

**PROPOSED TOWNSHIP DEVELOPMENT
HARTENBOS ERF 3122**

VISUAL ASSESSMENT REPORT

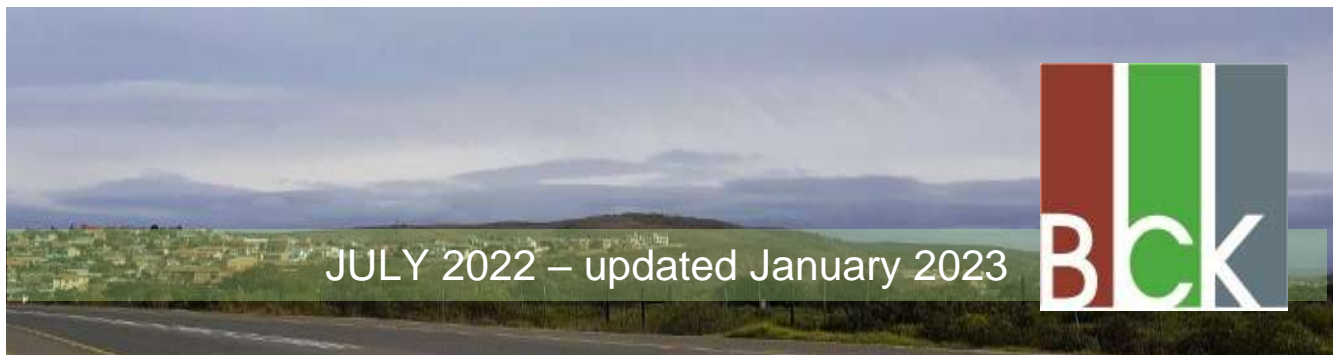
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STUDY OF THE POTENTIAL IMPACT OF THE PROPOSED HARTENBOS ERF 3122 DEVELOPMENT ON THE VISUAL ENVIRONMENT

VISUAL IMPACT ASSESSMENT

EXECUTIVE SUMMARY

INTRODUCTION

This analysis has been prepared at the request of Ms. Louise-Mari of Cape EAPrac on behalf of the ATKV.

The proposed residential and group housing development may, due to its scale, extent and location have a moderate visual impact on the natural and social environments.

The proposed development, Refer to **Figure 1: Site Layout Plan**, is situated on the top of a remnant of the coastal terrace that has been formed by headward erosion from seaward and landward sides. Refer to **Figure 2: Locality Plan**. The site overlooks extensive areas seaward (to the east) and landward (to the north, west and south).

This study evaluated the visual impact of the development with a view to assessing its severity based on the author's experience, expert opinion and accepted techniques

METHOD

In order to address the objectives of the study the following method has been used:

- Determine the setting, visual character and land use of the area surrounding the area, and the Genius Loci (sense of place). This was done in terms of:
 - Topography
 - Vegetation cover
 - Land use
 - Visibility
 - Landscape diversity
 - Landscape character

- Discussions and meetings with the specialist consultant team to identify specific aspects of the construction and development which would affect the visual quality of a setting.
- Define the extent of the affected visual environmental, the viewing distance and the critical views.
- An evaluation was made of the landscape characteristics against which impact criteria ratings were applied.
- The viewshed, the area within which the proposed project can be visible, was determined using digital 1:50 000 topographic maps with 20 m contour intervals analysed by the Geographic Information System (GIS), algorithms available in the ArcView Software Suite.

This report considers the visibility or views of the Site from within a study area of 500m to 2000m from the Site boundaries. The visibility of the developed Site will be determined by how it will “fit” into the existing landscape form, character, and scenic quality.

An overall impression of the setting was obtained during a site visit on 4 August 2017 when critical viewpoints, the extent of the view shed (the areas from where the project is visible), intervening landform or structures which blocked views of the site, and the character, scale and visual quality of the setting were identified.

The visibility and visual intrusion experienced by viewers surrounding the site is described and assessed.

The visual intrusion zones are measured from the boundary of the proposed development. These are zone 0-0.5 km, zone 0.5-1 km and > 1 km.

LIMITATIONS, CONSTRAINTS AND ASSUMPTIONS

The following assumptions and limitations are applicable to this study:

- The installation of the roads and services will take approximately 9 months and there will be a site office and site laydown area and that the development will be phased
- The housing units will be 1-2 storeys with a pitched roof
- The study areas are within the 10 km radius of the site because the visual impact of the project structure beyond this distance is of such a reduced scale that it can be considered of no significance, even if there is a direct line of sight.

- The basis for visual assessment is that scenic wilderness areas form the core of eco-tourism due to the high positive aesthetic appeal.
- Determining a visual resource in absolute terms is not achievable. Evaluating a landscape's visual quality is both complex and problematic. Various approaches have been developed but they all have one problem in common: unlike noise or air pollution, which can be measured in a relatively simple way, for the visual landscape mainly qualitative standards apply. Therefore, subjectivity cannot be excluded in the assessment procedure (Lange 1994). Individually there is a great variation in the evaluation of the visual landscape based on different experiences, social level and cultural background. Exacerbating the situation is the inherent variability in natural features. Climate, season, atmospheric conditions, region, sub-region all affect the attributes that comprise the landscape. What is considered scenic to one person may not be to another (NLA, 1997).
- Localized visual perceptions of the economically depressed communities have not been tested as these may be influenced rather by the economic and job opportunities that would exist rather than the direct visual perception of the project.
- The viewshed map is computer generated and does not take into account local and minor visual interruptions in the landscape such as trees on the edge of roads, minor landforms, buildings, etc. As a result, the visibility on these maps could be overstated.

If the study, however, determined that the negative visual impact is of such a magnitude and significance that it will seriously influence the decision on whether to build, it will then be necessary to test and determine the visual perceptions of neighbouring communities. Such a study is involved, costly and time consuming.

The purpose of this visual assessment study is to identify the visual intrusion and visual impact of the proposed development on the Site in relation to the existing and future landscape setting.

The local ridgelines provide limits to views of the proposed development from further away and these have been used to define the view sheds.

In terms of the Guideline for involving Visual and Aesthetic Specialists in EIA Processes, Oberholzer, B., & CSIR, the scale of development and the area of open space approximately 50% of the land area, the assessment is considered to be a Category 3 with a minimum to moderate visual impact expected. The proposed development is similar to existing surrounding development that is built on landforms flatter than 1 in 4. This places the study at a level 2 as described by the above Guideline.

This requires that the following is addressed in the final assessment:

- Identification of the visual issues raised in the scoping phase,
- Description of the receiving environment and proposed project.
- Establishment of view catchment areas and receptors.
- Description of alternatives and mitigation measures.

FINDINGS

The proposed development will result in the following important visual impacts.

1. The visual intrusion of the development on the setting in the context of existing surrounding land use.
Consequence **Medium** and Significance **Medium**
2. The prominence of the buildings in landscape setting.
Consequence **Low** and Significance **Low**
3. Change in Sense of Place
Consequence **Medium** and Significance **Medium**
4. Landform Change
Consequence **Low** and Significance **Low**
5. Night Scene
Consequence **Medium** and Significance **Medium**

The above ratings include consideration of the following:

The proposed development is within the proclaimed Urban Edge and is adjacent to an existing residential which itself has developed over its own ridge line. The area being developed, except for the access road) is not steeper than 1:4.

Several alternative development lay-outs have been evaluated. The final layout presented in this report has had the edge of the outer units moved 20m in from the boundary and has reduced the maximum height of the buildings to two storeys.

The proposed development will be most visible from the higher ground to the south-west and west at beyond the 1000m radial. The extent of visual significance does not extend beyond 2000m.

The general visibility of the development is mostly limited to views of the housing units on the edge of the plateau mostly from the nearer existing suburbs lower on the landform and those on the higher ground to the southwest. This results in the houses on the horizon whereas in the present situation the natural landform of the hill forms the horizon.

Although the visibility of the site does extend beyond the 2 000 m radial, it is within the 500 m radial in the north-eastern and eastern sector that the proposed

residential development will be most visible as well as just beyond the 1 000 m radial in the south and the south-western sector. This is due to the site being on the plateau hilltop of a local hill.

The site will be partially visible to the south-westbound traffic on the N2 as they approach Hartenbos from the east as much of it will be screened by the existing water reservoir that is located on the highest part of the plateau.

The overall assessment of the visual intrusion impact and visual impact of the proposed development on the characteristics of the site and on views toward the site from surrounding areas is that the proposed residential development will have a **medium visual impact** on the site and setting providing the proposed mitigation measures are incorporated.

This is due to the following:

- The entire site has a limited visibility from surrounding areas and will have a moderate effect on views towards the proposed development from adjacent land.
- The visual intrusion is rated as having a moderate effect on the intrusion of views of the site from within the 500 m zone. This is due to the medium density, and open space within and around the residential groups. The visual intrusion is rated as having a moderate effect in views of the site at and around the 1 000 m radial in the south-west.
- The visual prominence of buildings will be high in views of the site from within the 500 m radial and it is considered that this will change to a moderate effect on the quality of views from the key viewpoints namely from the Aalwyndal Road north bound. The visual prominence of the residences will be high in views toward the site from the west within the 1000 m radial and for those that have a view of the plateau and edge and that are within the 1 500 m radial.
- The visual impact of the expected landform change will be low and the visual effect will be low to moderate depending on the extent of change in areas where houses and roads are on steep slopes.

