HANS MOES KRAAL

PRT 112 OF FARM 202, GEORGE

CELLULAR MAST

ADDENDUM
VISUAL ASSESSMENT

For consideration in the Basic Assessment

For

EnviroAfrica

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Addendum
31 October 2019

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Final Report Ref GEO-202-01	17/05/2019	
Addendum	31/10/2019	Assess removal of trees

Report to be cited: Addendum to Visual Impact Assessment for Cellular Mast at Hans Moes Kraal, George, 2019

Table of Contents

1. Index of Tables

2. Illustration Index

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. In the past five year she has spesialized in Visual impact assessment and has completed a number of assessments for wind farm, solar farm, communication towers and tourist 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
31-10-2019

EXECUTIVE SUMMARY

Sarien Lategan was appointed to undertake the visual impact assessment of a 25m tower, to accommodate cell antennae, on portion 112 of farm 202, Hans Moes Kraal, George, 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 site is situated next to the gravel road Nr 1591 from Pacaltsdorp to Gwaingrivermouth, behind a cluster of trees.

Subsequently the removal of trees were considered and this addendum deals with -

1. Visual significance in a scenario where the cluster of trees adjoining the proposed mast position will be removed and
2. The visual significance of different types of towers namely tree, lattice and monopole

The site is located in an area characterized by small holdings with small scale and limited high intensity dairy farms. The area host forest/plantation areas with inter alia large Eucalyptus and Pine trees. Other surrounding land uses include a coastal nature reserve, municipal holiday resort at the river mouth and a luxury residential estate.

The topography is characterized by hills and valleys, which provide a high level of visual absorption. The site is surrounded by large trees up to approximately 15 -20m in height. These trees are however listed in terms of the CARA regulations and the removal of the trees should be considered. An exemption has been applied for, but the scenario where the trees will be removed and thus not provide a backdrop and screen to the proposed mast, should be considered. In such scenario, a different type of tower may be more appropriate and thus the need to consider a comparison of a tree mast, lattice type and monopole.

Due to the topography and landscape elements, the area displays a high absorption level. With the removal of the trees, the tree type of mast becomes less desirable and a lattice or monopole should be considered. The assessment of the potential receptors indicated that the overall impact of both a lattice and monopole, respectively, is low and well within acceptable levels of change.

1 BACKGROUND

Sarien Lategan was appointed to include the removal of the existing stand of trees as well as the alternative mast types, namely lattice and monopole mast for the proposed mast site. This addendum should thus be read with the original "Final Visual Impact Assessment Report, May 2019".

The methodology followed in the Final report (May 2019) is applied in this addendum. The site photos has been manipulated in order to remove the trees from the landscape and the three different types of masts are superimposed on this altered landscape.

