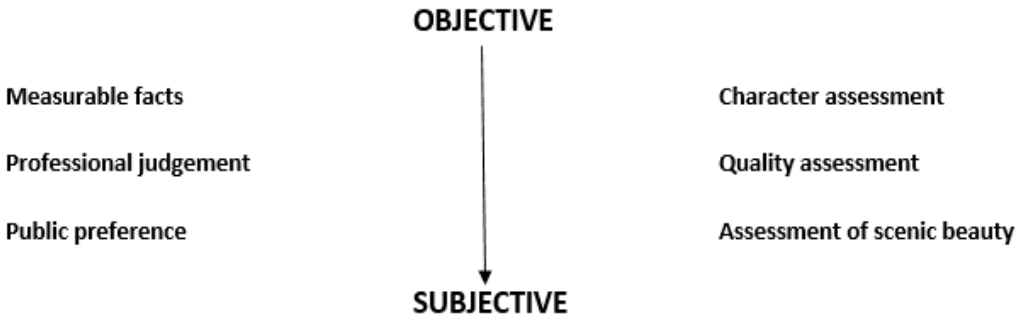
The field assessment was undertaken during the spring season on the 11th of January 2024 for the study area for Phase 2. The season within which the VIA takes place is irrelevant as the vegetation screening factor will remain similar. Seasonal colour variation will however be evident between winter and summer.

The field assessment included a drive-around and on-foot survey of the study area and in the immediate vicinity thereof and a drive-around of the surrounds, to determine the visual context within which the proposed project is to be developed. Focus was placed on assessing the potentially sensitive receptors identified within the visual assessment zone, these included farmsteads and prominent roads within the area. Points from where the proposed infrastructure was determined to be visible were recorded (making use of Global Positioning Systems (GPS) to confirm these aesthetically sensitive viewpoints and potential sensitive visual receptors in relation to the proposed project.

3.3 Assumptions and Limitations

- No specific national legal requirements for VIAs currently exist in South Africa. However, the assessment of visual impacts is required by implication when the provisions of relevant acts governing environmental management are considered and when certain characteristics of either the receiving environment or the proposed project indicate that visibility and aesthetics are likely to be significant issues and that visual input is required (Oberholzer, 2005);
- Due to a lack of visual specialist guidelines within the Limpopo Province, the "Guidelines for Involving Visual and Aesthetic Specialists in the EIA Process" (Oberholzer, 2005), prepared for the Western Cape Department of Environmental Affairs & Development Planning, was used;
- Distance and terrain plays a critical role when assessing visual impacts of an area. All potential sensitive receptors located within a 2 km radius, were identified on a desktop-level, some of which would then be verified during the field assessment. It should be noted that the visibility of an object decreases exponentially the further away the observer is from the source of impact;
- Abstract or qualitative aspects of the environment and the intangible value of elements of visual and aesthetic significance are difficult to measure or quantify and as such depend to some

degree on subjective judgments. It therefore is necessary to differentiate between aspects that involve a degree of subjective opinion and those that are more objective and quantifiable, as outlined in the diagram below (The Landscape Institute and Institute of Environmental Management and Assessment (LI IEMA, 2002).



4 RESULTS OF INVESTIGATION

The portion of the Steelpoort Valley within which the study area is located has a strong industrial component to the visual environment and thus significant landscape change from a natural visual baseline has occurred. The industrial inputs are predominantly due to the presence of the Tubatse Chrome Smelter and adjacent mining operations which comprises several vast (multi-storey) structures as well as slag dumps and large cleared areas. The greater region is characterised by increasingly expanding open-cast mining operations in the undulating terrain on the northern side of the valley and a cluster of commercial and residential landuses are in the vicinity of the town of Steelpoort. Furthermore large peri-urban settlements are located along the northern side of the Steelpoort River, extending up to the base of the undulating terrain that flanks the northern side of the valley. The remaining natural landscape features consists of mostly undeveloped undulating terrain that flanks the northern and southern sides of the valley. The proposed solar development would thus occur in the context of the strong industrial visual influences of the anthropogenically-driven landscape change. It is worth noting that authorisation has been received for the development of the Phase 1 Tubatse Solar Project, which although not yet developed will lead to the physical transformation of large areas of land around the smelter from residual natural woodland vegetation to solar PV arrays. This factor will further enhance the degree of anthropogenic change to the baseline visual environment.

Figure 4 - The Tubatse Ferrochrome Smelter as viewed from the R555 road to the north-east of the Smelter.

Visual Character

The visual character of the study area is defined by a combination of both natural landscape features and anthropogenic alterations to the landscape, mainly urban development and mining activities. The Tubatse Ferrochrome Smelter (around which the proposed solar development sites are located) and the small town of Steelpoort, which is in close proximity to the Smelter are located within the valley of

the Steelpoort River. The valley is aligned in a north-east/south-west orientation and is flanked on its eastern and western sides by tall hills. Apart from some mining activities in the valley slopes, these hilly areas flanking the valley are largely undeveloped and provide the Steelpoort valley with a strong natural visual component.

Within the valley floor, flatter topography has allowed development and transformation of the natural woodland vegetation to occur. The wider valley in the surrounds of the Smelter and the town is characterised by a combination of land uses and landcover, including peri-urban, mining, industrial, commercial, and other land uses. These land uses have all been transformative in the context of removal of natural vegetation, with the establishment of large structures in many areas. The Steelpoort valley located to the west of the river are largely characterised by rural or peri-urban settlements that consist of formal houses on small plots of land, located in a wider context of open land consisting of veld that has been highly degraded through communal land tenure and livestock grazing. Conversely the eastern side of the valley consists of mining and industrial developments and residual undeveloped land, with some areas of human settlement, most notable the small town of Steelpoort.

