



GEORGE REX

Proposals for development

ERF 12403, KNYSNA

ALTERNATIVES 1 - 4

VISUAL & AESTHETIC IMPACT ASSESSMENT

September 2006

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1. EXECUTIVE SUMMARY

Introduction

The proposed development on Erf 12403, referred to George Rex, is a proposed 'Brownfield development' defined by the contamination and degraded state of the current site.

The public's sense of landscape or scenic quality is based on the perception that the site is a functioning and healthy wetland area and a natural habitat for wildlife and vegetation. However, the reality of the current state of the site shifts a 'paradigm' in which poor management and anthropogenic impacts have created an unhealthy and degraded condition which offers little benefit to the community.

Analysis and Simulation

Through photographic analysis and simulation one is able to see an impression of the proposed impact of development. Densities and forms are similar to those adjacent to the site and despite the proposal for multi-storey structures; views are not inhibited or impacted.

Assessment of Impacts

Due to the nature of development and the current site conditions the impacts are few and of little consequence. Visually and aesthetically, the proposed development offers opportunity for rehabilitation and enhancement and despite the effects of increased traffic or construction, the proposal will greatly benefit the community.

The impacts identified are:

- | | |
|---|----------|
| • Eradication of Invasive Alien Vegetation | Positive |
| • Loss of Existing Vegetation | Neutral |
| • Change in Land Use | Positive |
| • Introduction of rehabilitated wetland | Positive |
| • Introduction of visually intrusive elements | Negative |
| • Increase in traffic circulation | Negative |

Conclusion

The Best Practicable Environment Option (BPEO) is either **option 2 (BID Plan Option) or option 4 (Densification Option)**. These would be most consistent with existing density and provide a needed commercial/retail outlet in the area. Option 4 provides more apartment living and higher residential dwelling density. If provided for—as shown on plans, walking paths could link directly to existing transit corridors.

The existing landscape offers a high Visual Absorption Capacity and mitigation measures have been suggested that would offset any visual impact. If managed properly the proposed development will improve the visual and functional state of the site

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2. INTRODUCTION

CMAI was appointed by the Jazz Spirit Development Company to undertake the Visual Impact Assessment for Erf 12403 KNYSNA and the proposed development referred to as GEORGE REX.

The George Rex Development is located at the intersection of George Rex Drive and Howard Street. It is bounded on the north by a local driving range and to the west by Hunter's Home Estates and a wetland area. Knysna Municipal Golf Course is located on the south, across Howard Street and to the east Ashmead resort and the tidal salt marsh—part of the Knysna Lagoon.

The proposed development is best termed as part of an urban brownfield development. Brownfield developments are characterized by the reuse or rehabilitation of a degraded or contaminated site. According to the Background Information Document, "The land, which was recently acquired by new owners, has become derelict and environmentally degraded and, until it was cleared recently, totally overgrown with invasive alien vegetation. Over the years between 30,000 m³ and 40,000 m³ of sawdust was dumped on the site... Old photographs show the in 1936 16.2 ha of the site was natural estuarine wetland. This has shrunk to 0.7 Ha today." ¹

In a recent Groundwater Assessment, it was determined that, "The site slopes from the northeast towards the southwest, with an elevation of around 2 to 3 meters above mean sea level... Groundwater depths were reported by Bornman and Adams (2004) to range between 0.15 and 1.1m below the surface. These levels were however reported during drought conditions. During wetter conditions heavy rainfall events have caused flooding over a large part of the property." ²

The site sits vacant and unused currently. In recent months a permit has been issued and the stockpiling of soil has taken place. Civic interaction with the site is on a visual basis or based on proximity (noise, smell). This connection with the character of the site serves as the basis for opposition to any proposed development. It has also given the public the impression that the site is a preserved greenfield which is far from what recent groundwater and soils testing has revealed.

In terms of visual impact, it is difficult for one to sacrifice the appearance of a functional wetland for a proposed development. However, development could afford the opportunity to rehabilitate the existing wetland and enhance the greenspace through decontamination and the introduction of native or non-invasive species of trees, and shrubs. It would also provide a much needed commercial, retail hub and other such benefits.

¹ George Rex Place Erf 12403 KNYSNA Background Information Document April 2006

² WSP Environmental. George Rex Drive Development Groundwater Assessment September 2006

Three alternatives for development are proposed:

DESCRIPTION	ALTERNATIVE 2 REV. 3 BID PLAN OPTION	ALTERNATIVE 3 REV. 2 LOW DENSITY OPTION	ALTERNATIVE 4 REV. 4 DENSIFICATION OPTION
Restaurants	4	2	-
Retail units	21	16	16
Office units	31	11	11
Apartments	32	-	209
Single residential units	121	137	116
Community centre	1	-	1
Restaurants m ²	1,692	1,684	-
Retail units m ²	11,380	10,209	14,253
Office units m ²	8,237	2,621	5,835
Apartments m ²	3,220	-	23,525
Single residential units m ²	47,448	46,596	38,433
Community centre m ²	765	-	514

It should be noted that **Alternative 1** is deemed the “No-Go Option” and the site remains as is.

Below is an aerial photograph of Knysna and the location of the proposed development.



GEORGE REX LOCALITY--KNYSNA

A site plan further indicates current conditions and the bounding features of the proposed development.



3. TERMS OF REFERENCE

3.1. Plan of Study for EIA

The Plan of Study for the EIA was issued by Pieter Badenhorst Professional Services CC. It is as follows:

INTRODUCTION

Details of the alternatives to be investigated will be made available through a layout diagram and description of each.

BASELINE STUDIES

None

LEGISLATION

CSIR (2005) describes the legal, policy and planning context for involving an economist in an EIA. Please study those requirements and include those requirements as well as any other in the impact assessment report.

IMPACT ASSESSMENT

A report is required to illustrate the visual impact of the different alternatives and include an assessment of the impacts of the alternatives that were identified (use table at the end of this document). The impact assessment will need to consider the potential negative as well as positive impacts that would result from the proposed development. The report must also include mitigation measures.

