

**HEROLDS BAY COUNTRY ESTATE
THE PROPOSED RESIDENTIAL DEVELOPMENT ON
PORTION 7 OF FARM BUFFULSFONTEIN NO 204**

VISUAL IMPACT ASSESSMENT REPORT

**FOR
SHARPLES ENVIRONMENTAL SERVICES**

**DRAFT FINAL 4
FOR COMMENT**

BY



CAVE KLAPWIJK AND ASSOCIATES

TABLE OF CONTENTS

1	INTRODUCTION AND BACKGROUND	4
1.1	Introduction	4
1.1.1	<i>Objectives and Scope of Work</i>	4
1.1.2	<i>The Visibility in Context</i>	5
1.2	Study Approach	6
1.2.1	<i>Study Approach and Method</i>	6
1.2.2	<i>Assumptions</i>	6
1.2.3	<i>Alternatives</i>	7
1.2.4	<i>Limitations</i>	8
2	DESCRIPTION OF THE PROJECT	9
3	DESCRIPTION OF THE AFFECTED ENVIRONMENT	9
3.1	Geology Soils and Topography	9
3.2	Vegetation	11
3.3	Hydrology	12
3.4	Land Use	12
3.4.1	<i>Existing and Previous</i>	12
3.4.2	<i>Future</i>	13
3.5	Visual Characteristics	11
3.5.1	<i>Character</i>	11
3.5.2	<i>Visual Quality</i>	11
3.5.3	<i>Visibility of the Site</i>	11
3.5.4	<i>Sense of Place</i>	12
4	IDENTIFICATION OF RISK SOURCES	13
5	THE VISUAL ASSESSMENT	13
5.1	Site Assessment	16
5.1.1	<i>Analysis</i>	16

	5.1.2	<i>Site Visibility</i>	16
	5.1.3	<i>Opportunities and Constraints</i>	20
5.2		Visual Impact Criteria	20
	5.2.1	<i>Visual Impact of Alternative Layouts</i>	25
	5.2.2	<i>The Construction Phase</i>	30
	5.2.3	<i>Impact Ratings according to Set Criteria</i>	32
	5.2.4	<i>Consequence Rating</i>	35
5.3		Summary of Visual Impacts	35
6		FINDINGS	33
7		RECOMMENDED MITIGATION MEASURES	34
8		DISCUSSION, CONCLUSION AND RECOMMENDATIONS	39
9		REFERENCES	42
10		APPENCISES	43
	10.1	Appendix 1 – Declaration of independence	43
	10.2	Appendix 2 – CV A N Cave	45
	10.3	Appendix 2 – NEMA Regulatios Appendix 6	48

HEROLDS BAY COUNTRY ESTATE
VISUAL IMPACT ASSESSMENT REPORT
FOR
THE PROPOSED RESIDENTIAL DEVELOPMENT ON
PORTION 7 OF FARM BUFFULSFONTEIN NO 204

1 INTRODUCTION AND BACKGROUND

1.1 Introduction

In accordance with the requirements of the National Environmental Management Act (Act 107 of 1998) (NEMA) and the associated promulgated regulations, as amended, the proposed the Herholds Bay Country Estate (HBCE), due to its scale, extent and expected visual impact on the natural and social environments, is subject to investigation of the significance of this impact.

The Herholds Bay Country Estate is located adjacent to Herolds Bay Extension 1 and 2 and Oubaai Golf Estate, approximately 10 km south of George. Refer to **Figure 1, Locality Plan.**

This visual impact study forms part of the Environmental Impact Report (EIR) that will be produced by Sharples Environmental Services (SES), the Environmental Assessment Practitioner (EAP) on the project.

1.1.1 Objectives and Scope of Work

The objective of this report is to assess the potential impact, positive or negative, of the Herolds Bay Development on the existing surrounding visual setting and sense of place for the construction, operation and decommissioning stages of the project.

To comply with the objectives this study will:

- Describe the visual character of the site by evaluating components such as topography and current land use activities. This will record the status quo of the visual environment.
- Identify elements of particular visual quality that could be affected by the proposed project.
- Describe and evaluate the visual impacts of the proposed project from identified critical areas and view fields.
- Determine the extent of the visibility of the project from surrounding areas as well as the night time effect caused by the lighting of the site; and

- Recommend mitigation measures to reduce the potential visual impacts generated by the components of the proposed project for inclusion into the EMP

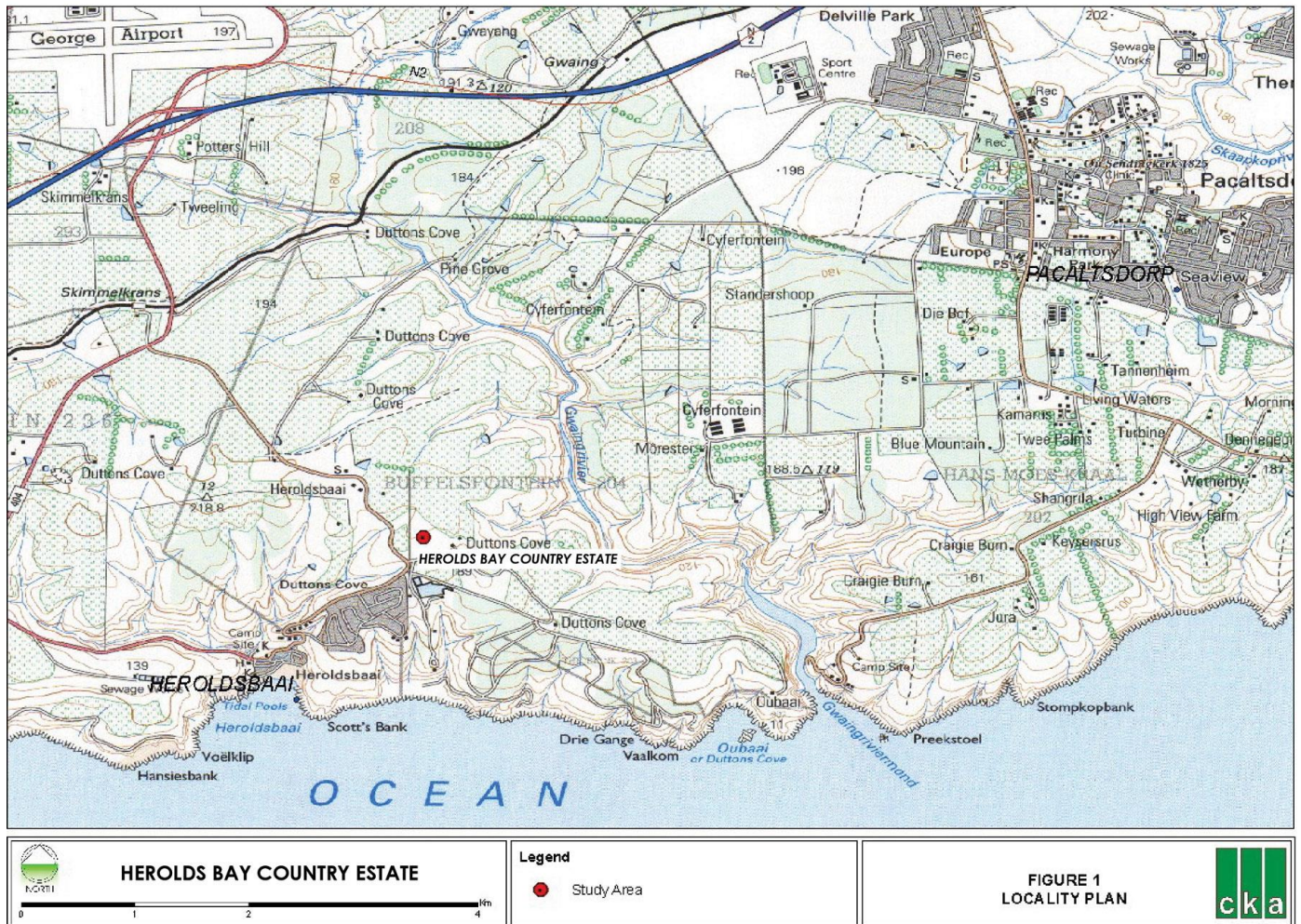


Figure 1: Locality Plan

1.1.2 The Visibility in Context

The size of the proposed HBCE will change the visual character and quality of the local setting i.e. the Sense of Place.

The visual change is due to the arrangement and height of the proposed residential and commercial buildings on the site. These buildings are located in a prominent position on a landform adjacent to an existing suburban housing area known as Herolds Bay Extensions 1 and 2.

1.2 Study Approach

This report considers the visibility or views of the HBCE from within a study area radius of approximately 2.5 km from the site. The visibility of the HBCE will be determined by how it will “fit” into the existing landscape form, character and scenic quality. An assessment of the intensity and significance of the visual “fit” is made using defined criteria. This information is used in the determination of the possible visual impact of the project. The document, ‘Guideline for involving Visual and Aesthetic Specialists in EIA Processes’, Provincial Government of the Western Cape: Dept of Environmental Affairs and Development Planning, Oberholzer, B and CSIR (2005) has been used as a reference for this report.

1.2.1 Study Approach and Method

An overall impression of the setting was obtained during various site visits. The following aspects were identified: critical viewpoints, the extent of the viewshed, intervening elements or structures which blocked views of the site and the character, scale and visual quality of the setting.

Topographical and cadastral maps were used to record ridgelines, view sheds (the areas from where the project is visible) and the scale of the landform variation.

The Regional Strategic Development Framework Plan, . provided information on the future land use of the surrounding areas. Refer to the Town Planning Report.

The visibility and visual intrusion experienced by viewers surrounding the site is described and assessed. These included residential areas, future commercial area and local roads.

The visual intrusion ratings of the zones are 0 -0.5 km (high), 0,5 – 1 km (medium) and > 1 km (low).

The viewshed, the area within which the HBCE can be visible, was determined using 1: 50000 topographic maps. This viewshed was contour based and verified during the site visits.

The visual impact of the HBCE was then assessed and rated according to accepted criteria that define intensity, extent and significance of the visual impact.

The visual impact of the existing land use on the surrounding community was compared to that of the potential visual impact of the HBCE. The significance of the visual impact difference is discussed in the context of the setting.

1.2.2 Assumptions

The following assumptions have been made:

- The Strategic Development Framework Plan with respect to Herolds Bay proposed land use, is current.

- The access routes to the site via Herolds Bay Village and from the district road D1509 to Herolds Bay Extensions 1 and 2 will not be altered.

1.2.3 Alternatives

There are no alternative sites in consideration as the property has been incorporated in the Structure Plan for George and is zoned as infill residential. The two site layouts evolved from a site analysis as part of this report and information provided in the engineering and wetland investigation reports. Discussions with the Environmental Practitioner and the Town Planner resulted in the two Alternative Layouts.

The following alternative site layouts are evaluated.