The Tubatse Ferrochrome Smelter consists of several vast structures, with a height that equates to multistorey buildings. The structures of the Smelter thus dominate the surrounding area due to their massive size and form part of the skyline. This visual prominence of the smelter is enhanced by the presence of the large slag dump located adjacent to the plant. The slag is dark black, thus providing a high visual contrast with the natural colours of the surrounding undulating woodland vegetation. The areas immediately adjacent to the Smelter consist of parcels of vacant land (some of which comprise the proposed solar development sites) that are characterised by natural woodland of varying levels of degradation due to woody vegetation removal and livestock grazing, as well as ancillary infrastructure such as water treatment works, wastewater dams and a mining area located to the north of the Smelter. The parts of the Steelpoort valley located to the south-west of the Smelter and Sites 3,4 & 5 consist of a combination of vacant undeveloped land and developed areas which include two smelters, truck depots and the golf course and residential areas located in the vicinity of the Tubatse Chrome Club.

The small town of Steelpoort is located immediately to the north-east of the Smelter. The town consists of two primary components that are bisected by a large rail shunting yard, which are commercial landuses in the form of small retail and commercial complexes, and relatively recently constructed housing complex-type formal residential areas. Much of the vacant land in the vicinity of the town and Smelter is bisected by multiple electricity transmission line servitudes, radiating from the Merensky Substation which is located to the north of the town of Steelpoort.

As a result of the above, the visual character can be described as partly rural with strong natural and industrial elements. The economy of the Steelpoort valley in the wider vicinity of the plant is very much focused on mining and industrial development, and it can be stated with a reasonably high level of confidence that the Steelpoort area is perceived as a prominently mining and industrial-related area by those who inhabit or visit the area. This perception is likely to influence the visual sensitivity of the area, especially in the context of new proposed industrial developments, resulting in a lowered visual sensitivity.

Visual Receptors

As the proposed development consists of five (5) separate parcels of land on which solar PV arrays are proposed to be constructed, there are differing sets of potential receptor locations for each of the Phase 2 sites. Accordingly, each site, or set of sites in the case of those located in close proximity could potentially affect a different set of visual receptors.

Site 2B – is located close to the town of Steelpoort but most of the Site 2B area is set back from the town's commercial and residential areas with the Phase 1 Site 2 occupying the intervening area. The closest potential sensitive receptor is a set of residential dwellings located between the R555 and the railway shunting yards that are located immediately to the north of the Phase 1 Site 2 and parts of the Phase 2 Site 2B. The properties have been developed around a small koppie and thus certain houses have an elevated position in relation to much of Site 2B. A small number of households on Transnet Rail Property are located on the north-eastern side of the site. The remainder of the area surrounding Site 2B is comprised of either vacant land, power line servitudes, or mining / industrial areas and thus no receptor locations are located on the southern, eastern, and western areas surrounding Site 2B.

Figure 5: Receptor locations situated in close proximity to Site 2B as viewed from the northern boundary of the proposed solar array layout on the Phase 1 Site 2.

Sites 3B,3C and 4B – Due to the proximity of these sites to each other, these are assessed together. There are very limited visual receptors located in close proximity to these sites. The R555 road runs parallel to the northern boundaries of these sites and is considered a visual receptor carrying large amounts of traffic. The only static receptor is located to the south-west of the sites – which are a set of homesteads located to the south of the truck depot. The remainder of the areas surrounding the sites comprised of open vacant land, much of which have been approved for the development of solar panel arrays and smelter ancillary infrastructure in the form of two waste dams, various power line servitudes and the Smelter and associated slag dump to the east.

Site 5C – is located on open vacant land to the north of the Smelter and the R555 road. This small site is bounded on two sides by brine dams associated with the smelter and its water treatment works to the north. There are thus no visual receptors in the immediate area. The only area in which visual receptors are located are in the area on the opposite (northern) bank of the Steelpoort River, an area characterised by peri urban settlements (households on small plots of land).