The visual impact of the development phase of the project is considered to have a low visual effect on the setting and surroundings. This is as a result of existing surrounding residential development

- The visual intrusion of the proposed project on the night scene from the views is considered to be moderate due to the existing concentration of light in an area that presently has no lighting but does have areas that are lit by residential development on the northern, eastern and southern boundaries. However, the visual intrusion on the views from the housing on the elevated landform to the south and west 1000m distant will be high.

If lighting of the site is carefully planned the effect of the light intrusion will be moderate to low depending on the light spill intensity.

- The visual impact of the night scene is considered to be medium to low within the viewshed and high only to the northeast.

The visual impact mitigation measures proposed will reduce the visual intrusion described above within the 500 m radial by improving the visual fit of the proposed development into the landform and the existing setting. It is recommended that the mitigation measures presented be incorporated during the detail design stage, so that the engineering and aesthetic components are integrated.

In this way mitigation measures are part of the total layout and design concept and are included in the construction contracts

CONCLUSIONS

Based on the field observations and the studies herein and with the implementation of the mitigation measures, the following conclusion is made from a visual point of view:

The development of Hartenbos Erf 3122the will exert a **medium negative** significant impact on the affected visual environment

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HARTENBOS ERF 3122

VISUAL IMPACT ASSESSMENT

1 INTRODUCTION

This analysis has been prepared at the request of Ms. Louise-Mari of Cape EAPrac on behalf of the ATKV.

The proposed residential and group housing development may due to its scale, extent and location have a moderate visual impact on the natural and social environments.

With reference to the “*Guideline for involving Visual and Aesthetic Specialists in EIA Processes*” compiled for the Provincial Government of the Western Cape: Department of Environmental Affairs and Development Planning (Oberholzer, B and CSIR 2005), the low density of residential stands and the group housing that together make up approximately 50 percent of the land area, the development can be classified as a Category 3 type. This category is defined as ‘low density residential development’ having 1 to 2 storey structures including cluster development that has approximately 50% of the area as green open space.

The visual guideline document indicates that a full visual impact assessment is not necessary because of the area of open space of more than 50% of the erf area and that no buildings are taller than 2 storeys. Refer to **Figure 1: Site Layout Plan**. However due to the request by the Department of Environmental Affairs and Development Planning a Visual Impact Assessment report has been provided for completeness. This report only addresses the constraints the visual impact may have on the site and development

The property is situated on the top of a remnant of the coastal terrace that has been formed by head-ward erosion from seaward and landward sides. Refer to **Figure 2: Locality Plan**. The site overlooks extensive areas seaward (to the east) and landward (to the north, west and south).

2 OBJECTIVES

- Assess components such as topography and current land use activities. This will record the status quo of the visual environment.
- Identify elements of particular visual quality that could be affected by the proposed project.
-

- Describe the visual intrusion of the proposed project from identified critical areas and view fields in terms of any constraints the visual impact may have on the detailed planning of the site

3 THE VISIBILITY IN CONTEXT

The visibility of the development will to a certain extent influence the visual intrusion in views toward that site and its immediate/adjacent surroundings.

The site is situated on the top of a landform that is the remnant of the wave cut terrace between the beach and the Outeniqua Mountains. The proposed development has been placed on the gently sloping top of the terrace. The site is on the watershed of the drainage lines that flow west and eastward inland and seaward respectively. This provides the site with views of 360 degrees. Surface water drainage has cut shallow but relatively steep sided valleys into the terrace from all directions. Refer to **Figure 2: Locality Plan**. The site is surrounded by land that slopes away on all sides. This configuration of the landform limits the visibility of the proposed development, from nearby and more distant areas. However the elevated site position will present the development around the edges prominently in middle distance views toward the site.

The scale and density of the proposed development will also contribute to the visibility. However, the amount of open space provided will decrease the extent to which the proposed development will contrast with the surrounding existing development and open space.

4 STUDY APPROACH

This report considers the visibility or views of the Site from within a study area of 500m to 2000m from the Site boundaries. The visibility of the developed Site will be determined by how it will “fit” into the existing landscape form, character, and scenic quality.

4.1 Study Approach and Method

An overall impression of the setting was obtained during a site visit on 4th of August 2017 when critical viewpoints, the extent of the view shed (the areas from where the project is visible), intervening landform or structures which blocked views of the site, and the character, scale and visual quality of the setting were identified.

Topographical and cadastral maps were used to record ridgelines, viewsheds and

the scale of the landform variation. See **Figure 3: General topographic Map.**

The visibility and visual intrusion experienced by viewers surrounding the site is described and assessed.

The visual intrusion zones are measured from the boundary of the proposed development. These are zone 0-0.5 km, zone 0,5-1 km and > 1 km.

The view shed was determined using 1: 50,000 topo-cadastral maps. This view shed is contour based and was verified during the site visits.

5 LIMITATIONS, CONSTRAINTS AND ASSUMPTIONS

The following assumptions have been made:

The following assumptions and limitations are applicable to this study:

- The installation of the roads and services will take approximately 9 months and there will be a site office and site laydown area and that the development will be phased
- The housing units will be 1-2 storeys with a pitched roof
- The study areas are within the 10 km radius of the site because the visual impact of the project structure beyond this distance is of such a reduced scale that it can be considered of no significance, even if there is a direct line of sight.
- The basis for visual assessment is that scenic wilderness areas form the core of eco-tourism due to the high positive aesthetic appeal.
- Determining a visual resource in absolute terms is not achievable. Evaluating a landscape's visual quality is both complex and problematic. Various approaches have been developed but they all have one problem in common: unlike noise or air pollution, which can be measured in a relatively simple way, for the visual landscape mainly qualitative standards apply. Therefore, subjectivity cannot be excluded in the assessment procedure (Lange 1994). Individually there is a great variation in the evaluation of the visual landscape based on different experiences, social level and cultural background. Exacerbating the situation is the inherent variability in natural features. Climate, season, atmospheric conditions, region, sub-region all affect the attributes that comprise the landscape. What is considered scenic to one person may not be to another (NLA, 1997).

- Localized visual perceptions of the economically depressed communities have not been tested as these may be influenced rather by the economic and job opportunities that would exist rather than the direct visual perception of the project.
- The viewshed map is computer generated and does not take into account local and minor visual interruptions in the landscape such as trees on the edge of roads, minor landforms, buildings, etc. As a result, the visibility on these maps could be overstated.

If the study, however, determined that the negative visual impact is of such a magnitude and significance that it will seriously influence the decision on whether to build, it will then be necessary to test and determine the visual perceptions of neighbouring communities. Such a study is involved, costly and time consuming.

The purpose of this visual assessment study is to identify the visual intrusion and visual impact of the proposed development on the Site in relation to the existing and future landscape setting.

The local ridgelines provide limits to views of the proposed development from further away and these have been used to define the view sheds.

In terms of the Guideline for involving Visual and Aesthetic Specialists in EIA Processes, Oberholzer, B., & CSIR, the scale of development and the area of open space approximately 50% of the land area, the assessment is considered to be a Category 3 with a minimum to moderate visual impact expected. The proposed development is similar to existing surrounding development that is built on land forms flatter than 1 in 4. This places the study at a level 2 as described by the above Guideline.

This requires that the following is addressed

- Identification of the visual issues raised in the scoping phase,
- Description of the receiving environment and proposed project.
- Establishment of view catchment areas and receptors.
- Description of alternatives and mitigation measures.

6 ALTERNATIVES

This report is based on the final alternative selected from those assessed during the scoping phase. The Site falls within the urban edge as indicated on the Sub-Regional Structure Plan for the town expansion.

7 DESCRIPTION OF THE PROJECT

The Development Area comprises a portion of land approximately 60.5 ha in extent on the gently sloping plateau of the remnant of a portion of the wave cut terrace. Refer to **Figure 1: Site Layout Plan** The site is located west of the N2 National Road on the landform known as Hartenbos Heuwels. Refer to **Figure 2: Locality Plan**.

The land use will include single residential, group housing units, retirement housing units, a recreation and a community centre, a residential facility and frail care and a business centre.

There will be one collector road that will be the extension of Geelhout Lane. This road will exit on the southern boundary and will link to existing suburban collector road.

A central open space incorporates an eastward drainage line. The open space is the retained natural vegetation on the plateau and steep slopes.

The onsite services that are visible, will include internal roads for access and electrical cables both overhead and underground.

The maximum height of the units will be 2 storeys and set back by 20m from the boundary on the peripheral edge to reduce visibility

7 DESCRIPTION OF THE AFFECTED ENVIRONMENT

7.1 Geology and Topography

The geology comprises of recent sediments that formed when the sea level was much higher than it is today. As the sea level retreated, this resulted in a wave cut terrace between the Outeniqua Mountains and the coast. The site consists of sediments, smooth rounded stone and pebbles in a matrix of sand. This indicates that this portion of the terrace was part of a wide riverbed.

This terrace/plateau has been cut into by drainage ways both minor and significant that has left a landform that resembles a hill with undulating rounded landforms between the drainage lines. The layout of the proposed erven utilises the flatter land on top of the remnant terrace. This landform is higher than the surrounding landforms and falls away to the eastward to the sea and westward inland beyond the site's boundaries.