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

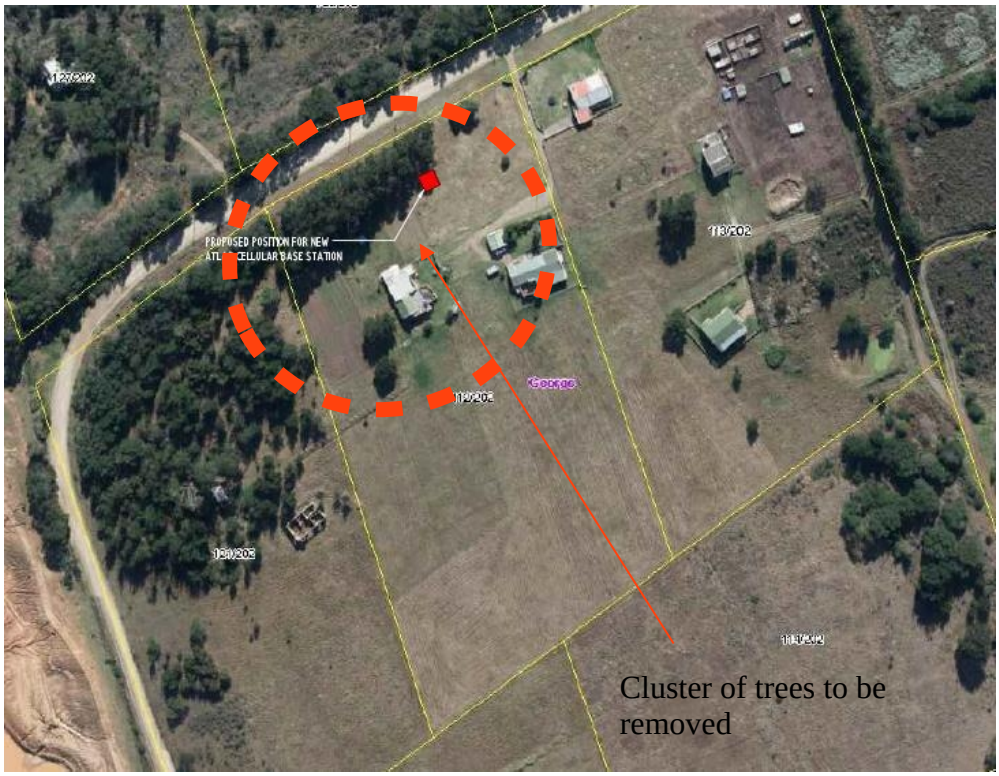

Illustration 1: Cluster of trees to be considered to be removed

2 VIEW CATCHMENT

2.1 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.

2.2 Catchment area

The site is situated in a rural area with small scale agricultural activities on small holdings. The area thus display a typical rural small holding character with small scale infrastructure dotted through the landscape. The catchment area consists of hillsides, deep valleys, a steep coastal escarpment and large trees, with a range of small scale infrastructure related to the agricultural activities.

The catchment area is significantly restricted by the above elements. The site is however located on the upper part of the plateau area. The site is at approximately 175m with the highest point on this plateau is approx. 180m There are limited areas where a viewer would be elevated above the site. The on-site trees provide a screen from the road and thus significantly reduces the actual catchment area. With the trees removed, the catchment area extends to the north until a point where the forest limits the viewshed. The catchment is significantly restricted to the north, by large trees and only the entrance access road provide a break in this barrier. The catchment towards the south is however less restricted but the slope of the coastal escarpment reduce any views from this are towards the site.