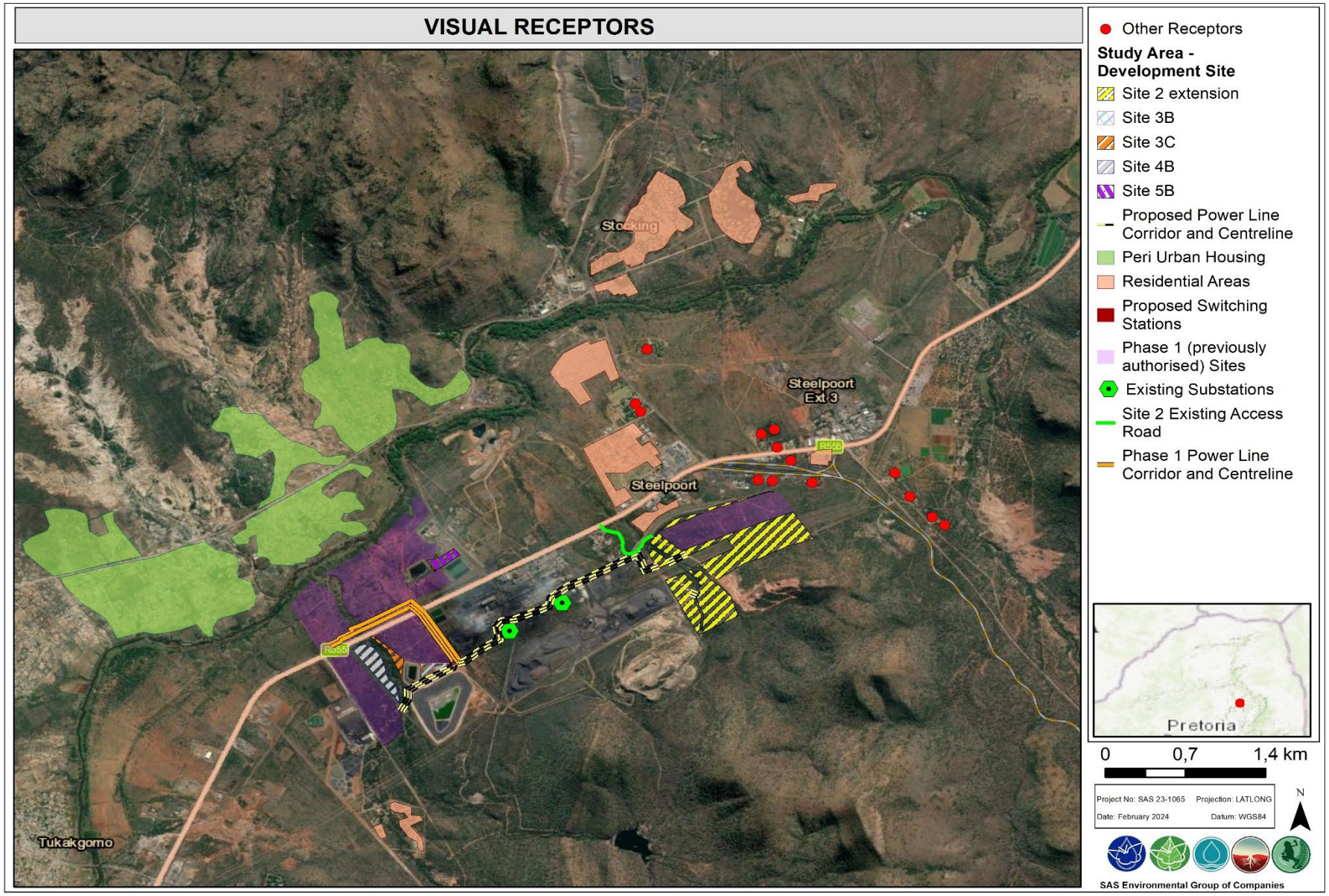


Figure 6: Receptor locations situated in the vicinity of the study area.

5 IMPACT STATEMENT

The degree of potential visual impacts associated with the solar power plant's arrays on the five sites and their respective power line alternatives is dependent on several factors, including the proximity of visual receptors to the proposed arrays and power lines, the presence of other infrastructure that has resulted in landscape visual change, as well as screening factors, in particular natural vegetation that is located between the receptor locations and the sites of the proposed arrays.

As described above the Tubatse Ferrochrome Smelter visually dominates the town of Steelpoort and its surrounds and imbues the landscape with a strong industrial element. The presence of the Smelter is enhanced, albeit not visually, by the constant drone of the Smelter's activities and the various sirens which intermittently sound, thus always making any receptor present in its vicinity, aware of its existence. For many receptors, for example the households located on the southern side of the R555 in Steelpoort, any views towards the proposed solar arrays that would be developed on Site 2 would be in the context of views of the Smelter, its associated slag dump and the adjacent mining operations. In the context of such level of landscape change, the presence of solar arrays would be likely to *add* to the industrial element in the landscape.

The majority of residential areas and other visual receptors including a church and two schools, that are located closest to the proposed development sites, are located in Steelpoort, to the west and north-west of the study area. The visual context of the landscape is strongly characterised by anthropogenic-industrial influences in the form of mining operations on the hills to the north and a multitude of power lines radiating outwards from the Merensky Substation. Most of the study area is currently unvegetated, and the visual contrast and visual intrusion factor associated with solar arrays in the east would arguably be greater than for the residences on the southern side of the R555. Certain of the households in the north-western part of the complex on the northern side of Steelpoort, as well as the residential complexes located to the north of the Steelpoort River along the R37 link road are elevated and thus may have a wider view of solar arrays proposed to be developed, although the intervening houses and vegetation such as trees will have a screening effect.

Figure 7 – View from within the uppermost part of the Glencore Residential area towards the study area. Note the screening effect of the intervening households.

The households along Anthracite Street would be exposed to a direct view of the power line in very close proximity if the power line were to be developed along this road However it should be noted that the households on the western boundary of the Steelpoort residential area would be able to view the power line, as aligned 150m to the west, but this would be ameliorated by the views of the existing power line that runs immediately adjacent to the entire length of the residential area's western boundary.

Even though the closest households are located between 150m and 200m from the northern boundary of Site 5, these households are located adjacent to the Steelpoort River and the remaining riparian vegetation (albeit having been largely removed by the felling of the larger trees, especially on the

northern bank of the river) would provide an effective screening function, limiting views from the closest households towards the arrays. The solar arrays as visible to these receptor locations would be located in the foreground of the view, with the Smelter dominating the background. The development of solar arrays on the northern part of Site 5 would be mostly shielded by intervening vegetation of the Steelpoort River riparian corridor, but the southern parts of Site 5 would be visible from the areas to the north and north-west. The proposed arrays on Sites 3 and 4 would also be visible from this area and would be located adjacent to the cleared area of the HH Waste Disposal Facility and the buildings of the truck depot.

Figure 8 – View towards Site 5 from the northern bank of the Steelpoort River. Note the highly effective screening function of the riparian vegetation with only part of the WTW buildings and Smelter roof visible.

Figure 9 – A typical view from the peri-urban areas to the northwest of Site 5 towards the Smelter and Site 5.

Figure 10 – View of Sites 3 and 4 from the peri-urban areas to the northwest of the development sites.

The residential areas located to the north of the Steelpoort River along the R37 link road would be able to see parts of Sites 1 and 2 and 5 due to their elevated position on the opposite side of the valley, with a slope aspect facing towards these development sites. The photograph in Figure 9 below provides an indicative view from these residential areas, but it should be noted that screening features are likely to be present in the form of buildings or vegetation that would limit the views. If viewed clearly the development of the sites would add to the existing development and change to the landscape that has resulted from the development of the town of Steelpoort.

Figure 11 View of Site 1 (with approximate site boundaries indicate) and Site 2 from the R37 link road to the north of the Steelpoort River.

A query was raised as part of the public comment process for the draft Environmental Impact Report (EIR) regarding the potential visual impact of a pre-cast flood protection wall that is proposed to be constructed on the north-eastern side of the Site 4 extension (Site 4B). The wall has been identified as being necessary as part of Site 4B falls within the 1:100-year floodline of the non-perennial drainage line that is located between sites 3 and 4. The wall will be designed as a pre-cast wall of 3.5 – 4 m in height.

