

APPENDIX I: LANDSCAPE/ VISUAL COMPLIANCE STATEMENT

PROPOSED BAYHEAD AND LANGEBERG ROAD UPGRADE, DURBAN, KWAZULU NATAL PROVINCE

LANDSCAPE & VISUAL IMPACT ASSESSMENT REPORT

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ABBREVIATIONS

DCT	Durban Container Terminal
TNPA	Transnet National Ports Authority
LVIA	Landscape and Visual Impact Assessment
UK	United Kingdom
NASA	National Aeronautics and Space Administration
TIA	Traffic Impact Assessment
ALV	Approximate Limit of Visibility
a.m.s.l	Above Mean Sea Level
DMOSS	Durban Metropolitan Open Space System
LCA	Landscape Character Area
VAC	Visual Absorption Capacity
ZTV	Zones of Theoretical Visibility

1 INTRODUCTION

1.1 GENERAL

The Port of Durban handles the greatest volume of sea-going traffic on any port in southern Africa. Containers handled at Durban represent approximately 60% of the total number of containers handled at South African ports. The significant role of the Port of Durban in the South African economy makes it very important to ensure that the Port maintains high levels of operational efficiency and nominal disturbances in the value chain.

Transnet's internal studies conducted over the past few years have indicated that the Durban Port area currently experiences a significant amount of congestion throughout the day consisting of mainly truck traffic. This congestion is thought to be occurring due to the operations of the Durban Container Terminal (DCT) and its staging areas. The existing truck traffic travels along Bayhead Road, with the traffic going to Pier 2 container terminal exiting onto Langeberg Road. Surface failures have also been noted on the road. It is assumed to be as a result of heavy traffic on the roads (mainly due to container trucks).

Bayhead Road was constructed approximately 60 years ago. In those days it was designed for public use. Bayhead Road was originally a two-way lane on a single carriageway road, but in the late 90's Transnet National Ports Authority (TNPA) was experiencing an increase in traffic flow due to business growth. At this stage TNPA constructed a new outbound carriageway with two lanes. The original Bayhead Road was then turned into a freeway with an inbound and an outbound both constructed on two carriageways.

Langeberg Road was constructed in the 1970's. Its initial geometric design was to have 2 carriageways with 2 lanes in each direction and an island in between the 2 carriageways. It has since been realigned to have 3 lanes in from Bayhead Road to Pier-2, Durban Container Terminal and a single lane out. Langeberg Road is one of the busiest roads in the Port of Durban as it services one of the largest container terminals in Southern Africa. The heavy traffic of container trucks coming in and out of Pier 2 container terminal result in the overall infrastructure of Langeberg Road to deteriorate before the end of its design life.

The purpose of this project is to mitigate this congestion through the upgrade of Bayhead and Langeberg Roads. The project will also look into assessing and upgrading of the aging infrastructure in conjunction with alleviating congestion on Bayhead Road leading to Langeberg road.

1.2 PROJECT LOCATION

The Port of Durban is located on the east coast of KwaZulu-Natal within the eThekweni Municipality. The Port of Durban consists of multiple precincts that handle different commodities such as, Liquid bulk, Automotive, Dry bulk, etc. Bayhead road and Langeberg road are the only road link to the major container terminals and other terminals at the Port of Durban. Bayhead road has two major intersections, South Coast Road at the start (west), four minor intersections in between the next major intersection which is Langeberg Road (east). Bayhead Road continues onto Pier 1 and Iran Road intersects with Bayhead Road in between Langeberg Road and Pier 1.

Table 1 - Geographical coordinates of the proposed site

Bayhead Road Northern End	
Latitude	29° 53' 07.94"S

Longitude	30° 59' 25.63"E
Bayhead Road Southern End	
Latitude	29° 54' 16.53"S
Longitude	31° 00' 37.88"E
Langeberg Road Western End	
Latitude	29° 54' 20.20"S
Longitude	30° 00' 33.95"E
Langeberg Road Eastern End	
Latitude	29° 53' 27.25"S
Longitude	30° 00' 54.66"E

The Site Location is indicated on **Figure 1**.

1.3 BACKGROUND OF SPECIALIST

Jon Marshall qualified as a Landscape Architect in 1978. He has also had extensive experience of environmental impact assessment processes in South Africa. He has been involved in Visual Impact Assessment over a period of more than 30 years. He has developed the necessary computer skills to prepare viewshed analysis and three dimensional modelling to illustrate impact assessments. He has undertaken landscape and visual impact assessments for major buildings, industrial developments, mining, infrastructure projects and numerous renewable energy projects.

A brief Curriculum Vitae outlining relevant projects is included as **Appendix I**.

1.4 THE NATURE OF VISUAL IMPACT

Visual impacts may relate to a general change in the character of an area or in the change in a specific view for a person or group of people.

Visual impacts can be positive or negative and a degree of subjectivity is required in deciding this point. The approach of any visual assessment should, as objectively as possible, describe a landscape and as far as is possible reflect the likely majority view regarding positive / negative aspect of an impact. This can be difficult particularly in South Africa due to different values and cultures associated with various sectors of the population. For example, poorer and particularly rural based sectors of the population are possibly more concerned with the productive nature of a landscape than its appearance, whereas the wealthier sectors might be more concerned with scenic value particularly as it is associated with property values. If possible the values and opinions of all impacted sectors of the community should be considered.

General change to a landscape might have greater or lesser significance subject to;

- a) Numbers of people who may use the landscape,
- b) The use of the landscape,
- c) The level of protection afforded the landscape, and
- d) The rarity of the landscape.

In terms of change to a specific view this might be defined as either visual intrusion or visual obstruction.

- a) Visual intrusion is a change in a view of a landscape that reduces the quality of the view. This can be a highly subjective judgement, subjectivity has been removed as far as is possible in this assessment by classifying the landscape character of each

area and providing a description of the change in the landscape that will occur due to the proposed development.

- b) Visual obstruction is the blocking of views or foreshortening of views. This can generally be measured in terms of extent.

More often than not such an impact will be a combination of intrusion and obstruction. Obstruction can be measured in terms of the extent of an existing view that is screened by a development. However, judging intrusion requires a degree of subjectivity. It is however possible to relate this judgement to the manner in which proposed change would impact on the use or enjoyment of an area which again requires an understanding of local values. Impacts associated with this project are anticipated to largely relate to visual intrusion.

1.5 RELEVANT GUIDELINES

The brief is to determine the sensitivity of the affected landscape and review the possible nature of landscape and visual impacts that the proposed project could result in and specifically to;

- Characterise the affected landscape;
- Identify potential sensitive landscapes and receptors that may be impacted by the proposed facility and the types of impacts that are most likely to occur;
- Provide sensitivity mapping identifying 'No-Go' areas, and areas for development that will minimise landscape and visual impacts; and
- Assess potential landscape and visual changes.

Work has been undertaken in accordance with the following guideline documents;

- a. The Government of the Western Cape Guideline for Involving Visual and Aesthetic Specialists in EIA Processes (Western Cape Guideline), which is the only local relevant guideline, setting various levels of assessment subject to the nature of the proposed development and surrounding landscape, and
- b. The Landscape Institute and Institute of Environmental Management and Assessment (UK) Guidelines for Landscape and Visual Impact Assessment which provides detail of international best practice (UK Guidelines).

Refer to **Appendix II** for the Western Cape Guideline.

1.6 LIMITATIONS AND ASSUMPTIONS

The following limitations and assumptions should be noted:

A site visit was undertaken over a single day (23rd October 2025).

The timing of photography was planned to ensure that lighting conditions were, as far as possible, suitable to ensure that as much detail as possible was recorded in the photographs.

GIS data sets used in the assessment are either available online to the public or have been sourced from relevant government departments.

Photographs were taken with a Canon EOS M50 camera fitted with a 22mm lens which is approximately the focal length of the human eye.

The following GIS data sets were used in undertaking and presenting the assessments:

Table 2 - GIS data sets used

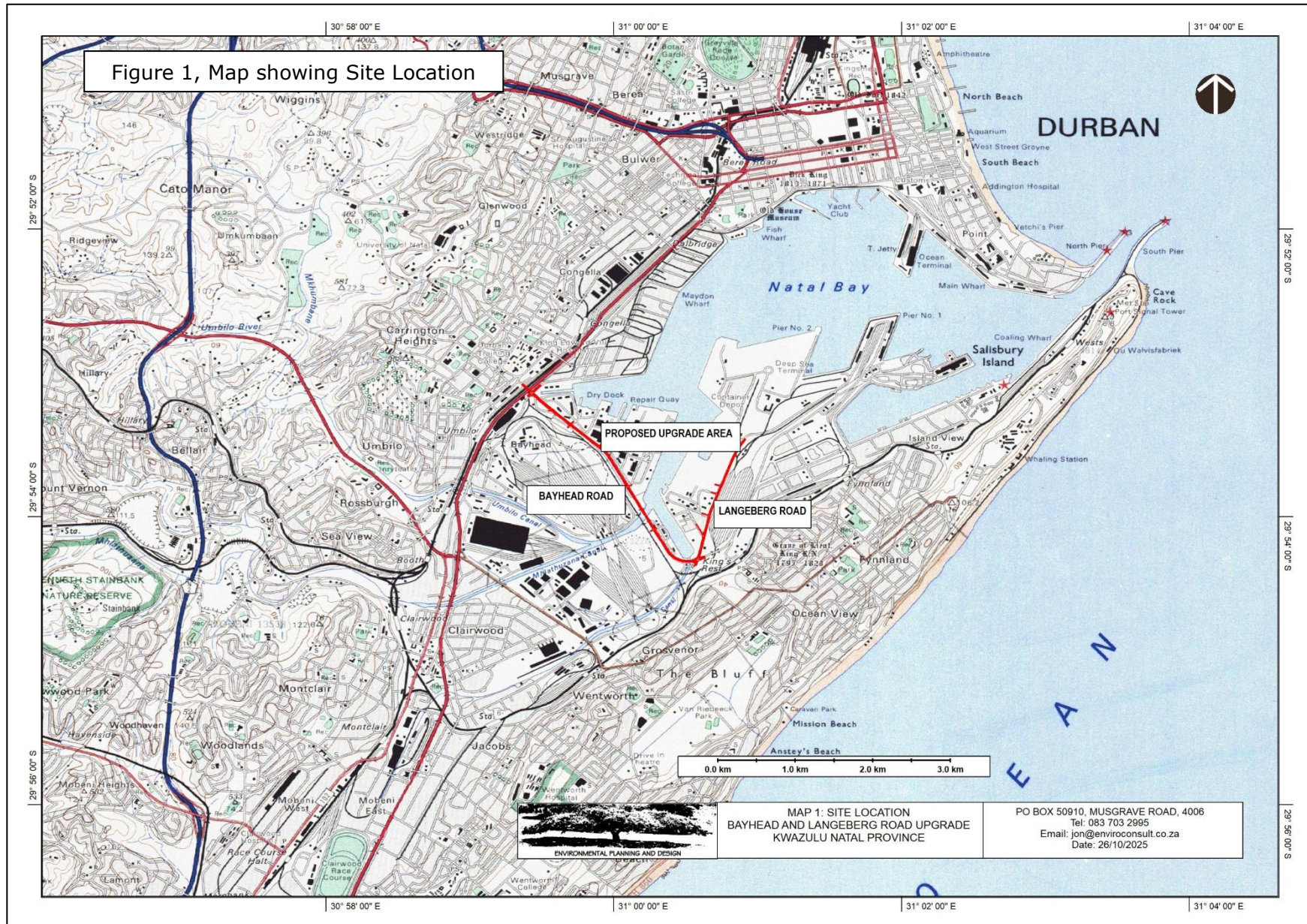
DATA SET	SOURCE	YEAR
South Africa Protected Areas Database (SAPAD)	Department of Environmental Affairs	Q3 2025
SRTM Worldwide Elevation Data	CIAT-CCAFS	2018
World Imagery	ESRI	2009 (updated 2021)
SA NLC (National Land Cover)	Department of Environmental Affairs	2018
1:50,000 raster mapping	Chief Directorate National Geo-Spatial Information of South Africa	Unknown
South African rivers in drainage region ALL	Department of Water Affairs	2012
Update of vegm2012	South African National Biodiversity Institute	2015
South Africa /Lesotho Roads	Open Street Map	2014
Durban Metropolitan Open Space System	eThekweni Municipality	2018

