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## DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT

### PROPOSED ARLINGTON MULTIPLE-USE DEVELOPMENT ON ERVEN 3988, 4195 AND 6991 ALONG GLENDORE ROAD IN WALMER, GQEBERHA, NELSON MANDELA BAY MUNICIPALITY, EASTERN CAPE

DEDEAT REF: ECm1/C/LN2/M/45-2023

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**SYNOPSIS**  
 Application for Environmental Authorisation (EA) for the proposed Arlington Multiple-Use development in Walmer, Gqeberha (Port Elizabeth), within the Nelson Mandela Bay Municipality (NMBM) of the Eastern Cape Province.

**KEY WORDS:**  
 Scoping and Environmental Impact Assessment; Multiple - Use Development; Specialist Studies; NEMA; Legislative Requirements; Listed Activities; Water Use; Residential Development; Infrastructure Development

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**QUALITY VERIFICATION**

This report has been prepared under the controls established by a quality management system that meets the requirements of ISO 9001: 2015 which has been independently certified by DEKRA Certification.



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## REVIEW OF DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT

This draft EIA Report is available for commenting for a period of 30 days (excluding public holidays) from **19 April 2024 – 24 May 2024**.

Copies of the draft EIA Report are available at the following public venues for consideration:

Venue	Address	Times
Fountain Vineyard Church	22 Newcombe Avenue, Walmer Heights, Gqeberha	Tuesday: 08h15 – 14h00 Wednesday: 09h00 – 17h00 Thursday: 08h15 – 14h00 Friday: 08h15 – 14h00 Sunday: 09h00 – 11h00, 18h30 – 20h30
Walmer Library	Main Road, Walmer, Gqeberha	Monday: 09h00 – 17h00 Tuesday: 09h00 – 17h00 Wednesday: 09h00 – 17h00 Thursday: 09h00 – 17h00 Friday: 09h00 – 14h00

In addition, the report will be placed on the JG Afrika (Pty) Ltd website – <https://www.jgafrika.com/public-participation> for public viewing.

Any comments on the Draft EIA Report must be submitted in writing or email (including any additional supporting material) on or before the **24 May 2024** directly to the Project Manager Cherize Coetzee or Environmental Assessment Practitioner, namely Deshni Naicker, by means of the following:

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## ABBREVIATIONS

BRP	Bioregional Plan
CA	Competent Authority
CBA	Critical Biodiversity Area
DEDEAT	Department of Economic Development Environmental Affairs and Tourism
DSR	Draft Scoping Report
DWS	Department of Water and Sanitation
EA	Environmental Authorisation
EAP	Environmental Assessment Practitioner
ECO	Environmental Control Officer
EI	Ecological Importance
EIA	Environmental Impact Assessment
EIR	Environmental Impact Report
EMPr	Environmental Management Programme
ES	Ecological Sensitivity
ESA	Ecological Support Area
FSR	Final Scoping Report
GG	Government Gazette
GN	General Notice
GN R	Government Notice Regulation
Ha	Hectare
IAP	Interested and Affected Party
IDP	Integrated Development Plan
MSDF	Municipal Spatial Development Framework
NEMA	National Environmental Management Act (Act 107 of 1998)
NEMBA	National Environmental Management Biodiversity Act (Act 10 of 2004)
NEMWA	National Environmental Management Waste Act (Act 59 of 2008)
NWA	National Water Act (Act 36 of 1998)
PA	Protected Area
PES	Present Ecological State
PPP	Public Participation Process
RA	Risk Assessment
SDF	Spatial Development Framework
SPLUMA	Spatial Planning and Land Use Management Act (Act 16 of 2013)
WUL	Water Use Licence
WULA	Water Use Licence Application

## GLOSSARY OF TERMS

**Alternatives** – in relation to a proposed activity, means different means of meeting the general purpose and requirements of the activity, which may include alternatives to –

- (i) The property on which or location where it is proposed to undertake the activity.
- (ii) The type of activity to be undertaken.
- (iii) The design or layout of the activity.
- (iv) The technology to be used in the activity; and
- (v) The operational aspects of the activity.

