KNYSNA

ERF 3244, KNYSNA CELLULAR MAST

VISUAL ASSESSMENT

For consideration in the Basic Assessment

For

EnviroAfrica

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Final Report

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Relevant Qualifications & Experience of the Author

Ms Sarien Lategan holds an Honours Degree in Geography as well as a Masters Degree in Town and Regional Planning from the University of Stellenbosch. She has 7 years experience as Town planner at a local government, 3 years with South African National Parks as planner and project manager of various GEF and World Bank managed, tourist facilities in the Table Mountain National Park and since 2004 as private practitioner involved in inter alia Site Analysis and Visual Impact assessments for various types of developments ranging from housing, tourism to infrastructure developments.

Ms Lategan is registered as a professional Town and Regional Planner as well as Environmental Assessment Practitioner.

Declaration of Independence

I, Sarah C. Lategan, declare that I am an independent consultant to EnviroAfrica and, has no business, financial, personal or other interest in the proposed project or application in respect of which I was appointed, other than fair remuneration for work performed in connection with the application. There are furthermore no circumstances which compromise my objectivity in executing the task appointed for.

SC Lategan
17-05-2019

EXECUTIVE SUMMARY

Sarien Lategan was appointed to undertake the visual impact assessment of a 25m monopole-tree tower, to accommodate cell antennae, on Erf 3244, VGK Church, Vigilance Drive, Hornlee, Knysna as input to the Basic Assessment in terms of the National Environmental Management Act, 1998 (Act no. 107 of 1998), as amended and the Environmental Impact Assessment Regulations, 2017, undertaken by EnviroAfrica.

The aim of the assessment is to identify view receptors and assess the impact of the development on these receptors as well as the impact on the sense of place of the environment.

The site is located in a high density urban area, on the site of a church close to a neighbourhood business centre.

The topography is characterized by hills, fairly steep slopes and valleys, which provide a high level of visual absorption. Large trees up to approximately 15 to 20m in height forms a backdrop to the site.

Due to the topography and landscape elements, the area displays a high absorption level. The assessment of the potential receptors indicated that the overall impact is low and well within acceptable levels of change.

1 BACKGROUND

Sarien Lategan was appointed to undertake the visual impact assessment of a 25m monopole-tree tower, to accommodate cell antennae, on erf 3244, VGK church, Vigilance Dr, Hornlee, Knysna, as input to the Basic Assessment in terms of the National Environmental Management Act, 1998 (Act no. 107 of 1998), as amended and the Environmental Impact Assessment Regulations, 2017, undertaken by EnviroAfrica.