The majority of data sets have been used for assessment context. These have largely been sourced from government departments. Whilst these have been mainly mapped at national scale they were found to be largely sufficient to provide context for the assessment. Where additional detail was required, such as the location of local roads and homesteads, this was mapped on site and / or captured from online mapping.

Visibility of the proposed facilities has been assessed using the Global Mapper Viewshed tool.

The visibility assessment was based on terrain data that has been derived from satellite imagery (STRM Worldwide Elevation Data). This data was originally prepared by NASA and is freely available on the CIAT-CCAFS website (<http://www.cgiar-csi.org>). This data has been ground truthed using a GPS as well as online mapping. This is the key data on which the definition of possible affected landscapes and receptors was based and is considered sufficient for this purpose.

The calculation of visibility is based purely on the Digital Elevation Model and does not take into account the screening potential of vegetation or other development.



2. PROJECT DESCRIPTION

2.1 MOTIVATION

The purpose of this project is to mitigate this congestion through the upgrade of Bayhead and Langeberg Road. The project will also look into assessing and upgrading of the aging infrastructure (road and associated infrastructure) in conjunction with alleviating congestion on Bayhead Road leading to Langeberg road.

2.2 PROJECT ELEMENTS

The Environmental Impact Assessment is being undertaken in parallel with the feasibility and design process. Because of this only initial design intentions are available. These include:

- The proposed upgrade of Bayhead Road, from a 2-lane dual carriageway into a 3-lane dual carriageway (i.e. three east-bound lanes and three west-bound lanes). Note that the number of lanes per each carriageway will be subject to the recommendations of the Traffic Impact Assessment (TIA);
- The proposed upgrade of Langeberg Road by increasing capacity of the north-bound carriageway from 2-lanes into 3-lanes (i.e. one additional lane north-bound). Note that the number of lanes will be subject to the recommendations of the Traffic Impact Assessment (TIA);
- The proposed upgrade of the intersection between Bayhead Road and Langeberg Road by increasing lane capacity for left-turning traffic exiting Bayhead Road;
- The proposed widening of all bridge structures (six bridges in total) along Bayhead, Langeberg and potentially South Coast Roads to align with increased lane capacity;
- The proposed upgrade of stormwater infrastructure along Bayhead and Langeberg Roads;
- The provision of the road furniture i.e. signage, guardrails, road markings etc;
- Lighting along Bayhead and Langeberg Roads considering renewable energy;
- Landscaping and sidewalk/ median designs;
- Designs for perimeter fence where required; and
- The protection of existing service and or relocation where required.

2.3 ASSESSMENT IMPLICATIONS

At the time of reporting only an indicative road layout is available with no indication of the complete extent or detail of the necessary construction work.

The project elements listed above are an initial indication of design input required by the project engineer. Therefore, particularly where specific requirements are indicated, these elements are likely to change and their the detail developed as the Engineer's studies proceed.

3. ASSESSMENT APPROACH

3.1 LEVEL OF STUDY

The Western Cape Guidelines recommend a level of study and necessary contents of a Landscape and Visual Impact Assessment based on the type of project proposed and the nature of the likely affected landscape.

The site area can generally be categorised as being part of an industrial and degraded landscape. This is due to the fact that the route in question is primarily an access to the Port for heavy goods vehicles, the fact that these heavy goods vehicles have stacked and parked informally on the side of the road as they wait to access the port causing damage to verges and adjacent infrastructure and because adjacent development is largely industrial in nature.

The proposed project, particularly considering that it's an upgrade, might be considered as a medium scale infrastructure project or a **Category 4 Development** as indicated in the Western Cape Guidelines, see Table 1 - Box 3 extracted from the Western Cape Guidelines below.

Table 3 – Box 3 extracted from the Western Cape Guidelines

<i>Box 3: Key to Categories of Development</i>
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.

Also in accordance with the Western Cape Guidelines, it may be anticipated that the it is expected that the proposed project may cause Minimal Visual Impact, see below Table 4: Categorisation of Issues to be Addressed by the visual Impact Assessment¹.

Where minimal visual impact is expected, a Level 2 Input is required. Level 2 Inputs require the following:

- Identification of issues raised in scoping phase, and site visit;
- Description of the receiving environment and the proposed project;

¹ Western Cape Guidelines

- Establishment of view catchment area and receptors;
- Brief indication of potential visual impacts, and possible mitigation measures.

Table 4 – Type of Environment & Type of Development Matrix extracted from the Western Cape Guidelines

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

The requirements of the Western Cape Guidelines point towards a relatively superficial approach.

It is therefore intended, where possible, to review the elements listed in Section 2.2 and from experience to highlight potential landscape and visual issues that could arise and to recommend potentially required mitigation measure that should be considered during design development.

4 THE AFFECTED LANDSCAPE AND RECEPTORS

It is possible that landscape change due to development could impact the character of a landscape. Landscape character can be derived from specific features relating to the urban or rural setting and may include key natural, historic or culturally significant elements. Importance might also relate to landscapes that are uncommon or under threat from development.

This section will:

- Describe the types of landscape that may be impacted;
- Indicate likely degree of sensitivity; and
- Describe how the landscape areas are likely to be impacted.

The Approximate Limit of Visibility (ALV) is dictated by height and visual mass of a proposed development, surrounding landscape and built features such as vegetation, ridgelines and buildings as well as the curvature of the earth.

Visibility of a road particularly in a relatively flat landscape is usually dictated by the height and number of vehicles moving along it. In the case of this proposed project the roads involved are the main entrance to the container port in Durban harbour. It is therefore an extremely busy road and at times has container trucks cuing along the majority of the road.

A mathematical calculation has been used to indicate the Approximate Visual Horizon due to the earth's curvature as seen from the highest point of the proposed development. The formula used is a universally accepted formula that is used widely for navigation and is indicated in **Appendix III**. This indicates that the tallest project elements (loaded height of container truck) could be visible from the distances indicated below:

Table 5, Approximate Limit of Visibility

DEVELOPMENT ELEMENT (Assumed heights)	APPROXIMATE LIMIT OF VISIBILITY (ALV)
Loaded height of container truck (4.3m)	7.4km

Theoretically the proposed road or users of the road could be visible for approximately 7.4km.

However, in reality this distance will be reduced by:

- Weather conditions that limit visibility. This could include hazy conditions during fine weather as well as mist and rain;
- Scale and colour of individual elements making it difficult to differentiate structures from the background;
- The fact that as the viewer gets further away, the apparent height of visible elements reduces. At the limit of visibility it will only be possible that the very tip of an object may be visible. This reducing scale means that an object will become increasingly more difficult to see as the distance from it increases; and
- The extent of development, minor landform variation and vegetation between the viewer and the road.

Item d) is particularly relevant to the proposed project as it runs close to and within an industrial landscape and close to an elevated landform (Bluff). Existing development and landform will therefore significantly reduce visibility of the proposed road upgrade. In order to address this, the approximate visual limits defined by landform and development are overlaid onto the theoretical ALV, Map 2, Affected Areas. From this map it is obvious that visibility is likely to be largely constrained to the immediate vicinity of the road upgrade to the north and west of the proposed project and to a maximum of approximately 700m to the south and east of the project. It is also possible that longer range views of the road upgrade will be possible from elevated viewpoints on the Bluff.

4.1 LANDSCAPE CHARACTER

Landscape character is defined as “a distinct, recognisable and consistent pattern of elements in the landscape that makes one landscape different from another”.

Landscape character was defined from a site visit supplemented by available online mapping and aerial photography.

The proposed site is located in a low lying area that has generally been developed with port related uses.

Landscape Character is a composite of a number of influencing factors including;

- Landform and drainage
- Nature and density of development
- Vegetation patterns

4.1.1 Landform and Drainage

The landform surrounding the study area is a natural basin. Valley lines enter the basin from the north connecting with other areas of eThekweni.