Consider the full project cycle and use the criteria as listed in CSIR (2005; p27) (also see section 5). Also refer to the full text of CSIR (2005).

Together with the above also provide a response to the I&AP comments as captured in the Scoping Report and comments received via the Planning Application.

CRITERIA FOR ASSESSMENT

The EIA Regulations, published by the Department of Environmental Affairs and Tourism (April 1998) in terms of the Environmental Conservation Act No. 73 of 1989 list the following criteria:

See Box 12 on page 10 of this report

3.2. Level 2 Visual Input

According to the CSIR 2005 Guidelines, the proposed development falls under the description of a **Category 4 development** (see appendix 10.2.). With **minimal visual impact expected** (see appendix 10.3) this study required a **level 2 visual input** including (see appendix 10.4 and 10.5):³

- **Identification of issues raised in scoping phase, and site visit;**
- **Description of the receiving environment and the proposed project;**
- **Establishment of view catchment area and receptors;**
- **Brief indication of potential visual impacts and possible mitigation measures**

4. METHODOLOGY

4.1. Public Participation: Scoping Process

The scoping process was undertaken as part of the EIA by Pieter Badenhorst Professional Services CC

The main concerns pertaining to the visual impacts highlighted during the scoping process were as follows:

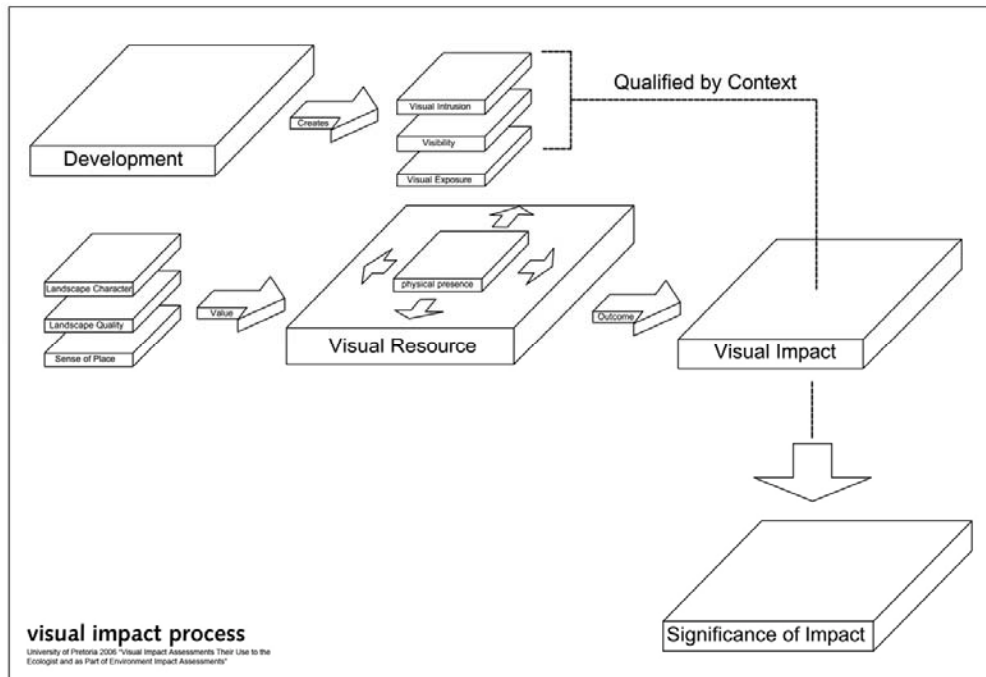
4.1.1. Visual Impact and Loss of Character

- We would be overlooking this commercial / residential establishment spoiling not only the view...
- We enjoy a view of The Heads, the lagoon and the wooded wetlands east of Ashmead and which also includes all the other features of this once pristine area
- The raising of height limitation from 2 (8m) to 3 (9m) storeys on top of an increased floor level of 3.5 metres above mean sea level is unacceptable to the residents of Hunters Village and others, who have bought at considerable cost a home with a view of the lagoon and will now lose it.
- VISUAL IMPACT...The view from George Rex Drive will be unbroken masonry 10,5m high
- The Sense of Place in Knysna is firmly based on the estuary in all its moods. We submit that we are fast approaching the time when even this long - suffering entity will begin to crack under the weight of development demands. It simply is not realistic to claim that this or that development has minimal or no negative effects

³ Oberholzer, B. 2005 Guideline for involving visual & aesthetic specialists in EIA processes: Edition 1. CSIR Report No ENV-S-C 2005 053 F.

4.2. Visual Impact Process

The illustration below describes the Visual Impact Process:



This diagram appropriately defines the factors and impacts involved in a development such as George Rex.

The same document states, "Visual impact is measured as the change to the existing visual environment (caused by the physical presence of a new development) and the extent to which that change compromises (negative impact) or enhances (positive impact) or maintains the visual quality of the area. Visual Impact Assessments employ three basic products or themes to visually quantify the variety of defined visual parameters used for the assessment.

- **Photo-simulations.**
- **Viewshed Analysis**
- **Visual Interpretation⁴**

4.2.3. Visual Impact Assessment

Impact as defined by the CSIR (2005) document is, "A description of the effect of an aspect of the development on a specified component of the biophysical, social or economic environment within a defined time and space ..."⁵

⁴ University of Pretoria Research Document. Visual Impact Assessments Their Use to the Ecologist and As Part of Environmental Impact Assessments. Date of Publish unknown.

The following lists the specific criteria used to for impact assessments

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 Oberholzer, B. 2005. Guideline For Involving Visual & Aesthetic Specialists in EIA Processes: Edition 1.

As the impact assessment tables are formed from criteria listed, the discussion in regards to each impact will centre on the broader aspects of impacts.

