

# VISUAL IMPACT ASSESSMENT

## PROPOSED DEVELOPMENT OF ERF 21244 AALWYNDAL MOSSEL BAY



April 2021



Revision: (Draft)

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**Prepared by:** Arc Studio Architects - A.A. Steyn - Pr. Arch.; Ml. Arch.; B. Arch.

**Client:** Great Karoo Eco Investments

**Appointed by:** Kobus Steyn

## **1. INTRODUCTION**

Development proposals are likely to change the environment within which it will be situated, be it natural or man-made, as well as people's perceptions of that changed environment. The visual, scenic and cultural components of the environment are valuable resources and development proposals have the potential to cause significant impacts.

**Visual Impact Assessment aims to accurately determine, with information available at the time, to illustrate the expected visual impact associated with the proposed development; and to formulate measures to mitigate any detrimental impacts of the proposal to the extent that the development will be meet acceptable visual criteria. As all development proposals have the potential to change the visual character of the environment within which they are located, and to affect people's perception of such places, significant visual impacts may be expected. Therefore, Visual Impact Assessment can serve as a proactive tool to inform planning and design processes.**

### **DISCLAIMER:**

Every effort has been made to ensure accuracy, using the source material available at the time of assessment. in good faith. Should any changes be made after the completion of the assessment, Arc Studio Architects cannot be held liable for discrepancies as a result thereof. Arc Studio Architects accepts no responsibility for failure to follow or compliance with the recommended measures of mitigation, specifications or recommendations.

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## 1.2 Objectives of this report:

### Recommendation for a Landscape / Visual Impact Assessment:

*'According to the Site Sensitivity Verification Report a Landscape/ Visual Impact Assessment is not required as the site is located in an already established residential area and will not influence ocean views. However, contrary to the aforementioned, the surrounding area is not well developed. Furthermore, the proposed development will be located on the side-slope of a hill and as indicated in the document, lighting will result in a change in the landscape at night. Furthermore, EAP suggests that the visual intrusion is considered to be moderate and will be clearly visible. In light of the above it was advised that a Visual Impact Assessment be undertaken to assess the impact of the proposed development on the surrounding environment.'*

Thus this VIA will consider :

- The areas surrounding the older existing urban edge which is not well developed
- The impact of the proposed development on the side-slope of the hill
- The impact of the lighting on the landscape at night
- Architectural Guidelines

**Note:** The visual Impact assessment considers a high-level development framework, as detailed and resolved architectural information is only available to a conceptual presentation stage

According to the DEADP Guidelines for involving visual specialists (June 2005) the triggers for visual requirements are as follows:

	<b>Nature of the receiving Environment</b>	<b>Does the site trigger (Yes/No)</b>
1	Areas with protection status such as national parks or nature reserves	No
2	Areas with proclaimed heritage sites or scenic routes	No
3	Areas with intact wilderness qualities or pristine ecosystems	Yes / partly
4	Areas with intact or outstanding rural or township qualities	No
5	Areas with recognised special character or sense of place	No
6	Areas lying outside a defined urban edge	No
7	Areas with sites of cultural or religious significance	No
8	Area of important tourism or recreation value	No
9	Area with important vistas or scenic corridors	No
10	Area with prominent ridgelines or skylines	Yes
	<b>The nature of the project</b>	<b>Does the site trigger (Yes/No)</b>
1	High intensity type projects including large-scale infrastructure	No
2	A change in the land use from the prevailing use	Yes
3	A use that is in conflict with an adopted plan or vision for the area	No
4	A significant change to the fabric and character of the area	Yes
5	A significant change to the township or streetscape	Yes
6	Possible visual intrusion in the landscape	Yes
7	Obstruction of views of others in the area	Yes/ Partly but to a minor extend

### 1.3 Assumptions & Limitations:

- The guidelines in the Mossel Bay Spatial Development Framework **emphasize densification**. Alternative options of: *retaining the status quo, the subdivision into smaller land units or the conventional density of the past of 10 – 12 units per hectare, will not achieve* their future objectives and therefore the Mossel Bay GOP and the Mossel Bay SDF recommended that Aalwyndal be developed **for urban purposes in a densified manner**.

This study therefore only investigate the visual impact of the proposed development with a higher density on its surroundings and further proposes ways to mitigate any detrimental impacts of the proposal to the extent that the development will be meet an acceptable visual criteria.

The vision of Aalwyndal by the Mossel Bay Municipality is clearly described in Section B, Aalwyndal Precinct Plan 2018 (WM de Kock Associates (March 2018) SECTION B, **Aalwyndal Precinct Plan**, Mossel Bay Municipality)

**ERF  
21244**

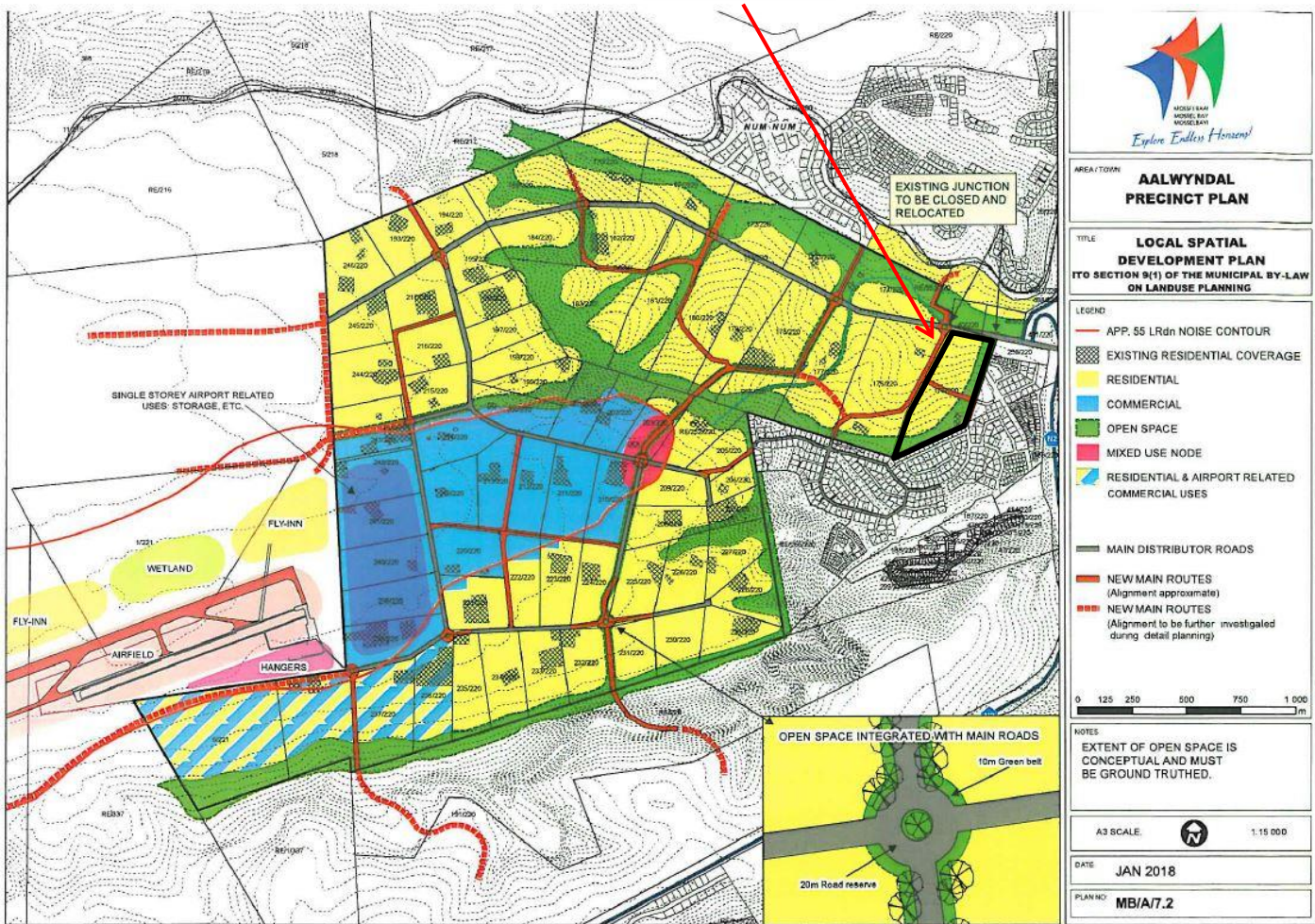
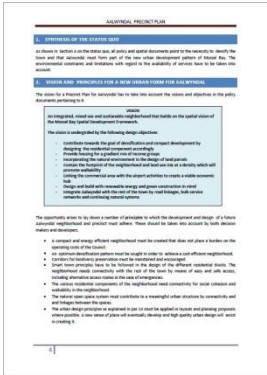
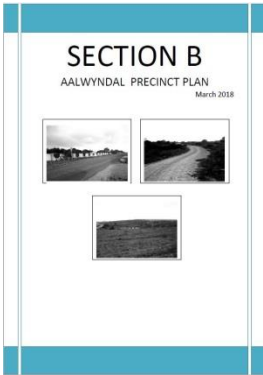


Figure 1: Aalwyndal Precinct Plan – Local Spatial Development Plan, Jan 2018

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- WM de Kock Associates (March 2018)  
SECTION B, Aalwyndal Precinct Plan,  
Mossel Bay Municipality

2. Visions & Principles for a new Urban form for Aalwyndal - Section B Precinct Plan March 2018, P.4:

**The vision is undergirded by the following design objectives:**

1. Contribute towards the goal of ***densification and compact development*** by designing the residential component accordingly
2. Provide housing for a ***gradient mix of income groups***
3. ***Incorporating the natural environment*** in the design of land parcels
4. Contain the footprint of the neighbourhood and land use mix ***at a density which will promote walkability***
5. ***Linking the commercial area with the airport activities*** to create a ***viable economic hub***
6. ***Design and build with renewable energy and green construction*** in mind
7. Integrate Aalwyndal with the rest of the town ***by road linkages***, bulk service networks and continuing natural systems

**The opportunity arises to lay down a number of principles to which the development and design of a future Aalwyndal neighbourhood and precinct must adhere. These should be taken into account by both decision makers and developers.**

- A. A ***compact and energy efficient*** neighbourhood must be created that does not place a burden on the operating costs of the Council.
- B. An ***optimum densification pattern*** must be sought in order to achieve a cost efficient neighbourhood.
- C. ***Corridors for biodiverse preservation must be maintained and encouraged.***
- D. ***Smart town principles*** have to be followed in the design of the different residential blocks. The neighbourhood needs ***connectivity*** with the rest of the town by means of ***easy and safe access, including alternative access routes in the case of emergencies.***
- E. The various residential components of the neighbourhood ***need connectivity for social cohesion and walkability in the neighbourhood.***
- F. The ***natural open space*** system must contribute to a meaningful urban structure by connectivity and linkages between the spaces.
- G. The urban design principles as explained in par 13 must be applied in layouts and planning proposals where possible. ***A new sense of place will eventually develop*** and high quality urban design will assist in creating it.