- These have reference to the original layout which was submitted in the application to amend the urban edge for Herolds Bay. Referred to as the Original Layout.
- The layout that responded to the amended extent of the developable area of the site. Referred to as **Alternative 1. Refer to Figure 2**

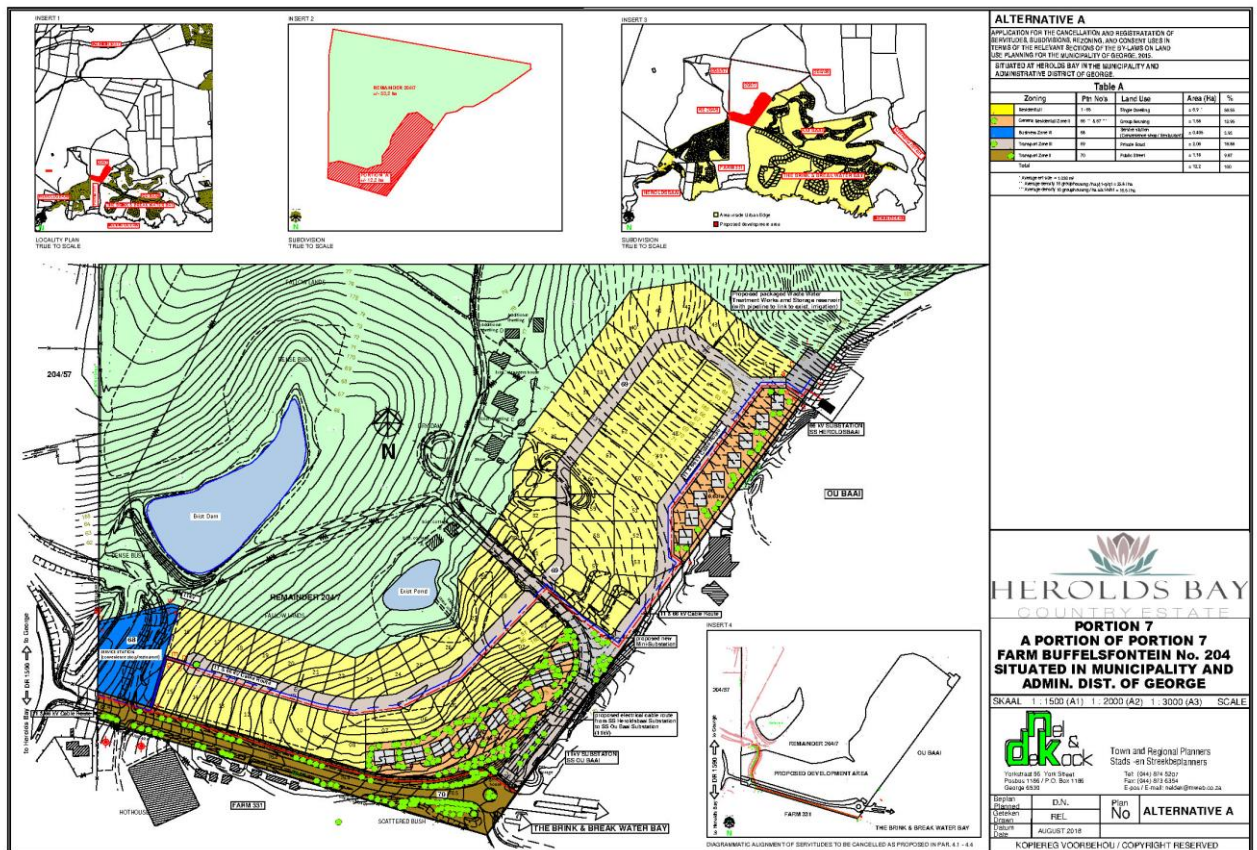


Figure 2. Alternative 1

- The layout that has been revised as a result of technical and planning input and the findings and visual mitigation measures recommended in this report. **Refer to Figure 3 Alternative 2. The Preferred Layout**

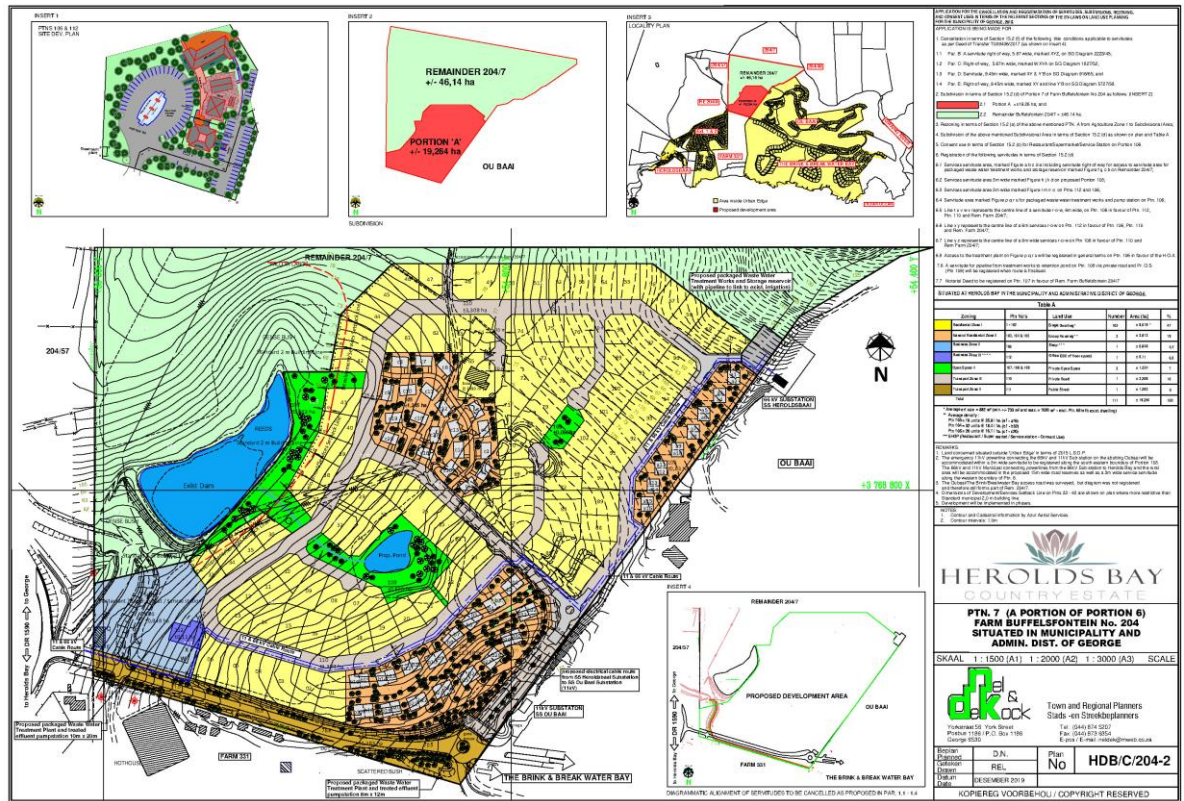


Figure 3 Alternative 2 Preferred layout

1.2.4 Limitations

The purpose of this visual impact assessment study is to identify the visual impact/intrusion of the HBCE in relation to the existing landscape setting. However, while an effort is made to be rigorous and logical in the assessment process, the element of subjectivity does influence the ratings. It has nevertheless been reported in Mc Cool, S.F. *et al* (1986) that the professional visual impact assessor is more critical than the general public.

View obstruction by intervening vegetation and structures has been mapped but not in exact detail. Site observations have identified the most significant obstructions to direct views of the HBCE.

No alternative locations of the HBCE have been assessed as the Site has been determined by the SDF Plan to accommodate residential and commercial development.

In terms of the Guideline for involving Visual and Aesthetic Specialists in EIA Processes, Oberholzer, B., & CSIR, this scale of development does not require a visual simulation of the form in the landscape.

2 DESCRIPTION OF THE PROJECT

The Development Area comprises a portion of land approximately 19 ha in extent on the southern half of the Property. The development area therefore occupies a portion of the remainder of Portion 7 (portion of Portion 6) of the Farm Buffelsfontein No. 204, Herolds Bay.

The subdivision plan for the preferred layout, Alternative 2, incorporates Residential Zones I, II, (single family and group housing) and IV Business (shops and offices). Also included is associated service infrastructure, roads, private open space. Refer to **Figure 3, Subdivision Plan Alternative 2.**

The architectural style is modern incorporating simple forms with clean lines to give visual form and a sense of lightness to the structures.

This is different to the varied form and style of the houses in Herolds Bay Extension 1 & 2. The latter area has no visual cohesion to the proposed development. The cohesion in suburban development usually occurs over time as the road and garden planting matures.

The proposed style will provide visual unity throughout the development in both the residential and commercial areas.

3 DESCRIPTION OF THE AFFECTED ENVIRONMENT

The visual impact of the proposed development will depend on the following characteristics of the site and receiving environment.

3.1 Geology Soils and Topography

The underlying geology of the site and the region is recent sediments that overlie the metamorphosed and tilted sedimentary and igneous rocks that comprise the Cape Folded Belt in this area. The sediments are the result of deposition from the weathering of the folded landform to the north and wave action when the current landform was below sea level. The result of the tectonics and weathering resulted in a coastal plateau between the Outeniqua Mountains and the present sea level.

The soils of the ancient coastal terrace vary in fertility, texture, permeability and distribution/depth. This is the result of the sediment discharge by the rivers that drained the highlands, being sorted by the coastal wave, wind and river flow actions over time.

The result of soil samples from the site to determine the quality for agriculture and structures indicate that only those near, and for a limited area upstream and upslope of the dam, area suitable for crop cultivation. The remainder is underlain by clay soils. The location of roads and structures have been placed on the soils that are the least productive for crop production.

The ancient coastal plateau, on which the site is located, has been and is in the process of "incision" by drainage ways as the surface water cuts its way downward on its journey to the sea. The topography in this area therefore has gently sloping land between the many drainage lines that form streams and rivers that have cut steep sided valleys near the coast and steep cliffs in some places on the beach edge.

The site is at the top end of a first order coastal drainage line that has created a "bowl" landform with an open end at the south-west corner of the site.

Implications for the Development

The "bowl" will visually contain most of the proposed development, however, if the surrounding ridgelines have housing units located on or across them, these will be exposed in views from beyond the limit of the bowl in some areas. Refer to photographs at end of this document. This applies where ridgelines are at a higher elevation than others that surround the site.

3.2 Vegetation

Most of the site's vegetation is irrigated pasture. Isolated pockets of indigenous vegetation exist amongst the pasture areas, near the edges or within old borrow areas.

The north-eastern part of the site comprises of an area of dense indigenous coastal valley bush that has been and is continuing to be invaded by pine, black wattle and blue gum. There also remain some large pine trees that were planted as windbreaks.

Implications for the Development

The extensive pasture provides the visual appreciation of the "bowl" landform while the large trees are objects of focal and vertical scale. The opportunity for unobstructed views between individual and groups houses is provided while the large trees and indigenous groups should, where possible, be retained to maintain the scale and the sense of place. Where blue gums are removed the soil in that area will need to stand or be watered for some time to ensure that the original moisture level is reached. If this is not attended to and houses are built soon after

removal of the bluegums, cracks will occur in the structures as the soil expands. Geotechnical advice is required on this aspect.

3.3 Hydrology

The surface water flow within the “bowl” is mostly sheet flow. There are some drainage lines which become seasonally waterlogged and concentrate flow at times of heavy rain. These moist areas are identified at the flatter area below a slope.

All surface water is directed toward and is collected in the man-made earth wall reservoir (dam). The dam has raised the water table of the adjacent land. This area becomes seasonally wet.

There is a spring in the vicinity of the north-western shoreline of the dam. A borehole and pump are located just below this “eye”. A second borehole and pump are located near the eastern flank of the reservoir and immediately downstream of the dam wall. There is seepage through the dam wall and the soil immediately south is moist year-round. The surface water that flows west, north and east from the ridgelines enters the Gwaing River to the north and other defined drainage lines that flow southward to the coast.

Implications for the Development

The dam is the visual focus of the “bowl” and the associated moist areas on its shoreline should be included as part of the feature.

Drainage lines should be kept free of any development and rather be integrated with the dam to visually extend the dam’s spatial presence. Ideally surface storm water runoff should be accommodated in swales wherever possible to allow soil moisture to be recharged. Underground stormwater pipe networks dry out the subsoil and shorten the time of flow concentration which requires energy dissipaters at the outfall.

3.4 Land Use

3.4.1 *Existing and Previous*

The site formed part of the large property known as (the Remainder of Portion 7 (Portion of Portion 6) of the Farm Buffelsfontein No 20, Herolds Bay). The original vegetation was replaced with pasture grass for dairy and beef cattle as the preferred agricultural practice.

Presently no cattle are grazed although the pasture grass is mowed periodically, but is not irrigated.

To the east of the site is the Oubaai Golf Estate. To the south is the established suburbs of Herolds Bay Extensions 1 and 2. These suburbs are single family residential units on individual erven Residential One.

West and north of the site are dairy farms and vacant agricultural land.

3.4.2 Future

The **George Strategic Development** Framework Plan (GSDF) (Refer to **Figure 3**) shows the land north of Herolds Bay Extensions 1 and 2 as infill housing. The site falls within this area.

The property west of the site and that south west of the access road to Herolds Bay Extensions 1 and 2 is zoned commercial on the GSDF.

The land use north of the site and west of the commercial zone is shown as agricultural.

Implications for the Development

The site's proposed residential land use is visually compatible with the existing and future surrounding land uses.

3.5 Visual Characteristics

3.5.1 Character

The visual character is pastoral. The rolling grass pasture and the dam impart a quiet scenic pastoral character to the site.

3.5.2 Visual Quality

The visual quality is rated as high because of pastoral character. The area serves as a foreground to the distant view of the Outeniqua Mountains.

3.5.3 Visibility of the Site

The visibility of the centre of the site from the northern, eastern and western areas is contained within the ridgelines which form the “bowl”. The proposed development on the south western corner and eastern edge of the site will be visible from the existing adjacent residential area and Hotel and group housing that are within the Oubai Golf Estates western boundary.. . The development in the “bowl” will be most visible from Herolds Bay Extensions 1 and 2 to the south and by future commercial development to the south-west. Refer to photographs from the centre of the Site showing views North, East, South and West, below.