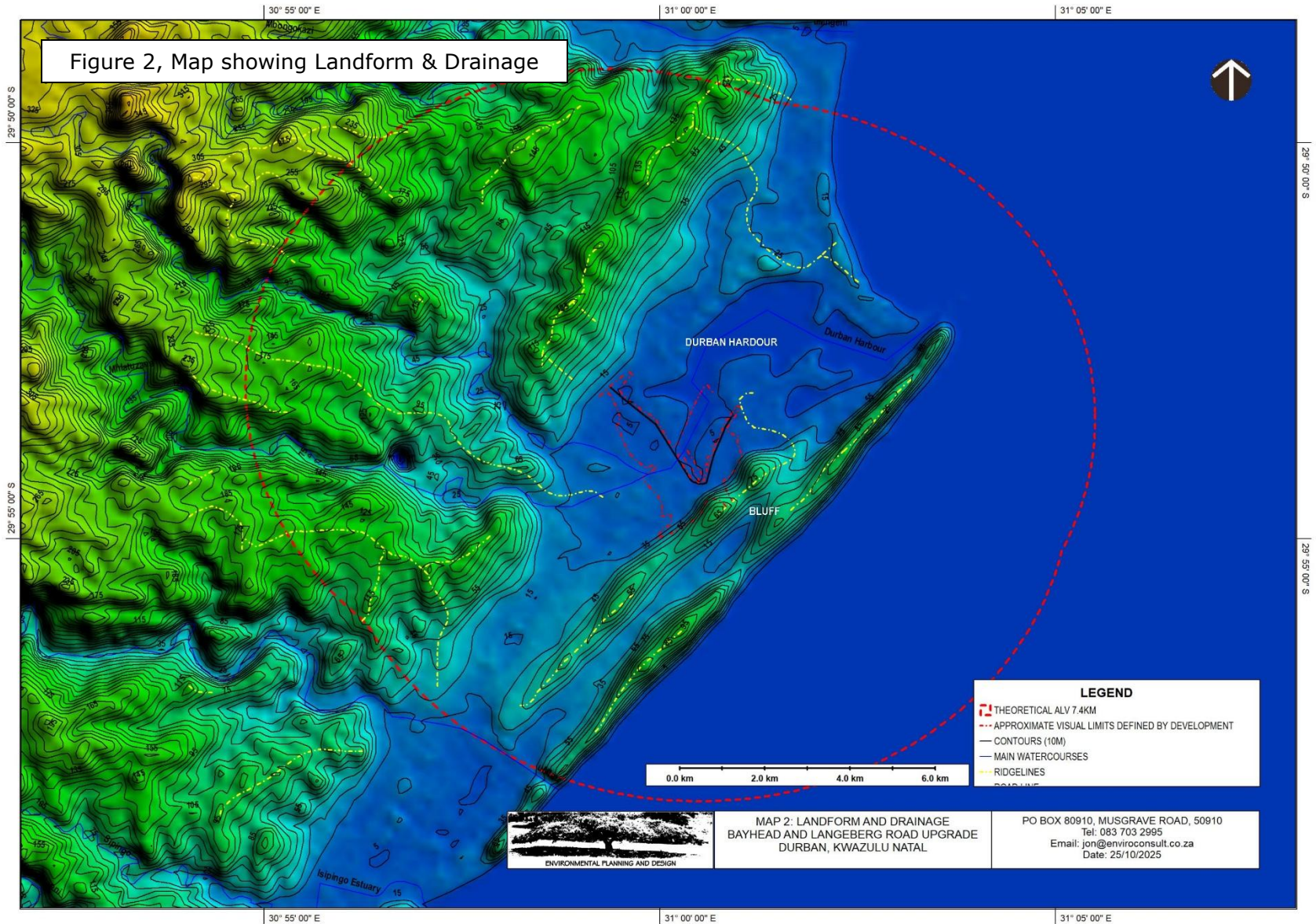
The proposed project site is located on the basin floor and across the southern end of the Durban Harbor.

Ridgelines run in approximately north-east to south-west direction, with the Bluff to the east of the proposed project rising to approximately 90m a.m.s.l (above mean sea level). The existing road alignment is located at approximately 5-7m a.m.s.l.

The main drainage features, the Umbilo and the Mhlatazana Rivers, cross the project area flowing into the harbor via a single canalized channel.

Refer to Figure 2 for analysis of the landform and drainage.

Figure 2, Map showing Landform & Drainage



4.1.2 Land Use

The land use immediately surrounding the proposed road upgrade is largely comprised of port related infrastructure. Within the wider ALV the landcover is comprised of a matrix of manufacturing, chemical processing industries and a network of strategic infrastructure most of which is associated with the port.

Figure 3 - Map 3, Landcover, highlights the fact that the northern end of the proposed road upgrade is bordered by industrial buildings and container storage. The southern end of proposed road upgrade is bordered by herbaceous wetland its western side of the road and by port related light industrial uses on its eastern side. The herbaceous wetland is obvious from the road as an open area with a "green" margin however the majority of the wetland has been backfilled for use as a truck parking area.

New industrial development has commenced at the northern end of the relatively open area on the western side of the road.

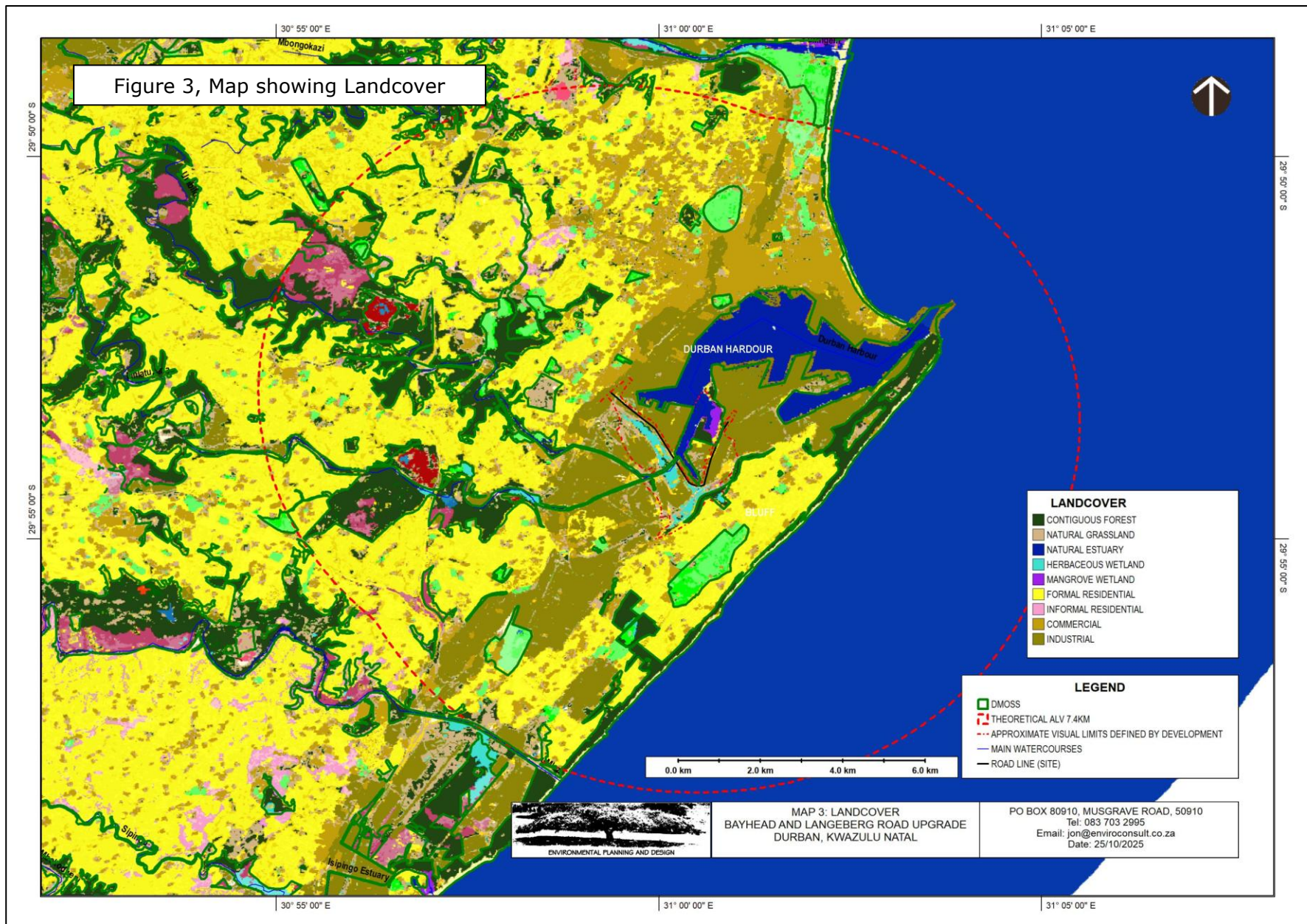
There are also two small breaks in industry to the east of Bayhead Road that allow fleeting glimpses of the Silt Canal and Durban harbor through the buildings.

Formal Residential landcover dominates the higher ground on the Bluff that overlooks the proposed site. From the site visit, there is a limited number of properties that appear to have an open view over the proposed road upgrade.

The general appearance of the existing road corridor is that it has been degraded by the pressure of use and by industrial development. There are large concrete blocks and concrete California barriers placed at regular intervals over much of the road margin in order to prevent truck parking. The perception is that it has developed purely a functional corridor with no other consideration. What appear as drastic temporary measures such as large concrete blocks and removal of ecologically important areas, seem to have been put in place to manage the pressure of use.

No Provincial or Nationally Protected Areas are likely to be affected.

Durban Metropolitan Open Space System (DMOSS) which is a network of open spaces that are protected by eThekweni Municipality for biodiversity reasons includes the Umbilo and Mhlathazana Rivers canalized water course that flows beneath the proposed road upgrade. DMOSS also includes the entire harbour area.



4.1.3 Landscape Character Areas and Visual Absorption Capacity

Landscape Character Areas (LCAs) are defined as “single unique areas which are the discrete geographical areas of a particular landscape type”. Visual Absorption Capacity (VAC) is *defined* as the landscape's ability to absorb physical changes without transformation in its visual character and quality. Where elements that contrast with existing landscape character are proposed, VAC is dependent on elements such as landform, vegetation and other development to provide screening of a new element. The scale and texture of a landscape is also critical in providing VAC, for example; a new large scale industrial development located within a rural small scale field pattern is likely to be all the more obvious due to its scale.

The affected landscape can generally be divided into the following LCAs that are largely defined by landcover patterns and topography.

- **The Industrial Transport Corridor LCA.** This area is comprised of the Bayhead Road, Langeberg Road and immediately surrounding areas. It is a heavily used and degraded landscape with what appears to be no consideration for the natural environment or aesthetics. Views of the entire development area are obvious as the motorist drives down the road. This corridor is used largely by logistics companies delivering and collecting containers from the port and by trucks accessing adjacent industrial areas. A limited number of vehicles that use the road are also accessing social use areas along Seafarer's Road;
- **The Bluff Headland LCA.** This area is comprised of the largely residential area on the upper slopes of the Bluff Headland and natural vegetation areas on the lower slopes. When inside this area views over the proposed development site are largely screened by development and vegetation. A limited number of properties overlook and have clear views of the proposed site;
- **The Industrial LCA** which includes light industry as well as port related industry that is located immediately adjacent to the eastern edge of Bayhead Road. It is comprised of flat land much of which has direct access to the waterfront. The area is a mix of industrial warehousing, workshops and container storage. As with all roads in the area, solid preventative measures are in place to prevent the parking of trucks (**Figure 4**). Once inside this area, views of the proposed upgrade area are only possible from the internal road junctions with Bayhead road;
- **The Social Use Area LCA** which includes Bluff Yacht Club, the Sea Cadets site, the Durban Seafarers Mission and the Ski Boat Site. These uses are historic and enable public access to the water. However access to and through this area has been badly affected by trucks that access a truck parking area at the end of the access road. They appear to block access along the road and to the social use sites for long periods. Despite the public use of the area, the access road (Seafarer Road) is in a similar poor state as the main Bayhead Road. Once inside any one of these social areas, views of the proposed development area are not possible due to the extent of existing boundary and internal vegetation. Views of the proposed road upgrade site are likely to be possible from the waterfronts of these sites.