**Applicant** – means a person who has applied for an environmental authorisation to the competent authority and has paid the prescribed fee.

**Bioregional plan** – means the bioregional plan contemplated in Chapter 3 of the National Environmental Management Biodiversity Act, 2004 (Act 10 of 2004).

**Competent Authority** – in respect of a listed activity or specified activity, means the organ of state charged in terms of the NEMA with evaluating the environmental impact of that activity and, where appropriate, with granting or refusing an environmental authorisation in respect of that activity.

**Development** – means the building, erection, construction or establishment of a facility, structure or infrastructure, including associated earthworks or borrow pits, that is necessary for the undertaking of a listed or specified activity, but excludes any modification, alteration or expansion of such facility, structure or infrastructure, including associated earthworks or borrow pits, and excluding the redevelopment of the same facility in the same location, with the same capacity and footprint.

**Development footprint** – means any evidence of physical alteration because of the undertaking of any activity.

**Ecosystem** – means a dynamic system of plant, animal and micro-organism communities and their non-living environment, interacting as a functional unit.

**Environment** – The surroundings within which humans exist and that are made up of –

- (i) The land, water, and atmosphere of the earth.
- (ii) Micro-organisms, plant, and animal life.
- (iii) Any part or combination of (i) and (ii) and the interrelationships between them; and
- (iv) The physical, chemical, aesthetic and cultural properties and conditions of the foregoing that influence human health and wellbeing.

**Environmental Authorisation** – the authorisation by a competent authority of a listed activity.

**Environmental Assessment Practitioner** – the person responsible for planning, management and co-ordination of environmental impact assessments, strategic environmental assessments, environmental management plans or any other appropriate environmental instrument introduced through regulations.

**Environmental Impact** – an environmental change caused by some human act.

**Environmental Impact Assessment** – means a systematic process of identifying, assessing, and reporting environmental impacts associated with an activity and includes Basic Assessment and Scoping and EIA.

**Indigenous vegetation** – refers to vegetation consisting of indigenous plant species occurring naturally in an area, regardless of the level of alien infestation and where the topsoil has not been lawfully disturbed during the preceding ten years.

**Interested and Affected Party** – includes any person, group of persons or organisation interested in or affected by an operation or activity, and any organ of state that may have jurisdiction over any aspect of the operation or activity.

**Mitigation** – means to anticipate and prevent negative impacts and risks, then to minimise them, rehabilitate or repair impacts to the extent feasible.

**NEMA EIA Regulations** – The EIA Regulations means the regulations made under the National Environmental Management Act (Act 107 of 1998) (Government Notice No. R 324, R 325, R 326 and R 326 in the Government Gazette of 7 April 2017 refer).

**No go alternative** – the option of not proceeding with the activity, implying a continuation of the current situation / status quo.

**Plan of Study for EIA** - means a study which forms part of a Scoping Report and sets out how an Environmental Impact Assessment will be conducted.

**Public Participation Process** – in relation to the assessment of the environmental impact of any application for an environmental authorisation, means a process by which potential interested and affected parties are given opportunity to comment on, or raise issues relevant to, the application.

**Registered IAP** – in relation to an application, means an interested and affected party whose name is recorded in the register opened for that application.

**Scoping process** – a procedure for determining the extent of and approach to an EIA, used to focus the EIA to ensure that only the significant issues and reasonable alternatives are examined in detail.

**Sustainable Development** – means the integration of social, economic, and environmental factors into planning, implementation and decision-making to ensure that development serves present and future generations.

**Urban areas** – means areas situated within the urban edge (as defined or adopted by the competent authority), or in instance where no urban edge or boundary has been defined or adopted, it refers to areas situated within the edge of built-up areas.

**Watercourse** – means -

- (a) A river or spring.
- (b) A natural channel in which water flows regularly or intermittently.