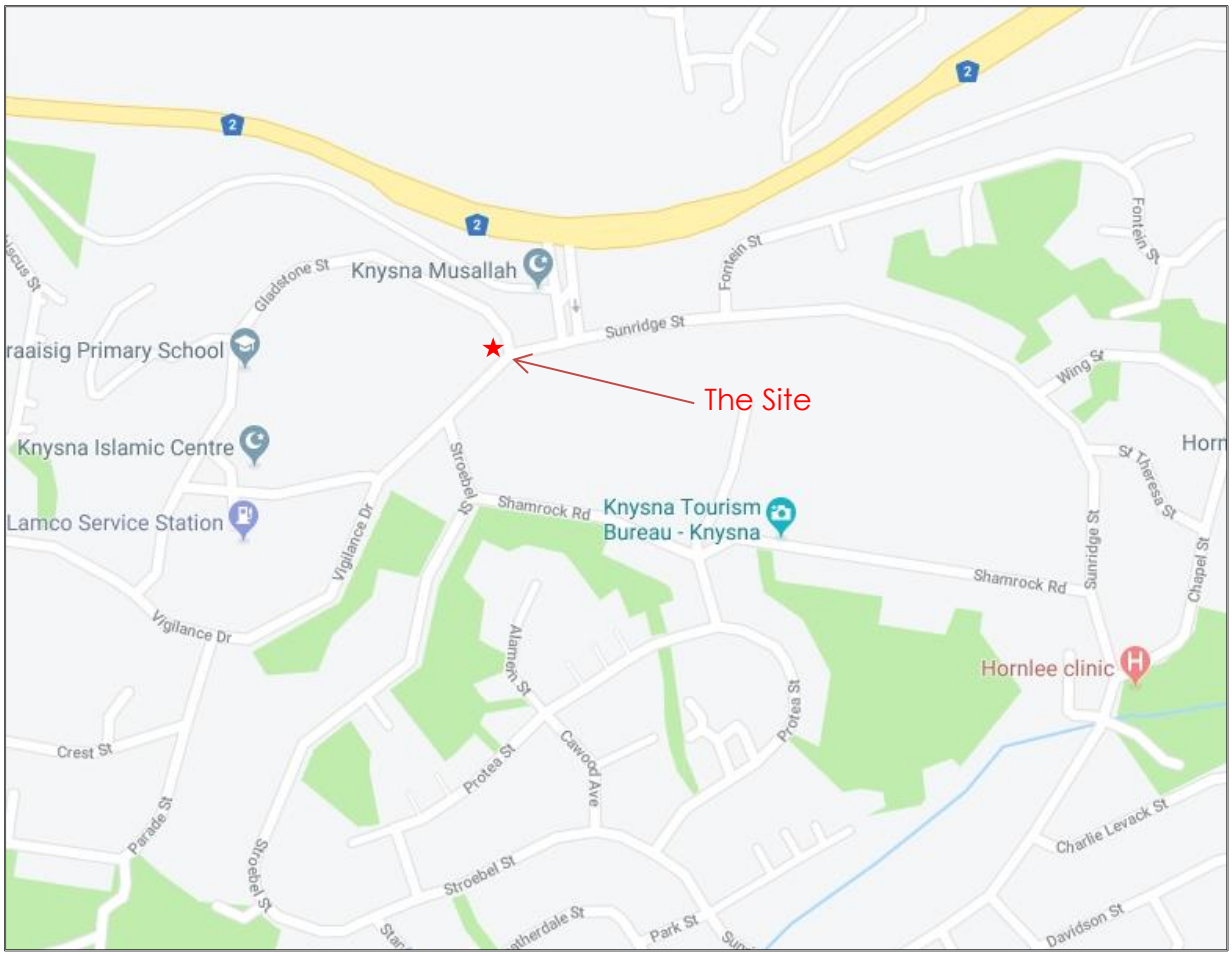

Figure 1: Locality

2 TERMS OF REFERENCE

The applicant intends to construct a 25m high monopole-tree mast to accommodate cell antennae, on Erf 3244, VGK church, Hornlee, Knysna.

The objective of the Visual Impact assessment is to determine the significance of any visual impact which may result from the construction of the proposed cellular mast. This

assessment will indicate whether from a visual perspective the development constitute an acceptable level of change and if so what potential mitigation measures can reduce any visual impact.

To determine the potential extent of the VIA required, the following broad criteria are considered.

Table 1: Requirements for visual assessment

Areas with protection status, e.g. nature reserves	None
Areas with proclaimed heritage sites or scenic routes	None
Areas with intact wilderness qualities, or pristine ecosystems	None
Areas with intact or outstanding rural or townscape qualities	None
Areas with a recognized special character or sense of place	Potentially
Areas with sites of cultural or religious significance	Church site. Mosque in close proximity.
Areas of important tourism or recreation value	Tourism is a key sector in Knysna and the N2 an important corridor
Areas with important vistas or scenic corridors	Potentially
Areas with visually prominent ridgelines or skylines.	Yes

Table 2: Nature of intended development

High-intensity type projects including large-scale infrastructure	Medium to small scale
A change in land use from the prevailing use	Yes.
A use that is in conflict with an adopted plan or vision for the area	None known
A significant change to the fabric and character of the area	Unlikely

A significant change to the townscape or streetscape	Potentially
Possible visual intrusion in the landscape	Potentially
Obstruction of views of others in the area	Potentially

From the above, it is clear that the receiving environment holds certain visual elements which may be impacted upon by development of the site.