The majority of the proposed development will lie within the topographic bowl created by the local ridge lines which has the farm dam at its centre and visual focus.

The following photographs were taken from the approximate Center {CN}. see **Figure 7 Visibility and Photo Points**.



View Northwards



View Eastwards



View Southwards



View Westward to North- Westward

3.5.4 *Sense of Place*

The tranquil pastoral sense of place is experienced while within the ‘bowl’ of the landform. This is a result of the tree groups, the green pasture and the dam. This sense of place extends beyond the site in the form of the visual image presented to those areas that have direct views onto that area.

Implications for the Development

The scale of the residential and commercial units as well as their position on the landform are considered important aspects that will determine the visual fit of the development to the landform and setting.

4 IDENTIFICATION OF RISK SOURCES

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

The following visual risk sources have been identified:

- The construction of high rise residential (more than 2 storey) or commercial buildings north of the current northern edge of the proposed development.
- The construction of a new bulk electricity transmission line on or near to the ridgelines that are near to or are located on the property.
- The inappropriate location of a local electrical substation and electricity lines on the property.
- The erection of any mast on the high points of the site.
- A significant change in the landform to accommodate the platforms for new buildings and roads.

5 THE VISUAL ASSESSMENT

The Visual Impact Assessment describes the visual impact of the HBCE, according to the criteria and ratings given in the Terms of Reference for this study.

The viewshed analysis provides a graphic representation of the areas from where it is possible to see the HBCE. This map is based on contours but does take into account local screening elements such as, trees and other tall vegetation and existing housing.

The description of the visual impacts associated with the construction phase will be discussed, but will not be presented in the same detail as the operation phase. This is because the visual impacts caused during the activity are of short to medium duration (5 - 10 years). These impacts are also primary impacts (localised, of short duration and easily mitigated at the end of the phase).

It is the operational phase that presents the most significant long-term visual impact. This is primarily due to the scale and form of the HBCE.

The visual scale of the HBCE will reduce as the distance of the observer from the site increases. That means, as the distance doubles, the visibility in scale of the object reduces by halved (Hull & Bishop, 1988). Refer to **Figure 4, Relationship of Distance to Visual Scale**. This has significance with respect to the visual impact of the proposed residential development for distances greater than 300 m from the site boundary or structure.

Apart from the physical form of the HBCE there are roads and landform changes required to accommodate the buildings and roads. These are considered to be additional visual risk sources. Refer to Section 4.

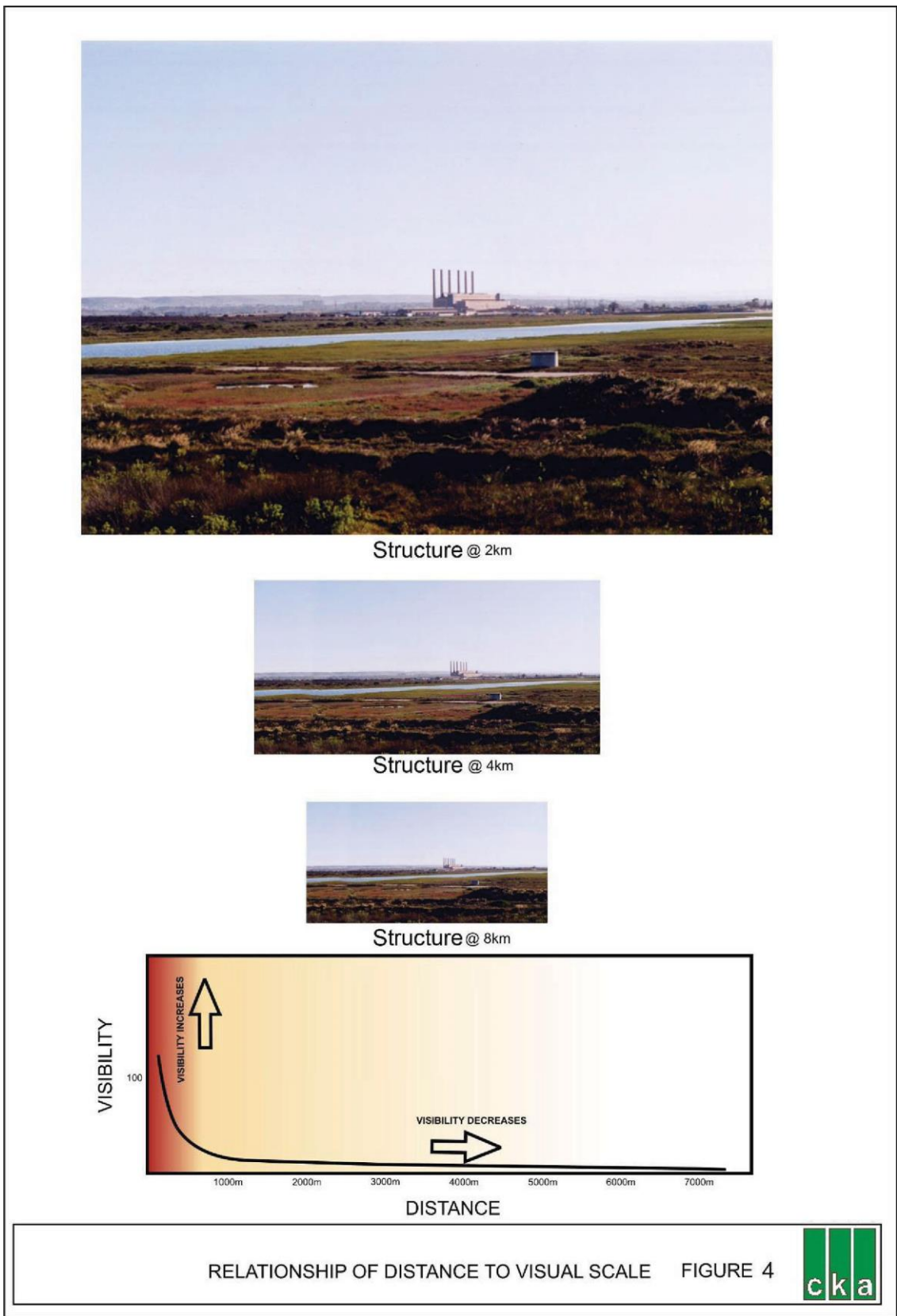


Figure 4: Relationship of Distance to Visual Scale – example of a large structure

5.1 Site Assessment

5.1.1 Analysis

An analysis of the site was carried out to identify the characteristics and attributes that will have an influence on visual quality of the setting. Refer to **Figure 5, Landscape Analysis**.

The predominant visual feature of the site is that the local ridgeline and landform combine to form a “bowl” that can visually contain the central area of the proposed development, with the dam as the focal point.

Conversely views outward from points along the ridgeline are extensive with the views northward to the Outeniqua Mountain Range being the most dominant and picturesque. Most houses on the northern section of Herolds Bay Extensions 1 and 2 have the mountains in their view.

Other visually important aspects are the vegetation groups within the “bowl” that contain indigenous trees, shrubs and plants. Beyond the ridgeline the exotic tree shelter belts to the north west and south east occur. The former contains large specimens of pine trees. The valley vegetation to the north east visually obstructs views to the mountains beyond.

Visually important attributes that relate to the cultural aspect of previous land use are the dam, the homestead on the north eastern portion and borrow areas. There is one next to the dam and another on the south east quadrant slope.

Extensions 1 and 2 will be most visually affected by the proposed development that is adjacent to the Oubaai access road. Other adjacent land will not be affected as there is presently no residential development or because the view orientation is screened by landform, trees or is focused on the golf course e.g. Oubaai Golf Estate.

5.1.2 Site Visibility

The site area on the southern and eastern is elevated due to the topography and cut to accommodate access roads. These areas will be visible from similarly elevated landforms to the south. The contour-based view shed analysis indicates this.

The area zoned for business in the south western corner will be the most visible around the area of the road junction. Refer to **Figure 6, Viewshed**.

On a local scale the night scene will be a visual extension of that of Ext 1 and 2 in terms of brightness. The business area will stand out at night., the visibility of the project from surrounding adjacent land uses is indicated on **Figure 7, Visibility**.