Implications for the Project

The flatter landform of the top of the remnant terrace is suitable for development and good distant views will be possible from houses that are on the outer edge of the development. Conversely the houses on the edge will be visible from nearby and from a distance. These houses on the edge will form the skyline in all views of the proposed development. However, these houses have been set back by 20m from the boundary edge to reduce their visibility on the edge of the plateau.

Earthworks for roads will be minimal on the flatter land and therefore there will be little or no visible scarring of the landform that will be seen from surrounding areas. However, even on sloping landform will require more earthwork to provide the access and platform for building. These units will be lower down on the slope and will not be seen against the skyline.

7.2 Vegetation

The vegetation on the site is Coastal Renosterveld by general definition that is grouped under Mossel Bay Shale Renosterveld, and more specifically forms part of the *Renosterveld Mosaic* that occurs on the conglomerates that occur at Hartenbos. This is an endangered veld type. Much of this has been transformed during previous agricultural land uses.

Remnants of indigenous vegetation occur in the drainage lines.

Implications for the Project

The retention of as much indigenous vegetation as possible will assist in visually integrating the development into the landscape and setting and ensure the conservation as a unique type of fynbos.

7.3 Hydrology

The catchment for the drainage ways is the entire gently eastward sloping plateau of the site. The site is at the highest part of the catchment and will generate all the water that will flow from the site. The rate of flow and the amount of runoff will be substantially increased by the development for this area of the upper catchment.

Implications for the Project

The open space provided on the plateau and around the drainage lines are important elements in the landscape as this area retains some of the local character

of the setting.

7.4 Land Use

7.4.1 *Existing and Previous*

The land is zoned as housing in the Hartenbos Sub-Regional Structure Plan. The area to the east of the site is existing residential units. The area to the north and south is residential housing, some under development, and to the west is agricultural land. To the northwest is a sand and stone operation

Previous land use of the immediate setting was agriculture possibly grazing in the Coastal Renosterveld as the land is unsuitable as arable land due to the stony nature and high permeability. The intermediate slopes of the valleys were most likely left as indigenous bush.

7.4.2 *Future*

The Mossel Bay - Hartenbos Sub-Regional Structure Plan indicates the Site as agricultural zoning. However, the site has been rezoned residential and is within the demarcated Urban Edge.

7.5 Visual Characteristics

The features of the site that impart its character are the plateau from where distant all-round views are possible and the first order stream drainage lines that flow eastward to the coast and westward inland to the Hartenbos river. Indigenous vegetation covers the side slopes of these drainage lines that can provide natural parkways into the development. The central portion of the plateau is not visible from surrounding areas with only the edge visible.

The characteristics of the setting are defined by the absence of trees and the indigenous shrubs (1.5 m) on the low plateau and the drainage line side slopes.

7.5.1 *Character*

The site location is on the western edge of the current residential area of Hartenbos Heuwels. Refer to **Figure 3: General Topographical Map**. The agricultural / natural character of the site is defined by the coastal bush in a relatively remote setting. This is due to the site being higher than the surrounding existing landforms and planned existing development. The nearby housing is not visible from the centre of the site as the view line is over this area. Housing more distant and on top of ridges to the south are visible.

Views from the eastern edge of the site are downwards onto the existing housing.

The site is windswept by westerly and south easterly seasonal winds.

Implications for the Project

The scale and density of the residential units along the edge of the site will be seen on the horizon from views lower down the landform from all sides. Views from the north will view the site on the edge. However, the buildings on the edges will be set by 20m and be partially screened by landscape vegetation

7.5.2 Visual Quality

The visual quality of the plateau (Refer to **Figure 4: Local Viewshed and Visual units**) is considered to be high because it is elevated and provides all-round distant views. This will change with the development of housing units.

The visual quality of the eastern portion is also high as this will remain undeveloped due to the slopes above the drainage line and there are good views eastward to the coast .

The visual quality of the north-eastern portion is less than the south-eastern and eastern portion due to the existing housing that alters the natural character of that northward facing valley.

The visual quality of the south-eastern portion is similar to that facing east but the natural quality is reduced as there is existing residential development in the valley. However, much of the existing housing is not visible due to the screening effect of the topography.

The north-western and western portions of the site have the highest visual quality because of the views north and west to the Outeniqua Mountains over a mainly agricultural landscape.

Implications for the Project

The Fynbos/Renosterbos areas of the site needs to be retained where possible and practical so that the residential units can fit visually more easily into the site and thereby retain some of the visual quality that exists in the undeveloped state of the site. Landscaping on the edges will assist in partially screening the development

and softening the building edges,

7.5.3 Visibility of the Site

As a result of the site being at the top of the 'hill' the site (the edges of the development) is visible to the north, east, west and south-east. Refer to **Figure 5: Viewshed Analysis**. The view of the site from the east is mostly screened by the rising landform, however from the eastern edge within the 500m zone it is not. Local built-up ridgelines visually block portions of the site from within the 500 m and 2000m radial zone.

The north-eastern edge of the Site is visible for a short distance from the south bound lane of the N2 as well as a long section of the R325

Views of the entire developed site from surrounding residential areas are limited and then only from the new housing units on the higher ground to the east and south-east between the 500m and 1000m radial.

Views toward the site from the west, north, north-east and south will present only those houses on the edge of the proposed development as these will be on the horizon. These views are extensive and theoretically can be viewed over 10km which includes Mossel Bay and Grootbrak. However, due to distance these views are insignificant

Implications for the Project

The visibility of the developed site from surrounding residential area will be mostly of the housing on the site's edge. These units which have already been set back by 20m to move them off the visual edge to reduce their visibility, will form the horizon in views toward the site. These unit will be partially screened by landscaping

7.5.4 Sense of Place

The particular sense of place of the site is created by sparse vegetation, high elevation in the landform and the extensive views in all directions from within the site but particularly from the edges.

The Sense of Place is one of partial remoteness of a windswept natural hill within an urban setting

Implications for the Project

The strong sense of place will be altered as the houses will completely change the existing ambience of the site. However, this is tempered by the existing adjacent residential development to the east that visually intrudes in the view

8 IDENTIFICATION OF RISK SOURCES

A visual risk source is considered to be a future action, structure or a road that will significantly alter the visual impact of the proposed development negatively in the context of the setting.

This will apply as well to those areas beyond the site boundary. The following potential visual risk sources have been identified:

- The construction of a new bulk supply transmission line on or near to the ridgelines that are near to or are located on the property. This is unlikely in the near future as there is a transmission line that is south and east of the southern boundary.
- The inappropriate location of a local electrical substation and electricity lines on the property.
- A significant change in the landform to accommodate the platforms for buildings and roads on the steep side slopes of the drainage ways near the eastern boundary.
- Night lighting could be very visible being at an elevated position.

9 THE VISUAL ASSESSMENT

9.1 Site Assessment

The visual assessment describes the visual intrusion of the proposed development on the existing and future setting of the site and the adjacent land.

All visual change that results from the construction of houses, roads and the installation of services on a greenfield site (natural areas) are regarded as having a negative effect on the status quo. On brownfield sites (re-used or reclaimed industrial areas) the visual changes are generally positive.

The rating of the assessed visual criteria is defined as follows:

- High - Obviously noticeable in a view towards the site dominant in view
- Moderate - Noticeable, but not dominant in the view
- Low - Partly noticeable and merges into the overall view

Those visual aspects that have a **High or Medium** rating are assessed as visual impacts according to the prescribed criteria in accordance with the NEMA Impact Assessment Regulations.

9.1.1 **Analysis**

An analysis of the site was carried out to identify the characteristics and attributes that will have an influence on **visual quality** of the setting and that are visually sensitive to change.

The viewshed analysis provides a graphic representation of the areas from where it is possible to see the site. This viewshed map is based on contours and does not take into account local screening elements such as trees and houses.

9.1.2 **Site Visibility**

On this site there is no existing vegetation that will change the visibility of the site from views towards it from surrounding land. However, some of the coastal fynbos vegetation will be removed to make way for the roads and buildings and the site will become more visible from certain viewpoints. A 20m buffer zone has been provided on the boundary to set back the units and provide a vegetated strip between the plateau edge and the front units.

The visual scale of the structures or objects in the landscape will be reduced in visual prominence by the square of the distance between the observer and the site. This means that as the distance doubles, the visibility in scale of the object reduces by four times (Hull & Bishop, 1988). This has significance with respect to the visual intrusion of the proposed development for distances greater than 1000m away. This distance has been selected because the visible structures are much less prominent in the general view.

In the area to the east, between the site boundary and 1000m, most of the housing has their views of the site screened by the landform that slopes eastward and by other houses higher up the slope. The houses in the valleys will not have views of the site except where views up a drainage line is possible.

Between the 1km and 2km radial the site is in the cone vision of drivers travelling south along the N2. From this view angle the development is set behind the existing water reservoir which will partially screen it.

At this distance the site is visible but is not intrusive in the view. However the northern edge of the proposed development will form the horizon line of the top of the land form. There will be no natural landform that forms the horizon as there is at present without the proposed development.