Figure 4, Plate indicating Traffic Management using Concrete Blocks on Bayhead Road

Table 6, Landscape Character Areas



The Industrial Transport Corridor LCA



The Bluff Headland LCA

Table 6, Landscape Character Areas



The Industrial LCA



The Social Use LCA

4.1.4 Landscape Quality and Importance

The landscape quality in all identified LCAs is degraded and largely dominated by the prime logistics use of the area.

4.2 VISUAL RECEPTORS

Visual Receptors are defined as “individuals and / or groups of people who have the potential to be affected by the proposal”².

Certain areas may also be sensitive due to an existing use. The nature of an outlook is generally more critical to areas that are associated with recreation, tourism and in areas where outlook is critical to land values.

From the site visit, the following visual receptors were noted:

4.2.1 Area Receptors:

Area receptors are places that cannot be defined by a point or a line. They might include settlements or protected areas. Possible Area Receptors include:

- The **Bluff Residential Area** overlooking the proposed site to the south; and
- Visitors and users of the **Social Facilities along Seafarer’s Road**.

4.2.2 Linear Receptors:

Linear receptors generally include routes through the area, these include:

- Motorists and Truck drivers on **Bayhead Road, Langeberg Road and Seafarer’s Road**. These routes are primarily used for access to the port however, a small number of vehicles are likely to use the roads for access to the social uses on Seafarers Road.

4.3 LIKELY SENSITIVITY OF LCAs AND RECEPTORS

The sensitivity of landscape areas and receptors to likely landscape changes is partly subjective. However, in order to provide clarity for the assessment, the following table indicates the manner in which sensitivities will be considered in the assessment.

² Landscape Institute & Institute of Environmental Management and Assessment

Table 7, Landscape and Receptor Sensitivity

SENSITIVITY	LCA	RECEPTORS
Low	Landscape value is not recognised or the landscape is very tolerant of change. These areas include: • Industrial Transport Corridor LCA; and • The Industrial LCA	Small number or low sensitivity of viewers assumed. Viewers' attention not focused on landscape. These include: • Truck drivers using the routes for access to the Port and adjacent industrial areas.
Medium	Landscape value is recognised locally, but is not protected; the landscape is relatively intact, with a distinctive character; and the landscape is reasonably tolerant of change. • The Social Use Area LCA; and • The Bluff Headland LCA	Viewer's attention may be generally focused on the landscape. These include: • Residents of residential areas on the Bluff; and • Motorists using the routes for access to the Social Use Area LCA.
High	Landscape value recognised by existing or proposed national or regional designation. Sense of tranquillity or remoteness specifically noted in Landscape Character Assessment. High sensitivity to disturbance. The qualities for which the landscape is valued are in a good condition, with a clearly apparent distinctive character. This distinctive character is susceptible to relatively small changes. There are no Highly Sensitive LCAs.	Viewer's attention very likely to be focused on the landscape. e.g. users of public rights of way and access land, strategic recreational footpaths; people experiencing views from important landscape features of physical, cultural or historic interest, beauty spots and picnic areas. Large number of viewers and/or location in highly valued landscape could elevate viewer sensitivity to highest level. There are no Highly Sensitive Receptors.

5 THE NATURE OF POTENTIAL VISUAL IMPACTS & VISIBILITY

5.1 NATURE OF LIKELY VIEWS OF THE DEVELOPMENT

During the construction phase, it is expected that traffic will be slightly increased as trucks will be required to transport materials and equipment such as PV panels and frames to the site.

Site preparation could include the following activities:

- Demolition of road furniture / fencing;
- Road / carriageway closures in order that work may be undertaken on one carriageway whilst leaving the other carriageway open to carry traffic. This is likely to cause traffic congestion;
- Preparation of the subgrade which could cause dust to rise;
- Levelling, grading and compaction of base material;
- The placing / casting of road barriers; and
- Road surfacing.

The majority of the above operations will largely be visible from immediately adjacent areas. It is also likely that they will be visible from residential areas on the Bluff.

The development will therefore appear on a progressive basis in the landscape, however once the road sub-bases and bases are constructed, the road furniture and surfacing is likely to be installed rapidly.

5.1.1 The likely Nature of Views of the Proposed Project

From adjacent road areas security fencing and the building detail, is likely to be obvious.

From more distant views particularly from higher areas on the Bluff, the project is likely to be seen as a developing pattern that is unlikely to impose on living conditions.

5.2 ZONES OF THEORETICAL VISIBILITY

Zones of Theoretical Visibility (**ZTV**) are defined as “a map usually digitally produced showing areas of land within which a development is theoretically visible”³.

ZVTs of the proposed development have been assessed using Global Mapper GIS. The assessment is based on terrain data that has been derived from satellite imagery. This data was originally prepared by NASA and is freely available on the CIAT-CCAFS website (<http://www.cgiar-csi.org>). This data has been ground truthed using a GPS as well as online mapping.

Existing vegetation and development will have a significant modifying effect, the limits of visibility that were assessed from a site visit are overlaid onto the ZTV analysis in order to indicate how development will influence possible views.

The ZTV analysis is indicated on **Figure 5, Map showing Zones of Theoretical Visibility**.

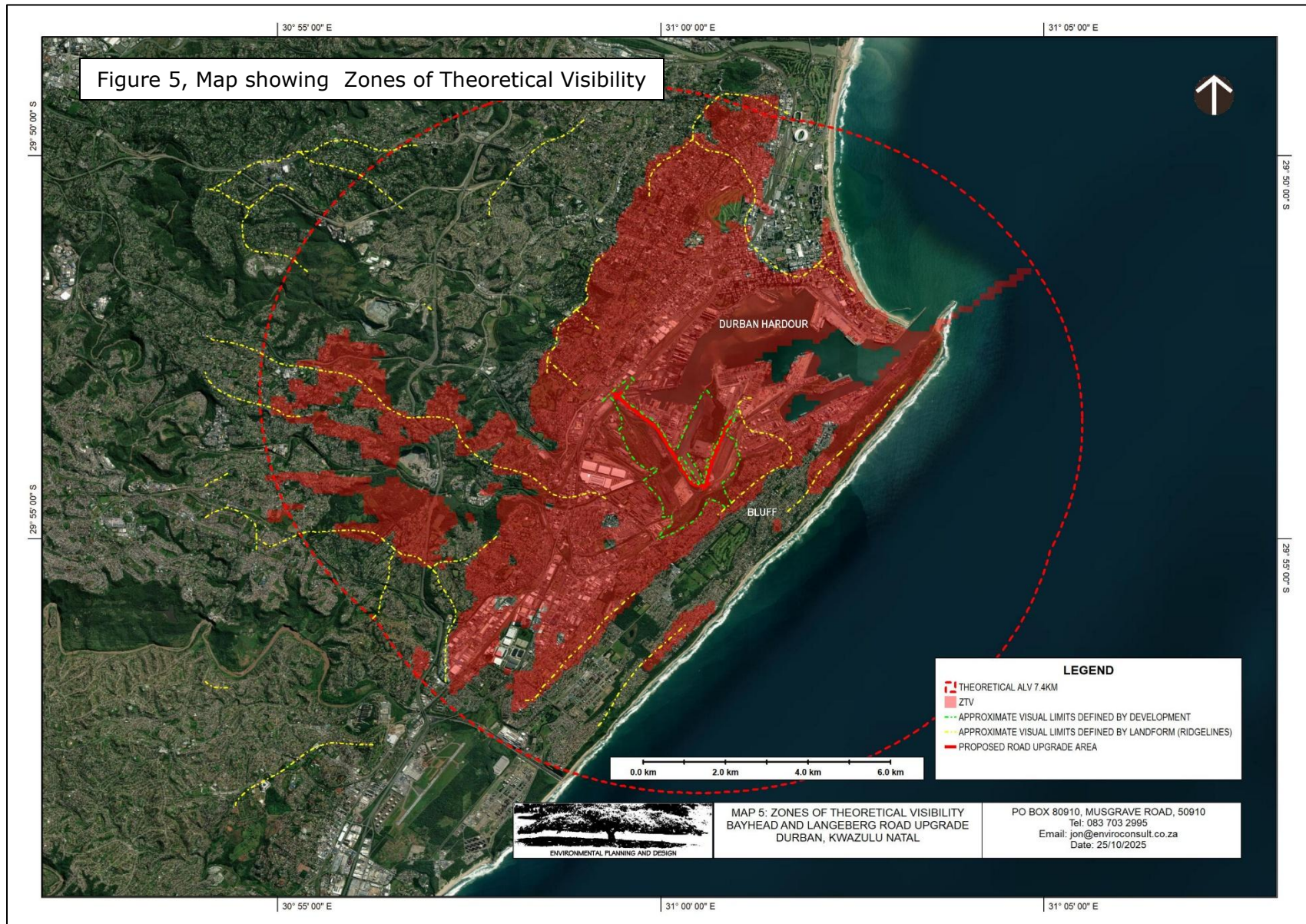
The Approximate Limit of Visibility (**ALV**) is indicated as are the estimated Approximate Visual Limits defined by landform and development. These limits are overlaid onto the ZTV which is calculated based on topography only.

It is likely that the main areas of impact will be located within the Visual Limits defined by Development.

This indicates that whilst the main impacts should be limited to the immediate area around the road upgrade, it is possible that glimpses of the development could be visible through buildings for a significantly greater area. However, these long views are unlikely to be highly visually obvious.

It also indicates a relatively small area of the Bluff residential area immediately south and south-east of the southern end of the proposed road upgrade from which views may be possible.

³ UK Guidelines



6 LANDSCAPE AND VISUAL IMPACTS

The previous section of the report identified specific areas where visual impacts may occur as well as their likely nature of those impacts. This section will attempt to quantify these potential visual impacts in their respective geographical locations and in terms of the identified issues.

6.1 IDENTIFICATION OF ISSUES RAISED

Impacts have only been identified through the site visit and subsequent assessment. It is possible that other relevant issues and impacts could be identified during the environmental application process. If significant landscape and visual issues and concerns should be raised, an additional review may be required and an addendum to this report prepared.