The potential visual impact of the wall has been assessed and a few considerations are relevant in this context. Firstly, the wall would be located on the edge of the Site 4B development and in relatively close proximity to the drainage line. Accordingly, the wall would form part of the expanded solar development as viewed from public access areas, the closest of which is the R555 road to the north of Site 4. Due to its landscape position in a valley, the wall would not be a prominent feature by virtue of its position in the valley bottom, and viewers on the R555 road would view the wall within the enclosed setting of the valley through which the drainage line runs. Secondly the height of the wall is slightly lower than the average height of the panels which is 5m. The wall will thus not exceed the height of the panels, and a viewer on the R555 road would be able to view the wall with the panels rising up the valley slopes behind it. If a strip of natural woody vegetation were to be retained in the area between the road reserve and the northern boundaries of Sites 3 and Site 4/4B, this vegetation would assist in partly screening the wall from view. If able to be viewed, it is concluded that the proposed wall would not be visually prominent and would form a component of the altered local landscape context that would result from the replacement of natural vegetation with solar panel arrays.

Glint and Glare Considerations

PV panels are designed to generate electricity by absorbing the rays of the sun and are therefore constructed of dark-coloured materials, and are covered by anti-reflective coatings. Indications are that as little as 2% of the incoming sunlight is reflected from the surface of modern PV panels especially where the incidence angle (angle of incoming light) is smaller i.e. the panel is facing the sun directly (LOGIS, 2021). This is particularly true for tracker arrays that are designed to track the sun and keep the incidence angle as low as possible (LOGIS, 2021).

Glint and glare occur when the sun reflects off surfaces with specular (mirror-like) properties, which include glass windows, water bodies and potentially some solar energy generation technologies (e.g. CSP heliostats and parabolic troughs). Glint is generally of shorter duration and can be described as “a

momentary flash of bright light", whilst glare is the reflection of bright light for a longer duration. Glint and glare may impair the visibility of observers and cause annoyance, discomfort, or loss in visual performance.

Literature review indicates glint and glare is only likely experienced when the observer is at a higher elevation than the proposed solar PV panels and depends on the degree to which is the panels are tilted. For example the glint and glare from tracking panels with back tracking towards ground-based receptors are most common when the panels are flat in the morning/evening (LOGIS, 2021). This is when the larger incidence angle (angle of incoming light) yields more reflected light.

The visual impact associated with glint and glare relates to the potential it has to negatively affect sensitive receptors in relative close proximity to the source, or aviation safety risk for pilots (especially where the source interferes with the approach angle to the runway). Based on elevation data, the residential areas located within 3km (north, east and west) of the proposed solar development as well as the R555 situated within close proximity, are at a lower elevation than the proposed solar development, as such the residents would not experience a reflection (glint and glare) due to the 0° tilt (lying flat) of the panels in the mornings. The observers would theoretically be looking at the base (underside) or edge of the panels.

The Federal Aviation Administration (FAA) of the United States of America have researched glare as a hazard for aviation pilots on final approach and may prescribe specific glint and glare studies for solar energy facilities in close proximity to aerodromes (airports, airfields, military airbases, etc.). It is generally possible to mitigate the potential glint and glare impacts through the design and careful placement of the infrastructure. The airstrip of the Winterveld Airfield – FASO is located approximately 8 km north of the proposed solar development. Airstrips with the runway situated on an east to west axis, and located at an angle of less than 30 degrees to the north and 20 degrees to the south in the southern hemisphere from a proposed solar facility are invariably at a higher risk of experiencing glint and glare, due to the airstrip being orientated at an angle that would lead to reflection toward the runway.

The abovementioned airstrip axis is orientated at a north north west to south south east direction, which puts the airstrip at a significantly lower risk to glint and glare impacts when landing and on take-off from features in the landscape. The airstrip which is at a bearing of 316,45˚, and the angle of incidence of the proposed solar development is at a bearing of 163.68˚, indicating that the airstrip is at a 152.77˚ from the proposed development. From the above, the risk of glint and glare on the Winterveld Airfield – FASO is reduced significantly. Should there be risk of glint and glare, it will be most significant in the mornings and in winter months when the sun rises further to the north. Should glint and glare be experienced, this could be mitigated with a simple go-around of the aircraft and landing in the opposite direction which should be possible in the early morning when winds are generally at a lower speed and direction of landing is not a significant factor. Solar PV systems can safely coexist in area where aerodromes are located, provided that mitigation measures are undertaken, such as utilising anti-reflection coating on the PV modules, texturing the PV module surface and/ or varying the alignment of the PV array (Sreenath *et al.*, 2020). Should additional mitigatory measures be deemed necessary solar panels with this technology can be utilised.

Mitigation Measures

Certain mitigation measures could be implemented to lessen the visual intrusion factor associated with the solar panel arrays. These include the following:

- The retention of a buffer (of a minimum width of 15-20m) of natural vegetation - i.e. the natural trees and shrubs that are present on the development sites would assist in the screening of the arrays. In this context this natural vegetation would need to be fenced into the plant footprint to prevent it from being felled for firewood over time. This is particularly important for Sites 1 and 5, on which trees and shrubs (woody vegetation) is being felled by local residents at a rapid rate. Accordingly, the portion of the Steelpoort riparian zone located to the north of Site 5 and located on land owned by Samancor is recommended to be fenced off to prevent public access and to allow the trees and shrubs occurring in the river's riparian zone to naturally regenerate. In addition to the ecological benefits of such a measure, this would assist in the screening of the arrays from the residential areas on the northern side of the river;
- As the ancillary infrastructure could create cumulative glint and glare if these are metallic and reflective, the consideration of non-reflective material for such ancillary infrastructure is recommended; and
- During construction, dust suppression should be applied to avoid the creation of dust clouds.

Table 1: Impact assessment overview for the proposed Phase 2 solar development.