VIA: Hans Moes Kraal cellular mast

Illustration 2: Potential viewshed

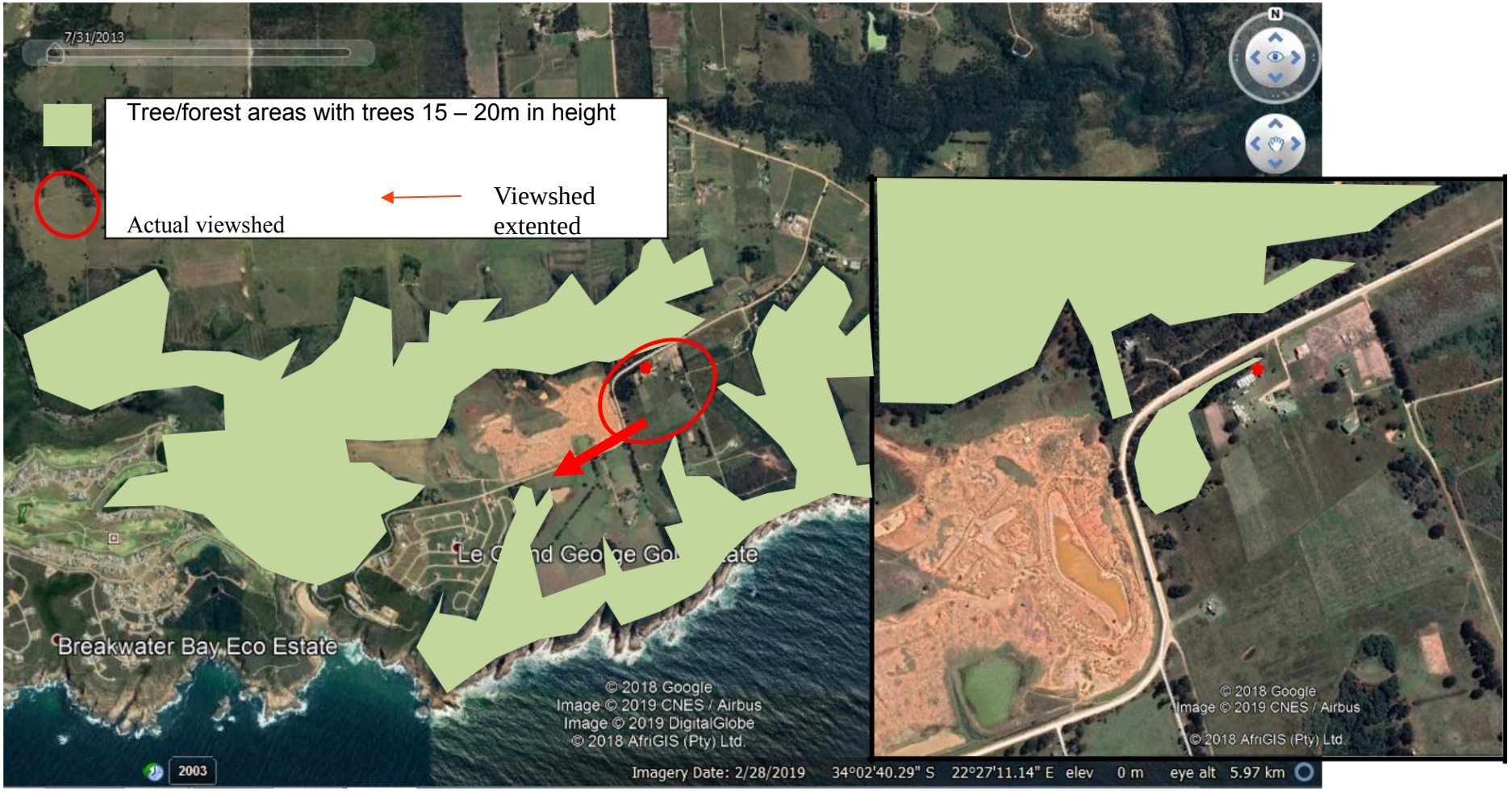

Illustration 3: View catchment based on site elements

3 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. The following receptors were identified and assessed in the "Final Visual Impact Assessment Report.

- A - Approach from Pacaltsdorp
- B - Approach from Le Grande Estate
- C -Houses directly abutting site
- D - View from Across western valley
- E - View from Lalavuga Coastal reserve

The removal of the trees does not change the identified receptors. This addendum will however re-assess the visual impact on these receptors.

Illustration 2: Potential receptors

3.1 Approach from Pacaltsdorp

When approaching from Pacaltsdorp the site remains out of sight and only comes into view approx. 100m from the site. The topography of the area and the route the road follows, restrict views to the minimum and at no point is view over the larger area possible. This view is furthermore restricted by landscape elements such as large trees. The profiles from various points along the route demonstrate that the site, even with a object of 25m in height remains out of view.
The removal of the trees does not change the point from where the mast would be visible on this approach. The removal of the trees does change the observance of the mast from this point until the point where the traveller pass the mast. Where the mast would have been against the backdrop of the stand of trees and thus been partially absorbed, the mast will now be in full view.
A pine tree mast would be visible and the lone standing tree may be out of context with the surroundings.