- (c) A wetland, pan, lake or dam into which, or from which water flows; and any collection of water which the Minister may, by notice in the Gazette, declare to be a watercourse as defined in the National Water Act, 1998 (Act 36 of 1998); and
- (d) A reference to a watercourse includes, where relevant, its bed and banks.

**Wetland** – means land which is transitional between terrestrial and aquatic systems where the water table is usually at or near the surface or the land is periodically covered with shallow water, and which land in normal circumstances supports or would support vegetation typically adapted to life in saturated soil.

## REQUIRED CONTENT OF AN ENVIRONMENTAL IMPACT ASSESSMENT REPORT AS PER THE 2014 NEMA EIA REGULATIONS, AS AMENDED

Appendix 3 of Government Notice 326 of the National Environmental Management Act No. 107 of 1998 (NEMA) Environmental Impact Assessment (EIA) Regulations (2014), as amended, states the requirement for the content of an Environmental Impact Assessment Report to be as follows.

An Environmental Impact Assessment Report must contain the information that is necessary for the Competent Authority to consider and come to a decision on the application, and must include –

**Table 1** below lists the content requirements of an EIA Report and where in the EIA Report the required content can be found.

*Table 1: Required content of an Environmental Impact Assessment Report according to the 2014 NEMA EIA Regulations, as amended, and a quick reference guide as to where to find the required content in this EIA Report.*

REQUIREMENT	SECTION IN REPORT
a) details of –  (i) the EAP who prepared the report; and (ii) the expertise of the EAP, including a curriculum vitae.	Section 2
b) the location of the activity, including – (i) the 21-digit Surveyor General code of each cadastral land parcel. (ii) where available, the physical address and farm name. (iii) where the required information in items (i) and (ii) is not available, the coordinates of the boundary of the property or properties.	Section 7 Table 10: Property Information and Table 11: SG 21 Digit Code
c) a plan which locates the proposed activity or activities applied for at an appropriate scale, or, if it is-  (i) a linear activity, a description and coordinates of the corridor in which the proposed activity or activities is to be undertaken; or (ii) on land where the property has not been defined, the coordinates within which the activity is to be undertaken.	Figure 7: Master Layout Plan Figure 3: Locality Map Section 7 Table 10: Property Information and Table 11: SG 21 Digit Code
d) a description of the scope of the proposed activity, including-  (i) all listed and specified activities triggered. (ii) a description of the activities to be undertaken, including associated structures and infrastructure.	Section 6: Listed activities triggered in terms of the Environmental Impact Assessment (EIA) Regulations (2014) (as amended)



	Section 7: Detailed description of the proposed project
e) a description of the policy and legislative context within which the development is proposed including an identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks and instruments that are applicable to this activity and are to be considered in the assessment process.	Section 4: Relevant Environmental Legislation and Guidelines Pertaining to the Application. Table 7 - summarises the various environmental and planning approvals required from the various Authorities, before the construction of the development may take place
f) a motivation for the need and desirability for the proposed development including the need and desirability of the activity in the context of the preferred location.	Section 3: Project Need and Desirability.
g) a motivation for the preferred development footprint within the approved site.	Section 10: Feasible and Reasonable Alternatives
h) a full description of the process followed to reach the proposed development footprint within the approved site, including –	Section 7: Description of the Proposed Project.  Section 7.2: Proposed Area (Erf) Data Summary Sheet
(i) details of all the development footprint alternatives considered.	Section 10: Feasible and Reasonable Alternatives
(ii) details of the public participation process undertaken in terms of regulation 41 of the Regulations, including copies of the supporting documents and inputs.	Section 11: Public Participation Process and Appendix D: Public Participation.
(iii) a summary of the issues raised by interested and affected parties and an indication of the manner in which the issues were incorporated, or the reasons for not including them.	Section 11.7: Comments and Response Report, Table 13 and Appendix D6: Comments and Response Tables.
(iv) the environmental attributes associated focusing on the geographical, physical, biological, social, economic, heritage and cultural aspect.	Section 5: Description of the Receiving Environment
(v) the impacts and risks identified, including the nature, significance, consequence, extent, duration and probability of the impacts, including the degree to which these impacts –	Section 14: Impacts and Mitigation
(aa) can be reversed.	Section 15: Impact Assessment and Mitigation
(bb) may cause irreplaceable loss of resources, and	