It is thus clear that the potential exists that the construction of the cell mast may have a visual impact. In order to assist authorities thus to make an informed decision, the input of a specialist is required to assist in the project design and assess the visual impact of the preferred project proposal.

The term visual and aesthetic is defined to cover the broad range of visual, scenic, cultural, and spiritual aspects of the landscape. The terms of reference for the specialist are to:

- Provide the visual context of the site with regard to the broader landscape context and site-specific characteristics.
- Provide input in compiling layout/design alternatives.
- To describe the affected environment and set the visual baseline for assessment
- Identify the legal, policy and planning context
- Identifying visual receptors
- Predicting and assessing impacts
- Recommending management and monitoring actions

3 Methodology and principles

3.1 Methodology

Table 4: Summary of methodology

Task undertook	Purpose	Resources used
A screening of the site and environment	To obtain an understanding of the site and area characteristics and potential visual elements	Photographs Site visits
Identify visual receptors	To assess the visual impact from specific viewpoints	Photographs, profiles
Contextualize the site within the visual resources	To present an easy to understand context of the site within the visual resource baseline	Specialist: S Lategan Graphic presentation Superimposed photo's
Propose possible mitigation measures	To present practical guidelines to reduce any potential negative impacts.	Specialist: S. Lategan

Throughout the evaluation the following fundamental criteria applied:

- Awareness that "visual' implies the full range of visual, aesthetic, cultural and spiritual aspects of the environment that contribute to the area's sense of place.
- Consideration of both the natural and cultural (urban) landscape, and their inter-connectivity.
- The identification of all scenic resources, protected areas and sites of special interest, as well as their relative importance in the region.
- Understanding of the landscape processes, including geological, vegetation and settlements patterns which give the landscape its particular character or scenic attributes.
- The inclusion of both quantitative criteria, such as visibility and qualitative criteria, such as aesthetic value or sense of place.
- The incorporation of visual input as an integral part of the project planning and design process, so that the findings and recommended mitigation measures can inform the final design and quality of the project.
- To test the value of visual/aesthetic resources through public involvement.

3.1.1 Principles

The following principles to apply throughout the project:

- The need to maintain the integrity of the landscape within a changing land use process
- To preserve the special character or 'sense of place' of the area
- To minimize visual intrusion or obstruction of views
- To recognize the regional or local idiom of the landscape.

3.1.2 Fatal flaw statement

A potentially fatal flaw is defined as an impact that could have a "no-go" implication for the project. A "no-go" situation could arise if the proposed project were to lead to (Oberholzer, 2005):

1. Non-compliance with Acts, Ordinance, By-laws and adopted policies relating to visual pollution, scenic routes, special areas or proclaimed heritage sites.
2. Non-compliance with conditions of existing Records of Decision.
3. Impacts that may be evaluated to be of high significance and that are considered by the majority of stakeholders and decision-makers to be unacceptable.

The screening of the site and initial project intentions did not reveal any of the above issues which may result in a fatal flaw.

3.1.3 Gaps, limitations and assumptions

The assessment is based on the information provided by the developer.

3.1.4 Assessment explained

The assessment of visual impact is done on two levels namely the absorption rate of the receiving environment and the individual view receptors. The absorption rate of the receiving environment is determined by various elements e.g. topography, land use etc. and the assessment will focus on the acceptable level of change of the area.

Visual receptors are assessed individually based on the sensitivity of the receptor, exposure to the development and intrusion rate.

The following framework is used in order to assess view receptors:

Criteria	High	Moderate	Low
Exposure	Dominant, clearly visible	Recognizable to the viewer	Not particularly noticeable to the viewer
Sensitivity	Residential, nature reserves, scenic routes	Sporting, recreational, places of work	Industrial, mining, degraded areas
Intrusion/Obstructive	A noticeable change, discordant with surroundings	Partially fits but clearly visible	Minimal change or blends with surroundings

A sensitive receptor with low exposure and/or low intrusion rate can be regarded as a low significance rating. A receptor of low sensitivity but with high exposure can be of high significance if the intrusion rate is also high but is reduced if the intrusion rate is medium or low.