The visibility and visual intrusion is considered to be moderate because the site is viewed in the context of the other residential development on the side slopes of that prominent landform.

In this context the visual intrusion of the scale and the extent of the proposed development are not considered to be intrusive beyond the 1000m radial from the site boundary because of the existing pattern of housing on the hillside of Hartenbos Heuwels.

9.1.3 *The Visual Intrusion on the Existing Setting*

The visual intrusion of the development is discussed in terms of the possible influence on the Sense of Place, the Character of the setting and the scale, form and density of existing setting.

Sense of Place

The medium density and group housing development will be set on the top of the highest landform of Hartenbos. The undeveloped hilltop provides a sense of place that is connected to the natural feature, and which forms a view horizon and a backdrop to existing housing surrounding the site. This will be lost once the area is built up despite the area of existing vegetation left in the centre of site.

There will be a change in the sense of place of the site and for the area within the 500m radial that will have a view of the natural horizon line.

The change in sense of place is rated as moderate because of the existing residential areas that surround the site on the north, east and south.

Character

The rural character of the site will change once construction of the development commences.

The natural character of the site will be changed from a fynbos covered plateau in to two groups of residential units. The landform will need to be substantially altered in areas where the housing is on steep slopes to accommodate the internal roads and access to erven.

The central open spaces will retain some character of the site if it remains in its natural state.

The change in the character of the site is rated as high.

Scale

The visible scale of the site is visually reduced because of the location on top of a plateau. Most of the development is on the plateau and won't be visible from surrounding areas. The scale of the houses that are visible from the lower existing houses will be presented as a row along the edge of the plateau. These will be partially screened by vegetation on the periphery and by trees along the main internal roads.

The areal extent of the development will be seen from the higher landform to the south-west along the Aalwyndal Road.

The scale of the residential units will be two storey units.

The housing along the north-eastern edge will be visually intrusive by their scale as the units will appear on the horizon when viewed from the northeast.

Form

The form and style of the development consists of one and two storey units. Stone cladding will be used in conjunction with painted facades which help to visually break up the planes into smaller visual units which assists in reducing the visual impact

Density

The density of the group housing residential units will not be in visual contrast to the density of the residential areas to the north-east, east and south-east. Most existing higher density housing is lower down the landform.

Landform Change

Some of the residential units that are on land that is steep will require the road and the driveways to be either cut or filled to meet the gradient standards. This

can alter the landform and its stability. Measures will need to be taken to stabilise cuts and fills. This will have a local visual implication within and outside the site.

Buildings built on erven that are located on the edge of the plateau may need to be built on columns and this solution will have a visual consequence.

The visual intrusion as a result of landform change can be a significant element of the development along the edge of the plateau, one that can change and add to the visual intrusion of the project.

The visual change to the site, caused by landform change is rated as **medium** on the flatter areas and on sloping landform it is rated as **high**.

10 POTENTIAL VISUAL IMPACT

The following impacts have been evaluated according to the criteria set out in **Table 1**.

Table 1: Impact Criteria Assessment and Rating Scales

Criteria	Rating Scales	Notes
Nature	Positive	This is an evaluation of the type of effect the construction, operation and management of the proposed development would have on the affected environment.
	Negative	
	Neutral	
Extent	Low	Site-specific, affects only the development footprint.
	Medium	Local (limited to the site and its immediate surroundings, including the surrounding towns and settlements within a 10 km radius);
	High	Regional (beyond a 10 km radius) to national.
Duration	Low	0-4 years (i.e. duration of construction phase).
	Medium	5-10 years.
	High	More than 10 years to permanent.
Intensity	Low	Where the impact affects the environment in such a way that natural, cultural and social functions and processes are minimally affected.
	Medium	Where the affected environment is altered but natural, cultural and social functions and processes continue albeit in a modified way; and valued, important, sensitive or vulnerable systems or communities are negatively affected.

Criteria	Rating Scales	Notes
	High	Where natural, cultural or social functions and processes are altered to the extent that the impact will temporarily or permanently cease; and valued, important, sensitive or vulnerable systems or communities are substantially affected.
Potential for impact on irreplaceable resources	Low	No irreplaceable resources will be impacted.
	Medium	Resources that will be impacted can be replaced, with effort.
	High	There is no potential for replacing a particular vulnerable resource that will be impacted.
Criteria	Rating Scales	Notes
Consequence (a combination of extent, duration, intensity and the potential for impact on irreplaceable resources).	Low	A combination of any of the following: - Intensity, duration, extent and impact on irreplaceable resources are all rated low. - Intensity is low and up to two of the other criteria are rated medium. - Intensity is medium and all three other criteria are rated low.
	Medium	Intensity is medium and at least two of the other criteria are rated medium.
	High	Intensity and impact on irreplaceable resources are rated high, with any combination of extent and duration. Intensity is rated high, with all of the other criteria being rated medium or higher.
Probability (the likelihood of the impact occurring)	Low	It is highly unlikely or less than 50 % likely that an impact will occur.
	Medium	It is between 50 and 70 % certain that the impact will occur.
	High	It is more than 75 % certain that the impact will occur or it is definite that the impact will occur.
Significance (all impacts including potential cumulative impacts)	Low	Low consequence and low probability. Low consequence and medium probability. Low consequence and high probability.
	Medium	Medium consequence and low probability. Medium consequence and medium probability. Medium consequence and high probability. High consequence and low probability.
	High	High consequence and medium probability. High consequence and high probability.

Criteria	Rating Scales	Notes
<p>Degree of Confidence Is an indication of of the degree of confidence that there is in the prediction made for each impact. This is not taken into account in the determination of Consequence or probability</p>	<p>Low Medium High</p>	

10.1 Visibility

The proposed residential development on the site will be visible from the sector north to east. This view will be of the row of houses that will form a line on the horizon.

The development will be seen in its entirety from the higher ground in the area to the south-west along the Aalwyndal Road.

The development will not be seen from the sector east to south because the landform is lower than the site and there are existing houses that will block views.

The views from the west, agricultural land use, will be of the housing that will be on the western edge of the site.

The greatest visibility of the proposed residential development will be experienced from within the 1 km radial in the north-east sector and near the 1 km radial in the south-west sector.

The visibility of the proposed development is considered to be moderate to high, because of the location on top of a plateau.

10.2 Visual Impact

The visual density of the proposed development will only be experienced from the south-west sector and from higher ground. However this view is from 1km but never the less the rural view over the valley to the hill is picturesque and this

scene will be altered in views from this position. The visual intrusion is related to the visibility factor and distance.

The visual intrusion in views from the north-eastern sector is considered moderate within the 1000 m radial and low beyond. This is due to the landform that falls away to the north.

The visual intrusion on the quality of view from the south-western section is considered to be moderate because the view is downward onto the site.

10.3 Visual Prominence

The proposed residential development will have a high visual prominence within the 500 m radial and moderate within the 1000 m radial from the north-eastern sector.

The visual prominence will be high in views towards the site from the west within the 1000 m radial.

10.4 Sense of Place

The sense of place is affected by the visual prominence of the proposed development in the setting.

The rural and natural ambience and character of that setting of the visual units will be changed by the high visual prominence of the residential area from views within the visual unit.

The change in the sense of place of the hill view is considered to be high for those areas that have a view of the plateau and its edge as these views will be converted from a natural to a built scene. The units on the edge have been limited to two storeys and have been set back by 20m to reduce the visual silhouette. However, the area to the east is already built up and abuts the site. This existing urban image already detracts from the rural and natural image of the site.

10.5 Landform Change

The gently sloping to flat areas of the plateau will not require significant cuts into the landform for both roads and buildings. However, for those roads and units on the steeper sloping areas at the head of the valleys that drain eastward some earthworks will be required that will require large cut and fill areas for roads and to give access to even.

The exposure of the cut and fill sections will have limited visibility in views from the east.

This visibility of earthworks will endure, particularly during the construction phase and will include the trenching for underground services. This is rated as low-medium.

10.6 Development Phases

The three development phases are construction, operation and decommissioning. The construction phase will cause significant visual change to the site as a result of the necessary earthworks for roads and the trenching for water, sewerage and electrical services. The individual development of erven will also result in localised visual change due to the necessary landform change to accommodate the new structures. This development phase is rated as having a low visual impact.

The visual intrusion of dust during earthworks and the visual nuisance of construction vehicles up and down the access roads could be significant, but of short duration, 6 months to a year. This phase will become less significantly visually intrusive in that setting as the rehabilitation measures take full effect.

The operation phase is taken to be the completed development. The visual image of the development will be stable and new vegetation planted will soften the form of the residential units particularly those that form the horizon on the plateau edge.

The decommissioning phase of the whole development area is if the development is to be demolished. This will form part of another study at that time for any new or alternative development.

10.7 The Night Scene

The proposed development will add to the area of light in that setting. While the view of the development on the edge of the plateau will result in a night horizon that is lit, the view obliquely down from the higher ground to the south-west and south-east will include two large lit areas linked by a row of lights along the road.

This relatively intense grouping of lights along the roads and from the houses will change the night scene of that area in views towards the site.

The lights of the proposed development will extend the illumination of Hartenbos Heuwels suburb to include the entire hill. This is rated as moderate given the existing and lit surrounding area. The view of this hill from the western and south-western sector will change from dark to illuminated. This is rated as high because of the view across the proposed development. This will alter the night

time sense of place from a rural ambience to an urban ambience.