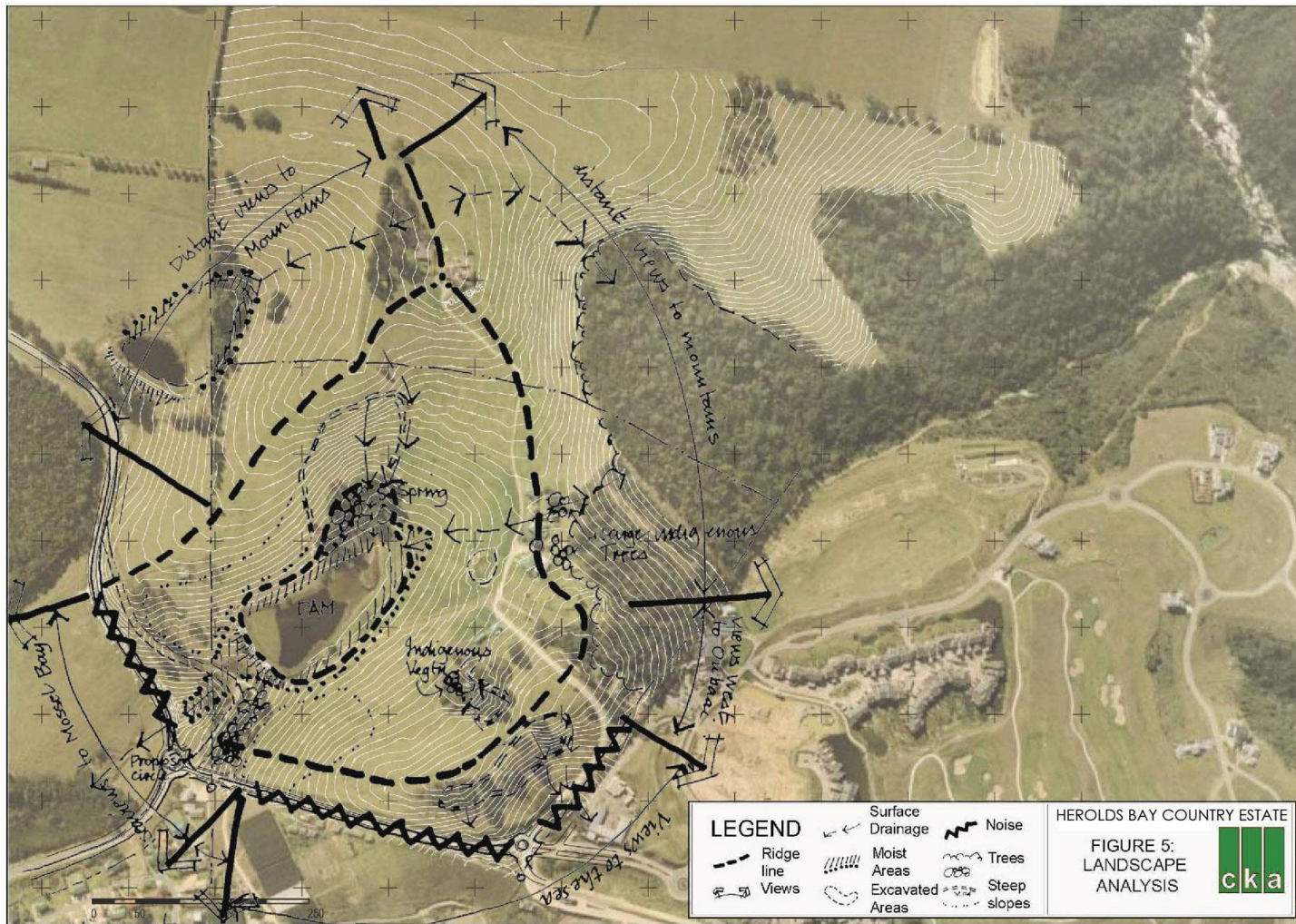


Figure 5: Landscape Analysis

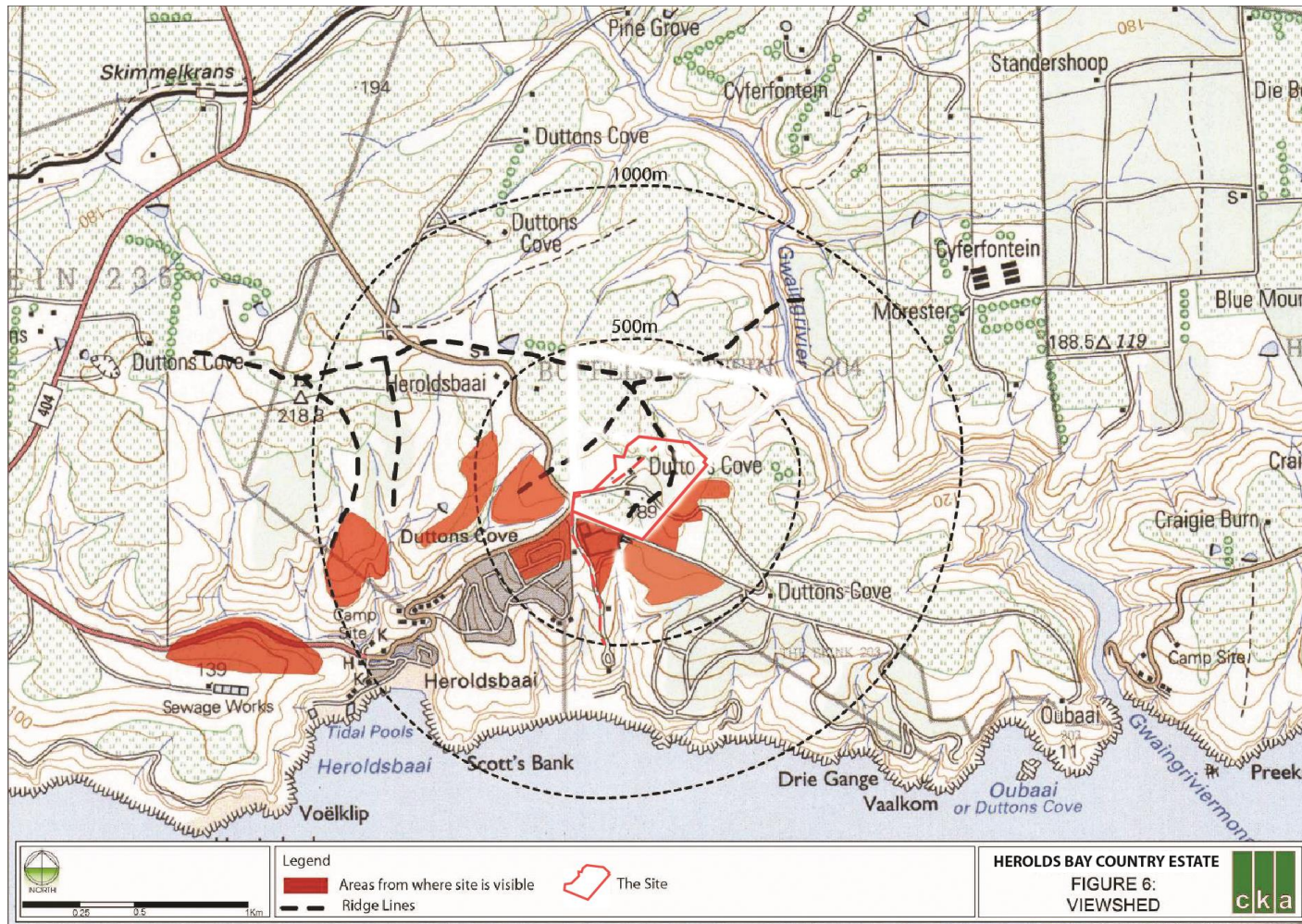


Figure 6: Viewshed

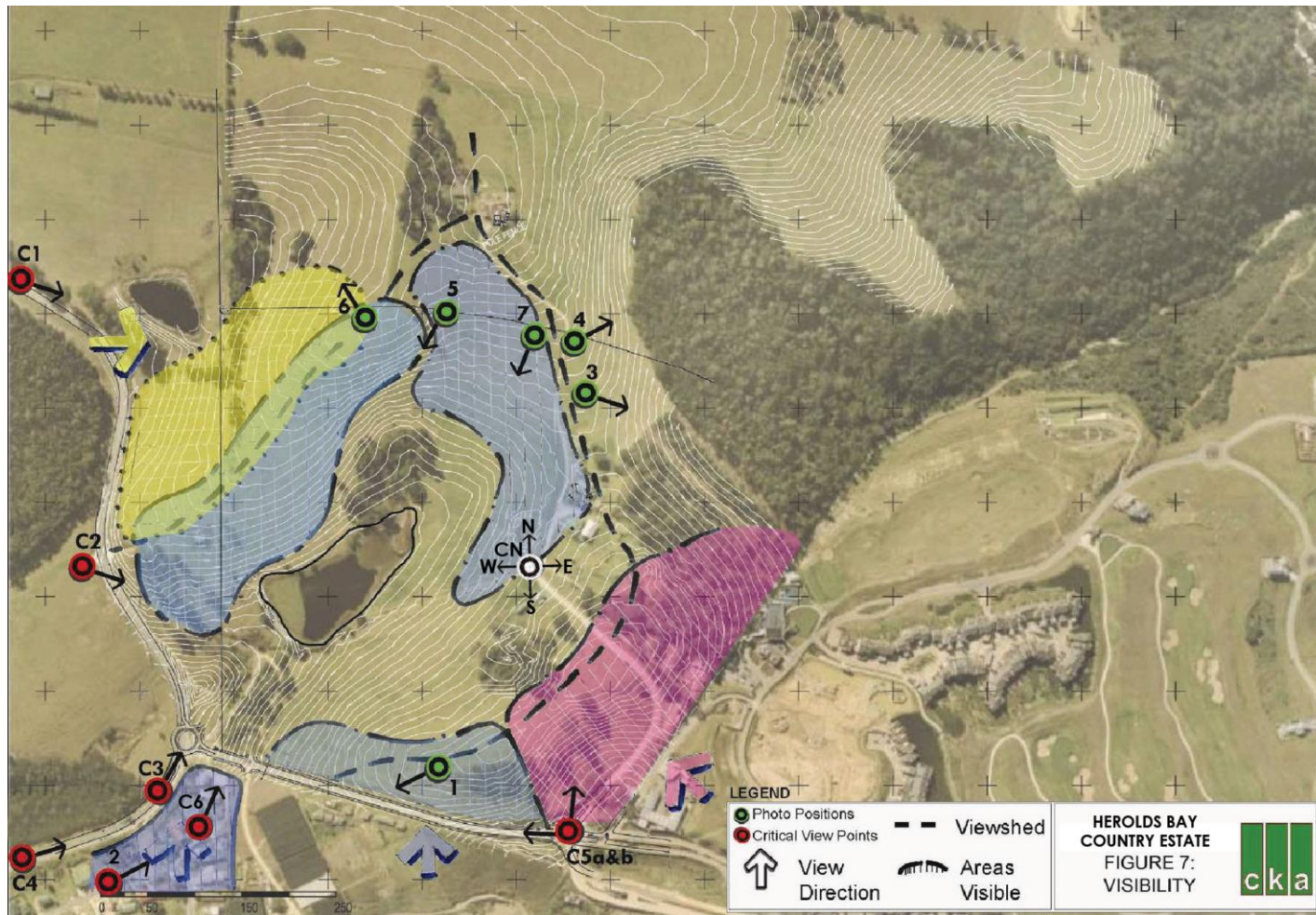


Figure 7: Visibility and Photo Points

- Visibility

The visibility of a significant portion of the project is contained by the surrounding ridgeline. However, to the south west the “bowl” is open along the drainage line and views into the site will be possible from nearby future developments in this sector.

The slopes facing south east and south from the eastern ridgeline are highly visible from the hotel near the entrance gate of the Oubai Golf Estate and the access road to this Estate respectively. Existing and future houses south of the Oubai Golf Estate access road have and will retain their southward sea views.

The analysis indicates that the proposed development will mostly be visibly contained within the “bowl” for the layout Alternative 2 and that parts of this area and the southern facing slope will be visible to the northern section of Herolds Bay Extensions 1 and 2.

With reference to layout Alternative 1 most of the housing will be visible from the southern and eastern neighbours/development along these two boundaries. Refer to Figure 2

5.1.3 *Opportunities and Constraints*

The visual opportunities and constraints include both the landform, visible areas as well as the visual cultural link to the sense of place. This relates to existing features such as the dam, homestead, vegetation, farming ambience and access.

The constraints relate to visually sensitive areas or zones which include ridgelines, the dam, the homestead and vegetation.

The configuration that results from the inclusion or exclusion of the above aspects is a robust linked open space system that connects the visibility of structures within the ‘bowl’ and includes drainage lines and tree groups. Refer to **Figure 8, Opportunities and Constraints**.

Areas that will require visual screening for both residents and adjacent land uses are identified. The visual openness and landform will be retained to a degree by considering an extensive linked open space system.

5.2 **Visual Impact Criteria**

The following criteria and rating scales are consistent with those used in other specialist studies for Environmental Impact Assessments (EIA):

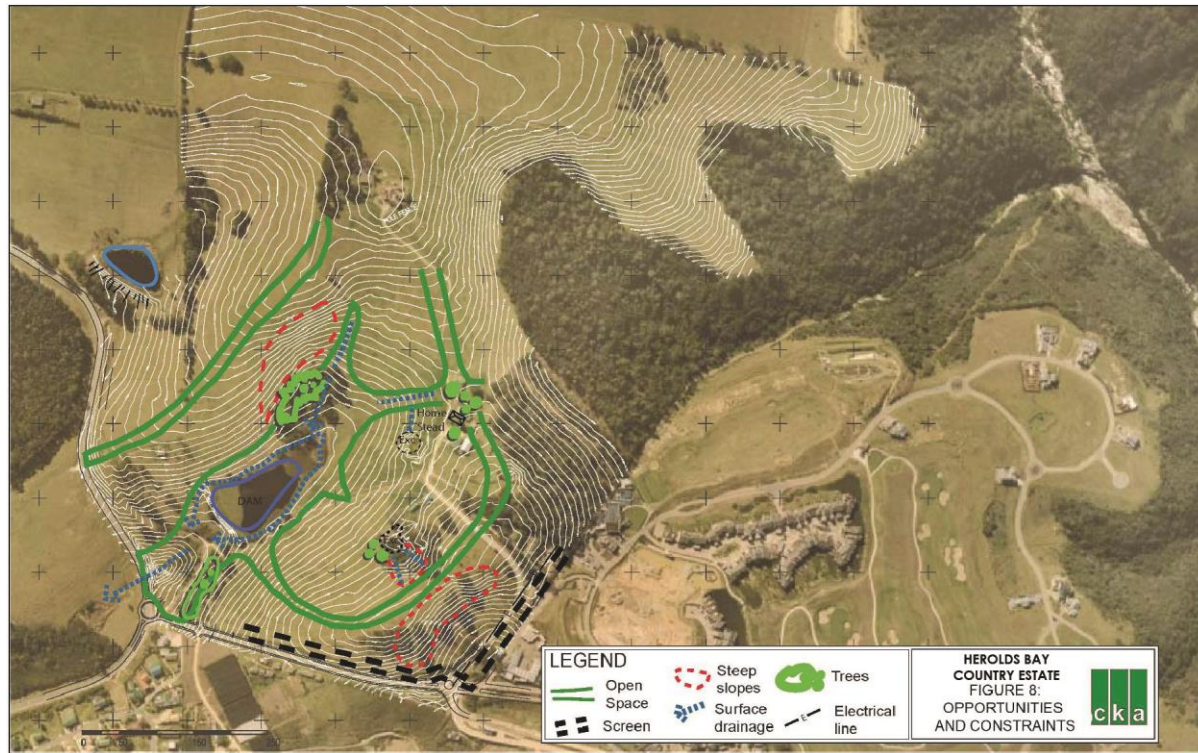


Figure 8: Opportunities and Constraints

Cumulative Impacts

- Low – there is still significant capacity of the environmental resources within the geographic area to respond to change and withstand further stress.
- Medium – the capacity of the environmental resources within the geographic area to respond to change and withstand further stress is reduced.
- High – the capacity of the environmental resources within the geographic area to respond to change and withstand further stress has been or is close to being exceeded.

Nature

- Positive
- Negative
- Neutral

Extent

- Local – site-specific and/or immediate surrounding areas
- Regional – Southern Cape
- National

Intensity

- Low – where the impact affects the environment in such a way that natural, cultural and social functions and processes are minimally affected.
- Medium – where the affected environment is altered but natural, cultural and social functions and processes continue albeit in a modified way; and valued, important, sensitive or vulnerable systems or communities are negatively affected.
- High – where natural, cultural or social functions and processes are altered to the extent that it will temporarily or permanently cease; and valued, important, sensitive or vulnerable systems or communities are substantially affected.