The overall significance, therefore, depends not only on the sensitivity of the receptor but also on the exposure and intrusion rate and thus a combination of the criteria.

3.2 Legal Framework, Guidelines and policies

3.2.1 National Environmental Management Act, 107, 1998 and relevant Guidelines:

An assessment in terms of any activity that requires an EIA or Basic Assessment may be subjected to a specialist visual assessment in order to determine the significance of the potential impacts to result from a proposed activity.

3.2.2 Western Cape PSDF

No specific references on this scale of development

3.2.3 Knysna Draft Spatial Development Framework (2019)

No specific proposals or guidelines relevant to the proposed development.

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3.2.4 Knysna Integrated Strategic Spatial Development framework, Sectoral Plans, 2016

The plan identify Vigilance Dr as an important connection road to George Rex Drive and act as Hornlee's main road. The plan also support the infill development and densification of the Hornlee-Sunridge area, in which the application erf is located. The proposed cell tower application is thus not in conflict with these proposals but rather support the improvement of communication networks.

4 Development Proposal

The mast and supporting infrastructure will be positioned on the northern boundary of the site, behind the trees.

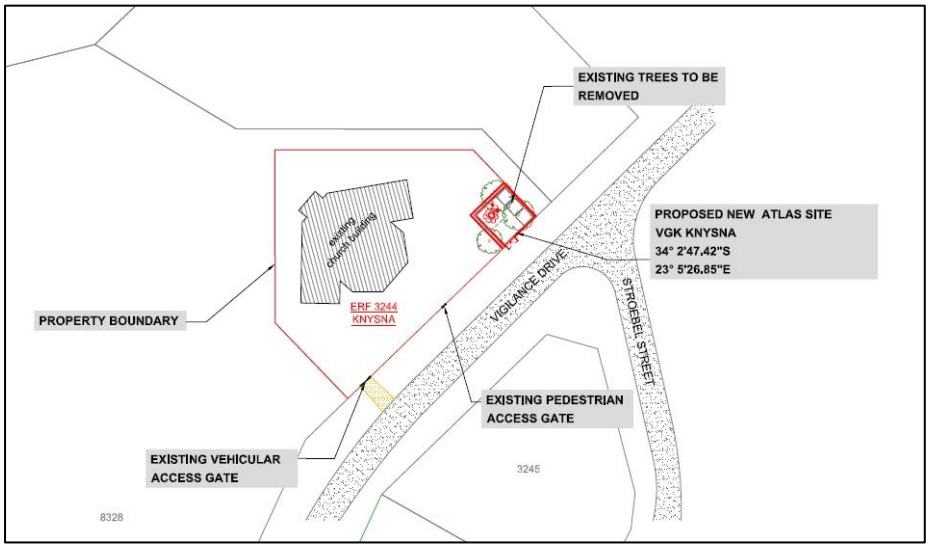

Figure 2: Position of mast on site

The mast consists of a 25m high monopole with artificial pine tree finish. The mast will accommodate the necessary navigation lights. The site consists of a 10m x 10m area to be enclosed with a clearvue fence.