This new condition is not significant in views of the site from the north eastern, eastern and south eastern sector. However it will have an effect on the night time ambience of views from the south west and western sector.

The visual impact of the night scene is considered to be moderate to low.

10.8 The No-Go Alternative

The site is currently undeveloped and is situated on the crest of the Hartenbosheuwels Hill. Any development on top of the hill will be highly visible from the surrounding areas. As a result of this potential impact the building structures on the periphery have been limited to two storeys and set back by 20m which has reduced their visibility.

However, should the ‘No-Go’ alternative (i.e., the status quo with no development) be maintained the integrity of the hill has already been compromised visually by the current development just below the site especially on the southeast to southwest which is already visually urban in nature. There already exists street lights on the hill that are highly visible at night

The proposed development would only add to the existing urban quality rather than altering an undisturbed Greenfields area.

10.9 Visual Impact Assessment Table

Table 2: Assessment of Visual Impacts

<i>Impact</i>	<i>Nature</i>	<i>Extent</i>	<i>Duration</i>	<i>Intensity</i>	<i>Reversibility</i>	<i>Impact on Irreplaceable Resources</i>	<i>Consequence</i>	<i>Probability</i>	<i>Significance</i>	<i>Confidence</i>
Impact 1: The visual intrusion of the development on the setting in the context of the existing surrounding land use										
Impact Description: Visual intrusion of the proposed development due to its position on the top of a flat-topped hill that is a prominent in views toward the site.										
Without Mitigation	Negative	Medium	High	Medium	Medium	High	Medium	High	Medium	High
Mitigation Description: Keep housing out of areas of steep slopes, drainage lines and away 20m from the edge of the top of slopes. Building height should be limited to 2 storeys with pitched roof. On the edges Ensure that site lighting is directed downward and no flood lights. No sodium or mercury vapour light and light colour to be white incandescent or fluorescent. Light poles should be no taller than 3m										

<i>Impact</i>	<i>Nature</i>	<i>Extent</i>	<i>Duration</i>	<i>Intensity</i>	<i>Reversibility</i>	<i>Impact on Irreplaceable Resources</i>	<i>Consequence</i>	<i>Probability</i>	<i>Significance</i>	<i>Confidence</i>
With Mitigation	Negative	Medium	High	Low	Medium	Medium	Medium	High	Medium	High
<p>Cumulative Impact: More housing will be developed in the area on rising landforms to the south as this area is under development. The addition of the proposed development lies within the Urban Edge and is zoned for this use therefore the cumulative effect on the existing setting will have is not in conflict with the existing planned development for Hartenbos. Significance: Medium</p>										
Impact 2: The prominence of the buildings in the landscape setting										
<p>Impact Description: The buildings on the site's edges can, as a result of their location on the top edge of the plateau's rim, be highly visually prominent.</p>										
Without Mitigation	Negative-	Medium	High	High	High	Medium	High	Medium	High	High
<p>Mitigation Description: Building maximum height is to be 2 stories excluding a pitched roof on the edges. The building should not be closer then 20m to the start of the steep of the steep downslope. Set the building back from the edge of the down slope by 20m</p>										
With Mitigation	Negative	Local	Medium	Low	Medium	Low	Low	Medium	Low	High
<p>Cumulative Impact: No significant cumulative impact</p>										
Impact 3: Change in Sense of Place										
<p>Impact Description: The natural cover and form of the hill in views toward the proposed development on the hill will change the Sense of Place that exists for the surrounding houses and the setting of the suburb that has the natural landform as a background to views from close by and afar.</p>										
Without Mitigation	Negative	Medium	High	Medium	Medium	Medium	Medium	Medium	Medium	High
<p>Mitigation Description: Plant shrubs and small trees just down slope of the top to break the hard lines of the buildings on the top edge of the plateau. For internal softening of the building forms suitable trees and shrubs should be planted within the private open spaces as well as around the edge of the public open space and the 20m buffer zone.</p>										
With Mitigation	Negative	Low	High	Low	Medium	Low	Low	Medium	Low	High
<p>Cumulative Impact: No cumulative impact. Significance: N/a</p>										
Impact 4: Landform change										
<p>Impact Description: The earthworks for the roads, access to even and building platforms can be extensive. Roads on steeper sloping landforms will require larger volumes of earth to be moved. This is a visual impact on the internal area and on the edges of the plateau in particular.</p>										
Without Mitigation	Negative	Low	High	Medium	Medium	Medium	Medium	Medium	Medium	High
<p>Mitigation Description: Keep development and roads off slopes that are steeper than 1:5. Implement rehabilitation plans.</p>										
With Mitigation	Negative	Low	High	Low	High	Low	Low	Medium	Low	High
<p>Cumulative Impact: The cumulative impact could be more cut and fill slopes that will erode and deposit silt into drains and drainage ways. This can have long term implications of pipe blockage, gully erosion etc. Maintenance of the consequences is costly.</p>										

<i>Impact</i>	<i>Nature</i>	<i>Extent</i>	<i>Duration</i>	<i>Intensity</i>	<i>Reversibility</i>	<i>Impact on Irreplaceable Resources</i>	<i>Consequence</i>	<i>Probability</i>	<i>Significance</i>	<i>Confidence</i>
Impact 5: Night scene										
Impact Description: The alteration of the night view of the hill lit by house and streetlights accentuates the new development and eliminates the ambience of the dark landform rising above the surrounding lit residential suburbs.										
Without Mitigation	Negative	Medium	High	Medium	Medium	Medium	Medium	Medium	Medium	High
Mitigation Description: The light source must be white, directed downward, and not be seen directly. No up lighting is to be allowed nor flood lighting of structures or buildings. Limit light pole heights to 3m										
With Mitigation	Negative	Low	High	Low	Medium	Low	Low	Medium	Medium	High
Cumulative Impact: Medium										

10.10 Visual Issues

The following visual issues have been identified as important, because the manner in which these are designed or resolved, can improve or detract from the visual intrusion / visibility of the proposed development experienced by viewers looking towards the site. On the other hand the visual quality of the development experienced by the property owners and their visitors also need to be considered.

10.10.1 The Residential Site

- Based on the existing contours, cuts and fills into the sloping landform will be necessary to enable public and private road access to certain residential units and sites.
- The intensity and density of lighting used as well as the street light selection, will determine the degree of night-time visibility of the site.
- The retention of the existing indigenous vegetation, particularly on steep slopes will assist in improving the visual fit of the development to the site.
- The buildings on the plateau edge of the site should ideally not present more than one storey and a pitched roof as this will increase the visual intrusion of the buildings on the horizon.

11 RECOMMENDED MITIGATION MEASURES

The following general visual mitigation measures are recommended to reduce the identified visual impacts:

11.1 Buildings on Slopes

- Where a building is supported on columns on the downslope of the erf, the area underneath will need to be stabilised with a stone pitching. Low shrubs should be planted on the edge of the area to afford some screening of the void.
- Erven on the top edge of the steep slopes e.g., the drainage line and the plateau, should accommodate single storey buildings only. The row behind can accommodate double storey units. Refer to proposed erven below.
- The design of buildings on steeper slopes should be shown in sections in the Architectural Guidelines. This will ensure that only one storey and not two storey structures are constructed above the road level on the down-slope side of the road.
- All cut and fill soil surfaces should be adequately protected from erosion either by vegetation or a combination of block retaining walls and vegetation or rock cladding.

11.2 Colours for Roofs and Buildings

- Avoid bright reflective or contrasting colours for roofs and buildings.
- Tones and tints of selected complementary colours that fit the setting and vegetation should be considered.
- Subdued and complimentary natural shades and tints blend easily into a landscape setting.

11.3 Roads and Pathways

- Roads and pathways should be paved with a durable brick of brown/sand colour. The light brown colour is similar to the exposed earth in the area. The light colour will also not generate high surface temperatures as an asphalt or dark surface would.
- The cut and fill slopes should not be steeper than 1:2.5 vertical to horizontal

as this allows vegetation to establish more easily. This will reduce erosion of the soil.

11.4 Landscaping

- Tree planting as per the landscape plan (see **Figure 6**) shall be installed as large as is possible obtained from the nursely supplier to assist in immediate visual screening.
- All buffer zones on the edge of the boundary to be restored endemic fynbos and Renosterveld
- Vegetation within the boundary security fence servitude shall only be trimmed and not cleared or stripped.

11.5 Lighting

- External lights will increase the visual impact of the project at night therefore attention should be given to their selection for the specific function.
- All lighting therefore should be carefully considered with regard to the extent of illumination, the intensity and colour of lights and the luminaire and the height of the light pole.
- It is recommended that lighting is designed by a lighting engineer in collaboration with the landscape architect for the project. The aspects of the lighting solution should include the following:
 - Light fittings should have shields to eliminate sight of the light source.
 - Light poles should not exceed 3m in height
 - Down lighting of areas is preferred to up lighting.
 - Any perimeter lights are to be directed downwards and inwards to the development.
 - Emitted light colour should be a softer light than sodium (yellow) or mercury halide (blue-white). The light colour should also be chosen with knowledge of what colour will attract insects. It is important that a colour type and spread of light will not cause insects to be attracted to it and in so doing deplete the insect diversity of the region. For this purpose, an

entomologist familiar with the effect of light frequencies on insects should be consulted.