## 2. THE PROPOSED SITE:

SITE NAME:

Aalwyndal Erf 21244

LOCATION:

Street Address:

Aalwyn Road (corner of Henning Road) accessed via N2 from the R102 Offramp & R328 Oudtshoorn

Farm Name:

Vyf-Brakke-Fonteinen

Town/District:

Mossel Bay, Western Cape

Erf/Farm number:

Portion 175 (a portion of portion 168) of the farm Vyf-Brakke-Fonteinen nr.220

Erf Size:

12.5746 hectares

GPS co-ordinates:

Latitude: 34°08'52.95''S  
 Longitude: 22°05'36.14''E  
 (logical centre point, 50m. AMSL Above Mean sea Level)

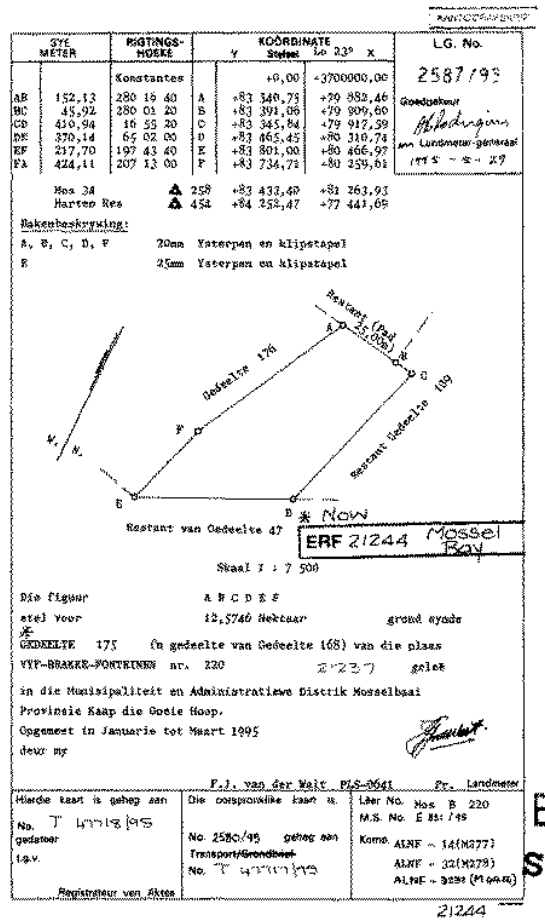


Figure 2: Surveyor General Diagram



Figure 1:

Local Context: Stand 21244 Vyf-Brakke-Fonteinen; Mossel Bay

Source: Chief Surveyor Cadastral Spatial Data Viewer

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Figure: National Setting

Source: Google Earth

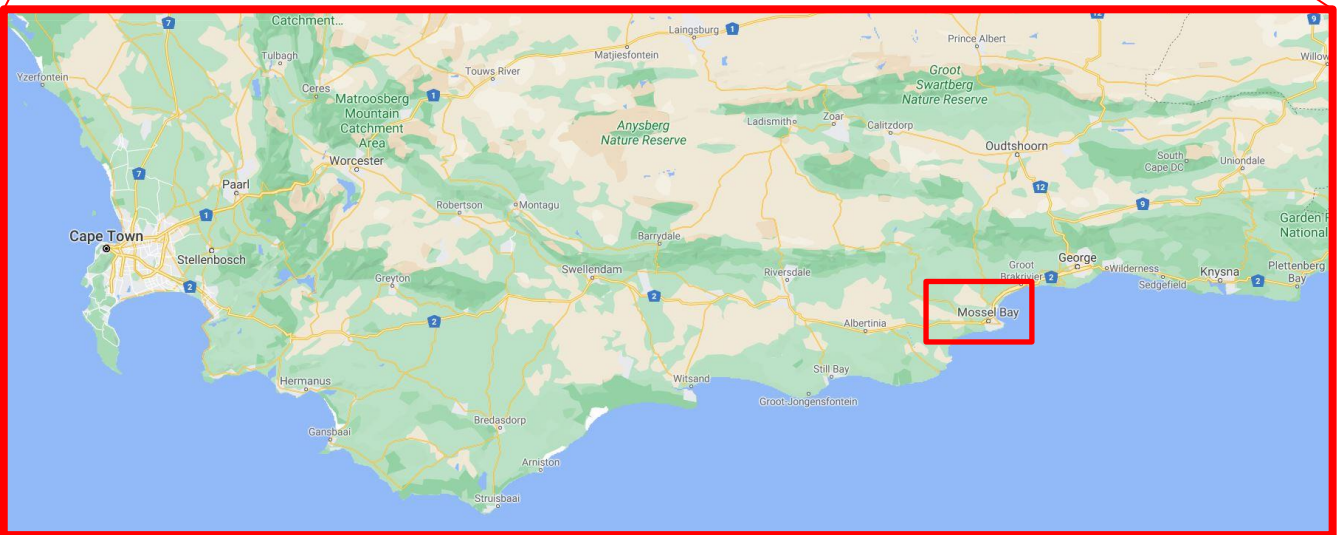


Figure: Provincial Setting

Source: Google Maps

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**2. THE PROPOSED SITE:**

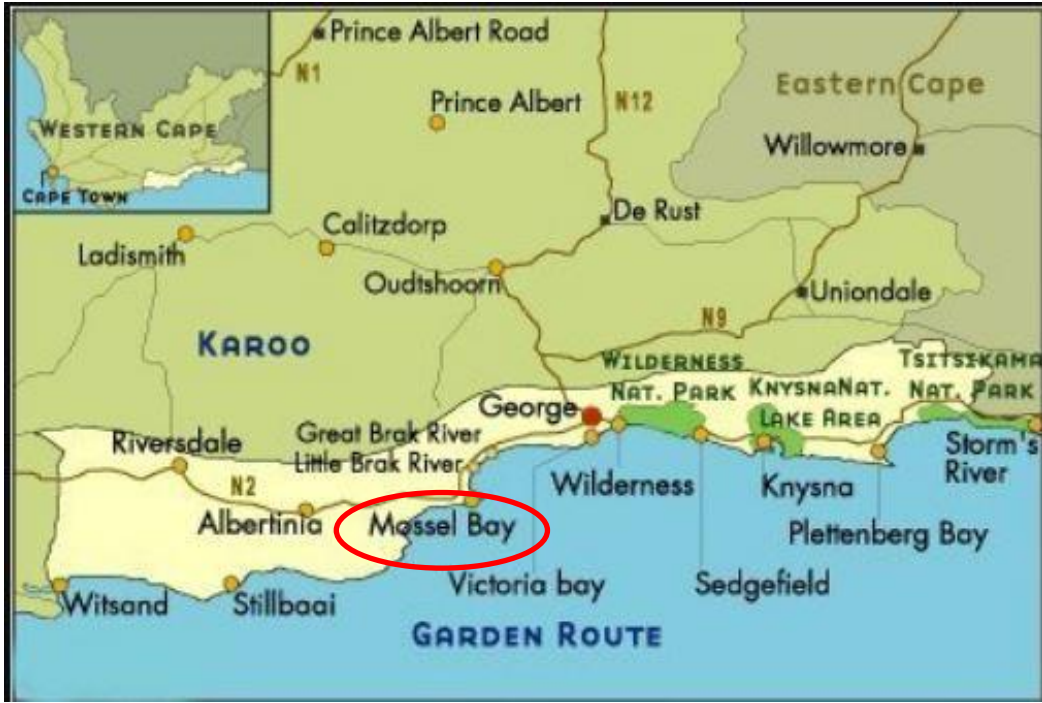
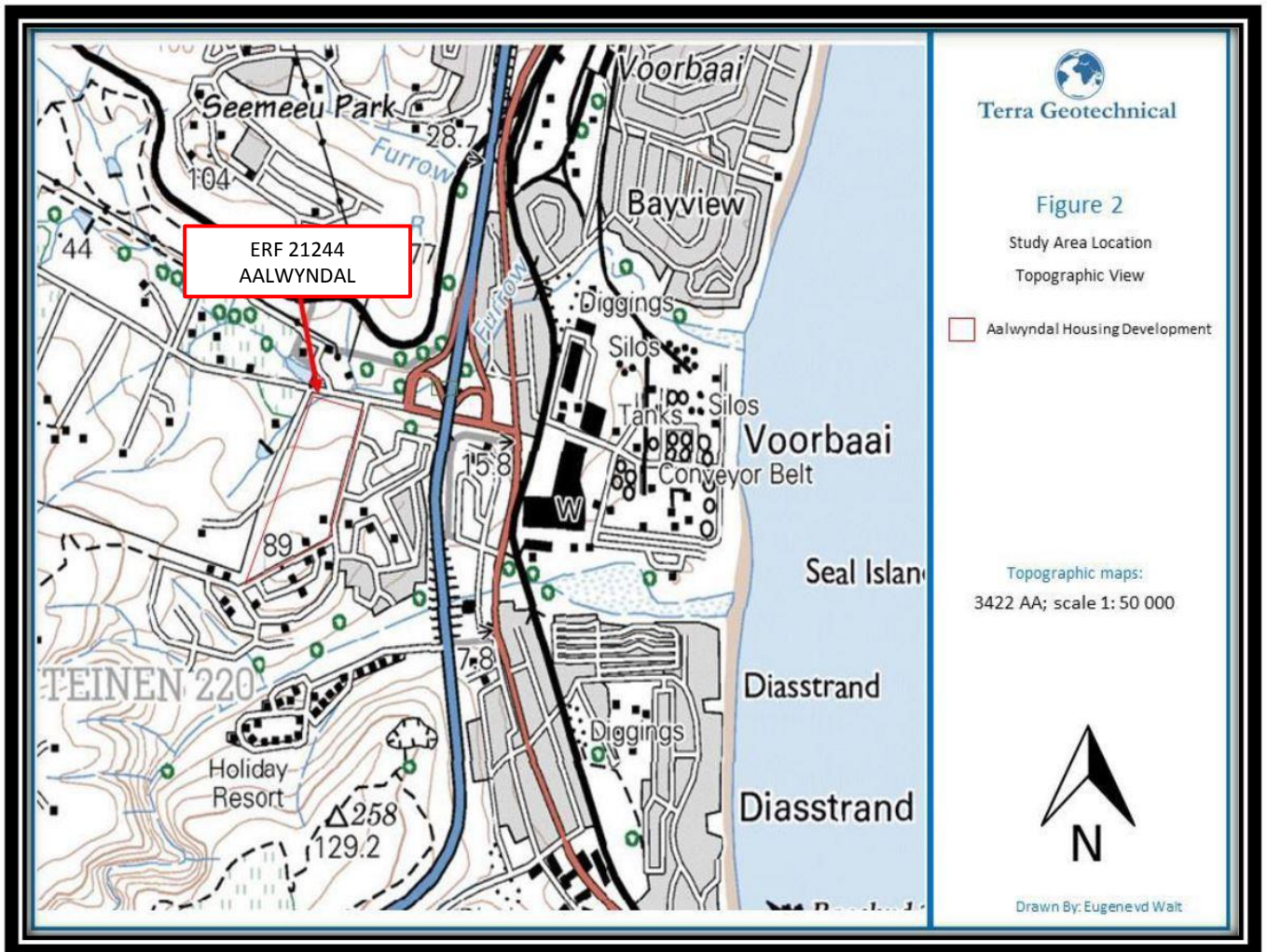


Figure : Mossel Bay - Regional Setting



**Figure 6: 1:50 000 Topographical map of the area.**

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Figure : Regional Setting: Stand 21244 Vyf-Brakke-Fonteinen; Mossel Bay  
Source: Chief Surveyor Cadastral Spatial Data Viewer

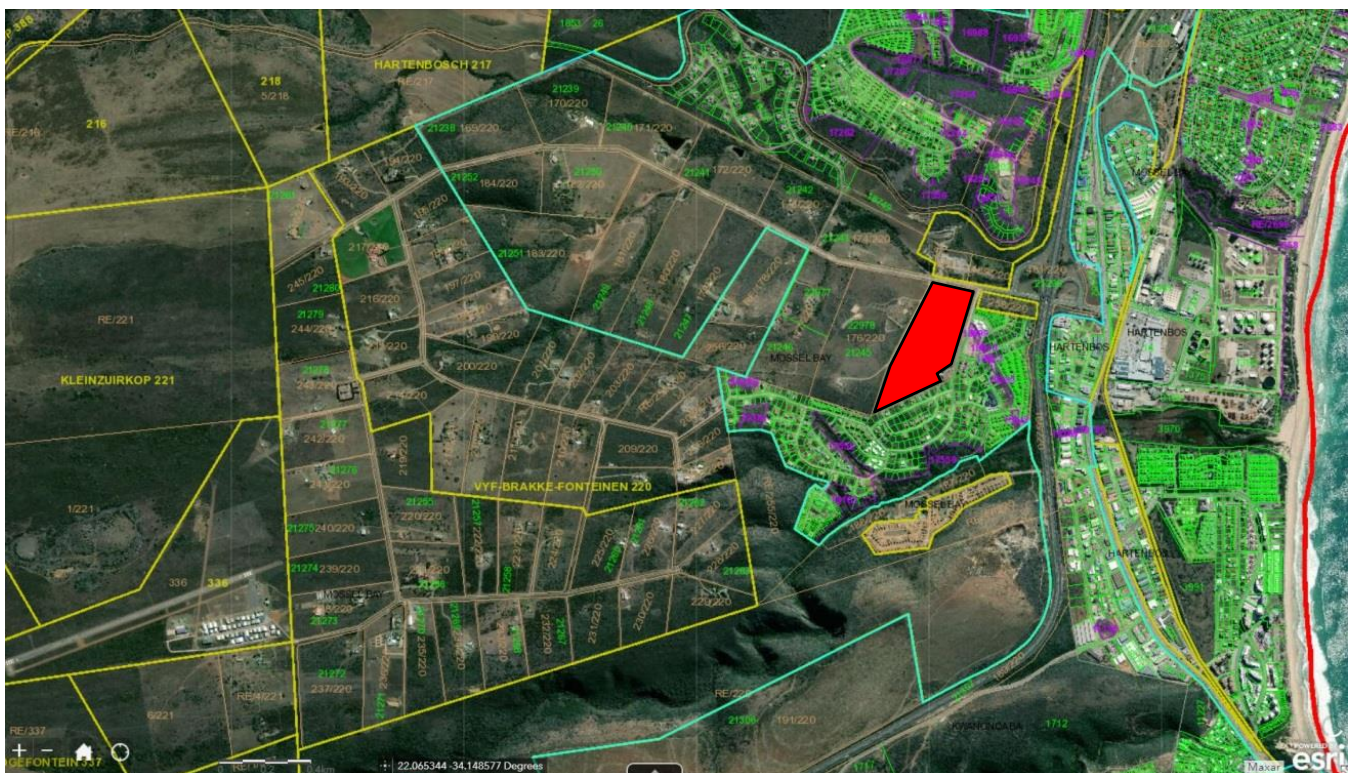


Figure : Local Context: Stand 21244 Vyf-Brakke-Fonteinen; Mossel Bay  
Source: Chief Surveyor Cadastral Spatial Data Viewer