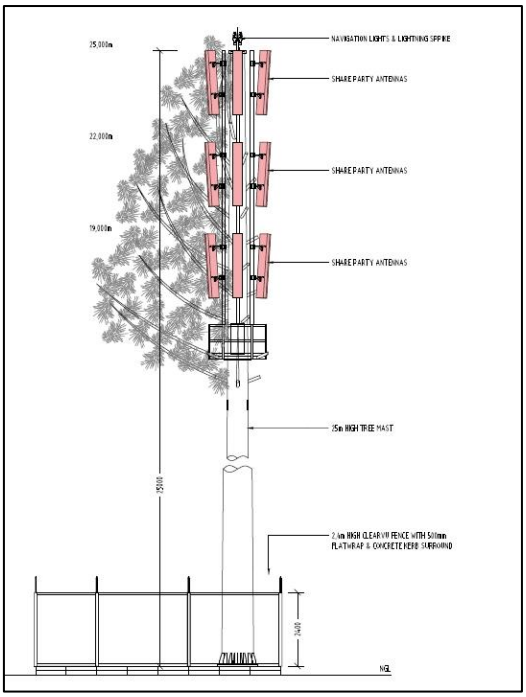

Figure 3: Mast side view

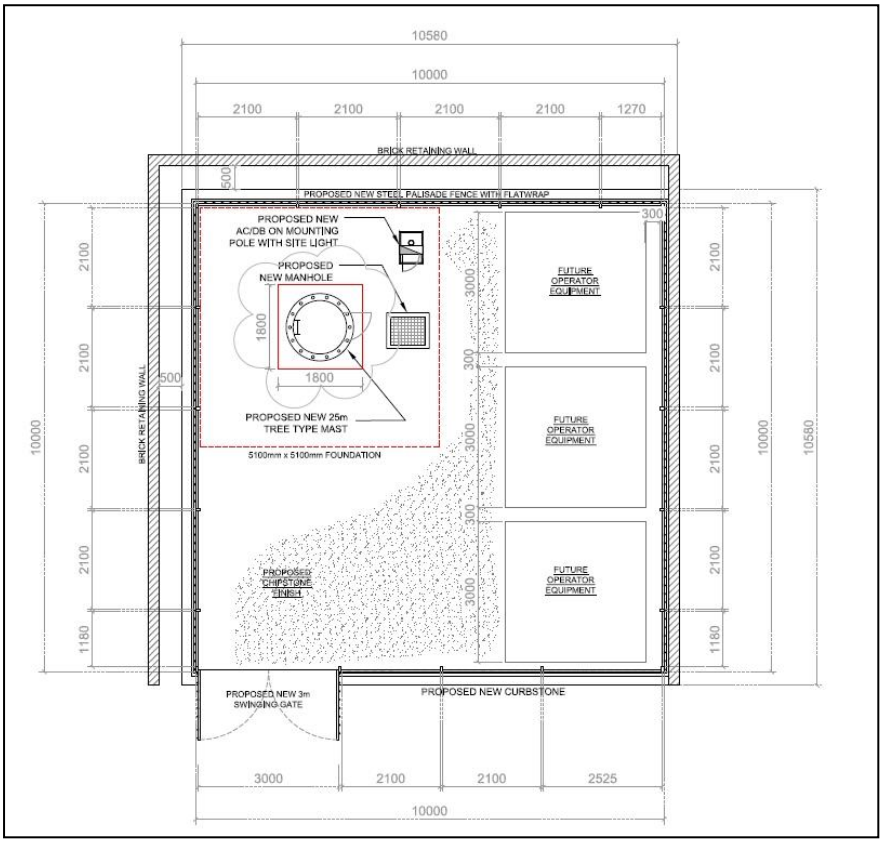

Figure 4: Site components

4.1.1 Operational elements

Only occasional maintenance is required. The site is serviced with a light delivery vehicle and potentially climbers to access equipment on the mast.

4.2 Construction elements

For the construction of the mast, typically LDV or small trucks and cranes may be required. Construction process entails:

- clearing and levelling of the site,
- construction of mast
- fitting of antenna and equipment
- Fencing and security infrastructure
- Construction of support facilities such as a container, etc.

5 RECEIVING VISUAL ENVIRONMENT

5.1 Description

Understanding the potential impact of a proposed development, an understanding of the receiving environment is important. In this regard, the main elements of the receiving environment relate to the character of the current surrounding land use and the absorption capacity of the area. The character of the area entails the sense of place created by the current land use and the scale and type of infrastructure or physical elements within the immediate area. The absorption capacity relates to the density of physical elements and topographical variations of the landscape, which will determine the catchment area. The human eye will observe the horizon on a perfectly flat surface at a distance of 30km. This is however significantly reduced by landscape elements which obstruct the view or increased if the viewer is elevated above the site.