- The use of flood lights to illuminate structures, large areas or features should not be considered. Rather incorporate concealed lights to shine downwards. Darker areas on the building elevations will provide a less visually noticeable structure.
- No light fittings should spill light upwards or be directed upwards from a distance towards the area or building to be illuminated.
- The lighting plan should strive to maximise the light energy use. This should include a hierarchy of light function. The function will determine the best light type to use. Some may be switched on only when needed by motion sensors.
- Security lights should not flood the area with light continuously but should be activated by a motion sensor.
- It is now accepted practice that lighting of new projects should be subdued and energy efficient.

12 CONCLUSION AND RECOMMENDATIONS

Summary of the findings of the Visual Impact Assessment

The proposed development will result in the following important visual impacts.

6. The visual intrusion of the development on the setting in the context of existing surrounding land use.
Consequence **Medium** and Significance **Medium**
7. The prominence of the buildings in landscape setting.
Consequence **Low** and Significance **Low**
8. Change in Sense of Place
Consequence **Medium** and Significance **Medium**
9. Landform Change
Consequence **Low** and Significance **Low**
10. Night Scene

Consequence **Medium** and Significance **Medium**

The above ratings include consideration of the following:

The proposed development is within the proclaimed Urban Edge and is adjacent to an existing residential which itself has developed over its own ridge line. The area being developed, except for the access road) is not steeper than 1:4.

Several alternative development lay-outs have been evaluated. The final layout presented in this report has had the edge of the outer units moved 20m in from the boundary and has reduced the maximum height of the buildings to two storeys.

The proposed development will be most visible from the higher ground to the south-west and west at beyond the 1000m radial. The extent of visual significance does not extend beyond 2000m.

The general visibility of the development is mostly limited to views of the housing units on the edge of the plateau mostly from the nearer existing suburbs lower on the landform and those on the higher ground to the southwest.

This results in the houses on the horizon whereas in the present situation the natural landform of the hill forms the horizon.

Although the visibility of the site does extend beyond the 2 000 m radial, it is within the 500 m radial in the north-eastern and eastern sector that the proposed residential development will be most visible as well as just beyond the 1 000 m radial in the south and the south-western sector. This is due to the site being on the plateau hilltop of a local hill.

The site will be partially visible to the south-westbound traffic on the N2 as they approach Hartenbos from the east as much of it will be screened by the existing water reservoir that is located on the highest part of the plateau.

The overall assessment of the visual intrusion impact and visual impact of the proposed development on the characteristics of the site and on views toward the site from surrounding areas is that the proposed residential development will have a **medium visual impact** on the site and setting providing the proposed mitigation measures are incorporated.

This is due to the following:

- The entire site has a limited visibility from surrounding areas and will have a moderate effect on views towards the proposed development from

adjacent land.

- The visual intrusion is rated as having a moderate effect on the intrusion of views of the site from within the 500 m zone. This is due to the medium density, and open space within and around the residential groups. The visual intrusion is rated as having a moderate effect in views of the site at and around the 1 000 m radial in the south-west.
- The visual prominence of buildings will be high in views of the site from within the 500 m radial and it is considered that this will change to a moderate effect on the quality of views from the key viewpoints namely from the Aalwyndal Road north bound. The visual prominence of the residences will be high in views toward the site from the west within the 1000 m radial and for those that have a view of the plateau and edge and that are within the 1 500 m radial.
- The visual impact of the expected landform change will be low and the visual effect will be low to moderate depending on the extent of change in areas where houses and roads are on steep slopes.

The visual impact of the development phase of the project is considered to have a low visual effect on the setting and surroundings. This is as a result of existing surrounding residential development

- The visual intrusion of the proposed project on the night scene from the views is considered to be moderate due to the existing concentration of light in an area that presently has no lighting but does have areas that are lit by residential development on the northern, eastern and southern boundaries. However, the visual intrusion on the views from the housing on the elevated landform to the south and west 1000m distant will be high. If lighting of the site is carefully planned the effect of the light intrusion will be moderate to low depending on the light spill intensity.
- The visual impact of the night scene is considered to be medium to low within the viewshed and high only to the northeast.

The visual impact mitigation measures proposed will reduce the visual intrusion described above within the 500 m radial by improving the visual fit of the proposed development into the landform and the existing setting. It is recommended that the mitigation measures presented be incorporated during the detail design stage, so that the engineering and aesthetic components are integrated.

In this way mitigation measures are part of the total layout and design concept and

are included in the construction contracts

Based on the field observations and the studies herein and with the implementation of the mitigation measures, the following conclusion is made from a visual point of view:

The development of Hartenbos Erf 3122 will exert a **medium negative** significant impact on the affected visual environment

13 REFERENCES

- ALONSO, S.G., AGUILO, M AND RAMOS, A. (1986). Visual Impact Assessment Methodology for Industrial Development Site Review in Spain. In: SAMRDON, R.C., PALMER, J.F. AND FELLEMAN, J.P. (1986) Foundations for Visual Project Analysis. John Wiley and Sons, New York, 374 p.
- AMERICAN SOCIETY OF LANDSCAPE ARCHITECTS, undated. Visual Impact Assessment for Highway Projects. ASLA, Washington D.C.
- CAVE KLAPWIJK & ASSOCIATES, (2016). Proposed Township Development Hartenbos Erf 3122, Visual Impact Assessment. Unpublished Report, Wilderness.
- CAVE KLAPWIJK & ASSOCIATES, (2010). Amanzi Moya Estate, Visual Impact Assessment. Unpublished Report, Wilderness.
- CAVE KLAPWIJK & ASSOCIATES (1998). Maputo Steel Project Visual Impact Assessment. Unpublished Report, Pretoria.
- HULL, R.B. AND BISHOP, I.E., (1988). Scenic Impacts of Electricity Transmission Towers: The Influence of Landscape Type and Observer Distance. Journal of Environmental Management. 1988 (27)99-108.
- LITTON, R.B., (1980). Ch 17 Aesthetic Values; Forest Resource Management Decision-making Principles and Cases. DEURR, W.A., TEEGUARDEN, D.E., CHRISTIANSEN, N.B., GUTTENBERG, S., (Editors). Philadelphia, PA, USA, WB Saunders Company. 215-225, 2 February 1996.
- McCOOL, S.F., BENSON, R.E. AND ASHOR, J.L., (1986). Environmental Management. Vol. 10, No. 3
- McDonald, D.J., (2010). Botanical Survey and Sensitivity Assessment of Erf 3122, Hartenbos Heuwels, Western Cape. Unpublished Report
- OBERHOLZER, B, and CSIR (2005). Guideline for involving visual and aesthetic specialists in EIA processes. Provincial Government of the Western Cape: Dept of Environmental Affairs and Development Planning
- SMARDON, R.C., PALMER, J.F., AND FELLEMAN, J.P., (1986) Foundations for Visual Project Analysis. John Wiley and Sons.

PHOTOGRAPHS



Photo 1: View of NE Entrance off Geelhout Avenue. Note intrusive powerlines



Photo 2: View north from Site



Photo 3: View north east from site towards the estuary



Photo 4: View east from the water reservoir



Photo 5: View west from the reservoir



Photo 6: View north from the reservoir



Photo 7: View west along internal road



Photo 8: View south towards Mossel Bay from an internal road



Photo 9: View down an eastern drainage line towards Hartenbos



Photo 10: View south along an existing internal road



Photo 11: View west towards site from Tolbos Road



Photo 12: View west towards site from Kinderbessie Road



Photo 13: View west towards site from Keurboomshout Road



Photo 14: View north east towards the site from the Kapkop road



Photo 15: View east towards the site from the Welbedag road



Photo 16: View southeast towards the site from the R328/Welbedag road intersection



Photo 17: View south east across the Transand Sand and Stone company towards the site from the R328 road