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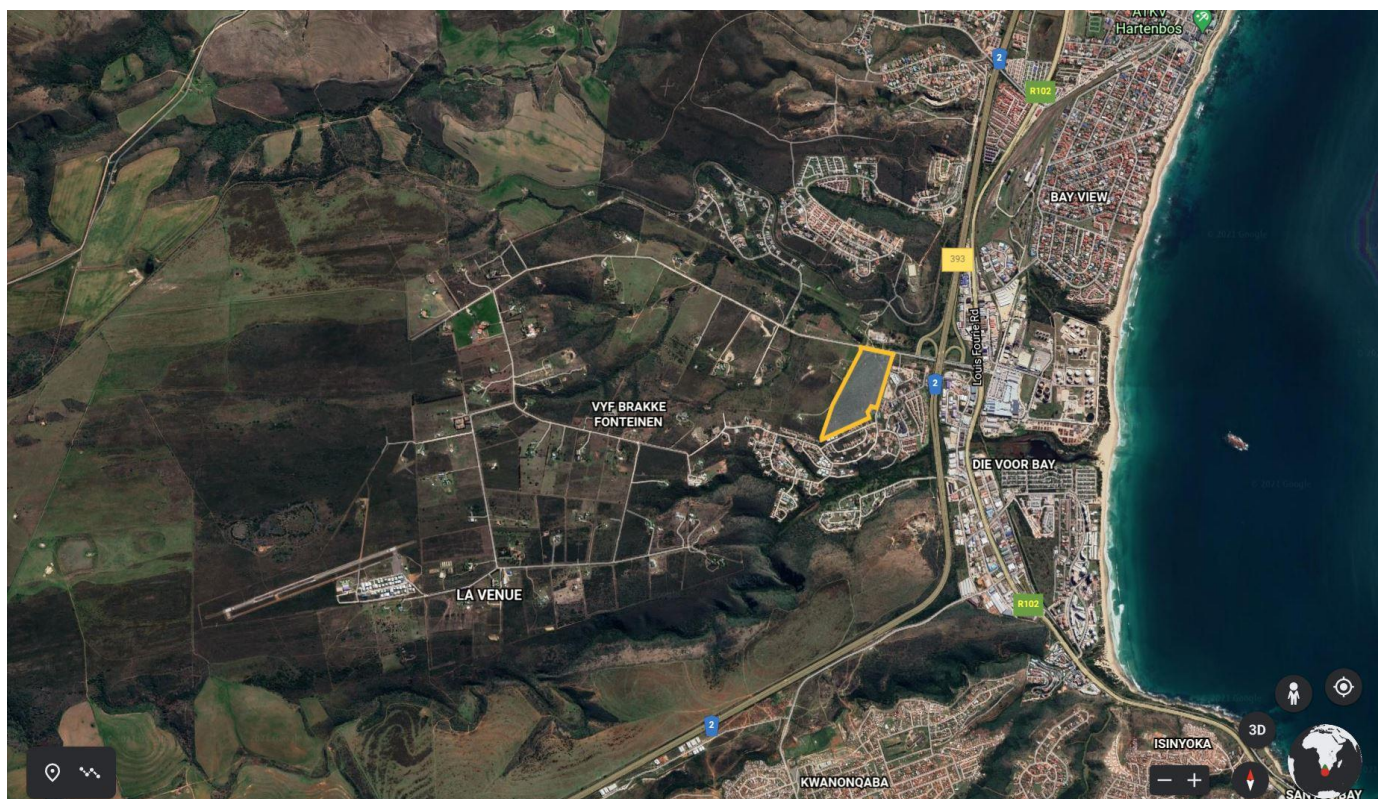


Figure: Local Context: Stand 21244 Vyf-Brakke-Fontein; Mossel Bay  
 Source: Chief Surveyor Cadastral Spatial Data Viewer



Figure : Local Context: Stand 21244 Vyf-Brakke-Fontein; Mossel Bay  
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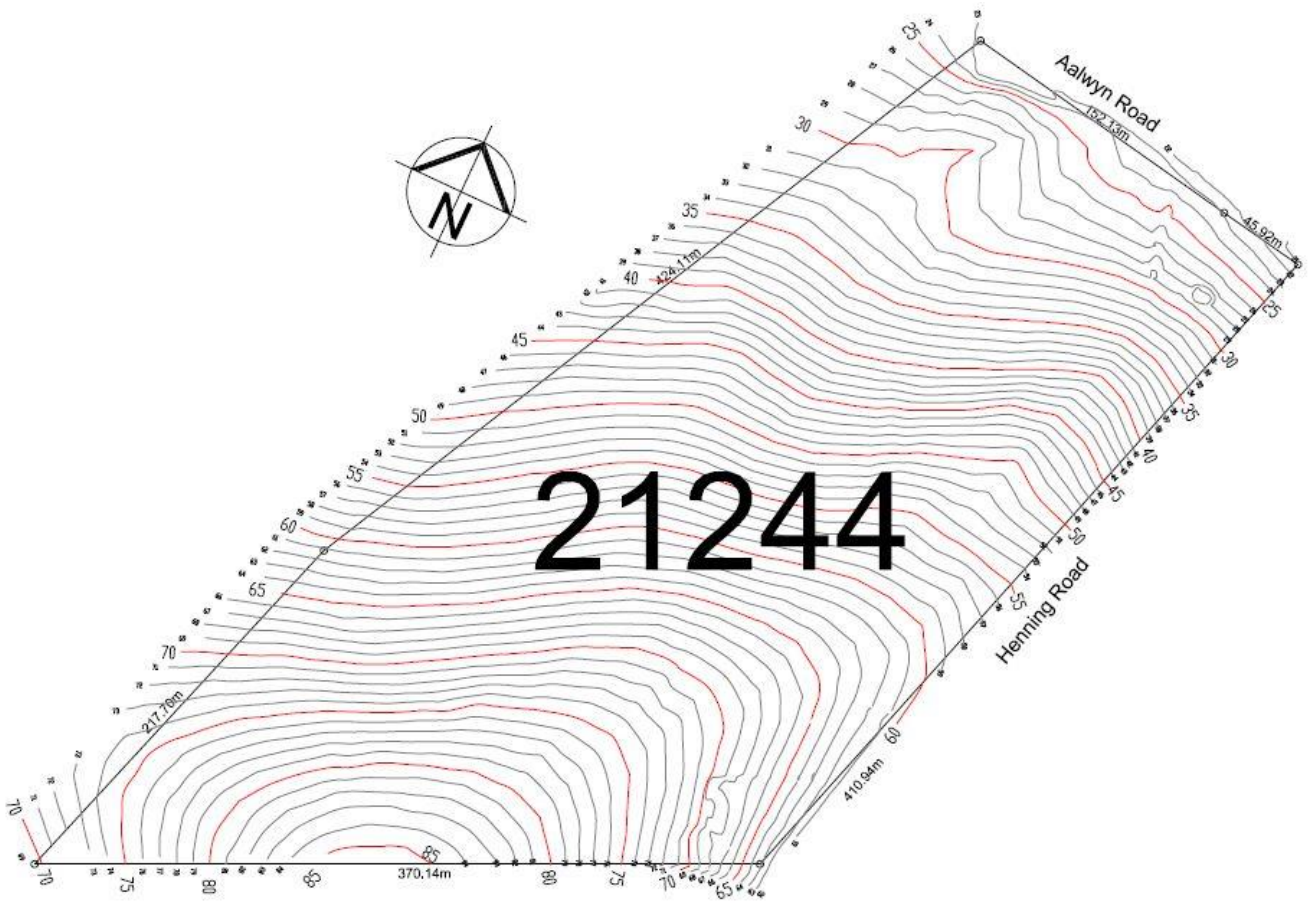


Figure : Contours - Stand 21244 Vyf-Brakke-Fonteinen; Mossel Bay

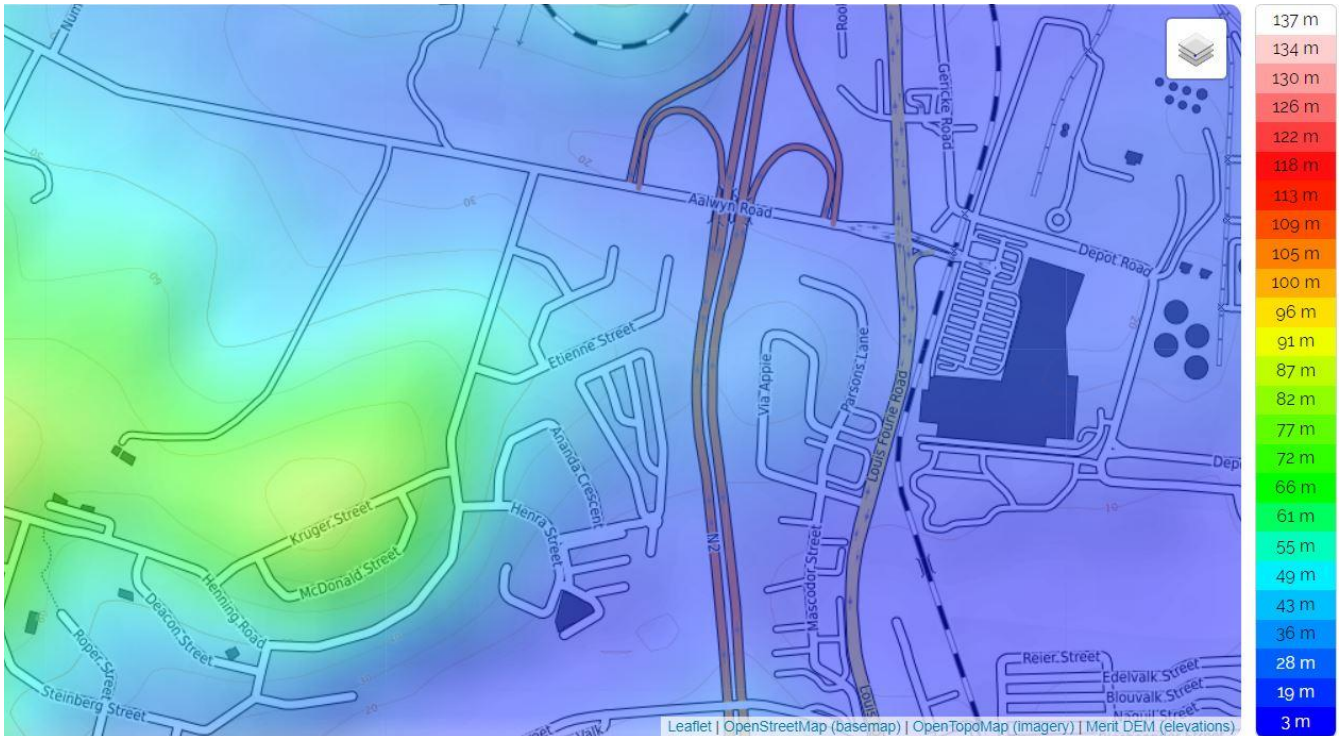
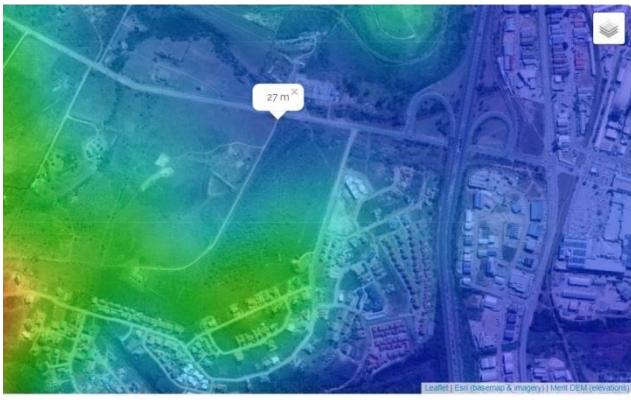


Figure : Local Context: Topographic Map - Stand 21244 Vyf-Brakke-Fonteinen; Mossel Bay