Possible landscape and visual impacts identified include:

- a) Change in landscape character;
- b) Impact on views from adjacent areas to the road;
- c) Impacts on views from residential areas on the Bluff; and
- d) Impacts on views from other areas within the ALV.

It should be noted that the impacts identified will all gradually increase from the current situation to the impact level indicated during the construction phase, be consistent at the impact levels indicated during the operational phase and decrease again from the levels indicated to close to the current situation during the decommissioning phase.

- Brief indication of potential visual impacts, and possible mitigation measures.

6.2 ASSESSMENT METHODOLOGY

As indicated in Section 3, the requirement is to provide a “*brief indication of potential visual impacts, and possible mitigation measures*”.

6.3 BRIEF INDICATION OF POTENTIAL VISUAL IMPACTS, AND POSSIBLE MITIGATION MEASURES

6.3.1 Change in Landscape Character

The road and adjacent areas have been degraded by the pressure of use and the general lack of positive management. Management currently appears to be reactive, hence, the large concrete blocks and placing of multiple California road barriers in an attempt to control the use of road verges. This has resulted in localised erosion and disturbance of areas adjacent to the road.

In the short, and during the construction period, it is likely that the view from the road and immediately adjacent areas will be of a construction site

It is understood that the road in question is primarily a functional access to adjacent industry and the port and it is not intended to develop a parkland roadside landscape. However, in the long term, it is possible that the creation of an additional road lane could at least partially address current problems. Mitigation should include the use of roadside detailing and furniture to be installed that will physically prevent trucks disturbing areas adjacent to the road which

could result in a visual improvement of the roadside landscape and protect adjacent areas that are important for biodiversity.

Therefore, in the medium to long term and with the right detailing, there is a possibility that the proposed project will result in a general landscape improvement.

6.3.2 Impact on views from adjacent areas to the road

For the reasons noted in 6.3.1, the proposed project is likely to result in a short term negative impact during the construction phase but with **mitigation including** the correct detailing and furniture that prevents roadside damage due to the weight of trucks using the corridor to result in a significant visual benefit.

6.3.3 Impact on views from residential areas on the Bluff

Potential views from residential area of the Bluff are likely to be limited to a small number of properties as dense vegetation screens views over the road from the majority of properties.



Figure 6, View looking south towards the Bluff from the southern end of Bayhead Road close to its intersection with Langeberg Road

The section of the road closest to the Bluff being the southern end of Bayhead is likely to be the most visually obvious.

Properties on Luca Crescent, Lucas Place and Sheffield Grove are closest to the proposed road upgrade and could be most affected. The closest of these properties is approximately 500m from the proposed project.

Views from the affected properties are likely to be oblique aerial in nature. Affected properties are likely to have views of the complete length of the affected road.

It is likely that during construction, views over the road works and possible traffic disruption will be seen. It is possible that dust rising from the site could exacerbate impacts. The extent of the possible impact can be managed by limiting the extent of landscape disturbance and effectively managing dust during the construction phase.

It is likely that these receptors have views over disturbed areas closest to the southern end of Bayhead Road due to impacts associated with truck parking and access beside the road although sections of disturbance further north may not be obvious. During the operational phase and with appropriate roadside detailing and furniture to contain trucks and other vehicles on the road, it is likely that disturbed areas will be minimised.

It also seems likely that the proposed additional traffic lane will increase road capacity which may result in less traffic congestion on the road.

Whilst currently disturbed areas over much of the road are not likely to be highly obvious and views over traffic congestion may not be a significant concern, the proposed project is likely to have a marginally beneficial impact on views from this area.

6.3.4 Impact on views from other areas within the ALV

It is possible that views of the proposed site may be possible between buildings and through visual corridor along harbour extensions such as the Silt Canal which extends from the main body of the harbour towards the bluff. The most likely places that these narrow views towards the proposed project may be possible are; the industrial areas immediately east of Bayhead Road, open water areas of the harbour and the Social Use Areas of the Harbour.

From most areas it is unlikely that these views will be significant and it is likely that views of the proposed project will not be highly visually obvious.

It is possible that through the wider view corridors such as the one leading from the Silt Canal limited construction activities could be partially visible. However, impacts are likely to be limited in duration and during the operational period no impact is likely to be experienced.

6.4 CUMULATIVE IMPACTS

It is noted that there are numerous road improvements and upgrades being undertaken across the municipality. There are also significant upgrades being undertaken to National Roads in the region. There are no other significant road projects that could be visible in the same view as the subject project. However, given the significant disruption that can occur due to road upgrade projects, the proposed upgrade could be seen as increasing disruption to local road corridors. Given the nature of the road this cumulative effect is most likely to affect truck drivers. It is noted that visual effects are not likely to be the main consideration.

7 IMPACT STATEMENT

7.1 VISIBILITY

It is likely that the main areas of impact will be located within the Visual Limits defined by Development.

This indicates that whilst the main impacts may be limited to the immediate area around the road, it is possible that glimpses of the development could be visible through buildings for a significantly greater area. However these long views are unlikely to be visually obvious.

It also indicates a relatively small area of the Bluff residential area immediately south and south-east of the southern end of the proposed road upgrade from which views may be possible.

The majority of the surrounding area identified within the ZTV analysis is likely to be screened by existing development and vegetation.

7.2 LANDSCAPE CHARACTER AREAS AND VISUAL ABSORPTION CAPACITY

The affected landscape can generally be divided into the following LCAs:

- **The Industrial Transport Corridor LCA.** This area is comprised of the Bayhead Road, Langeberg Road and immediately surrounding areas. It is a heavily used and degraded landscape with what appears to be no consideration for the natural environment or aesthetics. Views of the entire development area are obvious as the motorist drives down the road. This corridor is used largely by logistics companies delivering and collecting containers from the port. A limited number of vehicles that use the road are also accessing social use areas along Seafarer's Road;
- **The Bluff Headland LCA.** This area is comprised of the largely residential area on the upper slopes and natural vegetation areas on the lower slopes. When inside this area views over the proposed development site are blocked by development, however, a limited number of properties do overlook the proposed site;
- **The Industrial LCA** which includes light industry as well as port related industry. It is comprised of flat land much of which has direct access to the waterfront. From the road, the area is a mix of industrial warehousing, workshops and container storage. As with all roads in the area, solid preventative measures are in place to prevent the parking of trucks. Once inside this area, views of the proposed upgrade area are only possible from the internal road junctions with Bayhead road;
- **The Social Use Area LCA** which includes Bluff Yacht Club, the Sea Cadets site, the Seafarers Mission and the Ski Boat Site. These uses are historic and enable public access to the water. However access to and through this area has been badly affected by trucks that access a truck parking area at the end of the access road. They appear to block access along the road and to the social use sites for long periods. Despite the public use of the area, the access road (Seafarer Road) is in a similar poor state as the main Bayhead Road. Once inside any one of these social areas, views of the proposed development area are not possible due to the extent of existing boundary and internal vegetation.

7.3 VISUAL RECEPTORS

This section is intended to highlight possible Receptors within the landscape which due to use could be sensitive to landscape change.

Area Receptors:

Area receptors are places that cannot be defined by a point or a line. They might include settlements or protected areas. Possible Area Receptors include:

- The **Bluff Residential Area** overlooking the proposed site to the south; and
- Visitors and users of the Social Facilities along Seafarer's Road

Linear Receptors:

Linear receptors generally include routes through the area, these include:

- Motorists and Truck drivers on **Bayhead Road, Langeberg Road and Seafarer's Road**. These routes are primarily used for access to the port however, a small number of vehicles are likely to use the roads for access to the water-sports clubs.

7.4 POSSIBLE LANDSCAPE AND VISUAL IMPACTS

Possible landscape and visual impacts identified include:

- a) Change in landscape character;
- b) Impact on views from adjacent areas to the road;
- c) Impacts on views from residential areas on the Bluff; and
- d) Impacts on views from other areas within the ALV.

The impacts identified will all gradually increase from the current situation to the impact level indicated during the construction phase, be consistent at the impact levels indicated during the operational phase and decrease again from the levels indicated to close to the current situation during the decommissioning phase.

7.4.1 Change in Landscape Character

The road and adjacent areas have been degraded by the pressure of use and the general lack of positive management. Management currently appears to be reactive, hence, the large concrete blocks and placing of multiple California road barriers in an attempt to control the use of road verges. This has resulted in localised erosion and disturbance of areas adjacent to the road.

In the short, and during the construction period, it is likely that the view from the road and immediately adjacent areas will be of a construction site

It is understood that the road in question is primarily a functional access to adjacent industry and the port and it is not intended to develop a parkland roadside landscape. However, in the long term, it is possible that the creation of an additional road lane could at least partially address current problems. There is also potential for the use of roadside detailing and furniture to be installed that will physically prevent trucks disturbing areas adjacent to the road which could result in a visual improvement of the roadside landscape and protect adjacent areas that are important for biodiversity.

Therefore, in the medium to long term and with the right detailing, there is a possibility that the proposed project will result in a general landscape improvement.

7.4.2 Impact on views from adjacent areas to the road

For the reasons noted in 6.3.1, the proposed project is likely to result in a short term negative impact during the construction phase but has the potential, with the correct detailing and furniture that prevents roadside damage due to the weight of trucks using the corridor to result in a significant visual benefit.

7.4.3 Impact on views from residential areas on the Bluff

Potential views from residential area of the Bluff are likely to be limited to a small number of properties as dense vegetation screens views over the road from the majority of properties.

The section of the road closest to the Bluff being the southern end of Bayhead is likely to be the most visually obvious.

Properties on Luca Crescent, Lucas Place and Sheffield Grove are closest to the proposed road upgrade and could be most affected. The closest of these properties is approximately 500m from the proposed project.

Views from the affected properties are likely to be oblique aerial in nature. Affected properties are likely to have views of the complete length of the affected road.

It is likely that during construction, views over the road works and possible traffic disruption will be seen. It is possible that dust rising from the site could exacerbate impacts. The extent of the possible impact can be managed by limiting the extent of landscape disturbance and effectively managing dust during the construction phase.

It is likely that these receptors have views over disturbed areas closest to the southern end of Bayhead Road due to impacts associated with truck parking and access beside the road although sections of disturbance further north may not be obvious. During the operational phase and with appropriate roadside detailing and furniture to contain trucks and other vehicles on the road, it is likely that disturbed areas will be minimised.

It also seems likely that the proposed additional traffic lane will increase road capacity which may result in less traffic congestion on the road.