Photo 18: View southeast towards the site from the Hartenbos River mouth



Photo 19: View south towards the site from the R101



Photo 19: View south towards the site from the N2

FIGURES

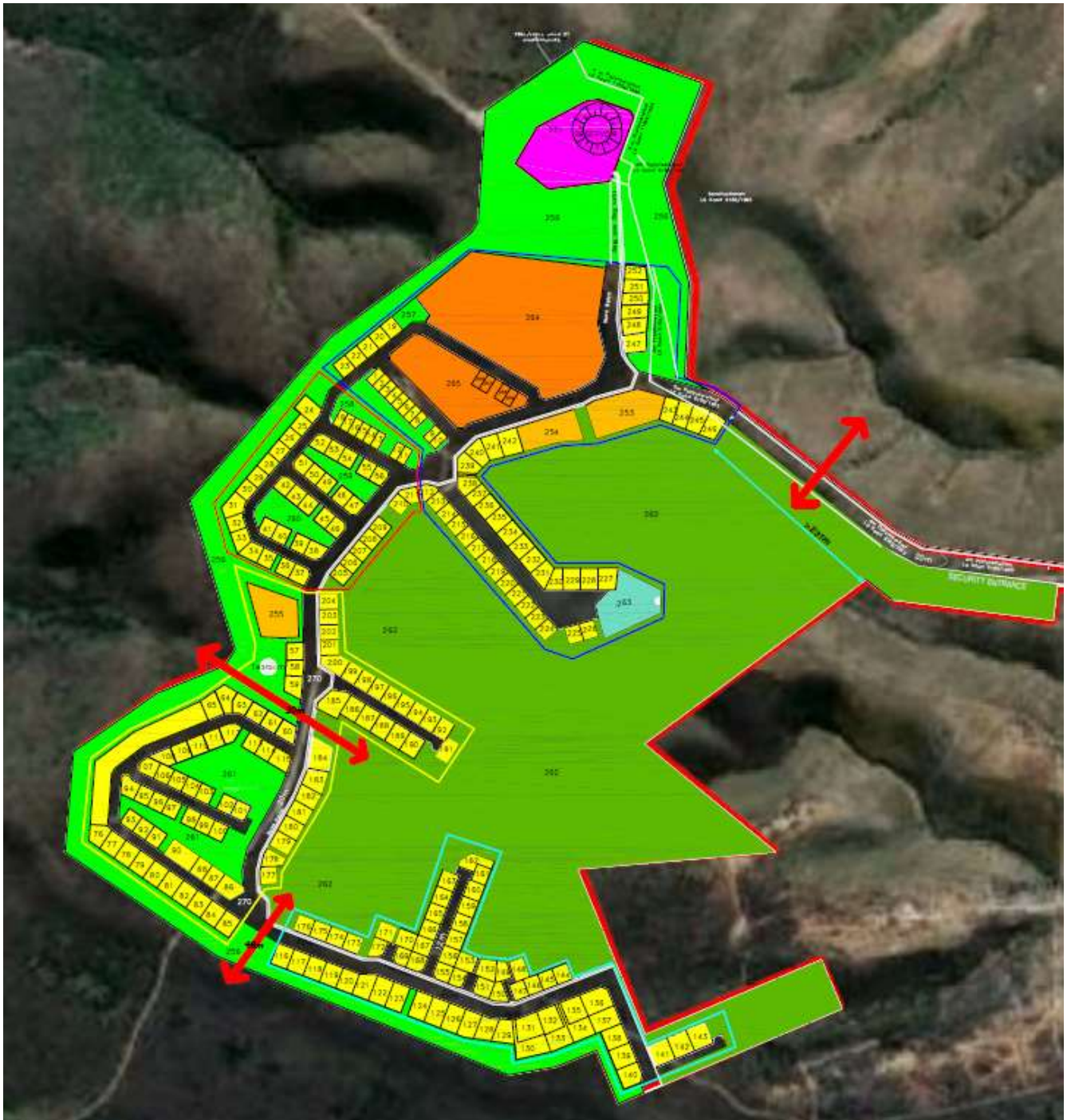


FIGURE 1 Preferred Site Layout Plan (as mitigated)