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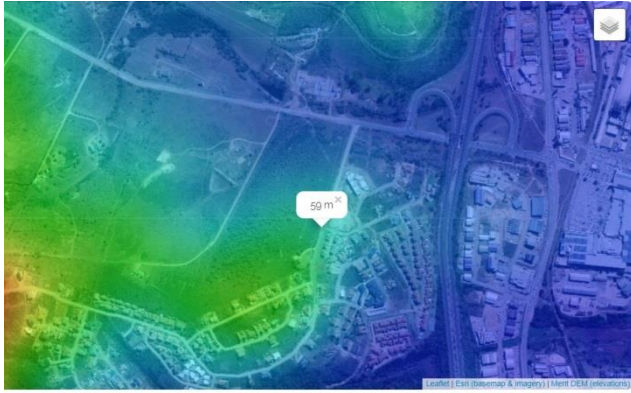
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Mossel Bay, Garden Route District Municipality, Western Cape, 6500, South Africa (-34.18320 22.15362)



Mossel Bay, Garden Route District Municipality, Western Cape, 6500, South Africa (-34.18320 22.15362)



Mossel Bay, Garden Route District Municipality, Western Cape, 6500, South Africa (-34.18320 22.15362)



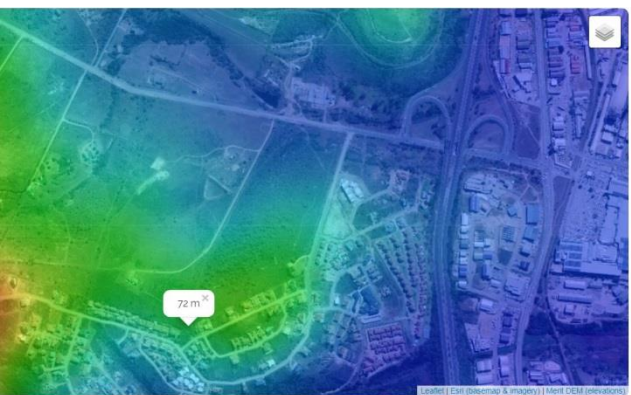
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Mossel Bay, Garden Route District Municipality, Western Cape, 6500, South Africa (-34.18320 22.15362)

Figure: Topographic Map showing different AMSLs as indicated - Stand 21244 Vyf-Brakke-Fontein; Mossel Bay

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## **2. THE PROPOSED SITE:**

Aalwyndal Erf 21244 is a large site of 12.5746 hectares within the Cape West Coast environment, located in the suburb of Aalwyndal in Mossel Bay, approximately 40 Km south-west (30 minutes via the N2) to George Municipality centre and approximately 169 Km (2 hours) West from the Swellendam Local Municipality CBD.

The site is also in close proximity, 5.3 km. east to the Mossel Bay Airport (Aerodrome) and approximately 7Km north-west of the Mossel Bay CBD.

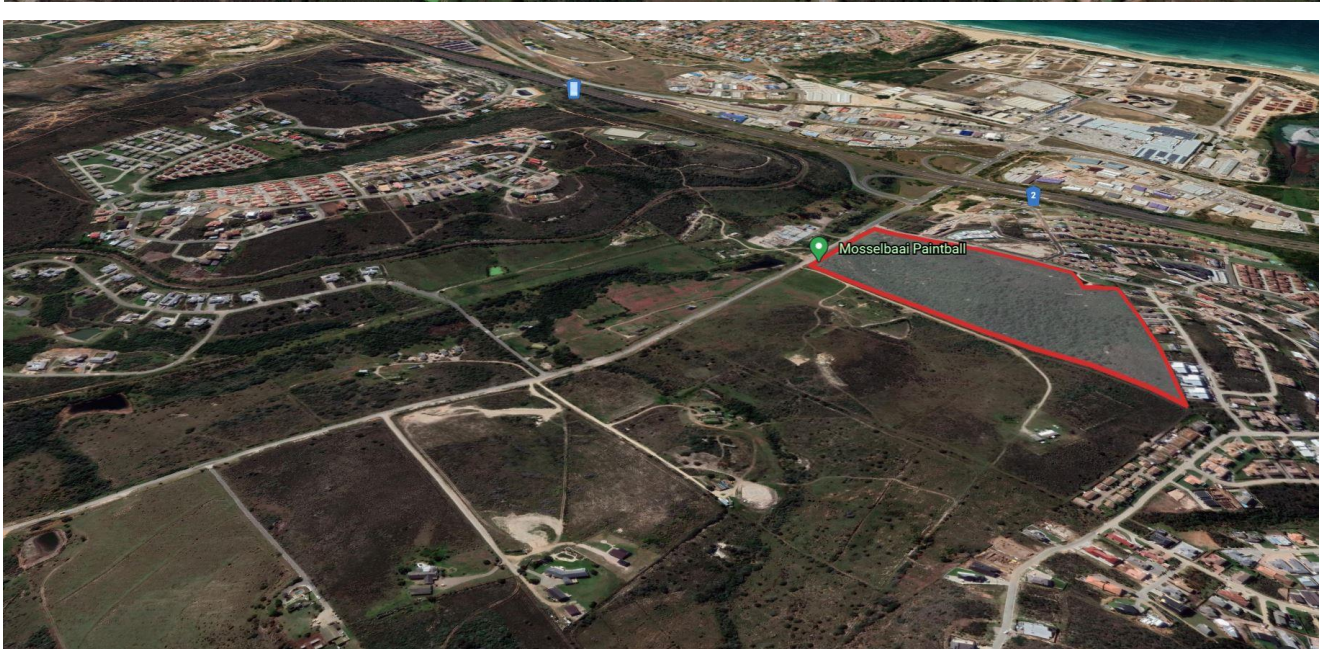
The site is also conveniently close to the N2 off-ramp towards George or Cape Town and less than 1 km. from the closest Mall. This area also serves as the main economic hub of Mossel Bay. The Ocean is approximately 1.5 km. away.

The lowest point of the site starts from 22m. AMSL on the most north – east corner of the site and rise 62m over an approximate distance of 500m to the highest point of the middle of the south boundary at 84m.AMSL.



Figure : Stand 21244 Vyf-Brakke-Fonteinen approximately 5.3 km. from Mossel Bay Airport (Aerodrome)  
Source: Google Earth Pro

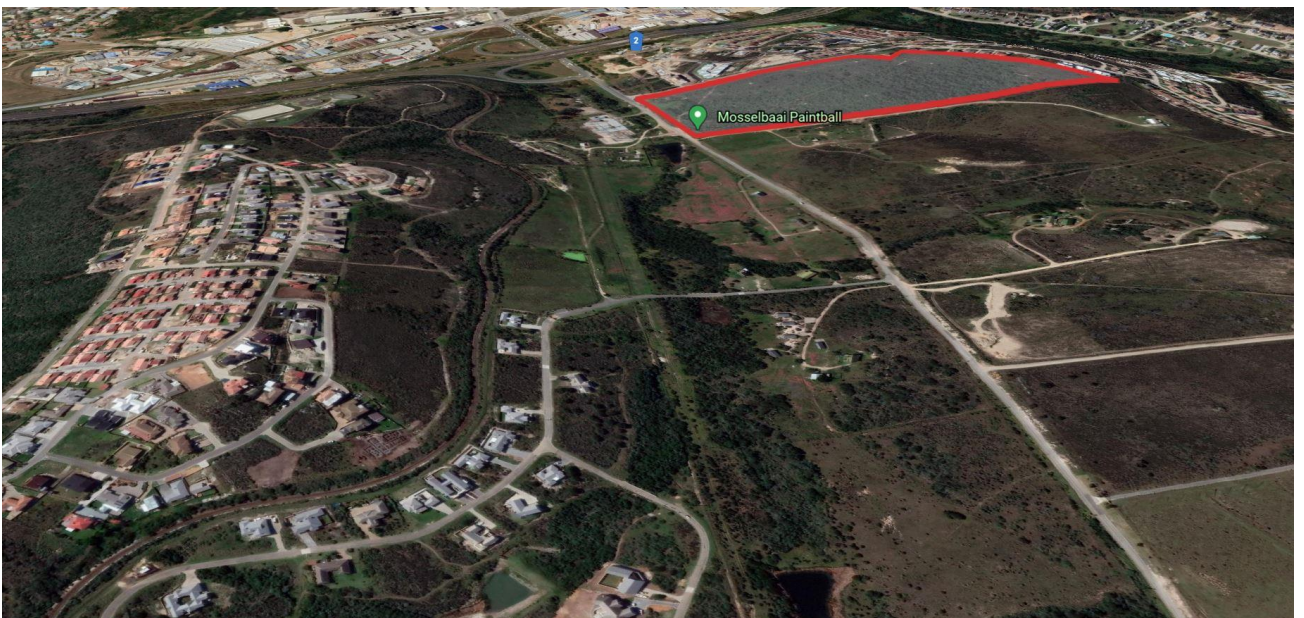




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## 2. THE PROPOSED SITE:

### Identification of Main view Corridors

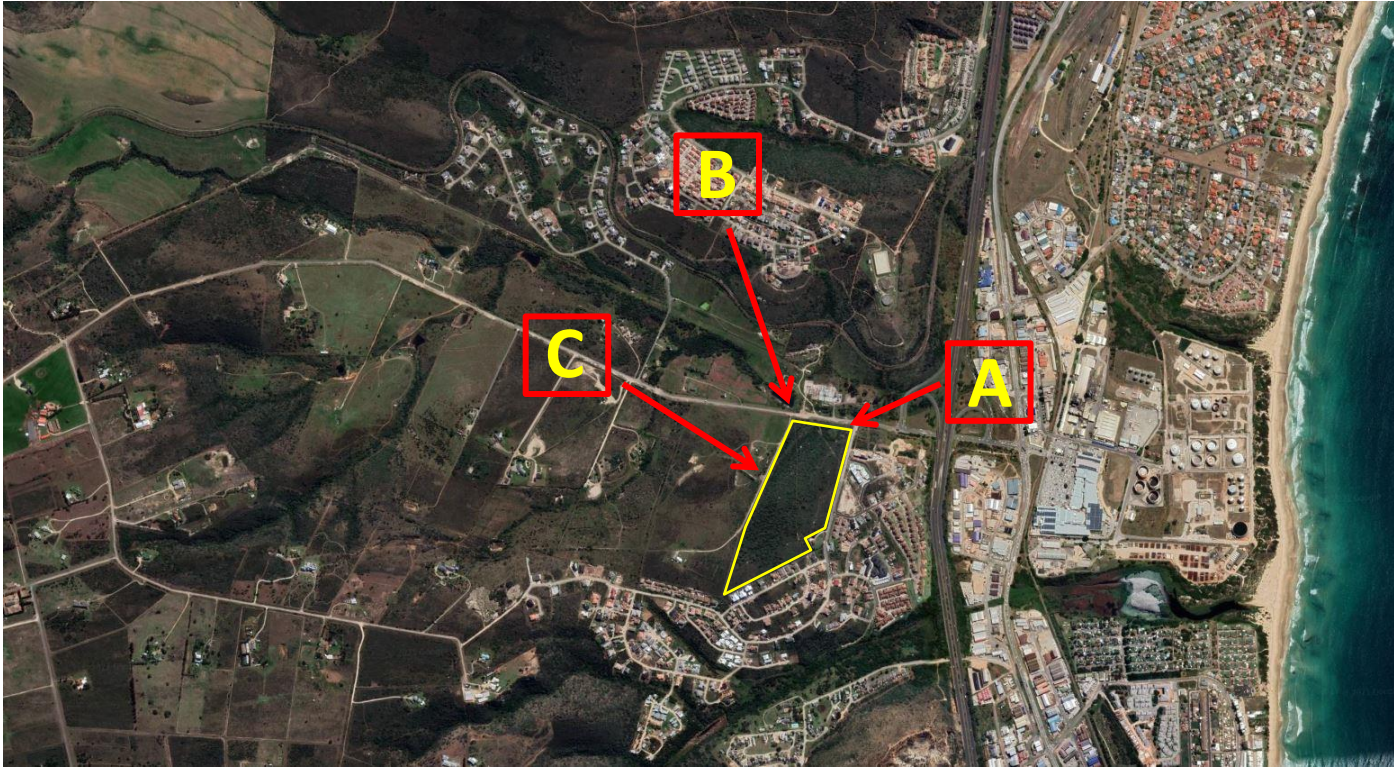


Figure : Stand 21244 Vyf-Brakke-Fonteinen: - 3 Main views

Source: Google Earth Pro



Figure : Stand 21244 Vyf-Brakke-Fonteinen - View from A

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## **2. THE PROPOSED SITE:**



Figure : Stand 21244 Vyf-Brakke-Fontein - Views from B



Figure : Stand 21244 Vyf-Brakke-Fontein - Views from B



Figure : Stand 21244 Vyf-Brakke-Fontein - Views from B

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## 2. THE PROPOSED SITE:

Figures: Views from C



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## 2. THE PROPOSED SITE:



Figure : Stand 21244 Vyf-Brakke-Fonteinien: - Indicate existing Powerlines on the site  
Source: Google Earth Pro