Whilst currently disturbed areas over much of the road are not likely to be highly obvious and views over traffic congestion may not be a significant concern, the proposed project is likely to have a marginally beneficial impact on views from this area.

7.4.4 Impact on views from other areas within the ALV

It is possible that views of the proposed site may be possible between buildings and through visual corridor along harbour extensions such as the Silt Canal which extends from the main body of the harbour towards the bluff. The most likely places that these narrow views towards the proposed project may be possible are; the industrial areas immediately east of Bayhead Road, open water areas of the harbour and the Social Use Areas of the Harbour.

From most areas it is unlikely that these views will be significant and it is likely that views of the proposed project will not be highly visually obvious.

It is possible that through the wider view corridors such as the one leading from the Silt Canal limited construction activities could be partially visible. However, impacts are likely to be limited in duration and during the operational period no impact is likely to be experienced.

The key mitigation measure is the use of appropriate detailing and street furniture to control truck access to areas outside the appropriate road lanes. This is necessary to prevent damage to other areas of the road reserve and adjacent natural areas.

7.5 CUMULATIVE IMPACTS

It is noted that there are numerous road improvements and upgrades being undertaken across the municipality. There are also significant upgrades being undertaken to National Roads in the region. There are no other significant road projects that could be visible in the same view as the subject project. However, given the significant disruption that can occur due to road upgrade projects, the proposed upgrade could be seen as increasing disruption to local road corridors. Given the nature of the road this cumulative effect is most likely to affect truck drivers. It is noted that visual effects are not likely to be the main consideration.

7.6 CONCLUSION

The proposed project could result in landscape and visual impacts of low negative significance during construction. However, during the operational period and due to the potential for reducing roadside disturbance within the area, landscape and visual impacts are likely to be positive.

Subject to mitigation measures being undertaken, from a Landscape and Visual Impact perspective, there is no reason why the proposed development should not be authorised.

REFERENCES

Appendix 6, EIA Regulations (2014) as amended, promulgated under **section 24 of the National Environmental Management Act, 107 of 1998. Department of Forestry Fisheries and the Environment.**

Guidelines for involving visual and aesthetic specialists in EIA processes,

Author; Bernard Oberhozer. Published by the Provincial Government of the Western Cape: Department of Environmental Affairs and Development Planning, 2005

Guidelines for landscape and visual impact assessment (third edition), authors; the Landscape Institute and Institute of Environmental Assessment and Management, published by E & FN Spon, 2013.

APPENDIX I

ASSESSOR'S CURRICULUM VITAE



ENVIRONMENTAL PLANNING AND DESIGN

Name JONATHAN MARSHALL
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Year of Birth 1956
Specialisation Landscape Architecture / Landscape & Visual Impact Assessment / Environmental Planning / Environmental Impact Assessment.

Qualifications
Education Diploma in Landscape Architecture, Gloucestershire College of Art and Design, UK (1979)
 Environmental Law, University of KZN (1997)
Professional Registered Professional Landscape Architect (SACLAP)
 Chartered Member of the Landscape Institute (UK)

Languages
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General

Jon qualified as a Landscape Architect (Dip LA) at Cheltenham (UK) in 1979. He has been a chartered member of the Landscape Institute UK since 1986. He is also a Registered Landscape Architect and has had extensive experience of Environmental Assessment within South Africa.

During the early part of his career (1981 - 1990) He worked with Clouston (now RPS) in Hong Kong and Australia. During this period he was called on to undertake visual impact assessment (VIA) input to numerous environmental assessment processes for major infrastructure projects. This work was generally based on photography with line drawing superimposed to illustrate the extent of development visible.

He has worked in the United Kingdom (1990 - 1995) for major supermarket chains including Sainsbury's and prepared CAD based visual impact assessments for public enquiries for new store development. He also prepared the VIA input to the environmental statement for the Cardiff Bay Barrage for consideration by the UK Parliament in the passing of the Barrage Act (1993).

His more recent LVIA work (1995 to present) includes a combination of CAD and GIS based work for a new international airport to the north of Durban, new heavy industrial operations, overhead electrical transmission lines, mining operations in West Africa and numerous commercial and residential developments.

VIA work undertaken during the last twelve months includes wind energy projects, numerous solar plant projects (CSP and PV) and electrical infrastructure.

Select List of Landscape & Visual Impact Assessment Projects

- **Coega Power Ship** – Landscape and Visual Impact Assessment for the proposed Coega Power Ship project in the Eastern Cape Province.
- **Saldanha Power Ship** - Landscape and Visual Impact Assessment for the proposed Coega Power Ship project in the Western Cape Province.
- **Modderfontein Wind Energy Facility** - Landscape and Visual Impact Assessment for a proposed amendment to the layout and wind turbine specification of a previously authorised project near Beaufort West.
- **Western Cape Wind Energy Facility** – Due diligence assessment for a proposed wind energy facility near Swellendam in the Western Cape Province.
- **Hyperion Thermal Generation Facility** - Landscape and Visual Impact Assessment for a proposed gas powered power generation plant near Kathu in the Northern Cape Province.
- **Beachfront House on ERF 766 Scarborough** - Landscape and Visual Impact Assessment for a proposed development of beachfront house on the edge of the Table Mountain National Park in Scarborough, Western Cape Province.
- **Springs Special Economic Zone** - Landscape and Visual Impact Assessment for the proposed Springs SEZ in the Gauteng Province.
- **Makapanstad Agri- Hub** – Landscape and Visual Impact Assessment for proposed Agri-Hub development at Makapanstad in the North West Province for the Department of Rural Development and Land Reform.
- **Madikwe Sky Bubble** - Landscape and Visual Impact Assessment for proposed development of up-market accommodation at the Molori concession within the Madikwe Game Reserve.
- **Hartebeest Wind Energy Facility** – Landscape and Visual Impact Assessment Addendum Report for the proposed upgrading of turbine specifications for an authorised WEF near MoOrreesburg in the Western Cape Province for a private client.
- **Selati Railway Bridge** - Landscape and Visual Impact Assessment for proposed development of up-market accommodation on a railway bridge at Skukuza in the Kruger Park.
- **Kangala Mine Extension** - Landscape and Visual Impact Assessment for a proposed extension to the Kangala Mine in Mpumalanga for Universal Coal.
- **Khunab Solar Developments** – Landscape and Visual Impact Assessment for four proposed solar PV projects near Upington in the Northern Cape Province for a private client.
- **Sirius Solar Developments** – Landscape and Visual Impact Assessment for four proposed solar PV projects near Upington in the Northern Cape Province for Sola Future Energy.
- **Aggeneys Solar Developments** – Landscape and Visual Impact Assessment for two proposed solar PV projects near Aggeneys in the Northern Cape Province for a private client.
- **Hyperion Solar Developments** – Landscape and Visual Impact Assessment for four proposed solar PV projects near Kathu in the Northern Cape Province for Building Energy South Africa.
- **Eskom Combined Cycle Power Plant** - Landscape and Visual Impact Assessment for proposed gas power plant in Richards Bay, KwaZulu Natal Province.
- **N2 Wild Coast Toll Road, Mineral Sources and Auxiliary Roads** – LVIA for the Pondoland Section of this project for the South African National Roads Agency.
- **Mpushini Park Ashburton** – LVIA for a proposed amendment to an authorised development plan which included residential, office park and light industrial uses to logistics and warehousing.
- **Moedeng PV Solar Project** - LVIA for a solar project near Vryburg in the North West Province for a private client.
- **Establishment of Upmarket Tourism Accommodation on the Selati Bridge, Kruger National Park**

- Assessment of visual implications of providing tourism accommodation in 12 railway carriages on an existing railway bridge at the Skukuza Rest Camp in the Kruger Park.
- **Jozini TX Transmission Tower** – Assessment of visual implications of a proposed MTN transmission tower on the Lebombo ridgeline overlooking the Pongolapoort Nature reserve and dam.
- **Bhangazi Lake Development** – LVIA for a proposed tourism development within the iSimangaliso Wetland Park World Heritage Site.
- **Palesa Power Station** - LVIA for a new 600MW power station near Kwamhlanga in Mpumalanga for a private client.
- **Heuningklip PV Solar Project** – LVIA for a solar project in the Western Cape Province for a private client.
- **Kruispad PV Solar Project** – LVIA for a solar project in the Western Cape Province for a private client.
- **Doornfontein PV Solar Project** – LVIA for a solar project in the Western Cape Province for a private client.
- **Olifantshoek Power Line and Substation** – LVIA for a new 10MVA 132/11kV substation and 31km powerline, Northern Cape Province, for Eskom.
- **Noupoort Concentrating Solar Plants** - Scoping and LVIAs for two proposed parabolic trough projects.
- **Drakensberg Cable Car** – Preliminary LVIA and draft terms of reference as part of the feasibility study.
- **Paulputs Concentrating Solar Plant (tower technology)** – LVIA for a new CSP project near Pofadder in the Northern Cape.
- **Ilanga Concentrating Solar Plants 1, 2, 3, 4 & 5** – Scoping and LVIAs for the proposed extension of five authorised CSP projects including parabolic trough and tower technology within the Karoshoek Solar Valley near Upington in the Northern Cape.
- **Ilanga Concentrating Solar Plants 1, 2, 3, 4 & 5 Shared Infrastructure** –LVIA for the necessary shared infrastructure including power lines, substation, water pipeline and roads for these projects.
- **Ilanga Concentrating Solar Plants 7, 8 & 9** - Scoping and LVIAs for three new CSP projects including parabolic trough and tower technology within the Karoshoek Solar Valley near Upington in the Northern Cape.
- **Sol Invictus Solar Plants** - Scoping and LVIAs for three new Solar PV projects near Pofadder in the Northern Cape.
- **Gunstfontein Wind Energy Facility** – Scoping and LVIA for a proposed WEF near Sutherland in the Northern Cape.
- **Moorreesburg Wind Energy Facility** – LVIA for a proposed WEF near Moorreesburg in the Western Cape.
- **Semonkong Wind Energy Facility** - LVIA for a proposed WEF near Semonkong in Southern Lesotho.
- **Great Karoo Wind Energy Facility** – Addendum report to the Visual Impact Assessment Report for amendment to this authorised WEF that is located near Sutherland in the Northern Cape. Proposed amendments included layout as well as rotor diameter.
- **Perdekraal East Power Line** – LVIA for a proposed power line to evacuate power from a wind energy facility near Sutherland in the Northern Cape.
- **Tshivhaso Power Station** – Scoping and LVIA for a proposed new power station near Lephalale in Limpopo Province.
- **Saldanha Eskom Strengthening** – Scoping and LVIA for the upgrading of strategic Eskom infrastructure near Saldanha in the Western Cape.
- **Eskom Lethabo PV Installation** - Scoping and LVIA for the development of a solar PV plant within Eskom's Lethabo Power Station in the Free State.