See the table below for the criteria used for the assessment of impacts:

<i>Box 12: Criteria used for the assessment of impacts</i>
<p>The assessment of impacts is based on a synthesis of the following assessment criteria:</p> <p>Nature of the impact - an appraisal of the visual effect the activity would have on the receiving environment. This description should include visual and scenic resources that are affected, and the manner in which they are affected, (both positive and negative effects).</p> <p>Extent – the spatial or geographic area of influence of the visual impact, i.e.:</p> <ul style="list-style-type: none">▪ <i>site-related</i>: extending only as far as the activity;▪ <i>local</i>: limited to the immediate surroundings;▪ <i>regional</i>: affecting a larger metropolitan or regional area;▪ <i>national</i>: affecting large parts of the country;▪ <i>international</i>: affecting areas across international boundaries. <p>Duration - the predicted life-span of the visual impact:</p> <ul style="list-style-type: none">▪ <i>short term</i>, (e.g. duration of the construction phase);▪ <i>medium term</i>, (e.g. duration for screening vegetation to mature);▪ <i>long term</i>, (e.g. lifespan of the project);▪ <i>permanent</i>, where time will not mitigate the visual impact. <p>Intensity – the magnitude of the impact on views, scenic or cultural resources.</p> <ul style="list-style-type: none">▪ <i>low</i>, where visual and scenic resources are not affected;▪ <i>medium</i>, where visual and scenic resources are affected to a limited extent;▪ <i>high</i>, where scenic and cultural resources are significantly affected. <p>Probability – the degree of possibility of the visual impact occurring:</p> <ul style="list-style-type: none">▪ <i>improbable</i>, where the possibility of the impact occurring is very low;▪ <i>probable</i>, where there is a distinct possibility that the impact will occur;▪ <i>highly probable</i>, where it is most likely that the impact will occur; or▪ <i>definite</i>, where the impact will occur regardless of any prevention measures. <p>Significance – The significance of impacts can be determined through a synthesis of the aspects produced in terms of their nature, duration, intensity, extent and probability, and be described as:</p> <ul style="list-style-type: none">▪ <i>low</i>, where it will not have an influence on the decision;▪ <i>medium</i>, where it should have an influence on the decision unless it is mitigated; or▪ <i>high</i>, where it would influence the decision regardless of any possible mitigation. <p>Note: These significance ratings may have limited usefulness unless they are described in terms of the broader context. The criteria given in Box 11 could assist in this regard.</p> <p><i>Source: Adapted from the criteria provided by Department of Environmental Affairs and Tourism, 1998</i></p>

5. RESULTS

5.1. Landscape Character

Landscape Character as defined by the Bureau of Land Management is: the arrangement of a particular landscape as formed by the variety and intensity of the landscape features and the four basic elements of form, line, colour, and texture. These factors give the area a distinctive quality which distinguishes it from its immediate surroundings⁶

The site is defined by its reeds and wetland type vegetation—often brown or light green in colour. The leafy grassy interior is a deep green indicating a resilient nature—given traffic, current clearing, and other site activity. The trees and vegetation have been defined as alien and subject to removal—with low conservation value. The native and indigenous trees located on site are young enough to be transplanted and have low conservation value due to their age.

5.1.1. Morphology and Topography

The topography of the site is relatively flat, originally part of the tidal salt marsh; its average elevation is 2m above msl. However, beyond the site boundaries, the topography becomes much more dynamic. To the east, Hunter's Home Estates rises on a gradual slope, elevating the community to approximately 10m above msl (see aerial photo and base plan information). The land below Hunter's Home Estates gradually slopes from northwest to southeast as it becomes part of the tidal salt marsh and the Knysna Lagoon.

5.1.2. Hydrology

The site is characterized by its wetland—this is created by the stormwater that is retained and slowly drained throughout the site by furrows and depressions. The southeast corner contains a small but functional estuarine wetland—evident in the reed and vegetation type. At times of severe flooding, the site is mostly covered by water—due to the size and depth of culverts crossing George Rex drive and draining to the lagoon.

5.1.3. Surface/ Vegetation Cover

Historically, the site has been transformed due to the anthropogenic activities. According to Bornman (2005) the following impacts have had an influence on the present vegetation distribution of the site:

- Construction of George Rex Drive reduced the interaction of wetland with the Knysna Estuary

⁶ Bureau of Land Management, U.S. Department of Interior 2004. Visual Resource Management Manual 8400

- The small culvert under George Rex Drive prevents adequate flushing of the site and during high rainfall periods the wetland are flooded with stormwater.
- To reduce the risk of flooding, an artificial canal was excavated that conveyed the stormwater to the culvert
- Large quantities of wood waste (30,000-40,000 m³) was dumped on the site, destroying and altering the habitat
- Alien species invaded the disturbed areas on the property, e.g. wood waste dumpsite, banks of the artificial canal, along the roads and around the dwelling.
- Seepage from the adjacent sewage wastewater treatment works provide a continuous supply of nutrient rich water that has lead to the establishment of monospecific stands of the common reed, *Phragmites australis*
- Development of Hunter's Estate created more impervious surfaces that resulted in an increase in stormwater run-off onto the property⁷

5.1.4. Current on-site and adjacent land use

Currently the site is used to stockpile soil from a local construction site. Previously it was the location of a small paintball business which was based near the sawdust dump. There is no current civic use of the site and it appears inaccessible due to the roadside furrows which have been recently inundated with stormwater.

As described earlier, the Knysna Municipal Golf course is located to the south and to the north, a golf range and the municipal sewer works. To the west, Ashmead Resort and the Lourie Park provide conference centre facilities and sporting venues. George Rex Drive serves as a primary transport route for residents of the Heads, Sparrebosh, Leisure Isle and Rexford. This route is also a commonly used biking and walking route.

5.2. Landscape/ Scenic Quality

As defined by the Bureau of Land Management, Scenic Quality is the relative worth of a landscape from a visual perception point of view.

In the case of George Rex, it may be the appeal of the site to those who live near it or who may interact with it during a commute, or a walk. The scenic or landscape quality could be based on the vegetation and the wildlife that is found in the wetlands such as frogs and birds. A commuter's perception of the site may be one of dense reeds and grasses, and that of a naturally occurring wetland.