5.1.1 Catchment area

The site is located in a fairly high density urban environment abutting an important local feeder road. The area is characterized by steep slopes and the application site is located close to the edge of such a slope. The site "overlook" a basin which consist mostly of

public/community land uses such as a school and sport fields. The rim of this basin would form the theoretical catchment area for the site.

This viewshed is however impacted by secondary changes in topography and various site elements, reducing the view shed significantly, especially to the south.

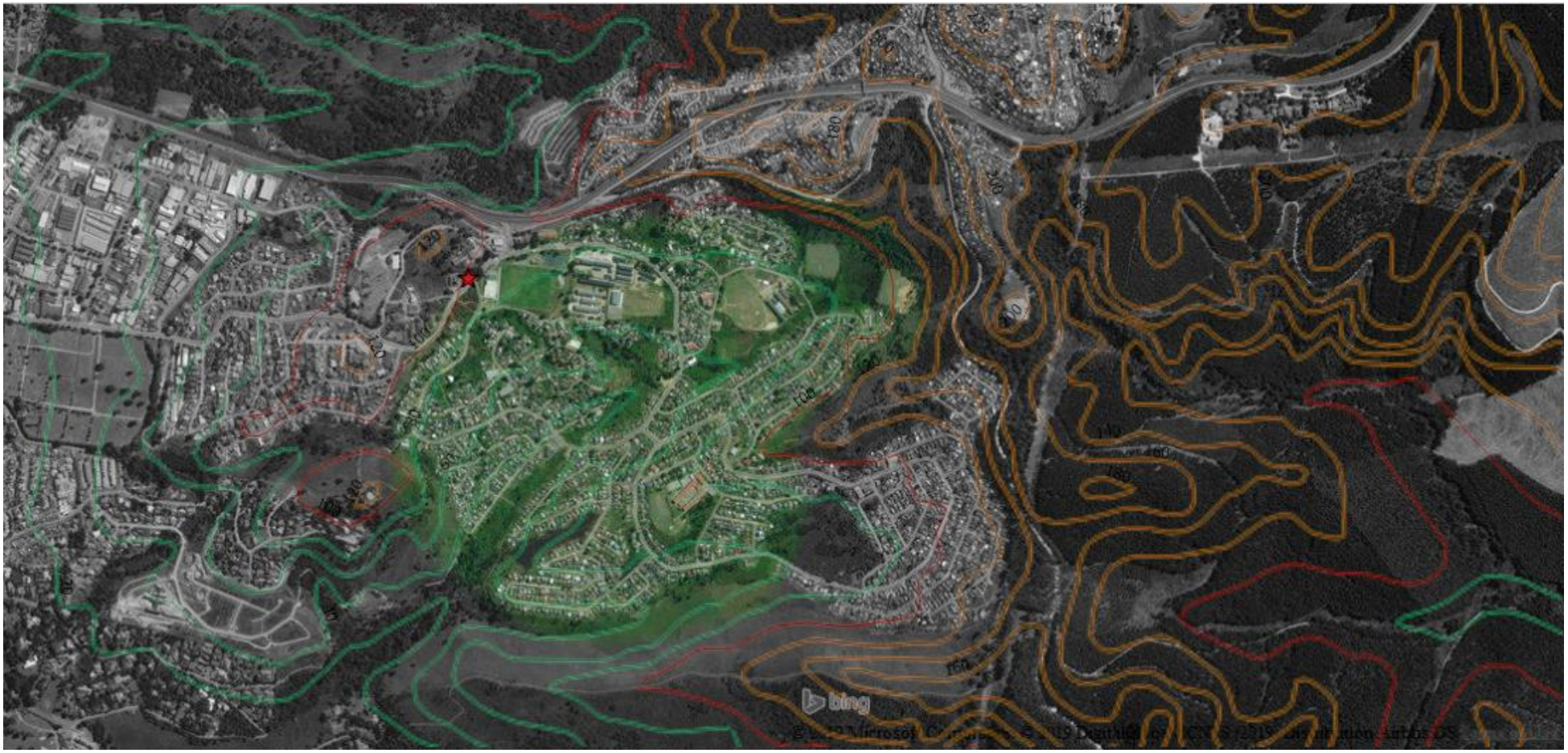

Figure 5: Potential Viewshed

Figure 6: Actual view catchment based on landscape elements

5.1.2 Sense of Place:

The site is situated in a high density urban landscape with a strong urban character.