Duration

- Short term – 0 to 5 years
- Medium term – 6 to 15 years

- Long term – 16 to 30 years – where the impact will cease after the operational life of the activity either because of natural processes or by human intervention.

Probability

- Improbable – where the possibility of the impact occurring is very low.
- Probable – where there is a good possibility (< 50 % chance) that the impact will occur.
- Highly probable – where it is most likely (50-90 % chance) that the impact will occur.
- Definite – where the impact will occur regardless of any prevention measures (> 90 % chance of occurring).

Non-Reversibility

- Low – impacted natural, cultural or social functions and processes will return to their pre-impacted state within the short-term.
- Medium – impacted, natural, cultural or social functions and processes will return to their pre-impacted state within the medium to long term.
- High – impacted natural, cultural or social functions and processes will never return to their pre-impacted state.

Consequence Rating	Intensity, Extent and Duration Rating
High Consequence	<ul style="list-style-type: none"> • High intensity at a regional level and endure in the long term • High intensity at a national level and endure in the medium term • Medium intensity at a national level and endure in the long term • High intensity at a regional level and endure in the medium term • High intensity at a national level and endure in the short term • Medium intensity at a national level and endure in the medium term • Low intensity at a national level and endure in the long term • High intensity at a local level and endure in the long term • Medium intensity at a regional level and endure in the long term

Consequence Rating	Intensity, Extent and Duration Rating
Medium Consequence	<ul style="list-style-type: none"> • High intensity at a local level and endure in the medium term • Medium intensity at a regional level and endure in the medium term • High intensity at a regional level and endure in the short term • Medium intensity at a national level and endure in the short term • Medium intensity at a local level and endure in the medium term • Medium intensity at a local level and endure in the long term • Low intensity at a national level and endure in the medium term • Low intensity at a regional level and endure in the long term
Low Consequence	<ul style="list-style-type: none"> • Low intensity at a regional level and endure in the medium term • Low intensity at a national level and endure in the short term • High intensity at a local level and endure in the short term • Medium intensity at a regional level and endure in the short term • Low intensity at a local level and endure in the long term • Low intensity at a local level and endure in the medium term • Low intensity at a regional level and endure in the short term • Low to medium intensity at a local level and endure in the short term

The significance of an impact is defined as a combination of the consequence of the impact occurring and the probability that the impact will occur. The significance of the identified impact rated according to the methodology set out below:

- Low – will not have an influence on the decision to proceed with the proposed project, provided that recommended mitigation measures to mitigate impacts are implemented.
- Medium – should influence the decision to proceed with the proposed project, provided that recommended measures to mitigate impacts are implemented.
- High – would strongly influence the decision to proceed with the proposed project.

Significance Rating	Consequences x Probability
High significance\	<ul style="list-style-type: none"> • High x Definite • High x Highly Probable • High x Probable • High x Improbable • Medium x Definite
Medium significance	<ul style="list-style-type: none"> • Medium x Highly Probable • Medium and Probable
Low significance	<ul style="list-style-type: none"> • Medium x Improbable • Low x Definite • Low x Highly Probable • Low x Probable • Low x Improbable

5.2.1 Visual Impact of Alternative Layouts

- The original layout which incorporated the higher ground of the site. Refer to **Figure 9, Layout Alternative 1.**

This layout focused on erven for single family dwellings and for 2 group housing areas along the eastern boundary. A business zone in the SW corner is for a petrol station, a shop/convenience store and offices. This conventional suburb of varied styles for homes and broad streets lit by standard street lights is located either side of the ridge line along the southern and eastern boundary. This ridge forms the approximately half of the bowl landform. The housing on the southern and eastern slopes of this ridge will be visible from Oubaai Estate’s western development. The parking for the Oubaai hotel and some duplex units there, will be the receivers. This is not a critical view of the layout because it is westward of these, and most housing on the Oubaai Estate is north facing towards the Outeniqua mountain range.

The visual benefit for the prospective home owners is the view to the mountain and the large pastoral scene to the west down to the reservoir. The entire proposed development will not be visible from the N2 because the site is below the the local ridgeline.

This layout would visually intrude on the farming character of the area between the N2 and the Oubaai Golf Estate and Herolds Bay Extensions 1 and 2. The visibility would be high and extensive due to the position on a high area of the local landform.

- The second layout alternative utilises most of the site for housing.. Refer to **Figure 10, Layout Alternative 2 Preferred layout.**

This layout incorporated single dwelling and three group housing areas. The shop and business area in the S-W corner is the same as in Alternative 1. The single dwelling erven are located throughout the site with an open space buffer along the eastern edge of the reservoir. This extends upslope to a small retention pond. This layout has made provision for open areas that are linked to the reservoir open space buffer.

Roads are looped to provide easy access and egress. From these ,smaller roads provide access to the group housing.

The visual intrusion of this layout will be much the same as that for Alternative 1 because the additional housing in Layout 2 will not be visible due to its location lower in the ‘bowl’ and will be screened by the houses on the higher ground.

The visual intrusion of the commercial centre is common to both layouts and will provide a prominent feature of the proposed development. The visual mitigation of this by tree and vegetation planting while effective, if con correctly implemented, defeats the object of advertising its presence by night and day.

Comparison of Visual Intrusion impact

Rating: positive + negative – no difference 0

Description	Alternative 1	rating	Alternative 2	rating
Sense of Place	Some sense of place retained	+	No sense of place of site remains	–
Visibility	Development on local ridge visible	o	Development on ridge visible	o
Night scene	Less light spill	+	More light spill	–
Construction phase	Less disruptive but visible along ridge	+	More disruptive but has the same visibility as Alt 1 i.e. ridge area	–
Business site	Visually prominent	o	Visually prominent	o
Resut		+ - 2 O – 2 – - 1		+ - 0 O -2 - 3

The visual intrusion impacts are similar for both layouts because the same portion of the development that is visible to the existing Herolds Bay Ext, 1 and 2, is similar for both Alternatives.

The light spill for Alternative 1 is less than that for Alternative 2 but marginally so for the Ext. 1 and 2 because the additional area developed for Alternative 2 is screened by the housing that is along the ridge.

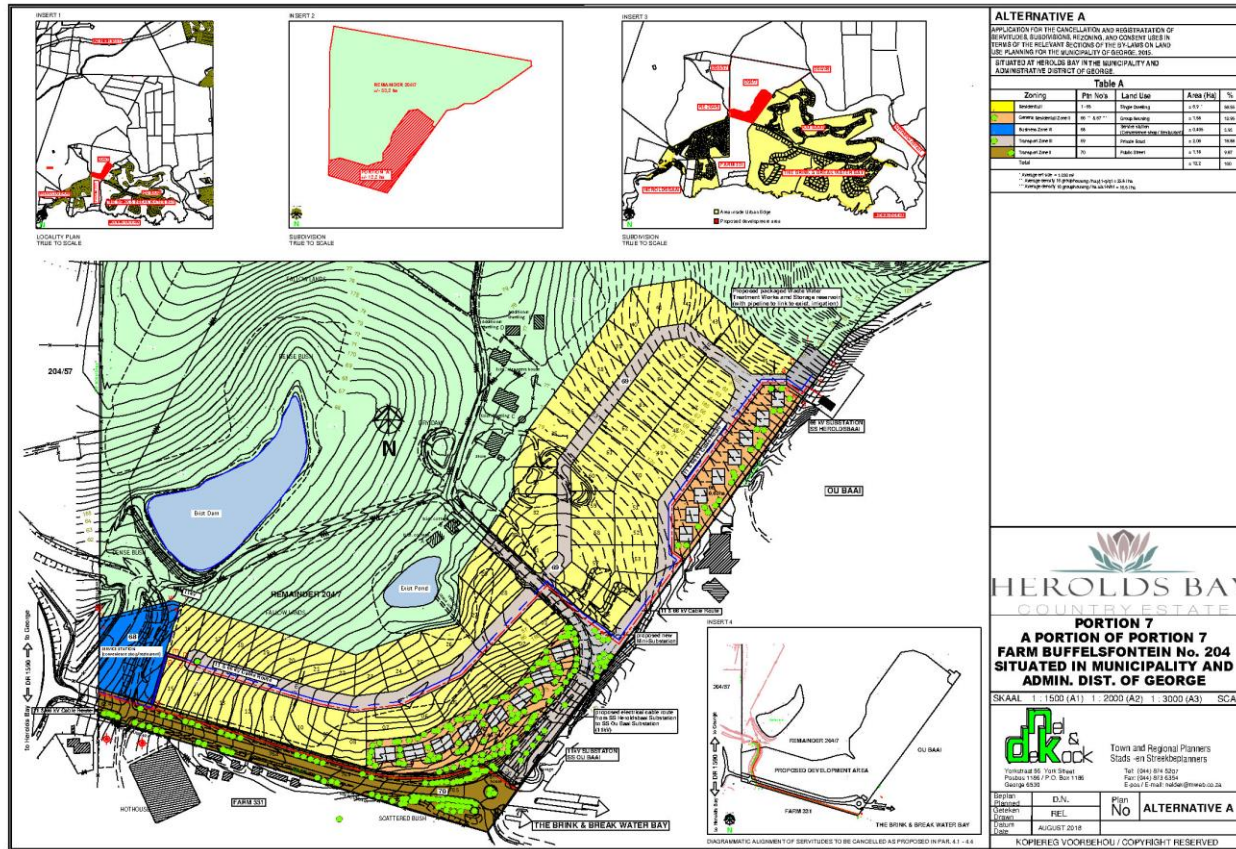


Figure 8: Original Layout Alternative 1

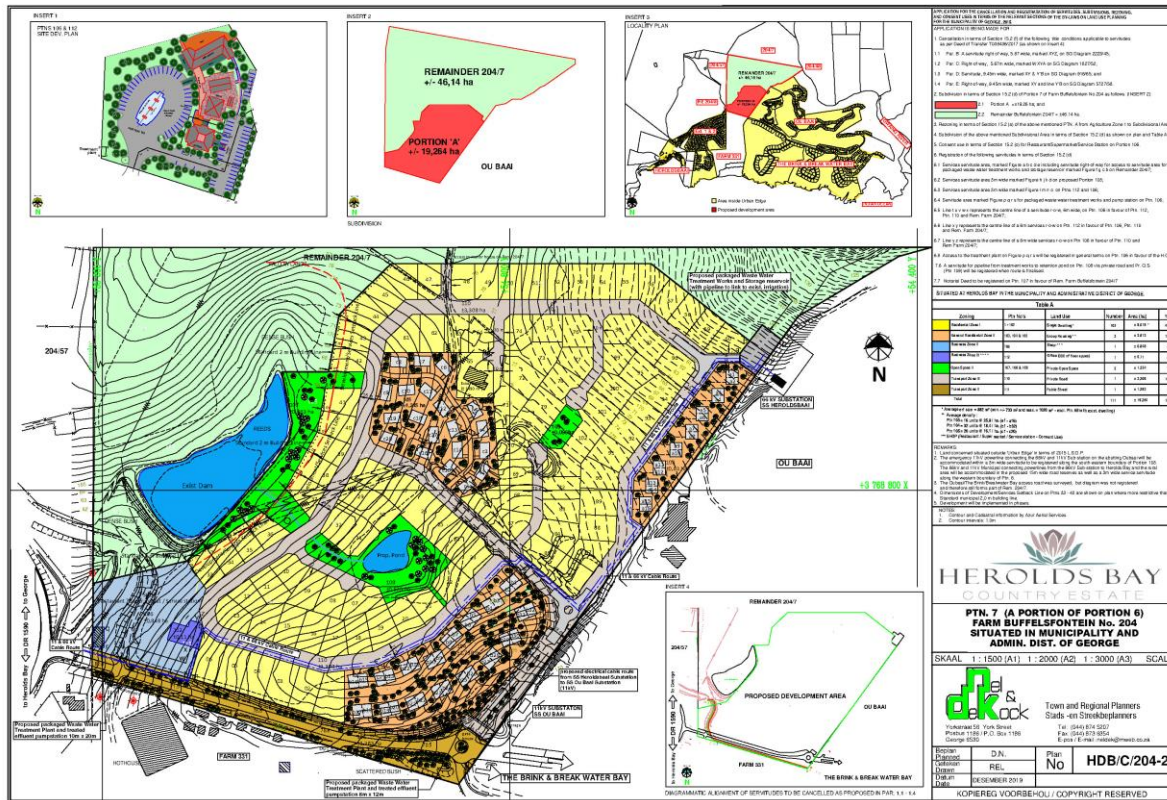


Figure 9: Site Layout Alternative 2 Preferred layout

The visual impact is contained primarily by the ridgeline that surrounds the 'bowl' of the landform. The dam at the low point and is the focus of the proposed development. However, residential units crowded the dam and therefore visually obstructed this asset from units upslope.