Phase	Potential Aspect and/or Impact	Mitigation	Scale (S)	Duration (D)	Magnitude (M)	Probability (P)	Significance Points (M+D+S)xP	
Construction	**Aspect:** Construction of the solar power plant utilising the current layout – i.e. developing all five of the development sites. **Impact:** Direct transformative impact on natural habitat related to construction of solar panel arrays, cable trenching and internal access roads, as well as other construction-related activities including uncontrolled movement of vehicles and other construction machinery. The impact would relate to the transformation of currently uncopied land parcels on which natural vegetation is present which could cause a visual impact	**Without**	2	2	6	5	50	**Moderate Significance**
		With	2	2	4	5	40	**Moderate Significance**
		Key mitigation measures: ▪ Clearing of vegetation to be completed in a phased manner. ▪ Construction activities must not encroach beyond the development footprint. ▪ Dust suppression must be applied to areas of cleared vegetation in very windy conditions and especially along construction access routes.						
Operation	**Aspect:** Operation of the solar power plant utilising the current layout - i.e. developing all five of the development sites. **Impact:** Permanent transformative impact on natural vegetation on the five development sites with the development of solar arrays and associated power lines, that would permanently alter parts of the landscape as viewed from surrounding receptor locations. This visual change could lead to perceptions of visual intrusion and impact.	**Without**	2	4	6	3	24	**Low Significance**
		With	2	4	4	2	20	**Low Significance**
		Key mitigation measures: ▪ The existing altered visual baseline of the landscapes into which the developments would be located, and their location directly adjacent to existing areas of visual change due especially to urban or infrastructural development is a strong mitigating factor ▪ Retention of residual natural vegetation on the parts of the five development sites that do not fall within the solar array or other infrastructure footprint. ▪ As the structures supporting the panels could create cumulative glint and glare if these are metallic and reflective, the consideration of non-reflective material for such supports is recommended. ▪ For the proposed power lines, it is recommended that the monopole power line tower be used (as opposed to the steel lattice tower) in order to reduce the visibility of power line towers.						

Cumulative Impacts

Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. Cumulative visual impacts may be:

- Combined - where the PV arrays of several solar facilities are within the observer's arc view concurrently;
- Successive - where the observer has to turn his / her head to see the various solar facilities' arrays; and
- Sequential - when the observer has to move to another viewpoint to see the various solar projects or different views of the same project development (such as when travelling along a route).

The cumulative impact of solar facilities on the landscape and visual amenity is a product of:

- The distance between individual solar facilities;
- The distance over which the PV arrays are visible;
- The overall character of the landscape and its sensitivity to the infrastructures;
- The siting and design of the solar facilities themselves; and
- The way in which the landscape is experienced.

According to the South African Renewable Energy EIA Application Database (REEA, 2023) this project is the only proposed renewable energy project within a 30 km radius, thus no other renewable project will form part of cumulative impacts on the receiving environment. Renewable energy facilities have the potential to cause large scale visual impacts and the location of several such developments in close proximity to each other could significantly alter the sense of place and visual character in the broader region. With the proposed solar development being the only one within a 30km radius and the nearest proposed facilities being 75 km to the west and 80 km to the east, the cumulative impact is considered sequential due to the facilities situated quite a distance from each other. Furthermore, with the moderately low viewer incidence, the cumulative visual impacted is expected to be of moderately low significance.

6 CONCLUDING REMARKS

It is important to note that visual impacts are only experienced when there are receptors present to experience the impact. With the study area situated in an anthropogenically altered visual landscape the visual receptors in the receiving environment are accustomed to such a landscape. Based on the findings of the visual compliance statement, the proposed solar development is expected to have a minimal visual impact on the receiving environment. It is therefore the opinion of the specialist that the project be considered favourably from a visual resource management perspective.

APPENDIX A – SITE SENSITIVITY VERIFICATION REPORT

LANDSCAPE (SOLAR) THEME SITE SENSITIVITY VERIFICATION REPORT FOR THE PROPOSED SAMANCOR PHASE 2 SOLAR DEVELOPMENT NEAR STEELPOORT, LIMPOPO PROVINCE.

Introduction

According to the "Protocols for the Assessment and Minimum Criteria for Reporting on identified Environmental Themes ("the Protocols") published in Government Gazette No. 43110 on 20 March 2020, the Environmental Assessment Practitioner (EAP) must verify the current use of the site in question and its environmental sensitivity as identified by the Screening Tool to determine the need for specialist inputs in relation to the themes included in the Protocols. The Protocols are allowed for in terms of Sections 24(5)(a) and (h) and 44 of the National Environmental Management Act, 1998 (Act No. 107 of 1998) ("NEMA"). The Protocols must be complied with for every new application for Environmental Authorisation that is submitted after 9 May 2020.

This document serves as the Site Sensitivity Verification Report for the landscape (solar) theme for the proposed Samancor Tubatse Phase 2 Solar Project near Steelpoort in the Limpopo Province. The proposed project requires environmental authorisation in terms of the NEMA EIA Regulations (2014), as amended.

Study Area

The proposed Samancor Phase 2 Solar Project is located close to the Samancor Tubatse Ferrochrome Smelter, close to the town of Steelpoort in Limpopo (Figure A1). The proposed Samancor Phase 2 Solar Project is located in close proximity to the R555 provincial road. The study area (development site) consists of various land parcels, including an additional Site 2 development area (Site 2B), Site 3B, 3C, 4B and 5C.