3.1.1 Tree Mast Option

Illustration 3: Pacaltsdorp approach - Pine tree mast with tree backdrop

Table 1: Tree Mast with Trees assessment

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	Long term		Short

The overall visual significance is low to moderate without mitigation. The mitigation measure i.e. using a tree-type mast, reduce the impact related to the sensitivity of the area. The tree is in context with its surroundings and would thus result in a low impact.

Illustration 4: Pacaltsdorp approach - Pine tree mast with trees removed

Table 2: Tree Mast without trees assessment

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	Long term		Short

The overall significance of the Tree mast in the scenario where the trees are removed, is medium to high due to the fact that the tree mast is now out of character with the surrounding landscape elements.

3.1.2 Monopole Mast Option

Illustration 5: Monopole mast with trees

Table 2: Monopole mast with trees assessment

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	Long term		Short

The overall impact is medium as the mast is visible but partially fits with other landscape elements.

Illustration 6: Pacaltsdorp approach, Monopole Mast without trees

Table 3: Assessment of Monopole mast in scenario without trees, on Pacaltsdorp 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	Long term		Short

The overall significance is medium. Although the mast is now not screened by trees, the removal of the trees expose other infrastructure such as the telephone poles and line. The mast align with these elements which reduce the intrusiveness of the mast. By changing the colour to dark green or brown, the intrusive level can be reduced.

Illustration 7: Pacaltsdorp approach with Brown Monopole mast, trees removed

3.1.3 Lattice mast option

Illustration 8: Pacaltsdorp approach with lattice mast, trees retained

Table 4: Assessment of Pacaltsdorp approach with lattice mast, trees retained

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	Long term		Short

The lattice mast is visible to the traveller in both scenarios. With the trees retained the mast is slightly screened by the trees. The advantage of a lattice mast is that it does not position a solid element in the landscape but rather allow a level of transparency (see through), with reduce the exposure level. By changing the colour the mast can pick up on dominant colours in the landscape and thus reduce the exposure further to medium to low level.

Illustration 9: Pacaltsdorp approach with lattice mast, trees removed

Table 6: Assessment of lattice mast on Pacaltsdorp approach with trees removed

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	Long term		Short

3.1.4 Approach from Le Grande Estate

Approaching the site from the south-east i.e. Le Grand Estate, the site stays out of sight due to the topography as well as the stand of trees that screen the site. It may be possible that the very top of the mast may be visible or at night the navigation lights. Even in the scenario where the trees are removed, only the top of the mast will be visible. However the road turn away from the site, leaving the mast in the traveller's peripheral view.

From the western corner of Le Grand Estate, the view and conditions similar to that from the entrance gate. However due to the lower position of this western corner, the top of the mast will not be visible, most probably neither the navigation lights at night.

The most southern area of Le Grand Estate is at a height of approximately 60m which will make view of the site and even a structure of 25m in height impossible.

As a traveller approach the site, the topography is such that the site does not come into view until you are in close proximity of the site. Even then the mast site is screened by various landscape elements of which the most significant the stand of trees on the perimeter of the property. The removal of these trees will expose the site from this point.

At about 400m from the site, the road takes a 90º turn at which point the traveller's view is directed towards the site and there is a brief gap in the tree line. With the stand of trees removed, the mast will remain in the travellers sight until the site is passed. The road is however slightly lower than the property boundary and the site will be in the peripheral view.