(cc) can be avoided, managed or mitigated.	
(vi) the methodology used in determining and ranking the nature, significance, consequences, extent, duration and probability of potential environmental impacts and risks.	Section 14.1: Methodology Used for Identifying and Ranking Impacts.
(vii) positive and negative impacts that the proposed activity and alternatives will have on the environment and on the community that may be affected focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects	Section 15: Impact Assessment and Mitigation.
(viii) the possible mitigation measures that could be applied and level of residual risk.	Section 15: Impact Assessment and Mitigation. Section 15.2: Summary of Construction, Operational and Decommissioning Phase Impacts (before and after mitigation).  Appendix E: Environmental Management Programme
(ix) if no alternatives development footprint locations for the activity were investigated, the motivation for not considering such.	Section 10: Feasible and Reasonable Alternatives
(x) a concluding statement indicating the preferred alternative development location within the approved site.	Section 10: Feasible and Reasonable Alternatives
i) A full description of the proceed undertaken to identify, assess and rank the impacts the activity and associated structures and infrastructure will impose on the preferred location through the life of the activity, including – (i) a description of all environmental issues and risks that were identified during the environmental impact assessment process. (ii) an assessment of the significance of each issue and risk and an indication of the extent to which the issue and risk could be avoided or addressed by the adoption of mitigation measures.	Section 14.1: Methodology Used for Identifying and Ranking Impacts.  Section 15: Impact Assessment and Mitigation.
j) an assessment of each identified potentially significant impact and risk, including- (i) cumulative impacts. (ii) the nature, significance and consequences of the impact and risk. (iii) the extent and duration if the impact and risk. (iv) the probability of the impact and risk occurring. (v) the degree to which the impact and risk may cause irreplaceable loss of resources. (vii) the degree to which the impact and risk can be mitigated	Section 14.1: Methodology Used for Identifying and Ranking Impacts.

<p>k) where applicable, a summary of the finding's and recommendations of any specialist's report complying with Appendix 6 to these Regulations and an indication as to how these findings and recommendations have been included in the final assessment report.</p>	<p>Section 15: Impact Assessment and Mitigation.</p> <p>Section 13: Summary of Specialist Studies.</p> <p>Section 17: Recommendations for Conditions of the Environmental Authorisation</p>
<p>l) an environmental impact statement which contains-</p> <p>(i) a summary of key findings of the environmental impact assessment.</p> <p>(ii) a map at an appropriate scale which superimposes the proposed activity and its associated structures and infrastructures on the environmental sensitivities of the preferred site indicating any areas that should be avoided, including buffers.</p> <p>(iii) a summary of the positive and negative impacts and risks of the proposed activity and identified alternatives.</p>	<p>Section 16: Environmental Impact Statement.</p> <p>Section 15.2: Summary of the projected impacts that could take place during the construction phase of the development and the associated significance of the impact, post mitigation</p> <p>Appendix C: Maps</p>
<p>m) based on the assessment and where applicable recommendation from specialist report, the recording of the proposed impact management objectives and the impact management outcomes for the development for inclusion in the EMPr as well as for inclusion as conditions of authorisation.</p>	<p>Section 13: Summary of Specialist Studies.</p> <p>Section 17: Recommendations for Conditions of the Environmental Authorisation</p>
<p>n) the final proposed alternatives which respond to the impact management measures, avoidance and mitigation measures identified through the assessment.</p>	<p>Section 10: Feasible and Reasonable Alternatives</p>
<p>o) any aspects which were conditional to the findings of the assessment either by the EAP or specialist which are to be included as conditions of authorisation.</p>	<p>Section 17: Recommendations for Conditions of the Environmental Authorisation</p>
<p>p) a description of any assumptions, uncertainties and gaps in knowledge which relate to the assessment and mitigation measures proposed.</p>	<p>Section 1.2: Assumptions and Limitations</p>
<p>q) a reasoned opinion as to whether the proposed activity should or should not be authorised, any conditions that should be made in respect of that authorisation.</p>	<p>Section 16: Environmental Impact</p> <p>Section 17: Recommendations for Conditions of the Environmental Authorisation</p>