- **Eskom Tuthuka PV Installation** - Scoping and LVIA for the development of a solar PV plant within Eskom's Thutuka Power Station in Mpumalanga.
- **Eskom Majuba PV Installation** - Scoping and LVIA for the development of a solar PV plant within Eskom's Majuba Power Station in Mpumalanga.
- **Golden Valley Power Line** - LVIA for a proposed power line to evacuate power from a wind energy facility near Cookhouse in the Eastern Cape.
- **Mpophomeni Shopping Centre** – LVIA for a proposed new shopping centre close to the southern shore of Midmar Dam in KwaZulu Natal.
- **Rheeboksfontein Power Line** - Addendum report to the Visual Impact Assessment Report for amendment to this authorised power line alignment located near Darling in the Western Cape.
- **Woodhouse Solar Plants** – Scoping and LVIA for two proposed solar PV projects near Vryburg in the North West Province.
- **AngloGold Ashanti, Dokyiwa (Ghana)** – LVIA for proposed new Tailings Storage Facility at a mine site working with SGS as part of their EIA team.
- **Gateway Shopping Centre Extension (Durban)** – LVIA for a proposed shopping centre extension in Umhlanga, Durban.
- **Kouroussa Gold Mine (Guinea)** – LVIA for a proposed new mine in Guinea working with SGS as part of their EIA team.
- **Mampon Gold Mine (Ghana)** - LVIA for a proposed new mine in Ghana working with SGS as part of their EIA team.
- **Telkom Towers** – LVIAs for numerous Telkom masts in KwaZulu Natal.
- **Eskom Isundu Substation** – LVIA for a proposed major new Eskom substation near Pietermaritzburg in KwaZulu Natal.
- **Eskom St Faiths Power Line and Substation** – LVIA for a major new substation and associated power lines near Port Shepstone in KwaZulu Natal.
- **Eskom Ficksburg Power Line** – LVIA for a proposed new power line between Ficksburg and Cocolan in the Free State.
- **Eskom Matubatuba to St Lucia Power Line** – LVIA for a proposed new power line between Mtubatuba and St Lucia in KwaZulu Natal.
- **Dube Trade Port, Durban International Airport** – Landscape & Visual Impact Assessment.
- **Sibaya Precinct Plan** – LVIA as part of Environmental Impact Assessment for a major new development area to the north of Durban.
- **Umdloti Housing** – LVIA as part of Environmental Impact Assessment for a residential development beside the Umdloti Lagoon to the north of Durban.
- **Tata Steel Ferrochrome Smelter** - LVIA of proposed new Ferrochrome Smelter in Richards Bay as part of EIA undertaken by the CSIR.
- **Durban Solid Waste Large Landfill Sites** – LVIAs of proposed development sites to the North and South of the Durban Metropolitan Area. The project utilised 3d computer visualisation techniques.
- **Hillside Aluminium Smelter, Richards Bay** - LVIA of proposed extension of the existing smelter. The project utilised 3d computer visualisation techniques.
- **Estuaries of KwaZulu Natal Phase 1** – Visual character assessment and GIS mapping as part of a review of the condition and development capacity of eight estuary landscapes for the Town and Regional Planning Commission. The project was extended to include all estuaries in KwaZulu Natal.
- **Signage Assessments** – Numerous impact assessments for proposed signage developments for Blast Media.

- **Signage Strategy** – Preparation of an environmental strategy report for a national advertising campaign on National Roads for Visual Image Placements.
- **Zeekoegatt, Durban** - EDP acted as advisor to the Province of KwaZulu Natal in an appeal brought about by a developer to extend a light industrial development within a 60 metre building line from the National N3 Highway.
- **La Lucia Mall Extension** - LVIA using three dimensional computer modelling / photo realistic rendering and montage techniques for proposed extension to shopping mall for public consultation exercise.
- **Redhill Industrial Development** - LVIA assessment using three dimensional computer modelling / photo realistic rendering and montage techniques for proposed new industrial area for public consultation exercise.
- **Avondale Reservoir** - LVIA using three dimensional computer modelling / photo realistic rendering and montage techniques for proposed hilltop reservoir as part of Environmental Impact Assessment for Umgeni Water.
- **Hammersdale Reservoir** - LVIA using three dimensional computer modelling / photo realistic rendering and montage techniques for proposed hilltop reservoir as part of Environmental Impact Assessment for Umgeni Water.
- **Southgate Industrial Park, Durban** - LVIA and Landscape Design for AECI.
- **Sainsbury's Bryn Rhos** - Computer Aided Landscape & Visual Impact Assessment/ Planning Application for the development of a new store within the Green Wedge North of Swansea.
- **Ynyston Farm Access** - Computer Aided Landscape & Impact Assessment of visual intrusion of access road to proposed development of Cardiff for the Land Authority for Wales.
- **Cardiff Bay Barrage** – Preparation of the Visual Impact Statement for inclusion in the Impact Statement for debate by parliament (UK) prior to the passing of the Cardiff Bay Barrage Bill.
- **A470, Cefn Coed to Pentrebach** - Preparation of landscape frameworks for the assessment of the impact of the proposed alignment on the landscape for The Welsh Office.
- **Sparkford to Ilchester Bye Pass** - The preparation of the landscape framework and the draft landscape plan for the Department of Transport.
- **Green Island Reclamation Study** - Visual Impact Assessment of building massing, Urban Design Guidelines and Masterplanning for a New Town extension to Hong Kong Island.
- **Route 3** - Visual Impact Assessment for alternative road alignments between Hong Kong Island and the Chinese Border.
- **China Border Link** - Visual Impact Assessment and initial Landscape Design for a new border crossing at Lok Ma Chau.
- **Route 81, Aberdeen Tunnel to Stanley** - Visual Impact Assessment for alternative highway alignments on the South side of Hong Kong Island.

APPENDIX II

GUIDELINES FOR INVOLVING VISUAL AND AESTHETIC SPECIALISTS IN EIA PROCESSES

**(Preface, Summary and Contents for full document go to the Provincial
Government of the Western Cape, Department of Environmental Affairs and
Development Planning web site, [http://eadp.westerncape.gov.za/your-resource-
library/policies-guidelines](http://eadp.westerncape.gov.za/your-resource-library/policies-guidelines))**

GUIDELINE FOR INVOLVING VISUAL AND AESTHETIC SPECIALISTS IN EIA PROCESSES



PROVINCIAL GOVERNMENT OF THE WESTERN CAPE:
DEPARTMENT OF ENVIRONMENTAL AFFAIRS
AND DEVELOPMENT PLANNING



GUIDELINE FOR INVOLVING VISUAL AND AESTHETIC SPECIALISTS IN EIA PROCESSES

Edition 1

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Stakeholders engaged in the guideline development process:

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PREFACE

The purpose of an Environmental Impact Assessment (EIA) is to provide decision-makers (be they government authorities, the project proponent or financial institutions) with adequate and appropriate information about the potential positive and negative impacts of a proposed development and associated management actions in order to make an informed decision whether or not to approve, proceed with or finance the development.

For EIA processes to retain their role and usefulness in supporting decision-making, the involvement of specialists in EIA needs to be improved in order to:

- Add greater value to project planning and design;
- Adequately evaluate reasonable alternatives;
- Accurately predict and assess potential project benefits and negative impacts;
- Provide practical recommendations for avoiding or adequately managing negative impacts and enhancing benefits;
- Supply enough relevant information at the most appropriate stage of the EIA process to address adequately the key issues and concerns, and effectively inform decision-making in support of sustainable development.

It is important to note that not all EIA processes require specialist input; broadly speaking, specialist involvement is needed when the environment could be significantly affected by the proposed activity, where that environment is valued by or important to society, and/or where there is insufficient information to determine whether or not unavoidable impacts would be significant.

The purpose of this series of guidelines is to improve the efficiency, effectiveness and quality of specialist involvement in EIA processes. The guidelines aim to improve the capacity of roleplayers to anticipate, request, plan, review and discuss specialist involvement in EIA processes. Specifically, they aim to improve the capacity of EIA practitioners to draft appropriate terms of reference for specialist input and assist all roleplayers in evaluating whether or not specialist input to the EIA process is appropriate for the type of development and environmental context. Furthermore, they aim to ensure that specialist inputs support the development of effective, practical Environmental Management Plans where projects are authorised to proceed (refer to *Guideline for Environmental Management Plans*).

The guidelines draw on best practice in EIA in general, and within specialist fields of expertise in particular, to address the following issues related to the timing, scope and quality of specialist input. The terms “specialist involvement” and “input” have been used in preference to “specialist assessment” and “studies” to indicate that the scope of specialists’ contribution (if required) depends on the nature of the project, the environmental context and the amount of available information and does not always entail detailed studies or assessment of impacts.

The guidelines draw on best practice in EIA in general, and within specialist fields of expertise in particular, to address the following issues related to the timing, scope and quality of specialist input. The terms “specialist involvement” and “input” have been used in preference to “specialist

assessment” and “studies” to indicate that the scope of specialists’ contribution depends on the nature of the project, the environmental context and the amount of available information.

	ISSUES
TIMING	When should specialists be involved in the EIA process; i.e. at what stage in the EIA process should specialists be involved (if at all) and what triggers the need for their input?
SCOPE	- Which aspects must be addressed through specialist involvement; i.e. what is the purpose and scope of specialist involvement? - What are appropriate approaches that specialists can employ? - What qualifications, skills and experience are required?
QUALITY	- What triggers the review of specialist studies by different roleplayers? - What are the review criteria against which specialist inputs can be evaluated to ensure that they meet minimum requirements, are reasonable, objective and professionally sound?

The following guidelines form part of this first series of guidelines for involving specialists in EIA processes:

- Guideline for determining the scope of specialist involvement in EIA processes
- Guideline for the review of specialist input in EIA processes
- Guideline for involving biodiversity specialists in EIA processes
- Guideline for involving hydrogeologists in EIA processes
- Guideline for involving visual and aesthetic specialists in EIA processes
- Guideline for involving heritage specialists in EIA processes
- Guideline for involving economists in EIA processes

The *Guideline for determining the scope of specialist involvement in EIA processes* and the *Guideline for the review of specialist input in EIA processes* provide generic guidance applicable to any specialist input to the EIA process and clarify the roles and responsibilities of the different roleplayers involved in the scoping and review of specialist input. It is recommended that these two guidelines are read first to introduce the generic concepts underpinning the guidelines which are focused on specific specialist disciplines.

Who is the target audience for these guidelines?