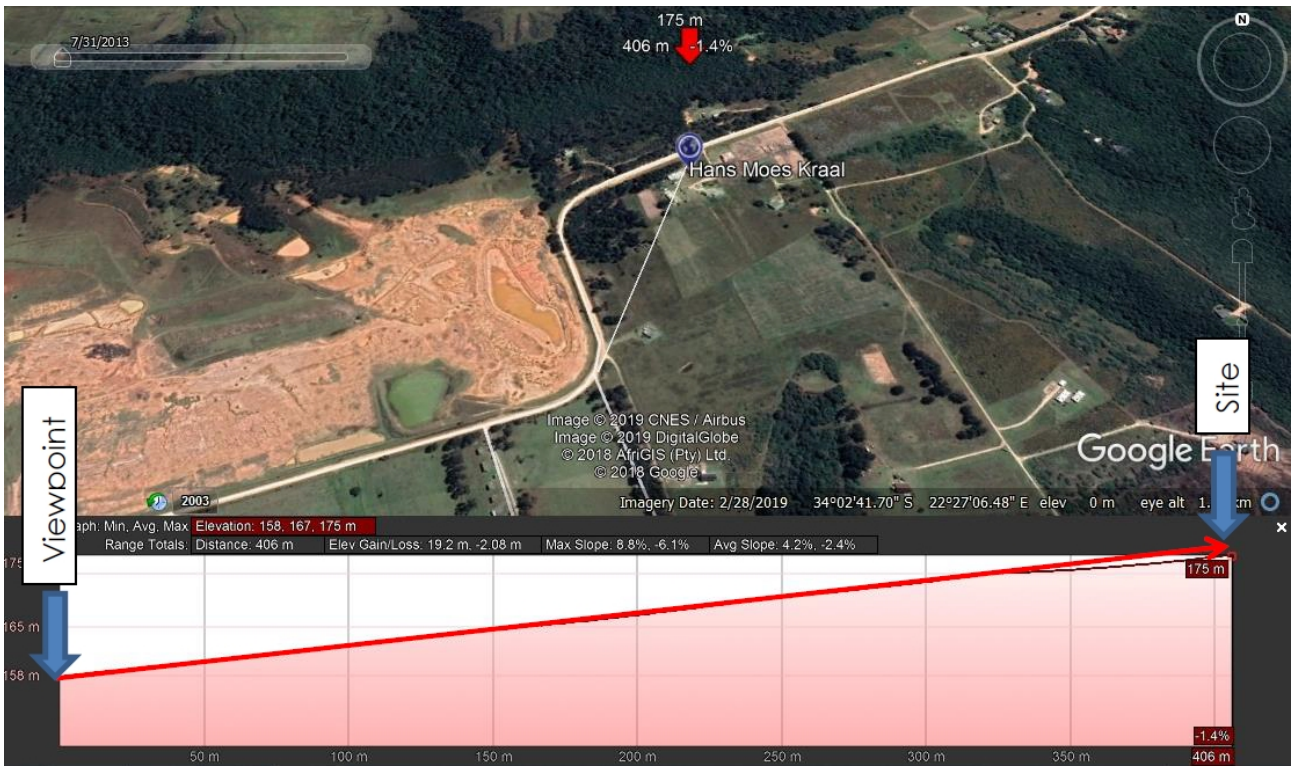

Illustration 10: Le Grand Estate approach viewpoint

3.1.5 Tree Mast Option

Illustration 11: Le Grand Estate approach with Tree mast and stand of trees remain

Table 7: Assessment of Tree Mast on Le Grand Estate approach with trees remaining

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	Long term		Short

The duration is fleeting as the driver's attention is not distracted by the mast as it simply gets absorbed by all the other elements in the landscape. The overall visual significance is low. The fact that the proposed mast is 'n tree type, the sensitive nature of the area is respected as the tree design is within the area context.

Illustration 12: Le Grand Estate approach, Tree mast with trees removed

Table 5: Assessment of Tree mast on Le Grand Estate approach with trees removed

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	Long term		Short

The overall significance of this scenario is high due to the obtrusiveness of the mast in direct sight line of the traveller. The tree is out of place with the surrounding elements.

3.1.6 Monopole Mast option

Illustration 13: Monopole from Le Grand Estate approach, with trees retained

Table 6: Assessment of Monopole mast on Le Grand Estate approach, with trees remaining

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	Long term		Short

Illustration 14: Monopole on Le Grand Estate approach without trees

Table 7: Assessment of Monopole mast on Le Grand Estate approach with trees removed

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	Long term		Short

The overall significance is moderate to low. At the first position where the mast become visible it is barely visible and the impact is low. As the traveller approach the mast it becomes more visible and distinguishable. The duration is however short and the mast is in the peripheral view.