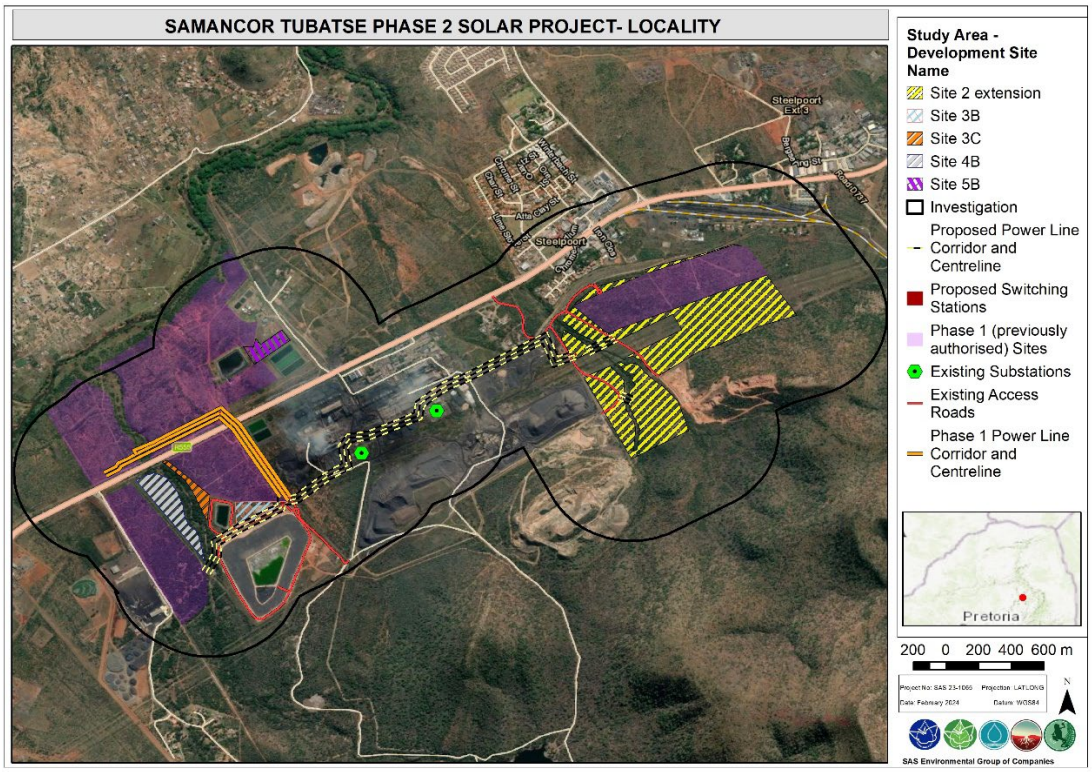


Figure A1: Digital satellite image depicting the location of the proposed Samancor Phase 2 Solar Project study area and associated investigation area in relation to the surrounding area.

This landscape (solar) theme site sensitivity verification report relates to a Screening Tool Report (STR) completed for the site in September 2023. The landscape (solar) theme site sensitivity as per the DFFE web-based environmental screening tool is indicated in Figure A2.

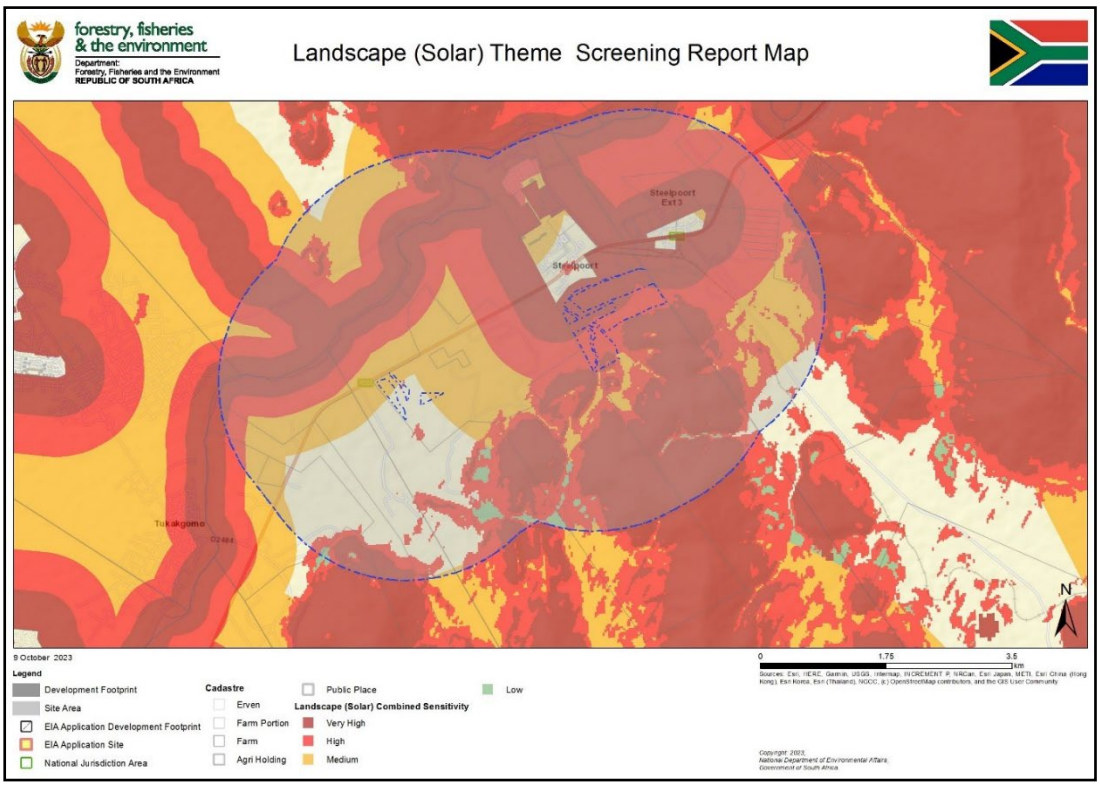


Figure A2: Landscape (solar) theme sensitivity for the development sites and a 2km radius as provided by the DFFE web-based environmental screening tool.

Landscape / visual impact assessment Site Verification

The table below provides information regarding the outcome of the Screening Tool in terms of the landscape (solar) theme sensitivity associated with the proposed project as well as a brief summary of the outcome of the visual impact specialist report in response.

Table A1: Landscape (solar) Theme Sensitivity analysis for the proposed project.