⁷ T. Bornman. Environmental Assessment of the Wetlands, Drainage Lines and Trees on Erf 12403, Knysna. November 2005, IECM Report No. C131

While the appearance and perception of a natural habitat may appeal to the general public, site conditions and habitats are based on the mismanagement of stormwater and the lack of land management. According to Bornman (2005) under natural conditions (before anthropogenic impact), very few, if any, trees occurred on the site. As stated in the current Environmental Assessment (Bornman 2005) the site is described as “neglected and derelict” (pg 9).

5.3. Sense of Place

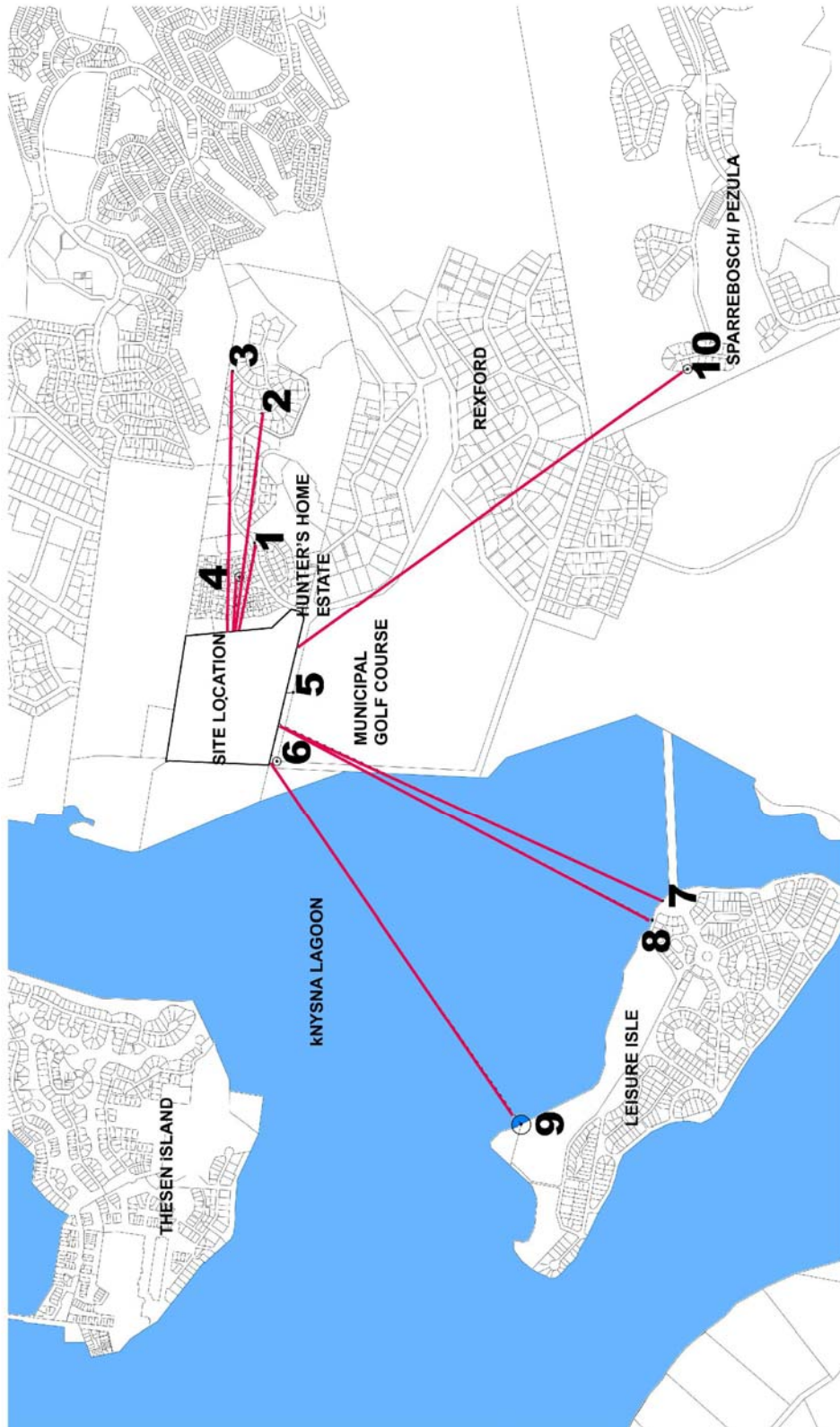
According to Lynch (1992) sense of place “is the extent to which a person can recognize or recall a place as being distinct from other places-as having a vivid, or unique, or at least particular character of its own.”

Sense of Place for the proposed development is defined visually. The public has no interaction with any site element physically. This visual connection is based on a state of neglect and dereliction—which is displayed in a wetland type environment. Birds, frogs, and the like have also become recognizable features--this too has less to do with the inherent character of the property and is based on the collection of stormwater and undisturbed ground suitable for habitat.

The site has very little cultural or social value. Beyond that of an empty portion of land which sits at the intersection of two cross streets, there is little identity associated with this property.

5.4. Photographic Analysis

Photographic analysis is used to show existing views as well as proposed 'bulk' visual intrusion or impact. The map below indicates the distance and approximate height from the proposed development:



VIEW POINT DESCRIPTIONS:

- View point 1: Hunter's Home- 330m from site 34m above msl
- View point 2: Fisherhaven- 800m from site >50m above msl
- View point 3: Fisherhaven- 953m from site >50m above msl
- View point 4: Hunter's Home Estate- 203m from site 23m above msl
- View point 5: Howard Street- 26m from site 2m above msl
- View point 6: Howard Street- 30m from site 2m above msl
- View point 7: Leisure Isle- 1540m from site 3m above msl
- View point 8: Leisure Isle- 1535m from site 3m above msl
- View point 9: Leisure Isle- 1608m from site 2m above msl
- View point 10: Sparrebosh- 1750m from site 134m above msl

5.5. Existing Conditions

The site has limited visibility within 2 kilometres. Due to this limited visibility and size of the development, a full scale viewshed analysis has been omitted. Instead, photographs have been taken which characterize views from various locations

The prevailing concern was vistas from the higher ground to the east of the property including Hunter's Home Estates and the higher portions of Fisherhaven. Another set of photographs also characterize the views from the lagoon—specifically Leisure Isle (this could also include Thesen Island and further). The third set of photographs characterize views from Pezula and Sparrebosh—these could also include vistas from the heads looking north.