Figure: Powerlines

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### **3. THE PROPOSED DEVELOPMENT:**

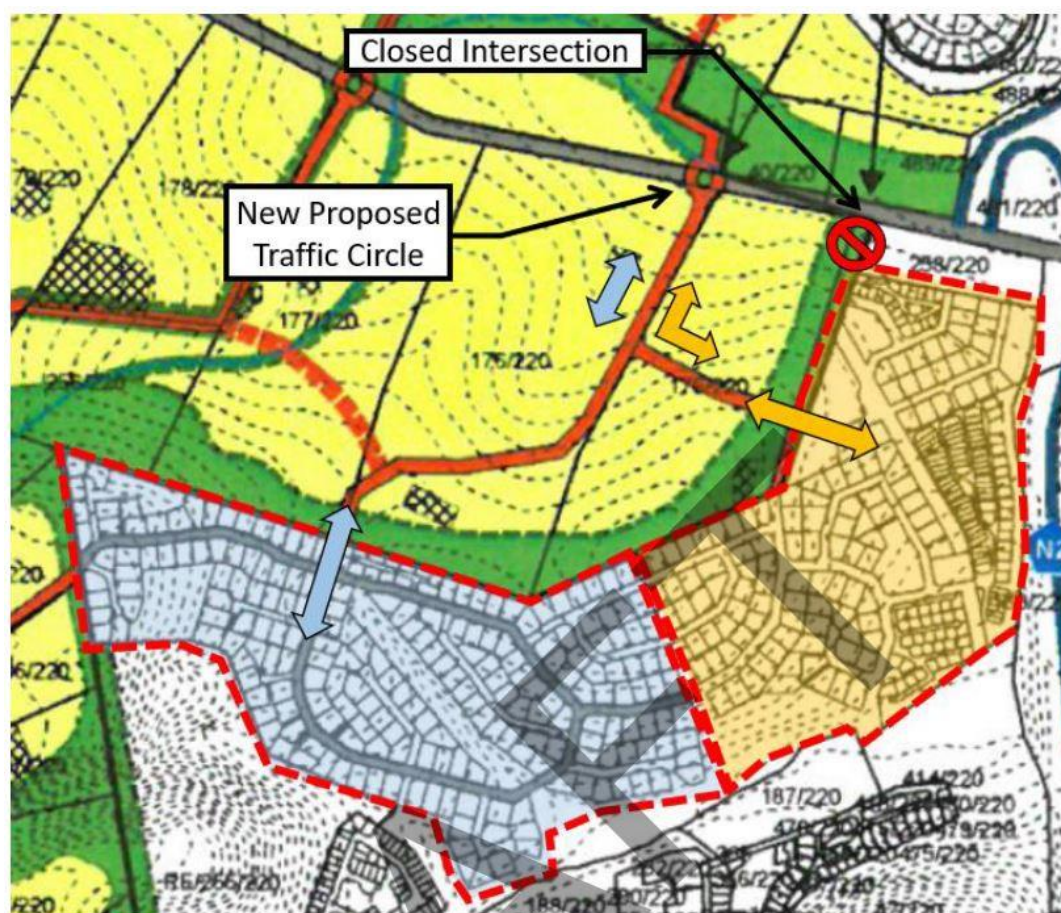
The latest conceptual design proposes a mixed use development, consisting of two main components: The first and largest component consists of 456 residential dwellings and the second component, a filling station. *The conceptual design proposes a density of **36.26 Units/hectare***

The position of the proposed filling station has been moved towards the Eastern site Boundary as recommended by the latest Traffic Impact Assessment.

The two residential portions are made up of 37 blocks each containing 6 individual, 3-storey dwelling units, except for one block in each portion which contains small, 12 individual, 1 bedroom units.

Each residential portion consist of 228 units of 4 different sizes ranging from the largest 97m<sup>2</sup>, three bedroom units to the smallest 56m<sup>2</sup> one bedroom units.

The two residential portions are divided by a new proposed road that serves as an alternative route to Aalwyn Road and as a connectivity corridor between the older and new neighbourhood as per the Aalwyndal Precinct Plan proposal in 2018. The division of the proposed site further prevent the new development to form a border and instead provide an opportunity for integration between the new extension zone and the more existing established precinct.



Source - Urban Engineering (July 2019 draft), Traffic Impact Assessment – Erf 21244 Aalwyndal, Mossel Bay

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The proposed development will also consist of the associated service infrastructure (water, electricity, storm water ,internal roads and the upgrading of external roads)

Private Open space, with recreational amenities (walking/biking trails) and a clubhouse on each residential portion for formal and informal activities, a pool and a small shop with an opportunity for a small restaurant or coffee shop.



A third component which is not part of this study, is a small piece on the south-east corner of the site, that will not form part of the development.



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Figure : Latest Conceptual Site Development Plan with the Filling Station on the North-east Corner



Figure : Sensitive area as determined by the Ecological Specialist

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### **3. THE PROPOSED DEVELOPMENT: 3D – Perspectives**



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### 3. THE PROPOSED DEVELOPMENT: 3D – Perspectives



Site Section

Scale 1 : 100

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**3. THE PROPOSED DEVELOPMENT : Conceptual Unit Lay-outs**

**Residential Integration:**

**Providing housing for a gradient mix of income groups:**

A - 24 x 1 Bedroom & 1 Bathroom Units = (12 x 56m<sup>2</sup> Units + 12 x 62m<sup>2</sup> Units) – 5.2%

B - 276 x 2 Bedroom & 1 Bathroom Units = 74m<sup>2</sup> Units – 60.6%

B - 102 x 2 Bedroom & 2 Bathroom = 84m<sup>2</sup> units - 22.4% (THUS a Total of 378 x 2 Bedroom Units – 83%)

C - 54 x 3 Bedroom & 2 Bathroom Units = 97m<sup>2</sup> units – 11.8%

**Total = 456 Units in Total**



97m<sup>2</sup> - 3 Bed + 2 Bath Units  
– 54 Total units



84m<sup>2</sup> - 2 Bedroom + 2 Bath Units  
– 102 Total Units



74m<sup>2</sup> - 2 Bed + 1 Bath Units  
– 276 Units



56 & 62m<sup>2</sup> - One Bedroom + 1 Bath Units  
– 24 Total Units

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### **3. THE PROPOSED DEVELOPMENT: 3D – Perspectives of different type Units** **Block A**



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### **3. THE PROPOSED DEVELOPMENT: 3D – Perspectives of different type Units** **Block B**



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### **3. THE PROPOSED DEVELOPMENT: 3D – Perspectives of different type Units** **Block C**



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### **3. THE PROPOSED DEVELOPMENT: 3D – Perspectives**



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### **3. THE PROPOSED DEVELOPMENT: 3D – Perspectives**



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### 3. THE PROPOSED DEVELOPMENT: Conceptual Landscape Plan



Part plan A & B - Conceptual Landscape Design

(Source: Bertha Wium Landscape Development )



**Legend**

- |   |                       |
|---|-----------------------|
| <b>TREES</b>  |                       |
|  | Proposed Trees        |
| <b>SHRUBS AND GROUNDCOVERS</b>  |                       |
|  | Existing Green Belt   |
|  | Proposed Planting     |
|  | Lawn                  |
|  | Transitional Planting |
|  | Veld                  |
|  | Proposed Pathways     |

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## 4. THE VISUAL SETTING -

### 4.1 Visibility of the Proposed development.

#### 4.1.1 View Catchment

The geographical area from which the proposed project will theoretically be visible, or view catchment area, is dictated primarily by topography.

However, **distance, development** (buildings), **vegetation** and **topography** will reduce the actual zone or visual influence that the site and project will have, to a much smaller area.

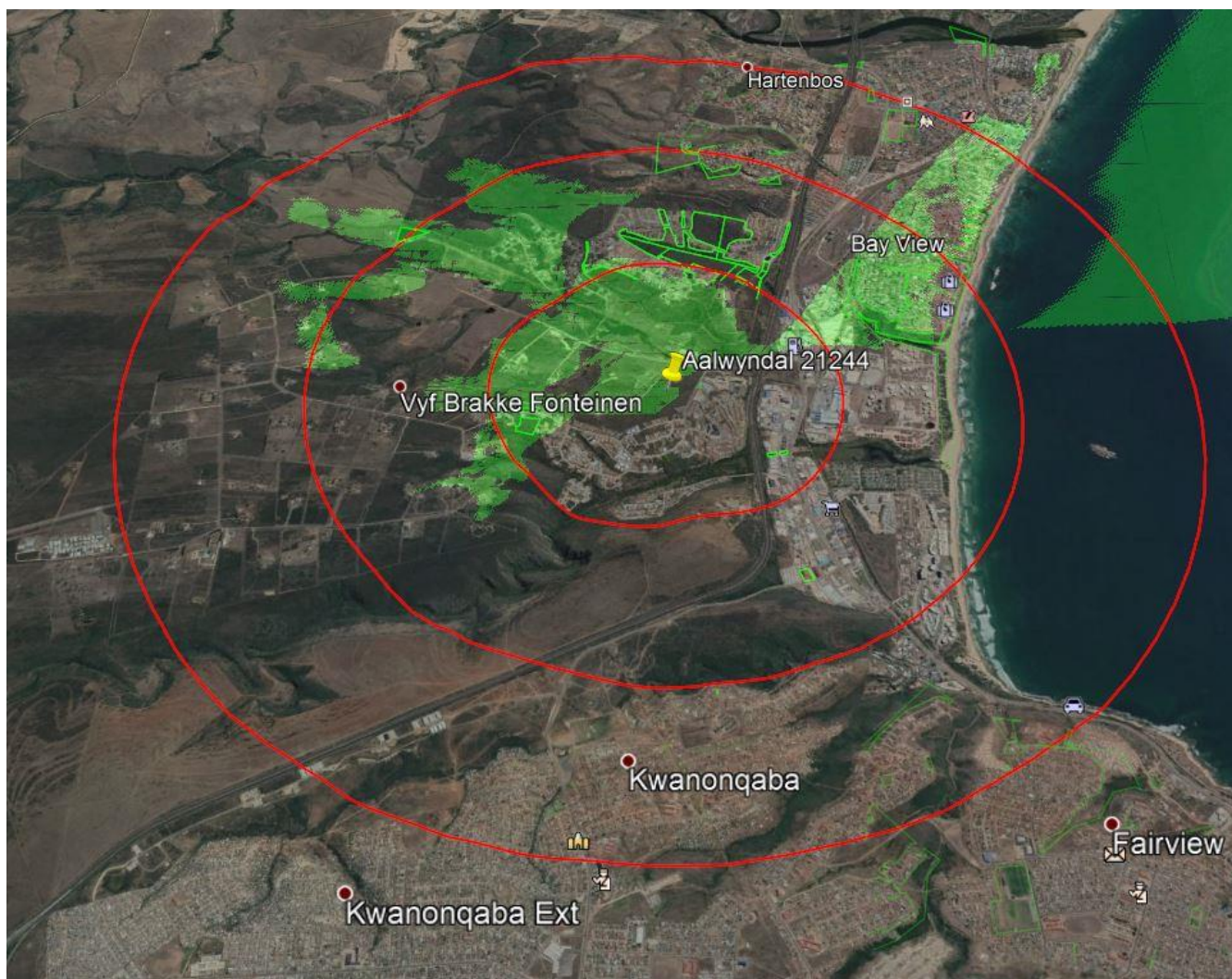


Figure 3:

Digital viewshed from the middle of the proposed site on approximately 55m. (GL) + 3m. = 58M. AMSL  
Red circles indicate 1, 2 & 3km distance from middle of the development site. (Source: Google Earth Pro)

Areas shaded in green in the figure above have direct views towards the site, however visibility decreases as distance decreases.

The development site is visible mostly inland towards the north and west of the site and partly to the south-south-east. A thin line of visibility stretches towards the N2 and the ocean.

It must be remembered that existing buildings and vegetation of the built-up areas will screen most of the views and visibility towards the ocean.