Figure 7: Production landscape

6 VISUAL RECEPTORS

Visual receptors are those positions from where the development site is potentially visible. Based on the character of the locality of the receptor its sensitivity can be rated. Generally, residential areas and tourism-related destinations and routes are sensitive to visual intrusions as they relate to the well-being of residents and the tourism quality of the area.

6.1 Potential Receptors

The following potential visual receptors have been identified:

- A – View from N2
- B – View from Sunridge Entrance/intersection
- C –View across valley/basin
- D – Stroebel street intersection with Vigilance Dr
- E – Vigilance Dr approach from south

Figure 8: Potential Receptors

6.2 Assessment of Receptors

6.2.1 View from N2

When travelling along the N2, Hornlee is almost completely screened off due to the topography. The site is therefore not visible and neither would a 25m mast be. The altitude of the mast is 95m and the ridgeline which screens the N2 is at 120m altitude. The N2 approach on approx 115m and then slopes down to below 100m. The N2 can thus be excluded as a receptor.

6.2.2 View from Sunridge Entrance/Intersection

Sunridge Street is the main entrance to Hornlee and upon entry the Hornlee basin lies in full view of the observer. The application property would then be to the right. Turning in this direction, the site will come into view (Refer Fig 8, viewpoint B).

Photo 1: View from Sunridge intersection

Table 3: Sunridge Intersection

Criteria	High	Moderate	Low
Exposure	dominant, clearly visible	recognizable to the viewer	not particularly noticeable to the viewer
Sensitivity	residential, nature reserves, scenic routes	sporting, recreational, places of work, national road	industrial, mining, degraded areas
Intrusion/Obstructive	noticeable change, discordant with surroundings	Partially fits but clearly visible	minimal change or blends with surroundings
Duration			short

The mast will be visible but since the tree design fits against the existing tree backdrop the Intrusion level is reduced. The overall impact is moderate.

6.2.3 View across valley/basin

When the site is entered, which is also an entrance to a number of small holdings/houses directly abutting the application property, the mast will be clearly visible. On exiting the property, the tree will be in direct view of the observer. This will however be brief. The houses closer to the escarpment are already on a height below the view line.

Photo 2: View across valley

Table 4: Assessment of view across Valley

Criteria	High	Moderate	Low
Exposure	dominant, clearly visible	recognizable to the viewer	not particularly noticeable to the viewer
Sensitivity	residential, nature reserves, scenic routes	sporting, recreational, places of work, national road	industrial, mining, degraded areas
Intrusion/Obstructive	noticeable change, discordant with surroundings	Partially fits but clearly visible	minimal change or blends with surroundings
Duration			short

The visual significance is rated as moderate to low. The tree backdrop absorbs the mast to a level where it fits in the context and is on observed as a distraction from the environment.

6.2.4 Stroebel street intersection with Vigilance Drive

Approaching the site from Stroebelstreet the observer is at first obscured from the site due to the topography. As the intersection is approached the mast will come into view. The observers is however travelling diagonal to the the mast and therefor the mast remains in peripheral view until the road turn sharply at the intersection and into direct line with the mast.

Photo 3: Stroebelstreet approach

Photo 4: Stroebelstreet Intersection

At the intersection the mast is in direct view of the observer. Although the tree design softens the impact it would be clearly distinguishable as a cell mast. Note that the boundary trees will be removed for the construction of the mast. The observer will however focus on the road and decide on a direction to turn. The duration of view is thus short.