5.5.1. Viewpoint 1





5.5.2. Viewpoint 2



5.5.3. Viewpoint 3



5.5.4. Viewpoint 4





5.5.5. Viewpoint 5



5.5.6. Viewpoint 6



5.5.7. Viewpoint 7



5.5.8. Viewpoint 8





5.5.9. Viewpoint 9



5.5.10. Viewpoint 10



5.6. Proposed Conditions: Photo Simulation

The following exercise demonstrates bulk visual intrusion or impact. Throughout the process of design digital models are used to give an impression of the form and scale of the proposals. These models can also be valuable in showing density, shape, size and form.

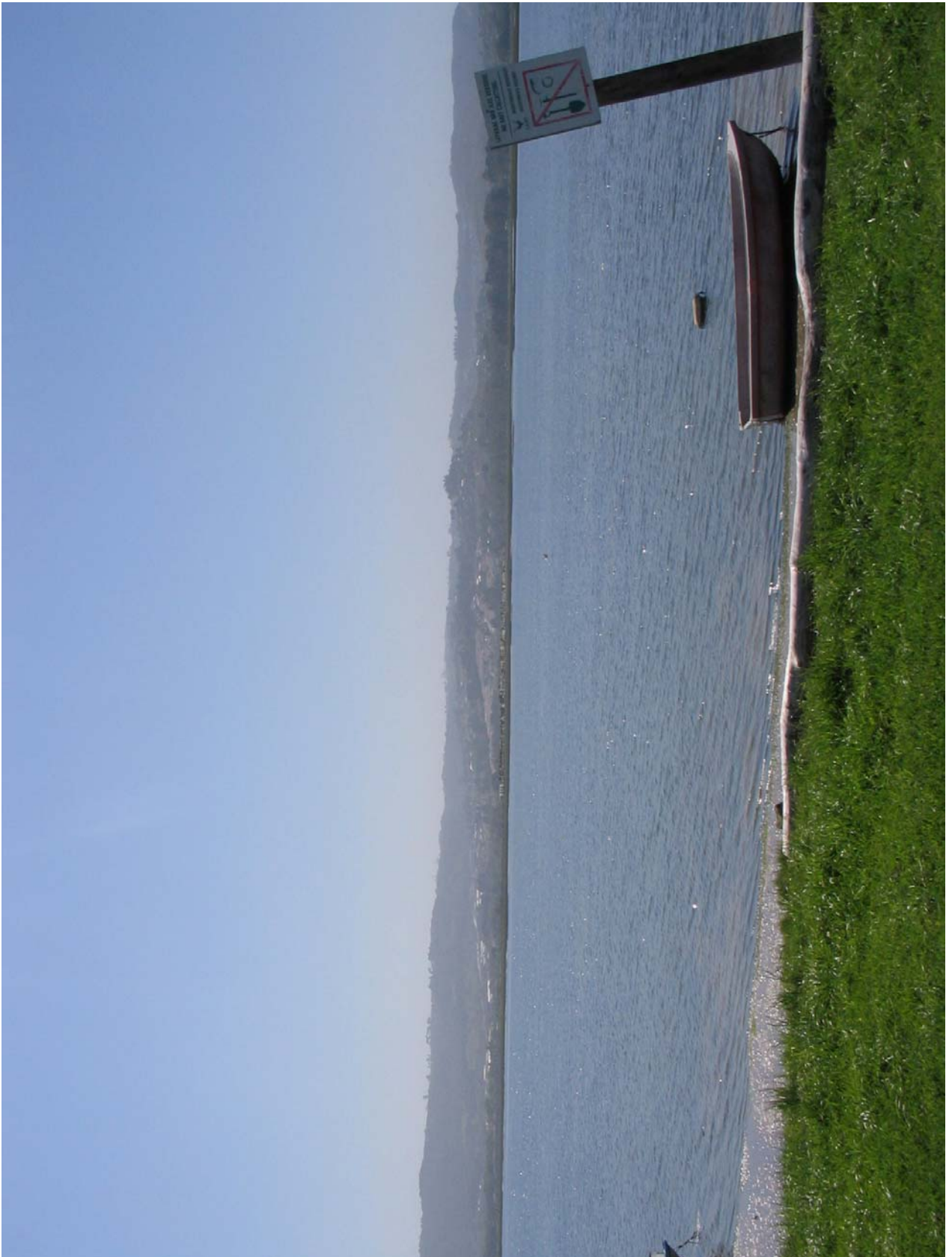
Note 1: This is not a realistic photo montage. This process did not incorporate the tools used in creating photomontages as required by Level 3 Visual Impact Assessments. A simply digital model was used and views were 'clipped' at approximate heights and distances.

Note 2: Proposed colours and textures are not specified. Vegetation such as tree lined streets or landscaped open space is not displayed in the following photos. Assumed buffer vegetation has been included and atmospheric conditions have been applied.