The linear arrangement of the town houses offered little opportunity to view the water through spaces between units.

- The revised site layout for the reduced development area. Refer to **Figure 11 Site Layout Alternative 2**.

This site has responded in more detail to the characteristics of the site such as the drainage ways, existing vegetation and the view orientation.

This has enabled the proposed development to fit more easily into the landform and includes cultural elements of the site that relate to previous land use.

The attributes of the site are more visually accessible to all units - as a result of a more generous linked open space system.

5.2.2 *The Construction Phase*

It is the installation of the bulk services and the roads that will create the greatest overall visual disturbance to the surrounding residents. This will take the form of visual clutter, disturbed landforms, construction machinery, noise and visible and invisible dust. In combination, the visual intrusion of this activity will be considerable on the residents of Herolds Bay Extension 1 & 2. Fortunately, the duration should be short term (0-2 years) and the impact is primary in that it is short term and can be mitigated. Subsequent construction of residential units is likely to not be so visually intense, although the development of the commercial area is likely to be more visually so.

The assessment of the construction phase visual impact is that the cumulative impact will be low because it is a temporary activity, the nature is negative by way of visual disruption of an agricultural setting and the extent is local. The intensity will vary, with the most activity on site being associated with the installation of services and the road construction. The rating will be low to medium.

This will be followed by residential unit construction. The commercial centre construction will be intense, but localised. The duration will be short term and the visual impacts are considered to be high probable. The consequence rating is low as there is medium intensity at local level over the short term. Correspondingly the significance rating is low because of the low consequence and high probability.

5.2.3 Impact Ratings according to Set Criteria

The impact assessment is conducted on the Revised Site Layout Alternative 2.

i. Cumulative Impact

- HBCE

Medium – the visual impact caused by the HBCE is contained within the 500 m radial zone. Possible future extension to the HBCE to the north will intensify the visual impact but mainly to views to the site from the North. This includes the N2 but at a distance of 3 km the visual image will not be very noticeable.

- Construction Site and Laydown Areas within the Site

Low – this is a temporary facility. The area will be rehabilitated after use but may be utilised later for extensions to ancillary buildings should any phased construction be implemented.

- Transmission Lines and Substation

Low – the Transmission Line and substation will add to the existing visual complexity of the HBCE on the eastern edge. However, the proposed location will be within existing tree groups along and adjacent to the eastern boundary. This feature will add to the aerial extent of the visual impact at the local level but within an area which includes the adjacent property of Oubaai Golf Estate where their service and workshop area located.

- Site Lighting

Medium – there is a considerable amount of light that emanates from Herolds Bay Extensions 1 and 2. The HBCE will add a new area of light that will have various groupings, the most prominent will be the commercial and office area on the south-west corner of the Site and south of the dam wall.

This area will have lighting for the parking, the filling station and the restaurant. This lighting is expected to be more intense than that for the residential areas.

Due to the bowl shape of the development site no lighting will extend beyond the local ridge line that enclose the site. Conversely most of light in the residential areas will be shield by these local ridgelines and therefore assist in reducing the light spill. With this in mind the visual impact of lighting on existing housing in Ext 1 and 2 of to the south can be further reduced by lighting design and placement using modern lighting sources and technology. Given the existing light pollution from the suburb adjacent to the southern boundary the light intrusion impact

could be considered to be medium to low with correct applied mitigation.

In addition, the light spill will be further reduced over time by the screening provided by trees, shrubs and the bulk of the surrounding houses.

ii. Nature

- HBCE

Negative – the form and grouping of the buildings will mostly be viewed against the backdrop of the rising landform and the Outeniqua Mountain Range in the distance to the north and from areas low down on the southern boundary.

- Construction and Laydown Areas within the Site

Negative – this temporary facility will not extend the visibility of the site by the utilisation of the required area for its function. The tallest structures will be shed approximately 3 m tall which is expected not to be highly visible due to its location among existing blue gum trees and therefore screening by the vegetation.

- Transmission Lines and Substation

Negative – this line will add to the visual complexity in the immediate area on the eastern side. The adjacent land use is workshops and service area for the Oubaai Golf Estate.

- Site Lighting

Negative – an area that was previously dark will be lit and change the night view from residential areas to the south.

iii. Extent

- HBCE

Local – visible from within the 1 km radius but primarily from the southern area that includes the existing suburb of Herolds Bay Extensions 1 and 2. This is a result of containment of the Development within the 'bowl' landform that is open to the south. Views from high landforms to the south west are possible however these are more than 500m away and are vacant and /or afforested.

- Construction and Laydown Areas within the Site

Local – site specific, contained within the 0,5 km zone.

- Transmission Lines and Substation

Local – site specific, visibility contained along eastern boundary due to higher landform to the west and mound screen in Oubaai Golf Estate constructed north of their service yard and workshop area.

- Site Lighting

Local – illumination will extend northwards the existing lit area.

iv. Intensity

- HBCE, Construction and Laydown Areas within the Site, Transmission Lines and Substation and the Site Lighting

Medium - the natural, cultural and social functions and processes of the surrounding land uses continue, but in a modified way as views that include the site will change. The land area adjacent to the west and to the south west will change character as development according to the Structure Plan proceeds in the future.

v. Duration

- HBCE

Long term (16-30 years) – the impact will cease after the operational life and demolition.

- Construction and Laydown Areas within the Site

Short term (0-5 years) – the facility will remain until the construction phase is complete.

- Transmission Lines and Substation

Long term – the visual impact will cease after the operational life and demolition.

- Site Lighting

Long term – (16-30 years) – the impact will cease after the operational life and demolition.

vi. Probability

- HBCE, Construction and Laydown Areas within the Site, Transmission Lines and Substation and Site Lighting

High probable – the visual impacts described will most likely occur.

vii. Non-Reversibility

- HBCE, Construction and Laydown Areas within the Site, Transmission Lines and Substation and Site Lighting

High – the visually impacted areas will not be able to return to their pre-impacted state. This is due to the physical changes made to that site and immediate surroundings. These changes also alter the access to the distant views to the North of Outeniqua Mountain range in some adjacent and surrounding areas.

5.2.4 Consequence Rating

- HBCE

Medium – a result of the medium intensity at local level that will endure over the long term.

- Construction and Laydown Areas

Low – a result of the medium intensity at local level that will endure over the short term.

- Transmission Lines and Substation

Medium – a result of the medium intensity at local level that will endure over the long term

5.3 Summary of Visual Impacts

The following table shows the visual impact of the HBCE, Construction Laydown Area and Transmission and Substation

Table 5.3.1: Summary of Visual Impact for the HBCE, Construction and Laydown Area and Transmission Line, including probable change with mitigation measures in place

Table 5.3.1: Summary of Visual Impact for the HBCE, Construction and Laydown Area and Transmission Line, including probable change with mitigation measures in place

VISUAL IMPACT ELEMENT	IMPACT CRITERIA								
	Cumulative Impact	Nature	Extent	Intensity	Duration	Probability	Non-Reversibility	Consequences	Significance
HBCE	Medium	Negative	Local	Medium	Long	Highly probable	High	Medium	Medium
With mitigation	Low	Negative	Local	Low	Long	Probable	High	Medium	Medium
Construction and laydown area	Low	Negative	Local	Medium	Short	Highly probable	High	Low	Low
With mitigation	Low	Negative	Local	Low	Short	Probable	High	Low	Low
Transmission lines and Substation	Low	Negative	Local	Medium	Long	Highly probable	High	Medium	Medium
With mitigation	Low	Negative	Local	Low	Long	Probable	High	Medium	Medium
Lighting	Medium	Negative	Local	Medium	Long	Probable	High	Medium	Medium
With mitigation	Low	Negative	Local	Low	Long	Probable	High	Medium	Medium

6 FINDINGS

The following aspects have been identified as relevant in the visual assessment of the proposed Development.

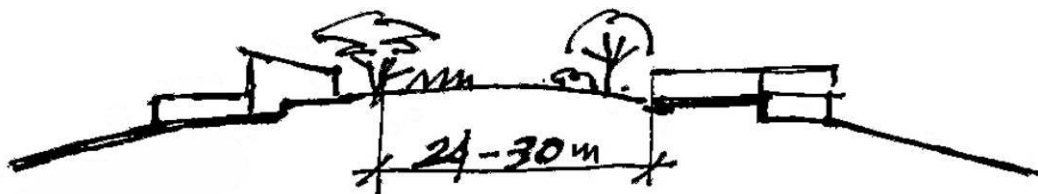
- The suburb of Herolds Bay extension 1 and 2 (north-western sections) will experience the greatest visual exposure to the Development.
- Conversely the new Development will experience the greatest visual exposure of Herolds Bay Extensions 1 and 2.
- The prime views are northwards of the Outeniqua Mountain Range,.....km distance.
- The sea views to the south east are restricted by landform to a narrow area below the horizon line of the ocean.
- The sea views to the south west extend as far as Mossel Bay
- The existing and possible future proposed housing on the property immediately south of the Oubaai and Bayview access road will experience direct views of the residential units on the Development's southern boundary. This will result in a loss of visual privacy for existing and proposed housing units if no screening facility is provided.
- Some units of the main village are currently shown to straddle the ridgeline.
- The ridgelines within the Development boundary are significant visual lines that form a base to the views from within the Development of the Outeniqua range to the north, north-west and west. Development of two storey buildings along these lines will alter the quality of views towards the mountains unless the roof lines of the houses or profile can be visually softened.
- The existing homestead and some surrounding buildings are visually attractive in scale, form and setting, and should be considered as a visual (and functional) asset which provides a link to the existing land use and sense of place.
- The placement of the collector road or open space on the ridgeline will allow structures to be placed on either side of the ridge and facilitate a better fit of these structures onto the landscape.
- The dam is the feature of visual focus for the proposed development that lies within the "bowl" as defined by the western, northern and eastern ridgeline.

- The existing large trees, mostly exotic, provide scale and character to the setting. Retention of some of these will add to the new visual character of the Development.
- Viewpoints that will present direct views of parts of the Development to the public are:
 - Travelling northbound from Herolds Bay towards the Oubaai - Bayview road intersection.
 - Travelling southbound on the George – Herolds Bay road towards the Oubaai – Bayview road - two points at the first right angle bend and just before reaching the T intersection. Views are eastward and south eastward respectively.
 - The circle at Oubaai and Bayview entrance.
 - Travelling eastward and westward between the T intersection and the aforementioned circle.
- The views from Oubaai onto the eastern edge of the Development, while at present areas are not significant because the residential units predominantly face the golf course fairways and north to the Outeniqua Mountains.
- Views north-west and west from the Oubaai hotel are possible.
- Aspects of privacy may be raised, as a result of the tall 3 storey hotel by the owners of the units on the eastern edge of the Development. The hotel will be approximately 200 metres to the east and, therefore, should not present a significant privacy risk.

7 RECOMMENDED MITIGATION MEASURES

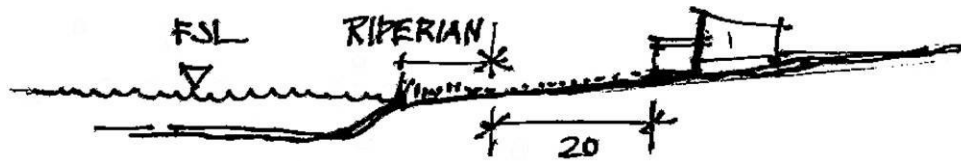
- Development on Ridges

The ridgelines are the highest landform edge which encloses the proposed Development. These are the most visible landforms of the site. The roof lines of the houses should be kept low on either side so as not to form a new higher ridge of structures. The no build area along the ridges should vary between 24 and 30 metres wide.



- Space around the Dam

Residential buildings should be built well away from the full supply level (FSL) of the dam to allow for a riparian vegetation zone on the moist ground and for public access around the Dams perimeter. The Dam is the focal area of the Development and due to its narrowness, it will require the extra space to provide better visual access to it from the surrounding development. The line from the full supply should vary from 10 to 20 metres depending on the wetness of the soil and to allow for a boardwalk where necessary.



- Vary roof lines of adjacent attached units particularly those near the ridgeline

This will provide a more organic line in the setting when combined with tree and large shrub planting.