Environmental Theme	Applicable Protocol	Response
Landscape (solar) theme **Sensitivity Rating as assigned by the DFEE web-based screening tool:** Parts of the development sites (i.e. Site 2B) and wider area are located within areas of **very high Landscape / visual impact** assessment sensitivity. This is due to the location of Site 2B within 500 m of a town or village. The remainder of the development sites are located in an area of medium / low sensitivity. **Verified Sensitivity**: the designation of very high sensitivity to parts of the development sites is **disputed** and **a low sensitivity for all of the development sites has been designated through the site sensitivity verification.** The context of the landscape in the area surrounding the town of Steelpoort and the development sites is strongly industrial due to the presence of the Tubatse Ferrochrome Smelter and associated landscape disturbances. Various other anthropogenic landscape interventions have also influenced the altered visual character of the study area. For many receptor locations, for example the households located on the southern side of the R555 in Steelpoort, any views towards the solar arrays that would be developed on Site 2 would be in the context of views of the Smelter, its associated slag dump and the adjacent mining operations. In the context of such level of landscape change from a natural baseline, the presence of solar arrays would be likely to add to the industrial element in the landscape, rather than introduce a sole industrial element to a hitherto unchanged natural landscape. These landscape alteration factors imbue the town of Steelpoort and the development site with a low visual sensitivity. .	Site Sensitivity Verification Requirements where a Specialist Assessment is required but no Specific Assessment Protocol has been prescribed (GN 320 of March 2020).	Due to the overall low visual sensitivity of the surrounding area, a visual impact compliance statement will be provided.

APPENDIX C – INDEMNITY AND TERMS OF USE OF THIS REPORT

The findings, results, observations, conclusions, and recommendations given in this report are based on the author's best scientific and professional knowledge as well as available information. The report is based on survey and assessment techniques which are limited by time and budgetary constraints relevant to the type and level of investigation undertaken and SAS and its staff reserve the right to, at their sole discretion, modify aspects of the report including the recommendations if and when new information may become available from ongoing research or further work in this field, or pertaining to this investigation.

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APPENDIX D – SPECIALIST INFORMATION

Details of the specialist who prepared the report

Stephen van Staden	MSc Environmental Management (University of Johannesburg)
Sanja Erwee	BSc Zoology (University of Pretoria)
Paul da Cruz	BA (Hons) (Geography and Environmental Studies) (University of the Witwatersrand)

The expertise of that specialist to compile a specialist report including a curriculum vitae

Company of Specialist:	Scientific Aquatic Services		
Name / Contact person:	Stephen van Staden		
Postal address:	[redacted]		
Postal code:	[redacted]	Cell:	[redacted]
Telephone:	[redacted]	Fax:	[redacted]
E-mail:	[redacted]		
Qualifications	MSc (Environmental Management) (University of Johannesburg) BSc (Hons) Zoology (Aquatic Ecology) (University of Johannesburg) BSc (Zoology, Geography and Environmental Management) (University of Johannesburg)		
Registration / Associations	Registered Professional Scientist at South African Council for Natural Scientific Professions (SACNASP) Accredited River Health practitioner by the South African River Health Program (RHP) Member of the South African Soil Surveyors Association (SASSO) Member of the Gauteng Wetland Forum		

Specialist Declaration

I, Stephen van Staden, declare that -

- I act as the reviewer in this application;
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting the specialist report relevant to this application, including knowledge of the relevant legislation and any guidelines that have relevance to the proposed activity;
- I will comply with the applicable legislation;
- I have not, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- All the particulars furnished by me in this form are true and correct

[redacted]

Signature of the Specialist

I, Paul da Cruz, declare that -

- I act as the independent specialist in this application;
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting the specialist report relevant to this application, including knowledge of the relevant legislation and any guidelines that have relevance to the proposed activity;
- I will comply with the applicable legislation;
- I have not, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- All the particulars furnished by me in this form are true and correct.

[redacted]

Signature of the Specialist.

I, Sanja Erwee, declare that -

- I act as an independent specialist in this assessment;
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting the specialist report relevant to this application, including knowledge of the relevant legislation and any guidelines that have relevance to the proposed activity;
- I will comply with the applicable legislation;
- I have not, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- All the particulars furnished by me in this form are true and correct.

[redacted]

Signature of the Specialist

SAS ENVIRONMENTAL GROUP OF COMPANIES – SPECIALIST CONSULTANT INFORMATION

CURRICULUM VITAE OF STEPHEN VAN STADEN

PERSONAL DETAILS

Position in Company	Group CEO, Water Resource discipline lead, Managing member, Ecologist, Aquatic Ecologist
Joined SAS Environmental Group of Companies	2003 (year of establishment)

MEMBERSHIP IN PROFESSIONAL SOCIETIES

Registered Professional Scientist at South African Council for Natural Scientific Professions (SACNASP)
Accredited River Health practitioner by the South African River Health Program (RHP)
Member of the South African Soil Surveyors Association (SASSO) Member of the Gauteng Wetland Forum
Member of the Gauteng Wetland Forum;
Member of International Association of Impact Assessors (IAIA) South Africa;
Member of the Land Rehabilitation Society of South Africa (LaRSSA)

EDUCATION

Qualifications

MSc Environmental Management (University of Johannesburg)	2003
BSc (Hons) Zoology (Aquatic Ecology) (University of Johannesburg)	2001
BSc (Zoology, Geography and Environmental Management) (University of Johannesburg)	2000
Tools for wetland assessment short course Rhodes University	2016
Legal liability training course (Legricon Pty Ltd)	2018
Hazard identification and risk assessment training course (Legricon Pty Ltd)	2013

Short Courses

Certificate – Department of Environmental Science in Legal context of Environmental Management, Compliance and Enforcement (UNISA)	2009
Introduction to Project Management - Online course by the University of Adelaide	2016
Integrated Water Resource Management, the National Water Act, and Water Use Authorisations, focusing on WULAs and IWWMPs	2017

AREAS OF WORK EXPERIENCE

South Africa – All Provinces
Southern Africa – Lesotho, Botswana, Mozambique, Zimbabwe Zambia
Eastern Africa – Tanzania Mauritius
West Africa – Ghana, Liberia, Angola, Guinea Bissau, Nigeria, Sierra Leona
Central Africa – Democratic Republic of the Congo