<p>r) where the proposed activity does not include operational aspects, the period for which the environmental authorisation is required and the date on which the activity will be concluded, and the post construction monitoring requirements finalised.</p>	<p>Section 15.2: Summary of the projected impacts that could take place during the construction phase of the development and the associated significance of the impact, post mitigation</p>
<p>s) an undertaking under oath or affirmation by the EAP in relation to:</p> <p>(i) the correctness of the information provided in the reports.</p> <p>(ii) the inclusion of comments and inputs from stakeholders and I&amp;APs.</p> <p>(iii) the inclusion of inputs and recommendations from the specialist reports where relevant.</p> <p>(iv) any information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by interested or affected parties.</p>	<p>Appendix E: Declaration by the Environmental Assessment Practitioner.</p>
<p>t) where applicable, details of any financial provisions for the rehabilitation, closure and ongoing post decommissioning management of negative environmental impacts.</p>	<p>N/A – Not proposed to decommission this development.</p>
<p>u) an indication of any deviation from the approved scoping report, including the plan of study, including –</p> <p>(i) any deviation from the methodology used in determining the significance of potential environmental impacts and risks.</p> <p>(ii) a motivation for the deviation.</p>	<p>N/A – No deviation of POSEIA</p>
<p>v) any specific information that maybe required by the competent authority.</p>	<p>Appendix E13: Proof of Correspondence with DWS</p>
<p>w) any other matter requires in terms of section 24(4) (a) and (b) of the Act.</p>	<p>N/A.</p>

## OBJECTIVE OF THE ENVIRONMENTAL IMPACT ASSESSMENT PROCESS

The objective of the environmental impact assessment process is to, through a consultative process-

- a) Determine the policy and legislative context within which the activity is located and document how the proposed activity complies with and responds to the policy and legislative context.
- b) Describe the need and desirability of the proposed activity, including the need and desirability of the activity in the context of the preferred location.
- c) Identify the location of the development footprint within the preferred site based on an impact and risk assessment process inclusive of cumulative impacts and a ranking process of all the identified development footprint alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects of the environment.
- d) Determine the –
  - Nature, significance, consequence, extent, duration and probability of the impacts occurring to inform the identified preferred alternatives; and
- e) Degree to which these impacts-
  - (a) Can be reversed.
  - (b) May cause irreplaceable loss of resources; and
  - (c) Can be avoided, managed or mitigated.
- f) Identify the most ideal location for the activity within the preferred site based on the lowest level of environmental sensitivity identified during the assessment.
- g) Identify, assess and rank the impacts the activity will impose on the preferred location through the life of the activity.
- h) Identify suitable measures to manage, avoid or mitigate identified impacts; and
- i) Identify residual risks that need to be managed and monitored.

## EXECUTIVE SUMMARY

### Project Overview

The Project Applicant, Afrostructures (Pty) Ltd. has identified a need for a multiple-use development that will be in Walmer, Gqeberha (Port Elizabeth) within the Nelson Mandela Bay Metropolitan Municipality (NMBM) of the Eastern Cape Province. Adendorff Architects (Pty) Ltd. has been assigned as the Principal Agent and Architect to this development whereas Afrostructures (Pty) Ltd. will serve as the Applicant for this EA application.

The Applicant intends to establish a multiple-use development, comprising of 25 clusters as well as an internal road network, on erven 3988, 4195 and 6991, along Glendore Road in Walmer. The consolidated development footprint will be 614 409 m<sup>2</sup> (61,4 Ha) in extent. Approximately 3 000 residential units are proposed which will be divided amongst nine (9) clusters designated for General Residential Zone 2 and General Residential Zone 4. In addition, 13 clusters designated for both Business Zone 1 and Business Zone 2 are planned, as well as one (1) cluster for Community Purposes and two (2) clusters for Special Purposes Infrastructure (solar power & wastewater treatment).