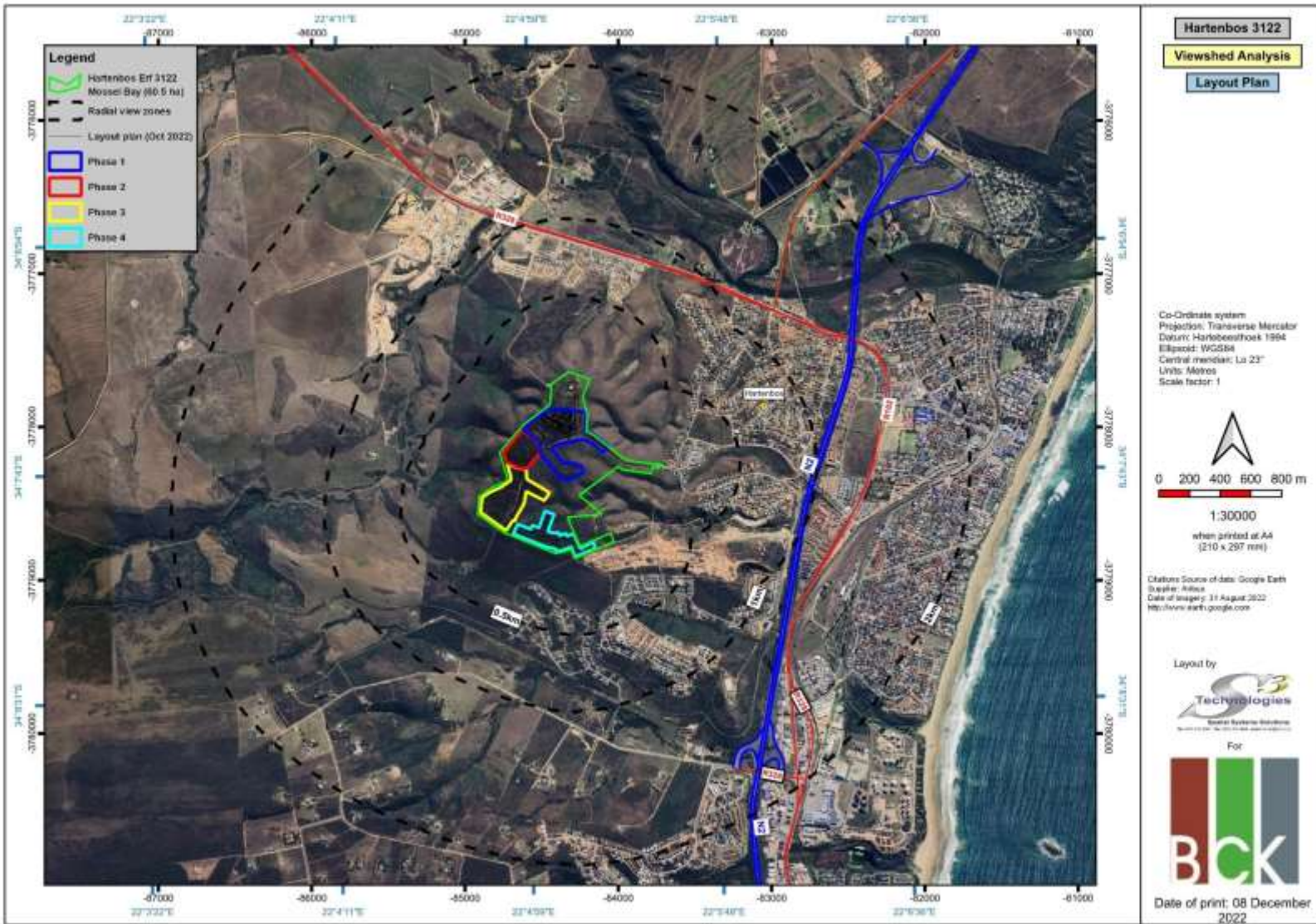


FIGURE 2 Locality Plan

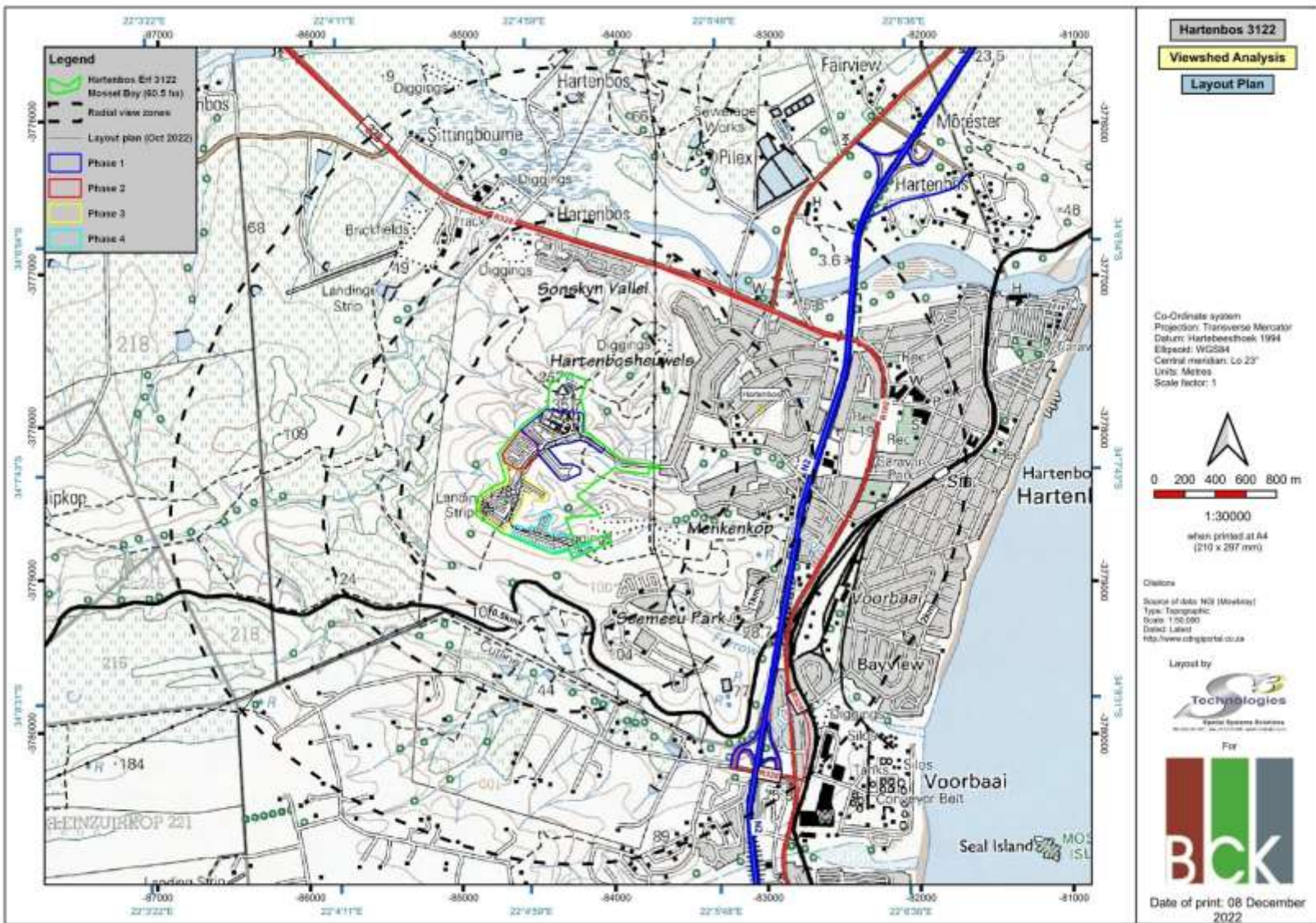


FIGURE 3: General Topographical Map

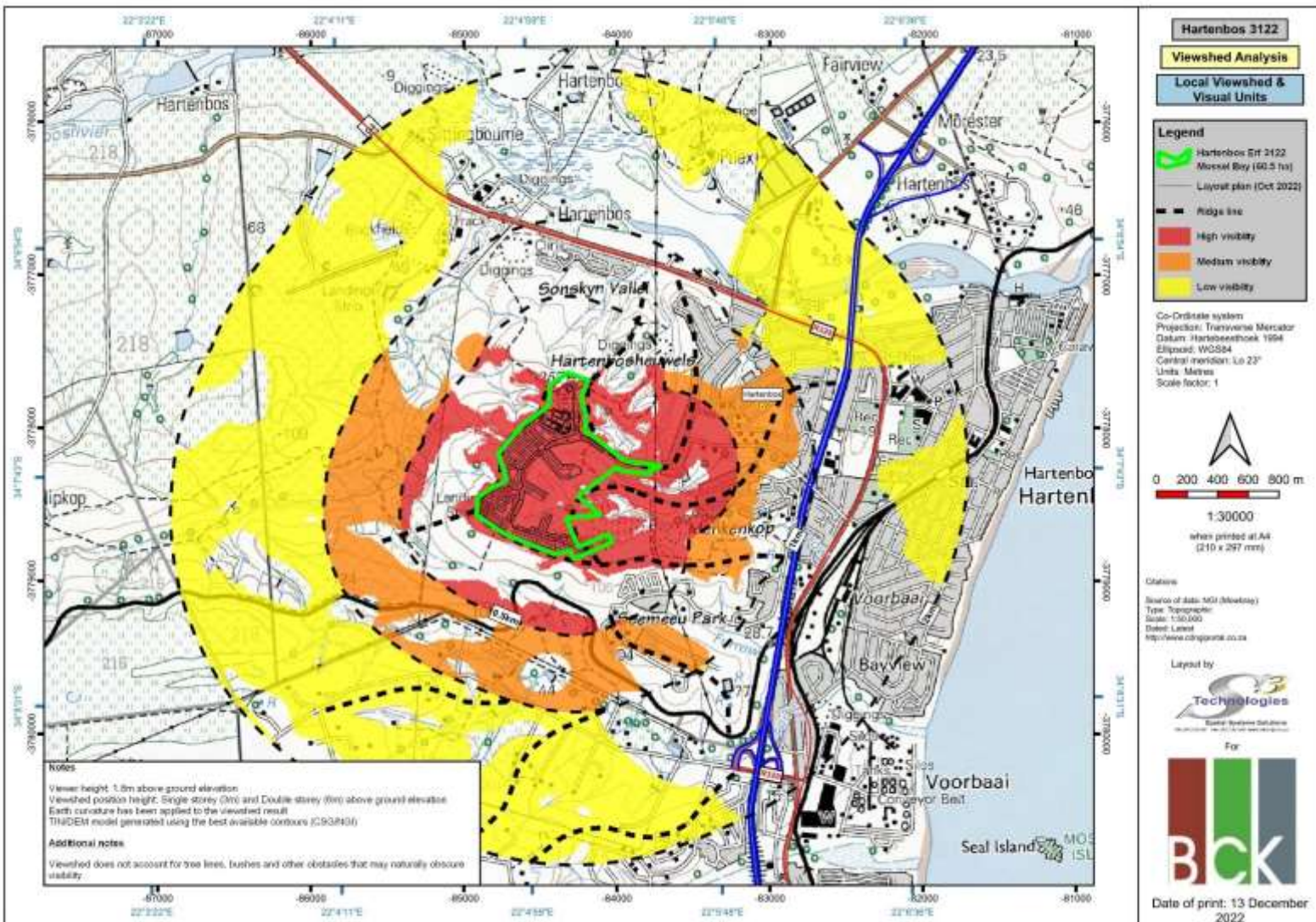


FIGURE 4: Viewshed Catchment Determination

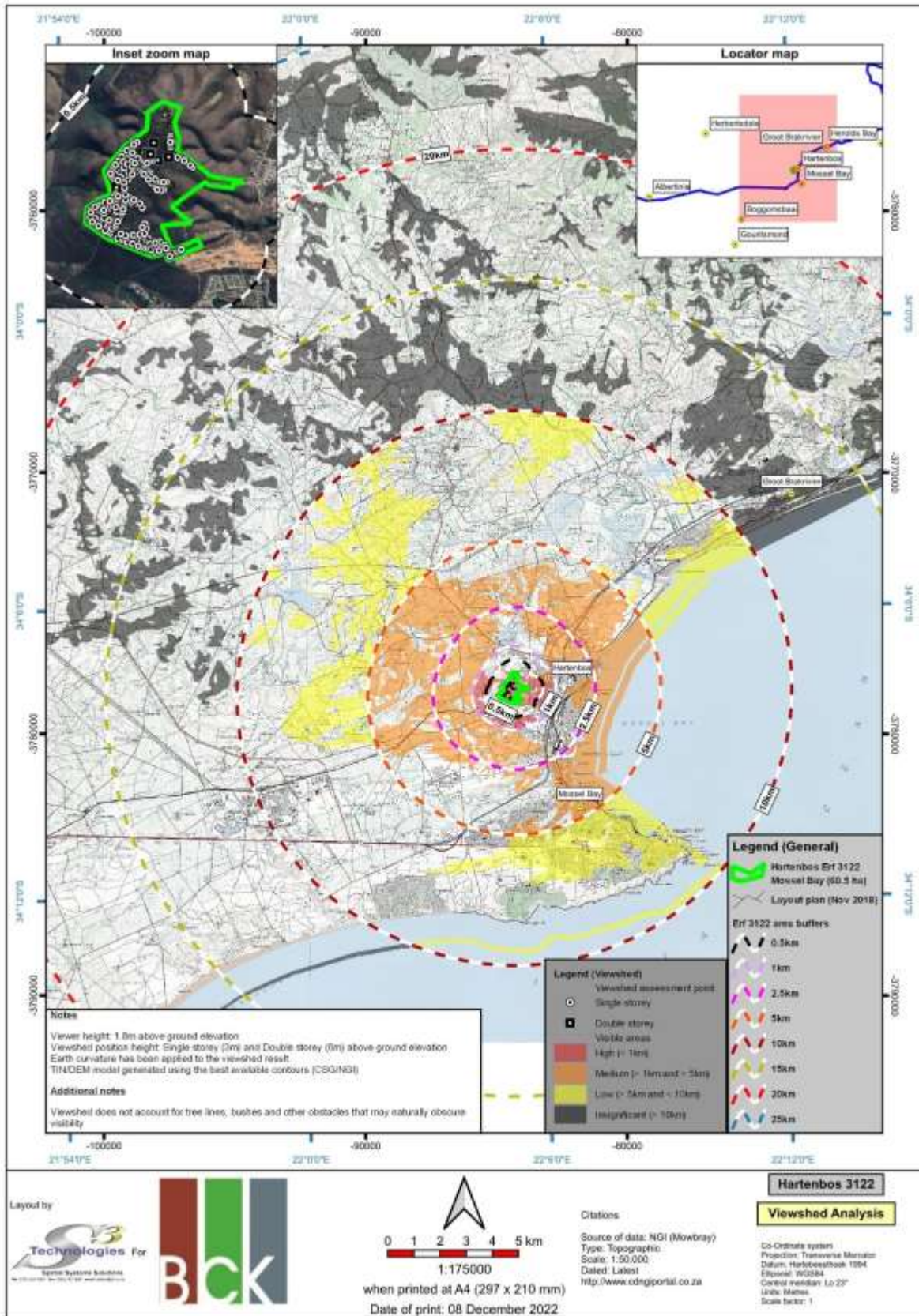


FIGURE 5: Viewshed Analysis

Bapela Cave Klapwijk