Table 5: Assessment of Stroebelstreet intersection

Criteria	High	Moderate	Low
Exposure	dominant, clearly visible	recognizable to the viewer	not particularly noticeable to the viewer
Sensitivity	residential, nature reserves, scenic routes	sporting, recreational, places of work, national road	industrial, mining, degraded areas
Intrusion/Obstructive	noticeable change, discordant with surroundings	Partially fits but clearly visible	minimal change or blends with surroundings
Duration	Constant		short

6.2.5 Vigilance Drive approach from south

Approaching with Vigilance Drive from the south, the site remains out of site due to the topography. Only once the traveler comes round the bend in the road does the mast come into clear view. The pine tree backdrop softens the view and although it would most probably be distinguished as a cell tower, the view is more pleasing than a

monopole or lattice mast. The duration of view a short as the mast disappear out of view as the traveler pass the mast.

Photo 5: Vigilance Drive approach

Table 6: Assessment of Vigilance Drive approach

Criteria	High	Moderate	Low
Exposure	dominant, clearly visible	recognizable to the viewer	not particularly noticeable to the viewer
Sensitivity	residential, nature reserves, scenic routes	sporting, recreational, places of work, national road	industrial, mining, degraded areas
Intrusion/Obstructive	noticeable change, discordant with surroundings	Partially fits but clearly visible	minimal change or blends with surroundings
Duration	Constant		short

7 CUMULATIVE IMPACT

The Department of Environment and Tourism issued a guideline document in terms of which cumulative impacts should be assessed.[1] This guideline document identifies types and characteristics of different cumulative effects as summarized in the table below.

Table 7: Types and characteristics of cumulative effects

TYPE	CHARACTERISTIC	IDENTIFY POTENTIAL IMPACT
Time Crowding	Frequent and repetitive effects.	Activity remains at same pace, frequency and intensity over time. No time crowding impacts.
Time Lags	Delayed effects.	No time lag impacts.
Space Crowding	High spatial density of effects.	Two other masts are visible from the application erf. The one is located at the bottom of the basin. The other is a short distance away just off Vigilance drive. Refer full assessment below
Cross-boundary	Effects occur away from the source.	No impact
Fragmentation	Change in landscape pattern.	No impact.
Compounding Effects	Effects arising from multiple sources or pathways.	No compounding impacts.
Indirect Effects	Secondary effects.	No impact
Triggers and Thresholds	Fundamental changes in system functioning and structure.	No fundamental changes to urban or ecological systems or structures

Since two masts are present within the proposed mast catchment it is necessary to assess the impact of this new mast in terms of Space Crowding. One mast is located at the bottom of the basin. This is a lattice mast positioned on sport fields. The mast is however distant by the urban layout and an observer will most probably not observe both masts at the same time nor encounter both on one journey. The other mast is in close proximity to the application mast. This is also a monopole tree mast. Travelling on Vigilance drive the first mast is located below the road in the traveler's peripheral view. Most travelers will most probably not be distracted by the presence of the mast in such close proximity due to the topography and the various urban elements creating a mental absorption buffer.

[1] DEAT (2004) Cumulative Effects Assessment, Integrated Environmental Management, Information Series 7, Department of Environmental Affairs and Tourism (DEAT), Pretoria

The cumulative impact of this cell mast within the existing landscape, is thus within acceptable levels.

8 CONSTRUCTION

During construction, various types of vehicles and equipment will be transported to the site and work on the site. This will impact on the general experience of viewers. This impact is however temporary and not uncommon during construction of infrastructure. Communities have fairly high tolerance levels for such activities if it contributes to the infrastructure of the area.

Rating: Low

9 FINDINGS

The proposed cellular mast appears to have an overall low visual impact without mitigation. The impact is overall within acceptable levels of change.

The most significant impact is the direct on-site impact, however this is also within acceptable levels given the tree design which fits with other landscape elements.

10 MITIGATION MEASURES

The assumption was made that a tree design mast will constructed. The low impact is partially due to this design coupled with the existing stand of trees which provide effective screening of the mast as well as the topography and high density urban character of the landscape. It is therefore proposed that the stand of trees should not be removed. Should the trees be removed, the visual impact may be increase to a moderate level.