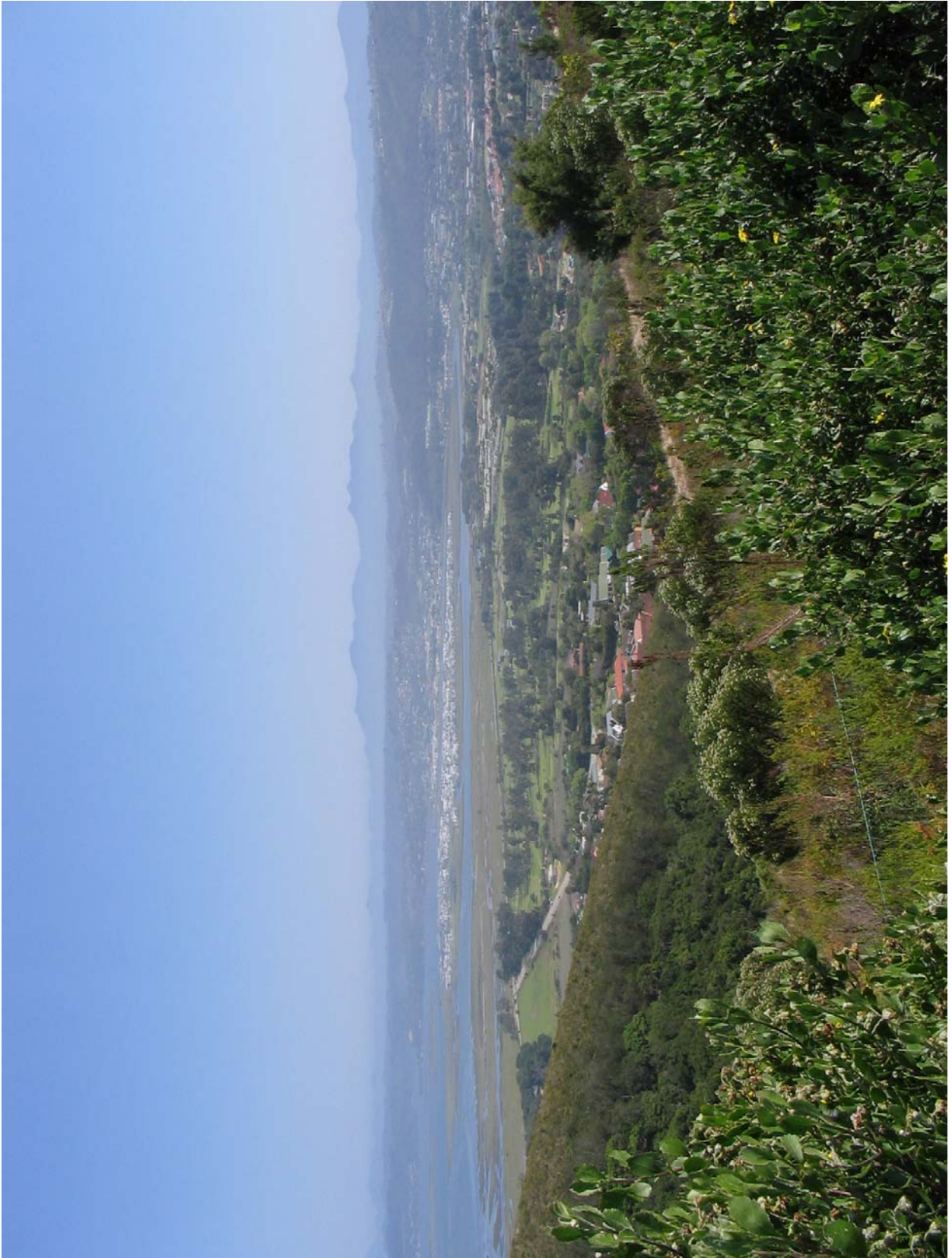
5.6.1. Photo Simulation GR1 from view point 4 Hunter's Home Estate:



5.6.2. Photo Simulation GR2 from Viewpoint 9 Leisure Isle



5.6.3. Photo Simulation GR3 from Viewpoint 10: Sparrebosh/ Pezula



6. ASSESSMENT OF IMPACTS

6.1. *Specific Criteria for Visual Impact Assessment*

6.1.1. **Visibility of Project**

Due to the scale and exposure of the proposed development, it has **moderate visibility**. This visibility does little to hinder existing views to the heads or the lagoon.

6.1.2. **Visual Exposure**

As it is consistent with neighbouring densities and, based on distance will have a diminishing exposure it has **moderate exposure**; that is, it will be recognizable but not dominant

6.1.3. **Visual Sensitivity of the Area**

The area has **low visual sensitivity**—although recognized through visual contact; it has little value and is defined as neglected, poorly managed, and derelict.

6.1.4. **Visual Sensitivity of Receptors**

The receptors have **high sensitivity** as residential neighbourhoods and scenic routes.

6.1.5. **Visual Absorption Capacity**

The existing landscape has a **high VAC** as it is highly transformed from its current state and is located near sea level surrounded by vegetation and development of similar density and form

6.1.6. **Visual Intrusion**

The proposed development will have **low visual intrusion**. As stated above, it will be located near development with similar density and will improve current site conditions.

6.2. *Impacts and criteria used for assessment*

Several visual impacts will take place throughout construction and operational phases. A brief indication of potential impacts and their nature is as follows:

- | | |
|--|-----------------|
| • Eradication of Invasive Alien Vegetation | Positive |
| • Loss of Existing Vegetation | Neutral |
| • Change in Land Use | Positive |
| • Introduction of rehabilitated wetland | Positive |
| • Introduction of visually intrusive elements | Negative |
| • Increase in traffic circulation | Negative |

The following criteria apply to the most significant impacts. Positive, negative and neutral impacts are considered.

6.2.1. Extent

The extent of these impacts will be **local** affecting the surrounding areas. This would include the improvement of stormwater circulation and drainage, the improvement of site conditions throughout—and decontamination/ rehabilitation of the existing estuarine wetland.

6.2.2. Duration

The duration could be categorized as **medium term**. In the case of loss of vegetation and change in land use, screening methods such as road side planting and landscaped open spaces would take effect as they matured.

6.2.3. Intensity

The proposed impacts would be of **low intensity** due to the existing development and infrastructure.

6.2.4. Probability

All impacts could be considered **definite** this would extend to the removal of vegetation as well as the increase in traffic circulation

6.2.5. Significance

Visual Impacts have **low significance** when considering the development.