- Retain indigenous trees and vegetation groupings of shrub, trees and aloes

Connect these groupings by planting additional indigenous mixed vegetation to provide corridors for integrating the existing vegetation so that populations of insects, birds and small mammals can be attracted to the gardens of the Development.

- Retain selected large existing trees

These large trees provide a visual scale and connection with the original cultural landscape. The trees can provide visual relief in form where buildings do appear along the horizon. To ensure the survival of these trees there must be no ground level change within the drip line of the branches and selected branches should be removed.

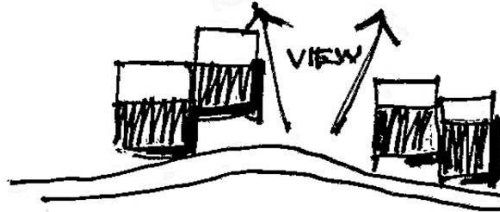
- Avoid bright contrasting colours for roofs and buildings

Subdued and complimentary shades and tints blend easily into a landscape setting.

- Roads and Pathways

Roads and pathways paved with a durable brick of brown/sand colour. The light brown colour is a similar colour to existing gravel roads in the area. The light colour will also not generate high surface temperatures as an asphalt surface would.

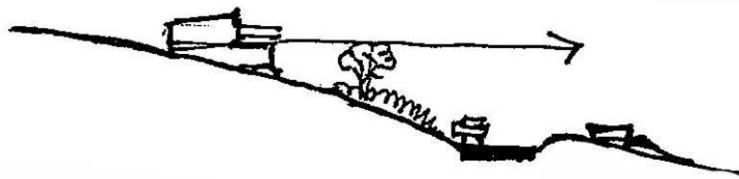
- Provide spaces between group housing large enough to present views beyond.



- Step down slope building heights to provide views over units below. Step building heights as units' progress down slope.



- The cut slope along the road on the Southern boundary should be re-graded to a flatter slope and planted with indigenous shrubs and groundcover. The objective is to provide a privacy screen for the existing housing on the southern property as well as for new residences.



- Keep surface drainage ways open and arrange residential units along and around these open space corridors to provide visual connection with the Dam. These areas will provide pedestrian access, as well as facilities for managing surface water runoff from roads and buildings.



- The placement of units near the northern and eastern ridgeline should not be that tall or close to the ridge that views north and north-west obstruct or obscure large portions of the base of the mountains in view, to a great extent. The space between buildings that form an horizon to views of residents in Herolds Bay extension 1 and 2 should be linked by tree and shrub planting. These buildings should present preferably one storey above the natural horizon line from that view area.



- Consideration should be given to the placement of the main collector road or open space on the ridgelines for the following visual reasons.
 - Residential units are then located off the highest most visible part of the site.
 - Through traffic along the mid-slope and between residential unit groupings is eliminated as well as their visual disturbance.
 - The pedestrian ring pathways and tree and shrub planting can be accommodated along the higher ground and views both towards the mountains and the sea are possible.
 - The tree and shrub planting will assist in visually integrating the roof lines into the horizon line.
 - The combination of the road and adjacent pedestrian circular route will free up the area in the mid slope to enable visual integration of the residential buildings into the landscape at a detail level.
- Retain some large existing trees on the eastern property boundary to partially screen views of the Oubaai Hotel, Recreation centre and nearby houses. In addition, mound and plant a dense indigenous grouping along the south eastern boundary with Oubaai to screen the service area and related buildings.



- Consideration should be given to the retention of the existing homestead and adjacent building. This will provide a visual and cultural link to the previous land use. The Development should incorporate these buildings into the layout and provide a visual connection to the open space systems and the dam.

- Lighting

Street and other lighting such as signage, park and office / commercial precinct will increase the visual impact of the project at night.

All lighting therefore should be carefully considered with regard to the extent of illumination, the intensity and colour of lights and the luminaire.

It is recommended that lighting is designed by a lighting engineer in collaboration with the landscape architect for the project. The aspects of the lighting solution should include the following:

- Light fittings should have shields to eliminate sight of the light source from sensitive nearby land uses.
- Down lighting of areas is preferable to up lighting;
- Perimeter lights to be directed downwards and inwards;
- Emitted light colour to be softer than sodium (yellow) or mercury halide (blue-white). Florescent lights provide a softer visual effect,
- Do not flood light the entire main structure but incorporate concealed lights high on a structure to shine downwards. Darker areas on the building elevations will provide a less visually noticeable structure;
- No light fittings should spill light upwards or be directed upwards from a distance towards the area or building to be illuminated;
- The lighting plan should strive to maximise the light energy use. This should include a hierarchy of lights that are essential to those that are switched on only when needed.

- Lighting Colour

Should also be considered with knowledge of what colour will attract insects. It is important that a colour type and spread of light will not cause insects to be attracted to it and in so doing deplete the insect diversity of the region. For this purpose an entomologist should be consulted.

- Construction Phase

- During the bulk infrastructure (sewer lines, electrical cables, water pipes and roads) installation phase – one site laydown and site offices should be located in a suitable area north of the eastern access so that it will be screened by existing vegetation from both Oubai Golf Estate and the residential area within the “bowl”;
- Security lighting should not shine outwards from the site camp;
- The suppression of dust by regular wetting down of dirt roads will reduce the visual nuisance;
- The cladding of fences around the site camp area with shade netting will screen the visual clutter of these areas;
- Create berms, where appropriate, to screen views onto the site using topsoil stripped from roads and platforms.

8 DISCUSSION, CONCLUSION AND RECOMMENDATIONS

The visibility of the development on the site from nearby surrounding areas is the most important aspect to consider in the determination of visual impact. While the site is not fully exposed to one or many views from beyond the boundary, unlike Herolds Bay Extension 1 & 2 which is highly exposed on the north-west slope, it is visually exposed in portions from various critical viewpoints. Refer to **Critical Viewpoint Photos C1 -C6**.

This is to its advantage in reducing the visual impact. This is attributed to the landform “bowl” which contains the largest portion of the proposed development.

The western, southern and eastern edges are visually prominent from adjacent roads. However, this visual condition is not out of place in an expanding suburban environment. In addition, the location of residences is set back some distance from the property boundary which leaves areas for vegetation planting to visually soften the interface with the road and existing and future developments. This will help to lessen the visibility of those more visible portions that lie within the 500 m distance of the property boundary.

The proposed development is not more visible than the existing residential township of Herolds Bay Extension 1 & 2.

The ability of the landform of the site to accommodate and visually absorb most of the proposed units is evident. In other words, relative to existing adjacent developments the ability of the landscape to conceal the proposed project by effective screening by topography and vegetation is considered to be high.

With respect to the compatibility of the project with the existing qualities of the landscape and suburban setting it is considered to fit into its surrounding while still being visually noticeable. Its landscape integrity rating at present can be considered to be of medium compatibility.

The assessment of the visual impact of the HBCE Alternative 2 Layout indicates that it will have a medium significance and a medium consequence. This layout having responded to the visual issues and impacts raised during design team meetings.

This is due to the following:

- The scale and visually prominent position on the landform will make the HBCE a dominant feature in that setting. The visibility from the Herolds Bay community in Extensions 1 and 2 and residences within the 1km radius is considered to be high in the current setting. This will reduce as and when other residential development takes place in that setting.
- The landscape character and sense of place of the site and immediate landscape setting will be irreversibly changed by the HBCE. Namely from a pastoral to a residential land use.
- The visual intrusion of the HBCE into views from the residential areas at Herolds Bay Extensions 1 and 2 to the south, will not be significant, but the quality of the view northwards will be changed.
- The general high quality of scenic views northwards of the Outeniqua Mountains from Herolds Bay Extensions 1 and 2 will change in the foreground but the distant view of the mountains will not be obstructed or change. These views are often obstructed by neighbouring houses and vegetation.
- The visual intrusion of the HBCE on the night scene is considered to be high due to the concentration of light in an area that presently has no conspicuous lighting.

The visual impact of the Transmission Line and the substation will be reduced by its proposed location along and on the eastern boundary of the property. The internal reticulation of power cables will be underground. The presence of the Oubai Golf Estate's service area adjacent to the south eastern boundary has set the land use theme for that local area. The extension of the existing screen berm and additional screen planting will further assist to obscure the transmission lines and the Substation.

There will be an introduction of light into a previously unlit area in views to the north from Herolds Bay Extension 1 and 2. However, the intensity and distribution of the light can be reduced if lighting of the site and structures are carefully planned for specific areas by using lighting configurations which focus on light colour and luminaire type that limit the "light spill".

The visibility of the HBCE at night may, at times, be more or less intrusive than during the day. The variation will be as a result of the light responding to the climatic conditions.

The study has identified additional risks that are associated with the visual impact of the HBCE. These are:

- The accommodation on site of material excavated from foundations for the buildings and roads. If the material is to be used on site, the following point will still apply;
- The design of the new landform to accommodate the material in a form that will fit the setting and vegetation type;
- The visual impact of the construction phase, particularly the installation of the bulk services such as sewer pipes, electricity and communication cables, water pipes and roads and lighting.

The visual impact mitigation measures proposed for the HBCE will reduce its visual intrusion within the 0.5 to 1km zone by improving the visual fit of the proposed development into the landform and the existing setting. It is recommended that the mitigation measures presented be incorporated during the detail design stage of the HBCE.

The conclusion that is reached regarding the visual impact, which is based on visibility, development layout and architectural style, is that without mitigation elements in place, it will have a medium level of impact that is of medium significance.

With mitigation measures in place, such as screen planting, landform and building colour, this level of visual impact can be reduced.

It is recommended that a Landscape Architect be appointed at the site design stage to collaborate with the design team to integrate the buildings and landform into the setting so that the identified visual impacts are reduced.

In this way mitigation measures for both the construction and operation phases are part of the total layout and design concept and are included in the construction contracts.

On the basis of the visual impact assessment and on the layout of Alternative 2 that has incorporated many of the visual mitigation aspects put forward during the team meetings, it is recommended that consideration be given to the acceptance of the findings of the report in favour of the proposed development.

The visual impact of the proposed development will not be of such significance that the proposed development should be declined on the basis of the visual change that will occur on the site, nor the change of the sense of place or change in character of the immediate site and surroundings.

9 REFERENCES

- ALONSO, S.G., AGUILO, M AND RAMOS, A. (1986). Visual Impact Assessment Methodology for Industrial Development Site Review in Spain. In: SAMRDON, R.C., PALMER, J.F. AND FELLEMAN, J.P. (1986). Foundations for Visual Project Analysis. John Wiley and Sons, New York, 374 p.
- AMERICAN SOCIETY OF LANDSCAPE ARCHITECTS, undated. Visual Impact Assessment for Highway Projects. ASLA, Washington D.C.
- CAVE KLAPWIJK & ASSOCIATES, (1994). Saldanha Steel Project Phase 2 Environmental Impact Assessment, Appendix 8, Specialist Study on Visual Impacts. Unpublished Report, Pretoria.
- CAVE KLAPWIJK & ASSOCIATES, (1996). Iscor Heavy Minerals (KwaZulu-
- CAVE KLAPWIJK & ASSOCIATES (1996). Mozal Visual Impact Assessment. Unpublished Report, Pretoria
- CAVE KLAPWIJK & ASSOCIATES (1998). Maputo Steel Project Visual Impact Assessment. Unpublished Report, Pretoria.
- CAVE KLAPWIJK & ASSOCIATES (1998). N-3 Toll Road Scoping Plan. Unpublished report, Pretoria.
- CAVE KLAPWIJK & ASSOCIATES (2001). Proposed Beta-Delphi 400kV Transmission Line – Visual Impact Assessment. Unpublished Report, Pretoria.
- CAVE KLAPWIJK & ASSOCIATES (2003). Specialist Study on the Potential Impact of the Proposed Eros-Neptune-Grassridge 400kV Transmission Line on the Affected Aesthetic Environment. Unpublished report, Pretoria.
- HULL, R.B. AND BISHOP, I.E., (1988). Scenic Impacts of Electricity Transmission Towers: The Influence of Landscape Type and Observer Distance. Journal of Environmental Management. 1988 (27)99-108.
- LANGE, E., (1994). Integration of computerised visual simulation and visual assessment in environmental planning. Landscape and Environmental Planning. 30: p 99-112.
- LITTON, R.B., (1980). Ch 17 Aesthetic Values; Forest Resource Management Decision-making Principles and Cases. DEURR, W.A., TEEGUARDEN, D.E., CHRISTIANSEN, N.B., GUTTENBERG, S., (Editors). Philadelphia, PA, USA, WB Saunders Company. 215-225, 2 February 1996
- LOW, A.B. AND REBELO, A.G. (ed). (1996). Vegetation of South Africa, Lesotho and Swaziland. Department of Environmental Affairs and Tourism, Pretoria.
- LYNCH, K., (1992) Good City Form. The MIT Press, London, p. 131.