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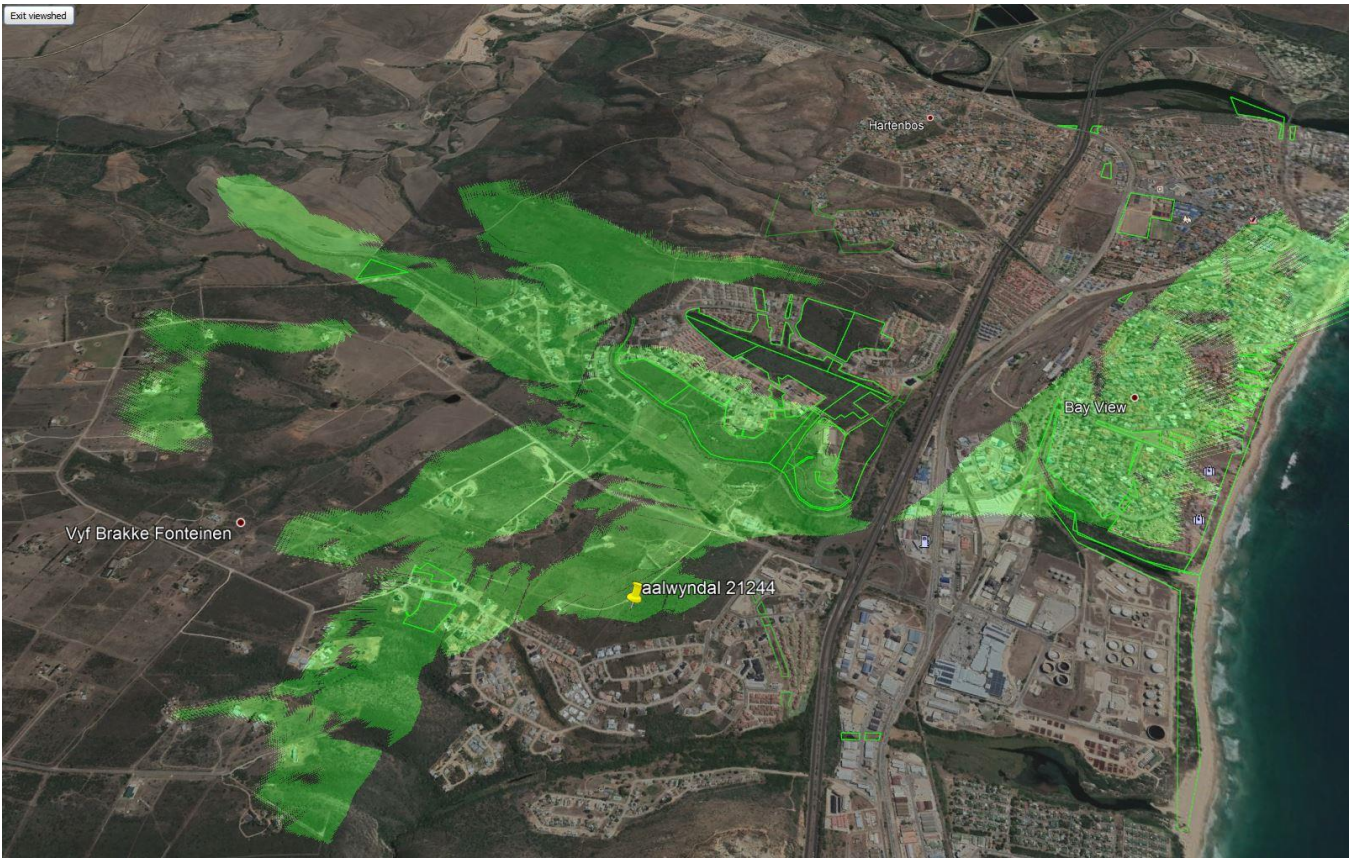


Figure : Digital viewshed approximately 70m. (GL) + 3m. = 73m. AMSL from a more south-west corner of the development site. (Source: Google Earth Pro)

foreground		middle distance		background		Context	
<i>on site</i>	<i>adjacent</i>	<i>near</i>	<i>medium</i>	<i>long</i>	<i>distant</i>	<i>far</i>	<i>very far</i>
Highly visible	Within 250m	250m – 500m	500m – 1km	1km – 2km	2km – 4km	4km – 5km	Not visible

**4.1.2 Zones of Visual influence**

Visibility is dependant on factors such as: (a) the **nature** of the proposal; (b) its **placement** within the landscape; © the **scale** of the proposal relative to its context; (d) the detailed design (**form, massing, aggregation, etc.**) as well as (e) the **position** and **distance** from which it is viewed. The net effect of these factors is that at (grade) the visual impact of an object will begin to fall away rapidly with increasing distance. Visibility will reduce substantially from 1 km distance, and beyond 5 km, visibility is negligible.

According to the specific criteria for visual impact assessments the visibility of the site is **local**, being **visible from the area less than 5kms** away.

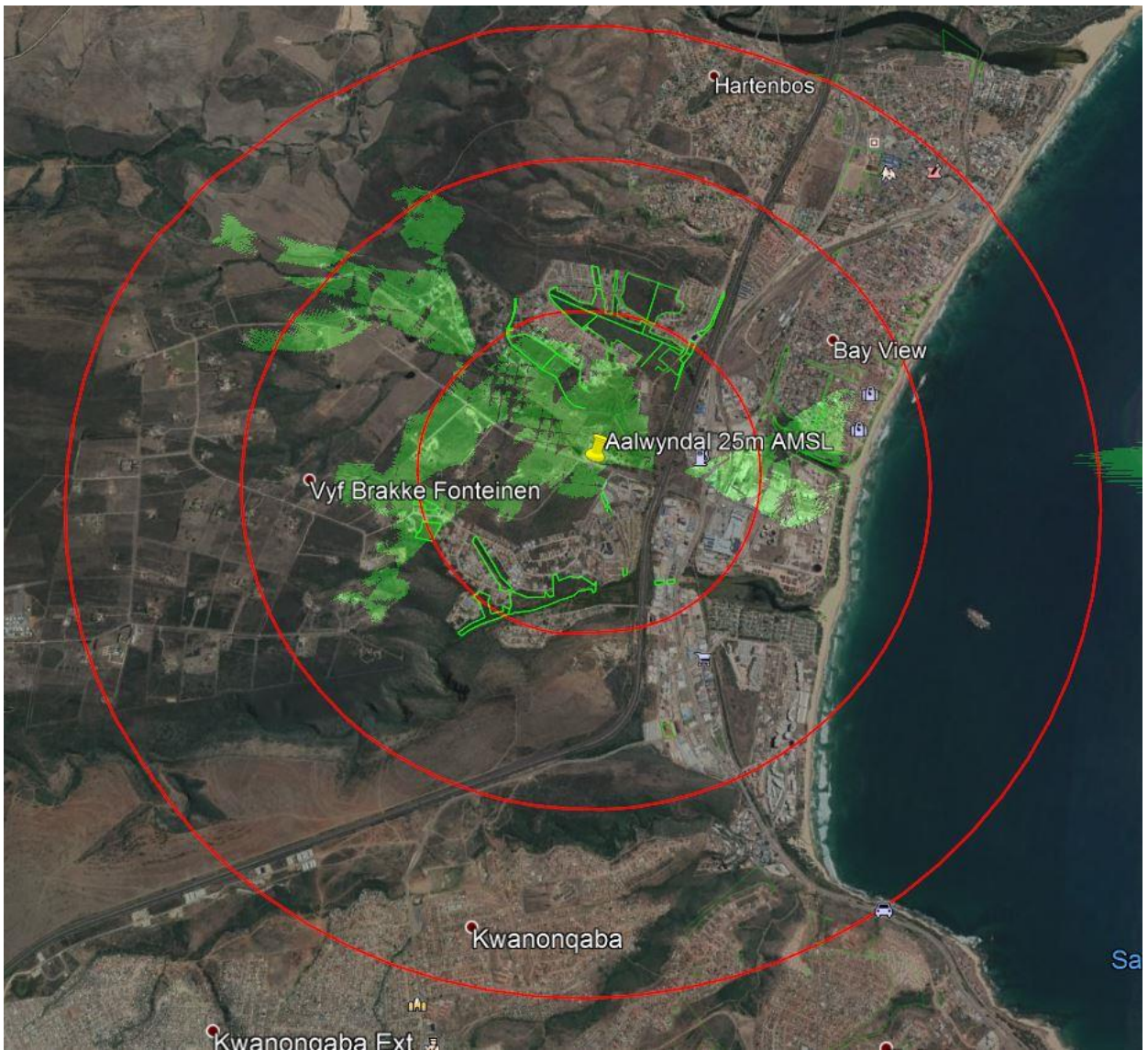


Figure : Digital viewshed approximately 24m. (GL) + 3m. = 27m. AMSL from the middle of the northern boundary of the development site. (Source: Google Earth Pro)

## 4.2 Visual Sensitivity

**4.2.1 Visual Sensitivity of Area (landscape sensitivity)** As the site is located on a prominent hill, with a steep slope with a wide portion of the field-of-view dominated by the proposal decreases substantially beyond 1 km from the site on the north and north-west side and the screening effect of existing build form on the southern and eastern side of the site, the area is considered to have a **Moderate – High Visual sensitivity**

### **4.2.2 Visual Sensitivity of Receptors**

The Receptors of the anticipated visual impact include mainly residential areas which are considered to have **High Visual Sensitivity** on most part of the north and west side of the site within an area or routes of medium scenic, cultural or historical significance. The site is only visible for a little while from the scenic N2 route between George and Mossel Bay with almost no or a little ocean views. The existing developments on the Eastern side of the site mostly block the views from the coastal side, offering only glimpses of the Proposed development. These existing buildings help the Visual Absorption Capacity from both the southern and eastern side of the site



Figure : Digital viewshed approximately 84m. (GL) + 3m. = 87m. AMSL from the middle close to the southern boundary of the development site. (Source: Google Earth Pro)

### 4.3 Visual Exposure

#### **4.3.1 Visual Absorption Capacity of the Site**

Considering the existing vegetation and topography with no real high trees on a visible hill, the Visual Absorption Capacity (VAC) of the site is considered to be **low to moderate**, with considerable screening of the existing build form on the eastern and southern sides. (However, with the implementation of the landscape plan with screening and rehabilitation of degraded areas, the Visual Absorption Capacity of the site is likely to increase)

#### **4.3.2 Visual Intrusion of the Proposed Development**

The Receptors of the anticipated visual impact include mainly residential areas which are considered to have **High Visual Sensitivity** on most part of the north and west side of the site within an area or routes of medium scenic, cultural or historical significance. The site is only visible for a little while from the scenic N2 route between George and Mossel Bay with almost no or a little ocean views. The existing developments on the Eastern side of the site mostly block the views from the coastal side, offering only glimpses of the Proposed development. These existing buildings help the Visual Absorption Capacity from both the southern and eastern side of the site

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### ***Box 11: Specific criteria for visual impact assessments***

**Visibility of the project** – the geographic area from which the project will be visible, or view catchment area. (The actual zone of visual influence of the project may be smaller because of screening by existing trees and buildings). This also relates to the number of receptors affected.

- *High visibility* – visible from a large area (e.g. several square kilometres).
- *Moderate visibility* – visible from an intermediate area (e.g. several hectares).
- *Low visibility* – visible from a small area around the project site.

**Visual exposure** – based on distance from the project to selected viewpoints. Exposure or visual impact tends to diminish exponentially with distance.

- *High exposure* – dominant or clearly noticeable;
- *Moderate exposure* – recognisable to the viewer;
- *Low exposure* – not particularly noticeable to the viewer;

**Visual sensitivity of the area** – the inherent visibility of the landscape, usually determined by a combination of topography, landform, vegetation cover and settlement pattern. This translates into visual sensitivity.

- *High visual sensitivity* – highly visible and potentially sensitive areas in the landscape.
- *Moderate visual sensitivity* – moderately visible areas in the landscape.
- *Low visual sensitivity* – minimally visible areas in the landscape.

**Visual sensitivity of Receptors** – The level of visual impact considered acceptable is dependent on the type of receptors.

- *High sensitivity* – e.g. residential areas, nature reserves and scenic routes or trails;
- *Moderate sensitivity* – e.g. sporting or recreational areas, or places of work;
- *Low sensitivity* – e.g. industrial, mining or degraded areas.

**Visual absorption capacity (VAC)** - the potential of the landscape to conceal the proposed project, i.e.

- *High VAC* – e.g. effective screening by topography and vegetation;
- *Moderate VAC* - e.g. partial screening by topography and vegetation;
- *Low VAC* - e.g. little screening by topography or vegetation.

**Visual intrusion** – the level of compatibility or congruence of the project with the particular qualities of the area, or its 'sense of place'. This is related to the idea of context and maintaining the integrity of the landscape or townscape.

- *High visual intrusion* – results in a noticeable change or is discordant with the surroundings;
- *Moderate visual intrusion* – partially fits into the surroundings, but clearly noticeable;
- *Low visual intrusion* – minimal change or blends in well with the surroundings.