This development will aim to promote social, economic, and environmental sustainability. The project will be resource efficient through resource management ideas such as the improvement of the water distribution network, rainwater management, digital smart meters, renewable energy generation, sustainable drainage, reduction of water generation, optimisation of waste management.

The development in its entirety will include the following components:

- a) Retail/Business Infrastructure.
- b) Office/Storage Facilities.
- c) Medical Use/Office Facilities.
- d) Special Use High Tech Industrial facility/infrastructure.
- e) Warehouse Facilities.
- f) Community Zone (i.e., child aftercare facilities).
- g) Mixed-residential Housing Units including Social Housing – approximately 3000 units are proposed.
- h) Club House and Sport Facilities.
- i) A Business Incubator / Substation Area.
- j) Parking/Solar Charging Stations.
- k) Special Purposes Infrastructure – solar photovoltaic power park & wastewater treatment plant.
- l) Open spaces.
- m) Installation of internal infrastructure services, such as water, sanitation, irrigation, stormwater, roads, and electricity, to service the proposed infrastructure. See further details below; and
- n) Installation of external infrastructure services, such as stormwater and sanitation connection lines as well as a pedestrian walkway along Racecourse Road and two traffic circles along Glendore Road. An

additional road will be constructed between the south-western corner of the site and the northern circle.

**The following Infrastructure Services are proposed:**

**Water supply:** It is proposed that approximately 50 % of water is to be supplied from NMBM via the existing Glendore Road water connection, and that 50 % of water is to be supplied from groundwater (with approximately 35 ℓ/s to 50 ℓ/s supply). The proposed water supply is a connection into the existing 315 mm diameter municipal supply main from Glendore Road. Each of the 25 clusters are to consist of 110 mm diameter supply network with a connection to 300 mm diameter supply main and a peak throughput of 113 ℓ/s. Each cluster to consist of 110 mm diameter supply network with connection to units, fire hydrants, isolating valves, and meter to flow measurement per cluster. A Reverse Osmosis treatment system will be employed on site for the purification of the groundwater. In addition, tanks not exceeding 3 000 m<sup>3</sup> will be installed for the storage of raw (ground) water and potable water.

**Wastewater**

**Northern Catchment of Site:**

Wastewater is to be discharged via a gravitational system including collector sewers draining each of the clusters to the lowest point of the northern catchment. A wastewater treatment works in the form of a Bio-Rotor Treatment System (or similar) is proposed for the treatment of effluent from the northern catchment. This treatment works will be equipped with a capacity of 1 125 kℓ/day for the re-use of treated effluent. As an alternate to the wastewater treatment works (in the event of failure of the operation of the wastewater treatment works), the provision of a storage sump of 24 hours storage i.e. 1125 kℓ or 15 m<sup>3</sup> storage and a wastewater pumpstation is proposed, with a capacity of 30ℓ/s together with estimated 500m long 160mm dia pump main, to discharge wastewater from the storage sump to discharge to the outfall for the southern catchment.

**Southern Catchment of Site:**

The wastewater of units within the southern catchment of the site will gravitate to a common collection point, from where the wastewater is to discharge under gravity with a 500 m long 300 mm dia gravity collector sewer to connect into the 355 mm dia NMBM Sewer in Victoria Road.

**Irrigation:** The treated wastewater effluent is to be piped from the treatment system for purpose of irrigation for green areas and parks within the development.

**Stormwater:** An internal storm water reticulation system will be developed and 9 000 m<sup>3</sup> detention ponds to accommodate excess stormwater flow from the site. Stormwater is to be discharged via an approximately 500 m long, 600 mm diameter stormwater pipe into the existing municipal stormwater channel along Victoria Road.