The guidelines are directed at authorities, EIA practitioners, specialists, proponents, financial institutions and other interested and affected parties involved in EIA processes. Although the guidelines have been developed with specific reference to the Western Cape province of South Africa, their core elements are more widely applicable.

What type of environmental assessment processes and developments are these guidelines applicable to?

The guidelines have been developed to support project-level EIA processes regardless of whether they are used during the early project planning phase to inform planning and design decisions (i.e. during pre-application planning) or as part of a legally defined EIA process to obtain statutory approval for a proposed project (i.e. during screening, scoping and/or impact assessment). Where specialist input may be required the guidelines promote early, focused and appropriate involvement of specialists in EIA processes in order to encourage proactive consideration of potentially significant impacts, so that negative impacts may be avoided or

effectively managed and benefits enhanced through due consideration of alternatives and changes to the project.

The guidelines aim to be applicable to a range of types and scales of development, as well as different biophysical, social, economic and governance contexts.

What will these guidelines not do?

In order to retain their relevance in the context of changing legislation, the guidelines promote the principles of EIA best practice without being tied to specific legislated national or provincial EIA terms and requirements. They therefore do not clarify the specific administrative, procedural or reporting requirements and timeframes for applications to obtain statutory approval. They should, therefore, be read in conjunction with the applicable legislation, regulations and procedural guidelines to ensure that mandatory requirements are met.

It is widely recognized that no amount of theoretical information on how best to plan and coordinate specialist inputs, or to provide or review specialist input, can replace the value of practical experience of coordinating, being responsible for and/or reviewing specialist inputs. Only such experience can develop sound judgment on such issues as the level of detail needed or expected from specialists to inform decision-makers adequately. For this reason, the guidelines should not be viewed as prescriptive and inflexible documents. Their intention is to provide best practice guidance to improve the quality of specialist input.

Furthermore, the guidelines do not intend to create experts out of non-specialists. Although the guidelines outline broad approaches that are available to the specialist discipline (e.g. field survey, desktop review, consultation, modeling), specific methods (e.g. the type of model or sampling technique to be used) cannot be prescribed. The guidelines should therefore not be used indiscriminately without due consideration of the particular context and circumstances within which an EIA is undertaken, as this influences both the approach and the methods available and used by specialists.

How are these guidelines structured?

The specialist guidelines have been structured to make them user-friendly. They are divided into six parts, as follows:

- **Part A:** Background;
- **Part B:** Triggers and key issues potentially requiring specialist input;
- **Part C:** Planning and coordination of specialist inputs (drawing up terms of reference);
- **Part D:** Providing specialist input;
- **Part E:** Review of specialist input; and
- **Part F:** References.

Part A provides grounding in the specialist subject matter for all users. It is expected that authorities and peer reviewers will make most use of Parts B and E; EIA practitioners and project proponents Parts B, C and E; specialists Part C and D; and other stakeholders Parts B, D and E. Part F gives useful sources of information for those who wish to explore the specialist topic.

SUMMARY

This guideline document, which deals with specialist visual input into the EIA process, is organised into a sequence of interleaving sections. These follow a logical order covering the following:

- the background and context for specialist visual input;
- the triggers and issues that determine the need for visual input;
- the type of skills and scope of visual inputs required in the EIA process;
- the methodology, along with information and steps required for visual input;
- finally, the review or evaluation of the visual assessment process.

Part A is concerned with defining the visual and aesthetic component of the environment, and with principles and concepts relating to the visual assessment process. The importance of the process being logical, holistic, transparent and consistent is stressed in order for the input to be useful and credible.

The legal and planning context within which visual assessments take place indicate that there are already a number of laws and bylaws that protect visual and scenic resources. These resources within the Western Cape context have importance for the economy of the region, along with the proclaimed World Heritage Sites in the Province.

The role and timing of specialist visual inputs into the EIA process are outlined, with the emphasis being on timely, and on appropriate level of input, from the early planning stage of a project, through to detailed mitigation measures and

management controls at the implementation stage.

Part B deals with typical factors that trigger the need for specialist visual input to a particular project. These factors typically relate to:

- (a) the nature of the receiving environment, in particular its visual sensitivity or protection status;
- (b) the nature of the project, in particular the scale or intensity of the project, which would result in change to the landscape or townscape.

The correlation between these two aspects are shown in a table, in order to determine the varying levels of visual impact that can be expected, i.e. from little or no impact, to very high visual impact potential.

Part C deals with the choice of an appropriate visual specialist, and the preparation of the terms of reference (TOR) for the visual input. Three types of visual assessment are put forward, each requiring different expertise, namely:

- Type A: assessments involving large areas of natural or rural landscape;
- Type B: assessments involving local areas of mainly built environment;
- Type C: assessments involving smaller scale sites with buildings, or groups of buildings.

The scope of the visual input would in summary relate to the following:

- the issues raised during the scoping process;
- the time and space boundaries, i.e. the extent or zone of visual influence;

- the types of development alternatives that are to be considered;
- the variables and scenarios that could affect the visual assessment;
- the inclusion of direct, indirect and cumulative effects.

Approaches to the visual input relate to the level of potential impact and range from minimal specialist input, to a full visual impact assessment (VIA). A list of the typical components of a visual assessment is given, and the integration with other studies forming part of the EIA process is discussed.

Part D provides guidance for specialist visual input, and on the information required by specialists. Notes on predicting potential visual impacts are given, along with suggested criteria for describing and rating visual impacts. The assessment of the overall significance of impacts, as well as thresholds of significance are discussed.

Further aspects that need to be considered by visual specialists in EIA processes include:

- affected parties who stand to benefit or lose,
- risks and uncertainties related to the project,
- assumptions that have been made, and their justification,
- levels of confidence in providing the visual input or assessment,
- management actions that can be employed to avoid or mitigate adverse effects and enhance benefits, and
- the best practicable environmental option from the perspective of the visual issues and impacts.

Finally, pointers for the effective communication of the findings are given.

Part E lists specific evaluation criteria for reviewing visual input by a specialist, where this becomes necessary. Further guidance on this is given in the document on *Guideline for the review of specialist input in EIA processes*.

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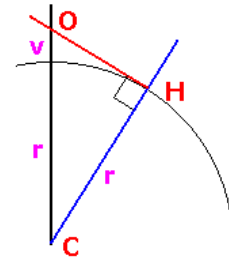
APPENDIX III

FORMULA FOR DERIVING THE APPROXIMATE VISUAL HORIZON

The Mathematics behind this Calculation

This calculation should be taken as a guide only as it assumes the earth is a perfect ball 6378137 metres radius. It also assumes the horizon you are looking at is at sea level. A triangle is formed with the centre of the earth (C) as one point, the horizon point (H) is a right angle and the observer (O) the third corner. Using Pythagoras's theorem we can calculate the distance from the observer to the horizon (OH) knowing CH is the earth's radius (r) and CO is the earth's radius (r) plus observer's height (v) above sea level.

Sitting in a hotel room 10m above sea level a boat on the horizon will be 11.3km away. The reverse is also true, whilst rowing across the Atlantic, the very top of a mountain range 400m high could be seen on your horizon at a distance of 71.4 km assuming the air was clear enough.



SPECIALIST DECLARATION



forestry, fisheries & the environment

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SPECIALIST DECLARATION FORM – AUGUST 2023

Specialist Declaration form for assessments undertaken for application for authorisation in terms of the National Environmental Management Act, Act No. 107 of 1998, as amended and the Environmental Impact Assessment (EIA) Regulations, 2014, as amended (the Regulations)

REPORT TITLE

BAYHEAD AND LANGEBOEG ROAD UPGRADE, AT THE PORT OF DURBAN

Kindly note the following:

1. This form must always be used for assessment that are in support of applications that must be subjected to Basic Assessment or Scoping & Environmental Impact Reporting, where this Department is the Competent Authority.
2. This form is current as of August 2023. It is the responsibility of the Applicant / Environmental Assessment Practitioner (EAP) to ascertain whether subsequent versions of the form have been published or produced by the Competent Authority. The latest available Departmental templates are available at <https://www.dffe.gov.za/documents/forms>.
3. An electronic copy of the signed declaration form must be appended to all Draft and Final Reports submitted to the department for consideration.
4. The specialist must be aware of and comply with 'the Procedures for the assessment and minimum criteria for reporting on identified environmental themes in terms of sections 24(5)(a) and (h) and 44 of the act, when applying for environmental authorisation - GN 320/2020', where applicable.

1. SPECIALIST INFORMATION

Title of Specialist Assessment	Landscape and Visual Assessment
Specialist Company Name	Environmental Planning and Design
Specialist Name	Jonathan Marshall
Specialist Identity Number	5602225288180
Specialist Qualifications:	Dip LA
Professional affiliation/registration:	SACLAP
Physical address:	Unit 3, Windsor Court, Derby Downs, Westville, 3629
Postal address:	PO Box 50910, Musgrave Road, 4006
Postal address	Click or tap here to enter text.
Telephone	
Cell phone	083 7032995
E-mail	jon@enviroconsult.co.za

SPECIALIST DECLARATION FORM – AUGUST 2023

2. DECLARATION BY THE SPECIALIST

I, Jonathan Marshall declare that –

- I act as the independent specialist in this application;
- I am aware of the procedures and requirements for the assessment and minimum criteria for reporting on identified environmental themes in terms of sections 24(5)(a) and (h) and 44 of the National Environmental Management Act (NEMA), 1998, as amended, when applying for environmental authorisation which were promulgated in Government Notice No. 320 of 20 March 2020 (i.e. "the Protocols") and in Government Notice No. 1150 of 30 October 2020.
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, Regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, Regulations and all other applicable legislation;
- I have no, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing –
 - any decision to be taken with respect to the application by the competent authority; and;
 - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- All the particulars furnished by me in this form are true and correct; and
- I realise that a false declaration is an offence in terms of Regulation 48 and is punishable in terms of section 24F of the NEMA Act.


Signature of the Specialist

Environmental Planning and Design CC

Name of Company:

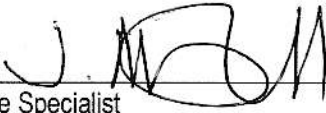
19 Nov 2025

Date

SPECIALIST DECLARATION FORM – AUGUST 2023

3. UNDERTAKING UNDER OATH/ AFFIRMATION

I, Jonathan Marshall, swear under oath / affirm that all the information submitted or to be submitted for the purposes of this application is true and correct.


Signature of the Specialist

Environmental Planning & Design CC

Name of Company

19 Nov 25

Date

Click or tap here to enter text.

Signature of the Commissioner of Oaths

Click or tap to enter a date.

Date


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712 mcs600