**Note 1:** *These, as well as any additional criteria, may need to be customised for different project assessments.*

**Note 2:** *Numerical weighting of these criteria should be avoided because of their qualitative nature.*

**Note 3:** *Various components of the project, such as the structures, lighting or powerlines, may have to be rated separately, as one component may have fewer visual impacts than another. This could have implications when formulating alternatives and mitigations.*

## 5. VISUAL IMPACT ASSESSMENT:

### GENERAL MITIGATION MEASURES

#### Mitigation measures will assist in mitigating the visual impact, namely:

- The physical reforming of the landscape for development , such terracing and cut- to fill for roads and buildings, must be designed in such a way to minimise the visual impact, to this end a **Landscape Architect must be employed at the earliest stages** to work with the Engineers developing this plan.
- Extensive landscaping along internal and external streets and between buildings with an emphasis on the treatment of the sidewalks to help with the Visual Absorption Capacity by careful and selective use of indigenous landscaping to softening the visual impact of the new development. Establish extensive landscaping including large indigenous trees that will screen the development and will increase the Visual Absorption Capacity and partly help conceal the development on the exposed areas on the site
- Mitigation should be implemented during the operational phase: landscape, cut/fill, slopes, terraces, retaining walls and use natural finishes and/or colours on retaining walls
- Retaining as much of the existing, indigenous natural landscape as possible to be encouraged.
- External lighting restrictions and guidelines by lighting engineer/ expert. Refer to Lighting mitigation
- No solid boundary walls but the use of a translucent boundary e.g. 'Clearview Fencing“
- A solid boundary walls may only be used between the existing residential built on the most southern boundary.
- Urban Heat Island: The absorptance value of flat hard surfaces of roads and parking areas should be considered. The use of materials with a solar reflectance value of less than 0.6 is encouraged
- Provision must be made for rainwater harvesting and should be linked to landscape irrigation systems or other water consumption areas



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## **ARCHITECTURAL MITIGATION MEASURES**

### **Mitigation measures will assist in mitigating the visual impact, namely:**

- The architectural character should help to enhance the visual environment and not distract from it
- Buildings should sit into the slope and not elevated on top of it by the use of cut and fill to reduce the overall height of the development along the slope of the site.
- Buildings not to be higher than the existing build form on the southern boundary and highest part of the site.
- A buffer of 15m. minimum should be kept between the existing built form and the new development on the southern boundary of the site
- Colours of walls should be muted earth colours with off-white, beige and creams.
- Limiting the footprints of buildings and hardscaping will reduce the Visual Impact and will assist with providing more green areas between buildings which then will assist with screening and the visual absorptions of the buildings.
- The buildings should aim to be as visually recessive as far as practically possible.
- Different textures and tones of different materials is encouraged and will help with camouflaging the buildings within the landscape instead of solid monolithic forms that will be more visually distracting
- Low pitch roof-scapes to help with lowering the overall heights of buildings must be used.
- Roofs to be darker grey, non-reflective roofs
- Windows should be recessed with overhangs to prevent reflection of the sun

Note: The visual Impact assessment considers a high-level development framework, as detailed and resolved architectural information is only available to a conceptual presentation stage



## **LIGHTING MITIGATING MEASURES:**

Light pollution and its subsequent visual impact can be minimised by effectively mitigated through limiting and controlled use of lighting in the proposed development:

*The goal is to reduce light pollution to a minimum, keeping in mind safety & security*

### **1. External Lighting Controls:**

- External lighting (including signage, façade, and feature lighting) should be linked to a light sensor to ensure that it is switch off when there is adequate daylight
- External lighting can be switched on/off using motion sensors to ensure that lighting is only on when required.
- All signage and **entrance** lighting must be on a timer that ensures that it is switched off at latest 1.00 in the morning.
- Down lighters are recommended to all external lighting as far as safely possible.
- Security lights on motion sensor control
- External lighting in buildings should be restricted (to be confirmed by an electrical engineer to safety standards) to a maximum external lighting power ratio of:  $1 - 2(W/m^2)$ .
- Use of effective yet low spill light measures.
- The use of footlights are encourage keeping safety & security in mind.
- Low bollard or pole top street lighting only if required.
- Limiting and control of external lighting use in units

### **2. Internal lighting controls:**

- Motion sensors or automatic switch offs on bathrooms, walkways and staircases, but especially on the covered verandas, acceptable to safety standards and electrical engineer specifications
- A single switch should not control a to large area, leaving larger areas lit which is more than is necessary. It is recommended that more switch lights should be use to control smaller areas as to avoid this.
- **THUS: To this end guidelines must further be drawn up by an electrical / lighting expert.**



Night Study 1: **North-West** 3D Night Elevation

3D perspective to illustrate the possible lighting at night ***before mitigation***



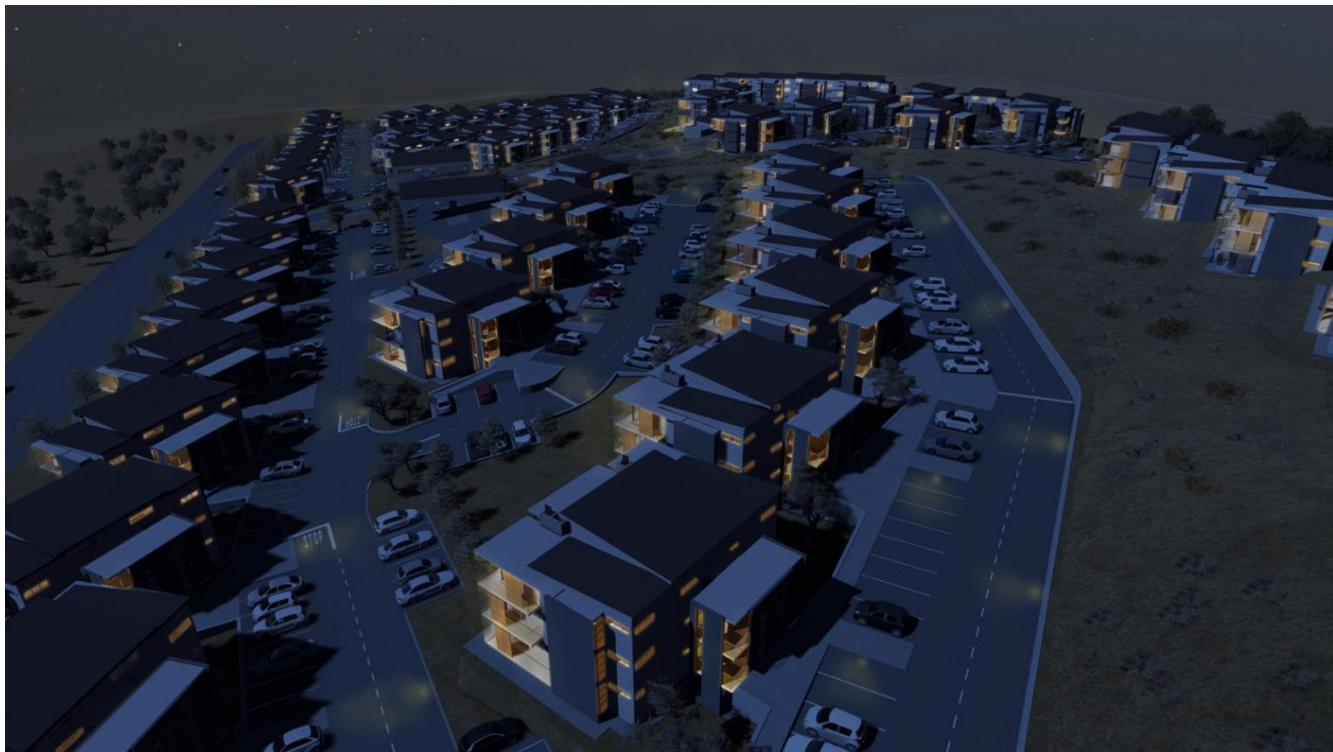
Night Study 2: **North-West** 3D Night Elevation

3D perspective to illustrate the possible light at night ***after the implementation of suggested mitigation***

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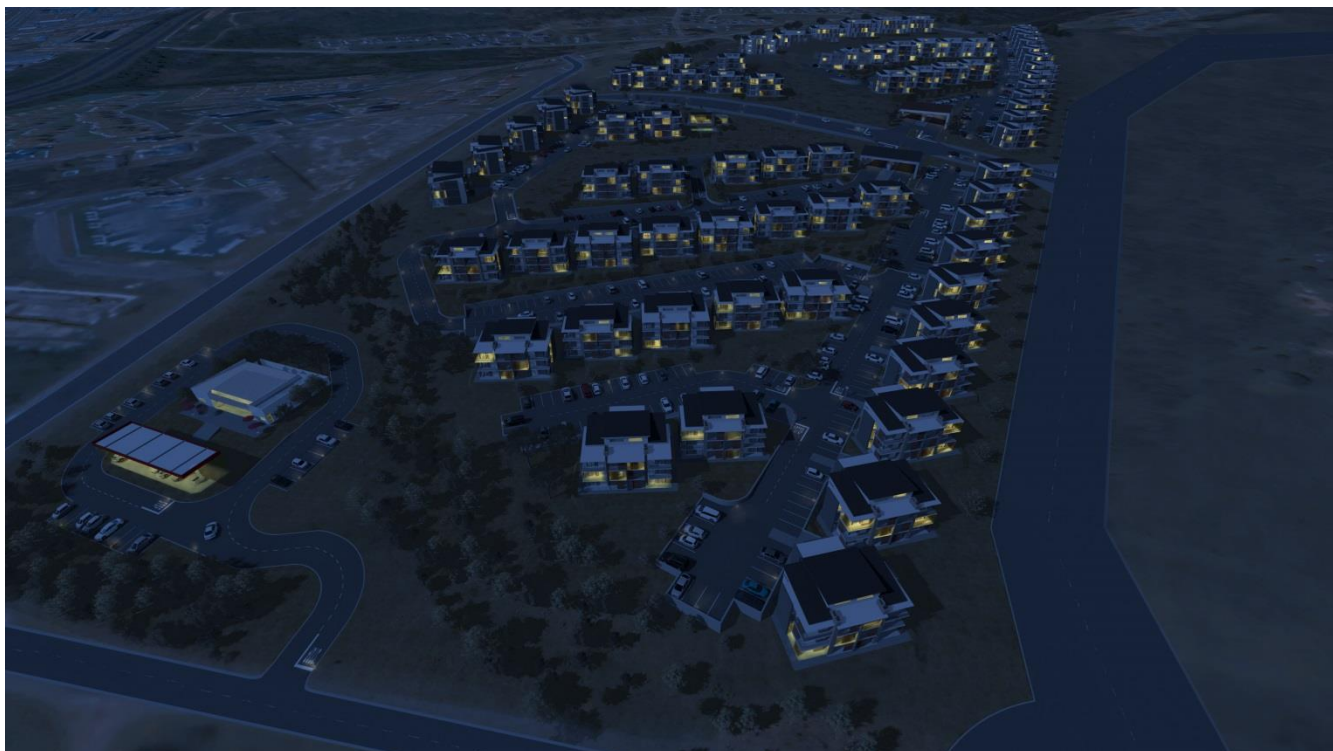
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Night Study 3: South – West 3D Night Elevation

3D perspective to illustrate the possible light at night after the implementation of suggested mitigation



Night Study 4: North 3D Night Elevation

3D perspective to illustrate the possible light at night after the implementation of suggested mitigation

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Night Study 4: North 3D Night Elevation Perspective



Night Study 3: North 3D Day Elevation

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## 5. VISUAL IMPACT ASSESSMENT

### Implications of the Proposed Development

#### Construction phase:

- Site clearance / removal of vegetation
- Earthworks/ terracing and cut & fill of site to create building platforms and access roadway
- Construction operations – setting up of site camp, materials delivery, access roadways
- Building activity, personnel and vehicles
- Noise / dust / lighting

#### Operational phase:

- Built form (transformation of most of the site)
- Site rehabilitation / landscape implementation
- Windbreak, screen & shelter planting
- Residential activities / recreational use of open space / Bicycles, jogging
- Lighting, Noise, signage , traffic

#### Categorisation of the Proposed Development:

The proposed development on Erf 21244 Aalwyndal is considered to be a **Category 5 Development**. i.e. generally medium to high density township/ residential development, including a commercial/ business node, with associated engineering services and infrastructure.

It is further considered to be a development of **medium intensity** – i.e. up to 3-storeys; with an internal access roadway and medium-scale infrastructure (e.g. engineering services), but with more than 25% of the site area retained as green open space.



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## **5. Visual Impact Assessment-**

### **5.1 Construction Phase Visual Impact**

#### **5.1.1 Nature of Visual Impact**

Negative Visual Impact may be expected – resulting directly from the site clearance, bulk earthworks and removal of existing vegetation, with construction vehicles / building activity causing noise / dust

The earthworks further would create cut and fill of slopes and would result in visual scarring of the landscape

#### **5.1.2 Extent of Visual Impact**

The geographic 'area of influence' or spatial scale of the visual impact is of a local Extent

#### **5.1.3 Duration of Visual Impact**

The predicted life-space of the visual impact will be limited to Low term Duration, (e.g. 3 – 5 years) – enduring only as long as for the construction period of the project.

#### **5.1.4 Intensity of Visual Impact**

This visual impact is deemed to be of Medium – High intensity – where visual and scenic resources are affected to a local extent only.