**Roadworks:** The proposed internal road network is to consist of a main access ring road, collector link roads providing access to the clusters, access control points to each of the clusters, parking for each cluster,

together with pedestrian sidewalks, crossings, and cycle lanes. As part of the adjoining external road network, an additional road will be constructed between the south-western corner of the site and Glendore Road (which will be the primary access route), directly opposite the already present unnamed road. This new road will link up with Glendore Road by means of a new circle intersection. A second circle intersection is proposed further south at the T-junction of Glendore Road and Victoria Drive. All new traffic circles will be accompanied by raised pedestrian tables and subsequently surfaced pedestrian sidewalks along the adjoining road networks. The construction of additional lanes and changes to traffic signal phasing and timing at Victoria Drive and the Buffelsfontein Road intersections will also be implemented. Additionally, two public transport bays are proposed to be constructed, one on both exits to Glendore Road/Access Road, and one along the Victoria Drive/Glendore Road intersection. All the above-mentioned roadworks will be accompanied with the relevant/applicable traffic signals and additional turning auxiliary lanes (such as at Genadendal/Buffelsfontein Road), as well as pedestrian and vehicle proof fencing/walls being erected along the property boundary adjacent to Glendore Road.

### **Electricity**

#### **Bulk electrical connection:**

The electrical connection, from the NMBM Electricity and Energy Department is estimated to be 11 kV, 7 MVA, bulk connection with a main intake sub-station on Glendore Road. The facility will be reticulated internally, for self-consumption and costing, with 11 kV underground cable via a network of numerous 11 kV ring-main units, miniature sub-stations. The mini-substations will be positioned near each gate house of each zone.

#### **PV System:**

A space of 5.7 Ha is allocated for the PV ground mount system, which can have a capacity of  $\pm 4\,400$  kW of inverter, with  $\pm 5\,151$  kW (5 MW) panels. This is in line with the maximum allowable as per NERSA and the NMBM EE department, of which only allows 75 % of the connected load to be of equipment/plant on site with 25 % of the connected load to be able to be put back into their grid. The system will be connected via transformers, stepped up from 800 V into the 11 kV network. In the PV area, there will be transformers and control technology housed in various sub-station buildings. See Error! Reference source not found. and **Appendix B3** for the proposed layout of the PV infrastructure.

#### **Streetlighting:**

The streetlights, in the main roads, will be down facing only, with self-contained battery and PV panel. The lighting inside each zone, will be connected to the internal system of each zone, also with efficient LED pole lighting to suite the style of the area/zone.

#### **Reticulation**

The MV cable reticulation will follow the civil route of the main roads and basically the same routing of the water reticulation, with a take-off at each gate house zone. There will also be infrastructure network of sleeves and manholes installed for the fibre for the development, which will follow the same routing as the above. These infrastructure services will be co-ordinated with the civil works.



### **Need & Desirability**

The proposed project will be located on erven 3988, 4195, 6991, which is earmarked for a Multiple-Use Development. This development will promote social, economic, and environmental sustainability, through the following mechanisms:

- The proposed development will be a mixed-use residential & social housing with up to an additional 3000 units for the area, consisting of roads and parking areas, together with green park areas within different sections.
- The project will be resource efficient through resource management ideas such as the improvement of water distribution network, rainwater management, digital smart meters, renewable energy generation, sustainable drainage, reduction of water generation, optimisation of waste management.
- The development will integrate 4IR & ICTs infrastructure and smart mobility.
- The development will include, retail, business, office and storage sites, residential units, retirement units, a “Digi 4RI” centre, solar facility, and an early childhood development centre.

The goal of the proposed development is to ameliorate the contemporary urban disconnect with nature by the holistic improvement of urban spaces, integrating aspects of nature into urban environments by considering how the built environment contributes to our health and well-being and employing practical methodologies for the effective design thereof, we not only design favourable environments, but sustainable environments as well.

Activity nodes are incorporated for residents and the extended urban environment to come together to interact. These nodes are in the built form and very often are elements of urban space which foster societal cohesion of the neighbourhood.