7. DISCUSSION

As defined earlier in this assessment, the proposed development could be termed an “urban brownfield development”. This has further been supported by existing site conditions and historical land uses. The character and quality of the land, although noted, rests on the current conditions of a poorly maintained erf within a growing urban fabric.

Elements of high conservation value, specifically, the estuarine wetland in the southwest corner have been avoided. The proposed development seeks to enhance the site conditions—improving groundwater and soil quality. If the current conditions continue, the land will degrade negatively impacting the visual character of the site as well as possibly causing harm to the Knysna estuary.

All alternatives will increase land use, traffic circulation, and increase development activity such as construction and noise. These could be perceived as negative impacts; however, the positive outcomes cannot be overlooked including the rehabilitation of the site and the affects in the local economy, and community.

7.1. Management Recommendations

Management recommendations in regards to mitigations are as follows:

- **Specified and reviewed planting/ landscaping** the site is to be corporately maintained including street side planting and the design and specification of open space landscaping.
- **Ongoing monitoring** and testing of wetland conditions and water circulation to ensure healthy habitats for birds and other wildlife.
- **Architectural Guidelines** to prevent disjointed or contrasting architecture. These guidelines are to take into consideration existing development and styles.

7.2. Response to Comments

1. As reported in Bornman (2005) the character of the existing vegetation depends much upon the historical use of the land. This has ranged from dumping to large scale clearing—all anthropogenic impacts. The proposed development provides an opportunity to rehabilitate the estuarine wetland to the southwest and introduce trees and vegetation that will attract a variety of wildlife. See photo simulation 1GR in the visual impact assessment.
2. Noted. The dumping and construction will not be a permanent visual impact.
3. See photo simulation 1 GR for illustration. The stand owners in Hunter's Home Estates sit well above 25 msl. The view to the heads and the lagoon will not be blocked by any development
4. Noted. See previous comment. The vistas to the heads and lagoon will not be blocked. Site lines are from above 20/25 msl and will not be impaired by structures.
5. Noted.
6. Noted. The visual character of this property is to be retained as the estuarine wetland is conserved and the open space is planted with native trees and landscaped features. This should play its role in avoiding conservation worthy features and rehabilitating a brownfield site.

8. RECOMMENDATIONS

Knysna will continue to grow and develop. With this in mind, it is crucial to develop in a way that benefits not only the need for growth but the sensitivity and character of the landscape.

As noted by Bornman (2005), "The proposed development of Erf 12403 provides an opportunity to rehabilitate and enhance the estuarine/brackish and freshwater wetlands of the area. The sustainable development of the site could potentially ensure the long term protection of the wetland's ecological (biodiversity),

hydrological (water purification, stream flow regulation and water storage) and erosion control values (stormwater retention). “⁸

9. CONCLUSIONS

The following conclusion is based on information relevant to the project in summary. As recommended in the CSIR 2005 document these help to define and explain findings

9.1. Justifying Underlying Assumptions

Due to the type of development and the location there are several underlying assumptions. These assumptions have been made in good judgment and with the understanding that site conditions and other relevant factors may influence the final outcome of this proposal

In regards to architecture CMAI have presented and designed concepts that clearly communicate the various options for development. They have not however, provided texture, materials, paint colours, or any other design related specification.

In regards to roads, the surfaces and coverings have not been specified. The assumption has been made that they will all be impermeable and solid surface. Tree planting and roadside landscaping has been provided for in the road reserve but is not shown or detailed. Sections have been produced for the purpose of analysis but further design has yet to be submitted.

In regards to landscape architecture, layout, planting plans and planting lists have not been designed. The creation of specified planting lists and restrictions has been suggested however, such specifications will be determined when the type and size of the development has been established.

9.2. The Best Practicable Environmental Option (BPEO)

The Best Practicable Environmental Option would be either Option 2 or Option 4. This would be most consistent with the existing density and need for commercial/retail outlet in the area. Option 4 provides more apartment living—and higher residential dwelling density. If provided for—as shown on plans, walking paths could link directly to existing transit corridors.

Option 3 is feasible however, due to the extents of the site and the nature of this proposal, densities may not be similar and larger, less structured open space may not allow for successful circulation of stormwater.

The no-go option is not an option. The fallacy that the site is a natural and healthy wetland is supported by public opinion and not research. As discussed, the current state of this site will only prove harmful if not remedied—the negative impacts will reach beyond site boundaries in time.

⁸ T. Bornman Environmental Assessment of the Wetlands, Drainage Lines and Trees on Erf 12403, KNYSNA November 2005 IECM report NO. C131

9.3. Distribution of Impacts

Who loses? Local land owners who feel a sense of ownership in regards to views and vistas may find that compromise is inevitable as growth and regional development takes place. Perceiving ownership from a road or a window is a common occurrence in landscapes such as exists in the Garden Route. Though 'the view out my window to a wetland' is a part of the value of a property, it is not part of the property. In the case of George Rex, knowledge of the historical land use and current property status offer much reason to work to develop in a sensitive manner and with the indigenous character of Knysna in mind.

Who wins? The proposed alternatives for development include a variety of land uses which will cater and benefit the community on the whole. Accessibility would allow the public to interact with the site on a physical level—enjoying the benefits of walking and a retail/ commercial center. The implementation of the development would benefit innumerable industries and the regional community by providing jobs, educational opportunities and venues for activity

10. APPENDICES

10.1. Appendix A: Visual Impact Assessment Tables

Table 1. Expected impacts (**negative**; **positive**; neutral) of the **construction** actions of eight development alternative operations **without mitigation** actions. Positive = green (light = low; midtone = moderate; dark = high); None/Neutral = grey; Small = yellow; Moderate = orange; High = red. Approximate areas affected (where applicable) are given in ha in each block.