SELECTED PROJECT EXAMPLES OUT OF OVER 2000 PROJECTS WORKED ON

1 Mining: Coal, Chrome, PGM's, Mineral Sands, Gold, Phosphate, river sand, clay, fluorspar
2 Linear developments
3 Energy Transmission, telecommunication, pipelines, roads
4 Minerals beneficiation
5 Renewable energy (wind and solar)
6 Commercial development
7 Residential development
8 Agriculture
9 Industrial/chemical

KEY SPECIALIST DISCIPLINES

Biodiversity Assessments

- Floral Assessments
- Biodiversity Actions Plan (BAP)
- Biodiversity Management Plan (BMP)
- Alien and Invasive Control Plan (AICP)
- Ecological Scan
- Terrestrial Monitoring
- Protected Tree and Floral Marking and Reporting
- Biodiversity Offset Plan

Freshwater Assessments

- Desktop Freshwater Delineation
- Freshwater Verification Assessment
- Freshwater (wetland / riparian) Delineation and Assessment
- Freshwater Eco Service and Status Determination
- Rehabilitation Assessment / Planning
- Maintenance and Management Plans
- Plant species and Landscape Plan
- Freshwater Offset Plan
- Hydropedological Assessment
- Pit Closure Analysis

Aquatic Ecological Assessment and Water Quality Studies

- Habitat Assessment Indices (IHAS, HRC, IHIA & RHAM)
- Aquatic Macro-Invertebrates (SASS5 & MIRAI)
- Fish Assemblage Integrity Index (FRAI)
- Fish Health Assessments
- Riparian Vegetation Integrity (VEGRAI)
- Toxicological Analysis
- Water quality Monitoring
- Screening Test
- Riverine Rehabilitation Plans

Soil and Land Capability Assessment

- Soil and Land Capability Assessment
- Soil Monitoring
- Soil Mapping

Visual Impact Assessment

- Visual Baseline and Impact Assessments
- Visual Impact Peer Review Assessments
- View Shed Analyses
- Visual Modelling

Legislative Requirements, Processes and Assessments

- Water Use Applications (Water Use Licence Applications / General Authorisations)
- Environmental and Water Use Audits
- Freshwater Resource Management and Monitoring as part of EMPR and WUL conditions.

SAS ENVIRONMENTAL GROUP OF COMPANIES – SPECIALIST CONSULTANT INFORMATION CURRICULUM VITAE OF SANJA ERWEE

PERSONAL DETAILS

Position in Company	GIS Technician and Visual Specialist
Joined SAS Environmental Group of Companies	2014

EDUCATION

Qualifications

BSC Zoology (University of Pretoria)	2013

Short Courses

Global Mapper	2015
SANBI BGIS Course	2017
Global Mapper Lidar Course	2017
ESRI MOOC ARCGIS Cartography	2018

AREAS OF WORK EXPERIENCE

South Africa – Gauteng, Mpumalanga, North West, Limpopo, KwaZulu-Natal, Northern Cape, Western Cape Free State

KEY SPECIALIST DISCIPLINES

Freshwater Assessments

- Desktop Freshwater Delineation
- Plant species and Landscape Plan

Visual Impact Assessment

- Visual Baseline and Impact Assessments
- Visual Impact Peer Review Assessments
- View Shed Analyses
- Visual Modelling

GIS

- Mapping and GIS for various sectors and various disciplines (biodiversity, freshwater, aquatic, soil and land capability).

SAS ENVIRONMENTAL GROUP OF COMPANIES – SPECIALIST CONSULTANT INFORMATION CURRICULUM VITAE OF PAUL DA CRUZ

PERSONAL DETAILS

Position in Company	Senior Ecologist
Joined SAS Environmental Group of Companies	2022

MEMBERSHIP IN PROFESSIONAL SOCIETIES

Registered Certificated Scientist at South African Council for Natural Scientific Professions (SACNASP)
Registered Environmental Assessment Practitioner (EAP) with the Environmental Assessment Practitioners Association of South Africa (EAPASA)
Member of the South African Wetland Society (SAWS)

EDUCATION

Qualifications

BA (Hons) (Geography and Environmental Studies) (University of the Witwatersrand)	1998
BA (Geography) (University of the Witwatersrand)	1997

Short Courses

Taxonomy of Wetland Plants (Water Research Commission)	2017
Advanced Grass Identification (Frits van Outshoorn)	2010
Grass Identification (Frits van Outshoorn),	2009
Soil Form Classification and Wetland Delineation; (TerraSoil Science)	2008

AREAS OF WORK EXPERIENCE

South Africa – All Provinces
Southern Africa – Lesotho, Botswana
International – United Kingdom (England and Scotland); USA

DEVELOPMENT SECTORS OF EXPERIENCE

1. Renewable energy (Wind and solar)
2. Linear developments (energy transmission, telecommunication, pipelines, roads, border infrastructure)
3. Nature Conservation and Ecotourism Development
4. Commercial development
5. Residential development
6. Environmental and Development Planning and Strategic Assessment
7. Industrial/chemical; Non-renewable power Generation

KEY SPECIALIST DISCIPLINES

Legislative Requirements, Processes and Assessments

- EIA / BA Applications
- Environmental Authorisation Amendments
- EMPr Compilation
- Environmental Compliance Monitoring (Environmental Auditing)
- Environmental Screening Assessments and Listing Notice 3 Trigger Identification / Mapping
- Strategic Environmental Assessments and Environmental Management Frameworks
- EIA / Specialist Study Peer Review

Freshwater Assessments

- Freshwater (wetland / riparian) Delineation and Assessment
- Freshwater Eco Service and Status Determination
- Rehabilitation Assessment / Planning
- Maintenance and Management Plans
- Plant Species and Landscape Plans
- Freshwater Assessments in support of Environmental Screening Assessments, Precinct Planning & SEA
- Wetland Construction (Compliance) Monitoring

Biodiversity Assessments

- Avifaunal Assessments
- Strategic Biodiversity Assessment

Visual Impact Assessment

- Visual Impact Assessments

GIS / Spatial Analysis

- GIS Spatial Analysis and Listing Notice 3 mapping.