#### **5.1.5 Probability of Visual Impact**

The probability of visual impact occurring is definite – where the impact will occur regardless of any prevention measures

#### **5.1.6 Level of confidence in prediction of Visual Impact**

Based on available information, the level of confidence in the prediction is high.

#### **5.1.7 Significance of Visual Impact**

Determined through a synthesis of the aspects of nature, duration, intensity, extent and probability, the Construction Phase Visual Impact is of Medium adverse significance; however, this may be ameliorated through the implementation of an environmental management plan as mitigation.

## **5.2. Operational Phase Visual Impact**

### 5.2.1 Nature of the Visual Impact

Positive Visual Impact may be expected – resulting directly from new landscape-integrated buildings and the implementation of a landscape plan, with environmental rehabilitation of the site.

### 5.2.2 Extent of Visual Impact

The geographic 'area of influence' or spatial scale of the visual impact is of a Local extent – i.e. limited to the site as the visual impact decreases over time.

### 5.2.3 Duration of Visual Impact

The predicted life-span of the Visual impact is of Medium-term Duration (e.g. 5-15 years) – enduring only until the new landscape with trees and screening vegetation has matured

### 5.2.4 Intensity of Visual Impact

The magnitude of the Visual Impact is of High intensity where visual and scenic resources are not affected to any significant extent

### 5.2.5 Probability of Visual Impact expected during the Operational Phase

The degree of possibility of the visual impact occurring is Definite - where the impact will occur regardless of any prevention measures

### 5.2.6 Level of confidence in prediction of Visual Impact

Based on available information, the level of confidence in the prediction is high.

### 5.2.7 Significance of Visual Impact

Determined through a synthesis of the aspects of the nature, duration, intensity, extent and probability, the Operational Phase Visual Impact is of Medium Beneficial Significance, having medium influence on the environment, but definitely requiring some mitigation. (See Summary tables and matrices that follow – Section 6 of this report).

*Table 1: Categorisation of issues to be addressed by the visual assessment*

Type of environment	Type of development (see Box 3) Low to high intensity				
	Category 1 development	Category 2 development	Category 3 development	Category 4 development	Category 5 development
Protected/wild areas of international, national, or regional significance	Moderate visual impact expected	High visual impact expected	High visual impact expected	Very high visual impact expected	Very high visual impact expected
Areas or routes of high scenic, cultural, historical significance	Minimal visual impact expected	Moderate visual impact expected	High visual impact expected	High visual impact expected	Very high visual impact expected
Areas or routes of medium scenic, cultural or historical significance	Little or no visual impact expected	Minimal visual impact expected	Moderate visual impact expected	High visual impact expected	High visual impact expected
Areas or routes of low scenic, cultural, historical significance / disturbed	Little or no visual impact expected. Possible benefits	Little or no visual impact expected	Minimal visual impact expected	Moderate visual impact expected	High visual impact expected
Disturbed or degraded sites / run-down urban areas / wasteland	Little or no visual impact expected. Possible benefits	Little or no visual impact expected. Possible benefits	Little or no visual impact expected	Minimal visual impact expected	Moderate visual impact expected

### **Categorisation of the Proposed Development:**

The proposed development on Erf 21244 Aalwyndal is considered to be a **Category 5 Development**, i.e. generally medium to high density township/ residential development, including a commercial/ business node, with associated engineering services and infrastructure.

It is further considered to be a development of **medium intensity** – i.e. up to 3-storeys; with an internal access roadway and medium-scale infrastructure (e.g. engineering services), but with more than 25% of the site area retained as green open space.



Construction Phase Visual Impact: Proposed High Density Development		
Potential Impact on the visual resources and cultural landscape character		
effected by site clearance, removal of existing vegetation, earthworks, site camp establishment, etc.		
Impact	Description	
Nature of impact	Negative: ( loss of existing vegetation, site clearance, disturbance) - site works - Vegetation clearance, disturbance	
Type of Impact	- Visual scarring of the landscape resulting from earthworks (cut and fill) Direct (clearance, construction activities, vehicles, noise, dust)	
Recommended mitigation measures	Description	
Impact avoidance/ prevention	Unavoidable / Irreversible	
Proposed Mitigation / Impact Minimization	Restrict extend of disturbance to only those areas to be developed. Demarcate no-go areas to prevent damage to sensitive vegetation to be retained Retain other existing vegetation as far as possible in the developable, planned areas that will not be in the way of proposed roads/services and buildings and therefore helps with dust and the integration between the existing vegetation and planned Landscaped vision Continued monitoring the earthworks and implementation of the Landscape Plan and and establishment thereof by the appointed Landscape Architect Sensitive areas to be enclosed for protection and monitored by Landscape Architects Construction to be Phased between Portion A (Lower end) and Portion B (higher end) This will help lower the impact of dust and noise pollution Place the site camp as far as functionally possible from existing residence on the lowest, western border of each phase for Portion A & B Provide 24 hour security to the residential during Construction phase Vehicle entrance to the each site should be on the existing dirt road on the western border to minimise damage to existing road infra-structure on the eastern side and to avoid traffic congestion by the heavy construction vehicles and the general public Limit the extend of the damage and visual scarring, keeping cut and fill to a minimum/ necessary by careful planning between the Landscape Architects and Engineers Note: Further additional mitigation should be implemented during the operational phase: landscape, cut/fill, slopes, terraces, retaining walls and use natural finishes and/or colours on retaining walls	
Rehabilitation / restoration / repair	As per appointed Landscape Architect Advise & Guidance	
Compensation	Environmental rehabilitation and management	
Degree to which impact can be mitigated	Medium	
Degree to which impact can be reversed	Low (Barely reversible)	
Degree to which impact may cause irriplaceble loss of resources	Marginal	
Assessment of impact	Rating before migitation	Rating after mitigation
Extend of Impact	Local, permanent	Local, permanent
Duration of Impact	Low - Medium Term (2 - 4 years)	Low - Medium Term (2 - 4 years )
Intensity of Impact	High	Medium
Probability of occurrence	Definite	Definite
Level of confidence in prediction	High	High
Significance	Rating before mitigation	Rating after mitigation
Significance	medium - high adverse significance	low - medium adverse significance

Operational Phase Visual Impact: Proposed High Density Development		
Potential Impact on the visual resources and cultural landscape character		
effected by site clearance, removal of existing vegetation, earthworks, site camp establishment, etc.		
Impact	Description	
Nature of impact	Neutral	
	The site is currently mostly undeveloped and covered in natural vegetation and unsightly powerlines	
	The Development will result in a change in visual character from a natural unbuilt landscape to a built environment.	
Type of Impact	Direct - Contributes to	
Recommended mitigation measures	Description	
Impact avoidance/ prevention	Unavoidable / Irreversible	
Proposed Mitigation / Impact Minimization	Limit external lighting on buildings, use low spill lighting and apply measures as per guidance Street lighting to be low spill bollard or foot lighting Guidelines to mitigate and reduce lighting pollution must be adhered to. A Landscape Architect should be appointed at an early stage. No solid boundary walls but the use of a translucent boundary e.g. "Clearview Fencing" A solid boundary walls may only be used between the existing residential built on the most southern boundary. Establish extensive landscaping including large indigeous trees that will screen the development. and will increase the Visual Absorption Capacity and partly help conceal the development on the exposed areas on the site Further additional mitigation should be implemented during the operational phase: landscape, cut/fill, slopes, terraces, retaining walls and use natural finishes and/or colours on retaining walls Urban Heat Island:The absorptance value of flat hard surfaces of roads and parking areas should be considered. The use of materials with a solar reflectance value of less than 0.6 is encouraged Provision must be made for rainwater harvesting and should be linked to landscape irrigation systems or other water consumption areas The architectural character should help to enhance the visual environment and not distract from it Buildings should sit into the slope and not elevated on top of it by the use of cut and fill to reduce the overall height of the development along the slope of the site. Buildings not to be higher than the existing build form on the southern boundary and highest part of the site. A buffer of 15m. minimum should be kept between the existing built form and the new development on the southern boundary of the site Orientation, materials, low pitch roofs will all contribute to visual mitigation Colours of walls should be muted earth colours with off-white, beige and creams. Limiting the footprints of buildings and hardscaping will reduce the Visual Impact and will assist with providing more green areas between buildings which then will assist with screening and the visual absorptions of the buildings The buildings should aim to be as visually recessive as far as practically possible. Different textures and tones of different materials is encouraged and will help with camouflaging the the buildings within the landscape instead of solid monolithic forms that will be more visually distracting Low pitch roofscapes to help with lowering the overall heights of buildings must be used. Roofs to be darker grey, non-reflectives roofs Windows should be recessed with overhangs to prevent reflection of the sun	
Rehabilitation / restoration / repair	Architectural measures (form/scale/massing/ materials/textures)	
Compensation	Landscape screening/'anchoring' of new built into the natural slope and not on top of the terraces	
Degree to which impact can be mitigated	Medium	
Degree to which impact can be reversed	Low (Barely reversible)	
Degree to which impact may cause irriplacable loss of resources	Marginal	
Assessment of impact	Rating before mitigation	Rating after mitigation
Extend of Impact	Local, permanent	Local, permanent
Duration of Impact	Long Term	Medium (Untill landscape matures)
Intensity of Impact	Medium - High	Medium
Probability of occurrence	Definite	Definite
Level of confidence in prediction	High	High
Significance	Rating before mitigation	Rating after mitigation
Significance	Medium - low beneficial significance	Medium/High beneficial significance

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Ranking Weighting & Scaling Matrix - (Construction Phase)												
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7	Column 8	Column 9	Column 10			
Consequence of the impact determine the by summation (columns 1+2+3)			Scale of impact		Severity of the impact determined by summation (columns 5+6)		Significance without mitigation = consequence X Mitigation (ME)		Significance with mitigation = WOM x ME			
Activity / phase	Nature of impact	Type of impact	Extent of Impact		Frequency of impact	Probability of impact	Significance Rating (WOM)		Mitigation efficiency (ME)	Mitigated Aspects (W/M)		
			Duration of Impact	Intensity of Impact			PRODUCT of columns 4 x 7	PRODUCT of columns 8 x 9				
			SUM of columns 1,2 & 3 = 9		SUM of columns 5 & 6 = 1		PRODUCT of columns 4 x 7		PRODUCT of columns 8 x 9			
Construction Phase	Negative	Direct	Footprint	Short	Low	Almost never	Low	Low	High	Low		
			= 1	= 1	= 1	= 0.1	= 0.1	= 0 - 2.9	= 0.2	= 0 - 2.9		
			Site / local	Short / mid	Low / medium	Improbable	Low / medium	Low / medium	Low / medium	Medium / High	Low / medium	
			= 2	= 2	= 2	= 0.2	= 0.2	= 3 - 5.9	= 0.4	= 3 - 5.9		
			Regional	Medium	Medium	Probable	Medium	Medium	Medium	Medium	Medium	
	Neutral	Indirect	Induced	= 3	= 3	= 3	= 0.3	= 0.3	= 0.6	= 0.6	= 6 - 8.9	
				National	Mid long	Medium / high	Highly Probable	Medium / high	Medium / high	Medium / high	Medium / high	
				= 4	= 4	= 4	= 0.4	= 0.4	= 9 - 11.9	= 0.8	= 9 - 11.9	
				International	Long	High	Definite	High	High	Low	High	
				= 5	= 5	= 5	= 0.5	= 0.5	= 12 - 15	= 1	= 12 - 15	
Operational Phase	Positive	Cumulative										

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## **6. Conclusion**

Any new buildings and/or developments will have an impact on its environment in many ways, but especially on the existing visual and scenic environment. These mitigating measures aims to find a balance to integrate the new development in its environment and further enhance the existing landscape to a acceptable visual level .

These mitigation measures will need to be implemented and monitored throughout the planning, design development, construction, maintenance and operation of development if the mitigation of the visual impact of this development is to be significantly and successfully achieved.

## **7. Source Material**

### Documentations & publications relevant to this study:

- WM de Kock Associates (March 2018) SECTION B, **Aalwyndal Precinct Plan**, Mossel Bay Municipality
- CNdc Africa (Pty)Ltd. (2018) Mossel Bay Municipality, **Spatial Development Framework**. Western Cape Government
- MULLER GLOBAL (26 November 2020) Site Sensitivity Verification Report: Aalwyndal Mossel Bay Development, **Impact on Civil Aviation Installations**.
- Urban Engineering (July 2019 Draft) **Traffic Impact Assessment** – Erf 21244 Aalwyndal Mossel Bay
- Oberholzer, B. 2005 Guidline for involving visual & aesthetic specialists in EIA processes: Edition 1. CSIR Report No ENV-s-c 2005 053 F. republic of South Africa, Provincial Government of the Western Cape, Department of Environmental Affairs & Development Planning, Cape Town.