Alternative	1	2	3	4
Loss of Existing Vegetation				
Introduction of visually intrusive elements				
Increase in traffic circulation				
Eradication of Invasive Alien Vegetation				
Introduction of rehabilitated wetlands				
Change in Land Use				

Table 2. Expected impacts (**negative**; **positive**; neutral) of the **construction** actions of eight development alternative operations should **all mitigation** and beneficiation recommendations be followed. Positive = green (light = low; midtone = moderate; dark = high); None/Neutral = grey; Small = yellow; Moderate = orange; High = red.

Alternative	1	2	3	4
Loss of Existing Vegetation				
Introduction of visually intrusive elements				
Increase in traffic circulation				
Eradication of Invasive Alien Vegetation				
Introduction of rehabilitated wetlands				
Change in Land Use				

Table 3. Expected impacts (**negative**; **positive**; neutral) of the **operation** actions of eight development alternative operations **without mitigation** actions. Positive = green (light = low; midtone = moderate; dark = high); None/Neutral = grey; Small = yellow; Moderate = orange; High = red.

Alternative	1	2	3	4
Loss of Existing Vegetation				
Introduction of visually intrusive elements				
Increase in traffic circulation				
Eradication of Invasive Alien Vegetation				
Introduction of rehabilitated wetlands				
Change in Land Use				

Table 4. Expected impacts (**negative**; **positive**; neutral) of the **operation** actions of eight development alternative operations should **all mitigation** and beneficiation recommendations be followed. Positive = green (light = low; midtone = moderate; dark = high); None/Neutral = grey; Small = yellow; Moderate = orange; High = red.

Alternative	1	2	3	4
Loss of Existing Vegetation				
Introduction of visually intrusive elements				
Increase in traffic circulation				
Eradication of Invasive Alien Vegetation				
Introduction of rehabilitated wetlands				
Change in Land Use				

10.2. CSIR Key to Categories of development

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

Box 3: Key to Categories of Development

Category 1 development:

e.g. nature reserves, nature-related recreation, camping, picnicking, trails and minimal visitor facilities.

Category 2 development:

e.g. low-key recreation / resort / residential type development, small-scale agriculture / nurseries, narrow roads and small-scale infrastructure.

Category 3 development:

e.g. low density resort / residential type development, golf or polo estates, low to medium-scale infrastructure.

Category 4 development:

e.g. medium density residential development, sports facilities, small-scale commercial facilities / office parks, one-stop petrol stations, light industry, medium-scale infrastructure.

Category 5 development:

e.g. high density township / residential development, retail and office complexes, industrial facilities, refineries, treatment plants, power stations, wind energy farms, power lines, freeways, toll roads, large-scale infrastructure generally. Large-scale development of agricultural land and commercial tree plantations. Quarrying and mining activities with related processing plants.

Explanation of terms used:

Low-key development – generally small-scale, single-storey domestic structures, usually with more than 75% of the area retained as natural (undisturbed) open space.

10.3. CSIR Key to Categories of Issues

Box 4: Key to Categories of Issues

Very high visual impact expected:

Potentially significant effect on wilderness quality or scenic resources;
Fundamental change in the visual character of the area;
Establishes a major precedent for development in the area.

High visual impact expected:

Potential intrusion on protected landscapes or scenic resources;
Noticeable change in visual character of the area;
Establishes a new precedent for development in the area.

Moderate visual impact expected:

Potentially some affect on protected landscapes or scenic resources;
Some change in the visual character of the area;
Introduces new development or adds to existing development in the area.

Minimal visual impact expected:

Potentially low level of intrusion on landscapes or scenic resources;
Limited change in the visual character of the area;
Low-key development, similar in nature to existing development.

Little or no visual impact expected:

Potentially little influence on scenic resources or visual character of the area;
Generally compatible with existing development in the area;
Possible scope for enhancement of the area.

Explanation of terms used:

Fundamental change – dominates the view frame and experience of the receptor;

Noticeable change – clearly visible within the view frame and experience of the receptor;

Some change – recognisable feature within the view frame and experience of the receptor;

Limited change – not particularly noticeable within the view frame and experience of the receptor;

Generally compatible – Practically not visible, or blends in with the surroundings.

10.4. CSIR Categorization of approaches used for visual assessment and Key to Approaches

Table 2: Categorisation of approaches used for visual assessment

Approach	Type of issue (see Box 4)				
	Little or no visual impact expected	Minimal visual impact expected	Moderate visual impact expected	High visual impact expected	Very high visual impact expected
Level of visual input recommended	Level 1 visual input	Level 2 visual input	Level 3 visual assessment	Level 4 visual assessment	

Box 7: Key to Approaches

<p>Level 1 input: Identification of issues, and site visit; Brief comment on visual influence of the project and an indication of the expected impacts / benefits.</p> <p>Level 2 input: Identification of issues raised in scoping phase, and site visit; Description of the receiving environment and the proposed project; Establishment of view catchment area and receptors; Brief indication of potential visual impacts, and possible mitigation measures.</p> <p>Level 3 assessment: Identification of issues raised in scoping phase, and site visit; Description of the receiving environment and the proposed project; Establishment of view catchment area, view corridors, viewpoints and receptors; Indication of potential visual impacts using established criteria; Inclusion of potential lighting impacts at night; Description of alternatives, mitigation measures and monitoring programmes. Review by independent, experienced visual specialist (if required).</p> <p>Level 4 assessment: As per Level 3 assessment, plus complete 3D modeling and simulations, with and without mitigation. Review by independent, experienced visual specialist (if required).</p>
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Quantitative aspects of visual inputs often make use of landscape resource classification methods. These may include combinations of landforms (geomorphology), vegetation cover and land use mapping. The basic components comprising an accepted methodology for visual studies are given in Box 8.

It is common for these studies to make use of computer-based techniques and digital cameras for greater accuracy and ease of mapping and constructing realistic visual simulations. GIS and CAD software are often used to create digital terrain models (DTM), which are in turn used to determine view catchments and view shadows. The actual approach used would depend on the level of visual input required in the EIA process, as put forward in Box 7.