McCOOL, S.F., BENSON, R.E. AND ASHOR, J.L., (1986). Environmental Management. Vol. 10, No. 3.

NEWTOWN LANDSCAPE ARCHITECTS (1997). Saldanha Cement Project. Specialist Study Report: Visual Impacts. Unpublished Report, Pretoria.

Oberholzer, B. and CSIR (2005) Guideline for involving visual and aesthetic specialists in EIA processes. Provincial Government of the Western Cape: Dept of Environmental Affairs and Development Planning

RIBE, R.G., (1989). The Aesthetics of Forestry, What has Empirical Preference Taught Us? Environmental Management. Vol. 13, No. 1, 55-74.

SHAFER, E.L., (1967). Forest Aesthetics - A Focal Point in Multiple Use Management and Research.

SMARDON, R.C., PALMER, J.F., AND FELLEMAN, J.P., (1986) Foundations for Visual Project Analysis. John Wiley and Sons.

10 APPENCISES

10.1 Appendix 1 – Declaration of independence

DECLARATION OF THE SPECIALIST

Note: Duplicate this section where there is more than one specialist.

I Alan Cave, as the appointed Specialist hereby declare/affirm the correctness of the information provided or to be provided as part of the application, and that:

- In terms of the general requirement to be independent:
 - other than fair remuneration for work performed in terms of this application, have no business, financial, personal or other interest in the development proposal or application and that there are no circumstances that may compromise my objectivity; or
 - am not independent, but another specialist (the "Review Specialist") that meets the general requirements set out in Regulation 13 of the NEMA EIA Regulations has been appointed to review my work (Note: a declaration by the review specialist must be submitted);
- In terms of the remainder of the general requirements for a specialist, have throughout this EIA process met all of the requirements;
- I have disclosed to the applicant, the EAP, the Review EAP (if applicable), the Department and I&APs all material information that has or may have the potential to influence the decision of the Department or the objectivity of any Report, plan or document prepared or to be prepared as part of the application; and
- I am aware that a false declaration is an offence in terms of Regulation 48 of the EIA Regulations.

Alan Cave
 Signature of the EAP: **VISUAL SPECIALIST** Date: **29.4.20**

CAVE KLAPWIJK AND ASSOCIATES
 Name of company (if applicable):

10.2 Appendix 2 – CV A N Cave**CURRICULUM VITAE****ALAN CAVE****LANDSCAPE ARCHITECT AND ENVIRONMENTAL PLANNER**

ROLE:	Principal – Cave Klapwijk and Associates
DATE OF BIRTH:	27 August 1945
NATIONALITY:	South African
LANGUAGES:	Mother Tongue: English Others: Afrikaans
QUALIFICATIONS:	1986: Environmental Impact Management, Graduate School of Business, University of Cape Town. 1974: MPhil. Landscape Design (Post Graduate) University of Newcastle-upon-Tyne 1967: B.Sc. (Min. Eng.) University of the Witwatersrand
KEY FIELDS OF EXPERIENCE:	Particular aspects of experience include: <ul style="list-style-type: none"> • Environmental impact assessment and controls. Visual impact assessment • Co-ordination of Integrated Environmental Management. • Environmental analysis for landscape planning. • Quarry development and rehabilitation programmes. • Landscape master planning. • Commercial and industrial detailed landscape design. • University landscape master planning. • Industrial and recreational park planning.
PROFESSIONAL REGISTRATION AND MEMBERSHIP:	Registered: South African Council for the Landscape Architecture Profession (SACLAP) Certified Sponsor for Environmental Impact Assessor: International Association of Impact Assessors of South Africa IAIAAsa Fellow: Institute of Landscape Architects of South Africa (ILASA).
CAREER SUMMARY:	Forty years as landscape architect and environmental planner in Canada and South Africa.

Four years' experience in the gold mining industry in South Africa, three years in mining project evaluation in the United Kingdom.

PROFESSIONAL HISTORY:

- Cave Klapwijk and Associates (CKA), Pretoria
March 1989 to date. Principal in landscape and environmental planning practice.
- Plan Associates
Joined in 1978 as Landscape Architect. 1981 Partner in charge of landscape planning section.
- Lecturer in environmental planning and environmental impact assessment at the University of the Witwatersrand 1978 to 1981.

ADVISORY POSITIONS:

- Member of Interim Certification Board for Environmental Assessment Practitioners of South Africa
- Past President: Institute of Landscape Architects of South Africa (ILASA) (1988-1991).
- Executive Central Council Officer, ILASA (1976-1991).
- Hon. Secretary: Board of Control for Landscape Architects.
- Executive member: AS & TS.
- Board of Control representative on Council of Architects.

PROFESSIONAL AWARDS AND COMPETITIONS:

- 2007 • Institute of Landscape Architects of South Africa
Award of Excellence for Environmental Planning: The Taung Skull World Heritage Site.
- 2003 • International Association for Impact Assessment South Africa
National Premium Award finalist: Category Excellence in Environmental Management in Project Execution: N3 Toll Road – Heidelberg to Cedara
- 2001 • Institute of Landscape Architects of South Africa.
National Award of Merit: Category Environmental Planning: N3 Toll Road Scoping Report.

- Institute of Landscape Architects of South Africa.: National Award of Merit: Category Environmental Planning: Driekoppies Dam Environmental Rehabilitation.
- 1995 • EPPIC National Premium Environmental Award: Venetia Balance. Rehabilitation and mitigation of diamond mine infrastructure impacts on the Vembe Nature Reserve.
- 1992 • Institute of Landscape Architects of South Africa. Commendation: Tourism RSA
- 1991 • Institute of Landscape Architects of South Africa. National Award of Merit: Category Environmental Planning: Limpopo (Greefswald) Government Water Scheme.
- First place in design competition for the Chris Barnard Health Centre (with H. Taljaard Carter and Partners).

RELEVANT EXPERIENCE:

- Programme Management Unit - Lesotho Highlands Water Project - Phase 2 Polihali Dam, Environmental specialist. Components of delivery tunnel and infrastructure. 2013 ongoing
- Ingula Pumped Water Storage Project. Proposals for visual integration into landscape of roads, dam walls and habitat recreation for endangered bird species for Bedford and Bramhoek Dams.2004 to 2010 South Africa.
- Wind Generating Facilities – VIA's for Langhoogte and Wolseley wind facility for SAGIT through Gibb 2011-2012
- Solar Power Facilities – Prieska , Clanwilliam and Harrismith. through SES consultants and Various clients. 2011-2012
- N3 Keeversfontein to Warden (De Beers Pass Section) - 2010 -17, N3 Toll Concession (Pty) Ltd - EIA for new highway route section.
- Dam Rehabilitation Project – 2008-2010 Environmental Management Plan for 9 Dams and site monitoring. DWA.
- Duttons Cove – 2008, VIA for new residential

development, Herolds Bay, Southern Cape

- Sonaref Angola – 2008, Sonangol , VIA for new refinery at Lobito Angola for Sonangol.
- Pebble Bed Modular Reactor – 2007, Eskom, VIA for the new PBMR.
- Nuclear Power Plants – 2007-2010 and 2013, Eskom VIA for 3 alternative power plant sites.
- Coega Integrated Project – 2007, IGAS, VIA for proposed combined cycle gas turbine power station.
- Perseus-Hydra 765kV Transmission Line – 2005, Eskom, VIA for a new 765kV line 285 km from Dealesville (near Bloemfontein) to De Aar. Included assessment of 4 alternative routes and selection of visually preferred route.
Environmental Management Plan visual aspects
- Eskom Wind Turbine Electricity Generator Kalkheuwel & Koeberg – 2001, Eskom, The VIA of a group wind turbines on two sites in the Western Cape.
- Stirling Solar Generator, Midrand – 2001, Eskom, VIA of a new solar powered electricity generator located adjacent to the N1 in the property of the Development Bank of South-Africa
- Letsibogo Dam on Mocloutse river near Madinare Botswana. EIA for dam and environmental control during construction.
- Cradle of Human Kind – World Heritage Site
Environmental Planning and EMP for 13 Paleontological sites. Gauteng DACE mid 1990

anc

November 2017

10.3 Appendix 3 – NEMA Regulations Appendix 6

Specialist reports Regulations	Comments
A) Details of: Specialist who prepared the report	AN Cave has 40 years of experience in the field of environmental planning and

Specialist reports Regulations	Comments
Expertise of that specialist to compile a specialist report including a curriculum vitae	assessment and Visual Impact studies See appendix 1 curriculum vitae and experience summary
B) Declaration that the specialist is independent in a form as may be specified by the competent authority	Refer to appendix 1
C) Indication of the scope of, and the purpose for which, the report was prepared	The Scope of work is set out in paragraph 1.1.1 Objectives and Scope and 1.2 Study Approach. This report forms part of a Basic Assessment Report.
D) Date and season of the site investigation and the relevance of the season to the outcome of the assessment	The report was commenced in September 2019 and completed in April 2020. The season has no relevance to the outcome of the report because most of the vegetation on or surrounding the site are evergreen alien species.
E) Description of the methodology adopted in preparing the report or carrying out the specialised process	Refer to para. 1.2.1 Study approach and Method.
F) Specific identified sensitivity of the site related to the activity and its associated structures and infrastructure	The site is not visible from the N2. The residential development Herolds Bay Ext 1 and 2 to the south are at present the main receivers of the view of the proposed development. The other receivers are to the east, the hotel associated with the Oubai Golf Estate. The visually sensitive areas are the local topographical ridge lines that surround the development site. The visual focus of the site is man mad dam and a 4 th order stream at the top of the catchment of the Gwaing river. The ridge lines should be kept free of residential housing.
G) Identification of any areas to be avoided, including buffers;	The site's dam requires a buffer for technical and habitat reasons. Existing natural drainage line are to be kept open. Refer to Site Analysis Plan.
H) Map superimposing the activity including the associated structures and	Refer to Site Analysis Plan.

Specialist reports Regulations	Comments
infrastructure on the environmental sensitivities of the site including areas to be avoided, including buffers;	
I) Description of any assumptions made and any uncertainties or gaps in knowledge	See para. 1.2.2 Assumptions
J) Description of the findings and potential implications of such findings on the impact of the proposed activity, including identified alternatives on the environment;	See para. 5 Visual Assessment and para. 6 Findings
K) Any mitigation measures for inclusion in the EMPR.	See para.7 Recommended Mitigation Measures
L) Any conditions for inclusion in the environmental authorisation	See para. 7
M) Monitoring requirements Any monitoring requirements for inclusion in the EMPR or environmental authorisation	There are no monitoring requirements.
N) Reasoned opinion: To whether the proposed activity or portions thereof should be authorised If the opinion is that the proposed activity or portions thereof should be authorised, any avoidance, management and mitigation measures that should be included in the EMPR, and where applicable, the closure plan	The proposed project will have a Medium to Low visual impact with mitigation in place. A result is that the sense of place and the landscape character of the site and setting will be locally altered. See para. 9 Recommendations.
O) Description of any consultation process that was undertaken during the course of preparing the specialist report	There was not consultation done for this report.
P) Summary and copies of any comments received during any consultation process and where applicable all responses thereto.	The response to comments on visual aspects from I&Ap's is covered in the BAR Comments and Response Report document.
Q) Any other information requested by the competent authority	This report has been produced at the request of the competent authority.

10.4 Appendix 4 Photographs



Photo 1: View S from NW corner overlooking Herold's Bay Ext. 1 & 2



Photo 2: View N to Site from Herold's Bay Ext 1&2



Photo 3: View E from NE corner of the Site



Photo 4: View NE from the NE corner of the Site



Photo 5: View S from Northern boundary of Site



Photo 6: View N from NW corner of the Site



Photo 7: View S from NE corner of the Site



Photo C1: View E from road D1590 220 m to Site boundary and 425m to opposite side of Site



Photo C2: View SE from field next to road D1590 350m to opposite side of Site



Photo C3: View NW near junction with road to Oubaai Estate 85m to southern corner and 320m to northern edge Site



Photo C4: View NW at junction to road to Herold's Bay Ext 1 530m to northern edge of Site



Photo C5a: View West at circle at Breakers View and Oubai Estate



Photo C5b: View north at circle at Breakers View and Oubai Estate



Photo C6