3.1.7 Lattice Mast Option

Illustration 15: Le Grand Estate approach with lattice mast, trees retained

Table 8: Assessment of Lattice mast on Le Grand Estate approach with trees retained

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	Long term		Short

Illustration 16: Le Grand Estate approach with lattice mast, trees removed

Table 9: Assessment of lattice mast on Le Grand Estate approach, trees removed

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	Long term		Short

The lattice mast impact is very similar the that of a monopole. The advantage of a lattice mast is the transparency effect which lowers the intrusion level of the mast. Applying a dark green or brown colour will compliment similar coloured landscape elements and further reduce the exposure level.

3.1.8 Houses directly abutting site

The entrance to the site serves as an entry road to number of small holdings/houses directly abutting the application property. The mast, regardless of the type of mast, will be clearly visible if the trees are removed. 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 and the impact is thus low.

The visual significance is rated as moderate. For residents of the house on the property as well as the house to the immediate north, the mast would be a permanent element in the landscape. Other observers only using the entrance road, the duration of view would be short.

3.2 View from across western valley

Due to the deep river gorges, the mast may be visible from adjoining plateaus. Without any site elements the mast will be visible in the distance, however given the distance it would be an almost insignificant element. The navigation lights may be visible at night. Site elements will most probably however screen the mast . Regardless of the type of mast or whether the cluster of trees are removed or not, the impact will remain low.

3.3 Lalavuga Coastal Reserve Estate

The houses on the estate are located within stands of natural vegetation, mostly forest which screen them from the surrounding landscape. The reserve is also situated in a valley and due to the topography the cell site is not visible. The site is also not visible from the Estate’s entrance gate

4 FINDINGS

Comparing the various types of masts within two landscape scenarios namely with the existing cluster of trees remaining or with the trees removed, the significance varies from moderate-high to low. Table 9 provides a summary of the different options.

Table 10: Summary of assessment of landscape scenarios and mast options

	Cluster of trees remain	**Cluster of trees removed**
Tree Mast	The overall impact is low due to the screening effect of the trees	The tree structure becomes more prominent in the landscape and thus the obtrusive level increase.
Monopole Mast	The overall impact is low due to the screening effect of the trees. The mast form also fits with other infrastructure elements in the area	Without Mitigation: The mast is visible but the obtrusive level is moderate.
		With Mitigation (colour): Changing the mast colour can reduce the obtrusiveness and thus reduce the impact to moderate-low to low
Lattice Mast	The overall impact is low due to the screening effect of the trees. The mast form is not alien to the elements within this production landscape.	Without Mitigation: The mast is visible but the obtrusive level is moderate.
		With Mitigation (colour): Changing the mast colour can reduce the obtrusiveness and thus reduce the impact to moderate-low

The scenario where the trees are retained provide the lowest impact regardless of the mast type. However, should the trees be removed the impact is increase and a monopole or lattice mast can be mitigated to reduce the impact to within acceptable levels of change. Figure X compares the different types of masts with and without mitigation.

Illustration 17: Comparison of different types of mast in scenario where trees are removed

5 MITIGATION MEASURES

In a scenario where the trees are retained, a tree mast provides the best visual absorption. Since the options to mitigate such a mast type in the event that the cluster of trees are to be removed, the other mast options provide more appropriate options to mitigate the visual impact. Both monopole and lattice masts could be mitigated through colour. In this environment with a tendency to dark green, such dark colours will be suitable to reduce the obtrusiveness of the masts. Colours which can be considered are dark green or dark grey. The lattice mast provide the added advantage that due to the structure of the mast, it does not create a solid element but allow almost a transparency through the mast.