### **The proposed multiple-use development will create the following for the future of the area:**

- Ensure greater **social diversity** through an integrated housing development.
- Allow a broader range of housing types, such as cottage clusters, town homes, and other “missing middle” typologies.
- Facilitate the development of lower-cost housing typologies with **dignity**.
- **Prevent segregated** communities –combination of LSM housing typologies.
- Create a community where individuals regardless of their race or socioeconomic background can **live together** with a diverse housing inventory.
- Create a robust **multifamily preservation strategy**.
- **Stimulate investment** in surrounding areas through a deliberate direction for future growth.
- Creatively utilize land asset to **stimulate economic** development.
- **Promote desired change** through perceived and tangible economic perspective of surroundings.
- Promote an enhanced **community’s liveability**.

- Support needs of **existing and future** residents.
- **Strengthen the community** by fostering its racial and socioeconomic diversity.
- Desirable secure location for people to **live, work, and play** facilitating the current Covid related work from home.
- Create new opportunities for **home ownership** of the future younger generations.
- Increase housing **opportunities** for people of all ages, income levels, races, and backgrounds.
- Improve housing conditions through **quality environment and security**.

With the current economic situation in South Africa, job creation is of utmost importance. The proposed project comprises of various developments and thus many jobs could be created. The statistics indicate the Nelson Mandela Bay Municipality has an unemployment rate of 36.6 % (<http://www.statssa.gov.za>). According to these statistics new job creation is needed to stem the rising unemployment rate.

The following National, Provincial and Municipal policy documentation were also interrogated for the proposed development:

- National Development Plan (2030).
- The Integrated Development Plans (IDP) for the Nelson Mandela Bay Municipality.
- The Spatial Development Framework for the Nelson Mandela Bay Municipality.
- The National Environmental Management Act Principles.
- Nelson Mandela Bay Metropolitan Land Use Scheme (2023).

The project has been found to be aligned with the abovementioned policy documentation.

### **Listed Activities Triggered by the Proposed Development**

The proposed Arlington Multiple-Use Development triggers listed activities in terms of the Environmental Impact Assessment (EIA) Regulations (2014) (as amended), Government Regulations (GNR) 324, 326 and 327 of 07 April 2017 in Government Gazette Number 38282 read in conjunction with GN R. 982 and 983 of 04 December 2014 promulgated under the National Environmental Management Act (NEMA) (Act no 107 of 1998). **Table 2** provides a summary of the Listed Activities in terms of the EIA Regulations 2014 that are triggered by the proposed development.

*Table 2: Summary of Listed Activities Triggered by the proposed development. Strikethrough text indicated those sub-sections of the Listed Activity that are not applicable to the proposed development.*

ACTIVITY AND GOVERNMENT NOTICE NUMBER	ACTIVITY DESCRIPTION	DISCUSSION IN TERMS OF APPLICABILITY
Activity 1  Listing Notice 1 of GNR. 327 (983)	The development of facilities or infrastructure for the generation of electricity from a renewable resource where –	A solar PV ground mount system is proposed as part of the development and will have an

(2014 EIA Regulations as amended)	<p>(i) The electricity output is more than 10 megawatts but less than 20 megawatts; or</p> <p>(ii) <b>The output is 10 megawatts or less, but the total extent of the facility covers an area in excess of 1 hectare;</b></p> <p><del>Excluding where such development of facilities or infrastructure is for photovoltaic installations and occurs—</del></p> <p><del>(a) Within an urban area; or</del></p> <p><del>(b) On existing infrastructure.</del></p>	<b>electricity output of 5 MW and will cover an area of 5.7 Ha.</b>
<p><b>Activity 9</b></p> <p><b>Listing Notice 1</b> of GNR. 327 (983)</p> <p>(2014 EIA Regulations as amended)</p>	<p>The development of infrastructure <b>exceeding 1 000 metres in length</b> for the bulk transportation of water or <b>stormwater</b> –</p> <p>(i) <b>With an internal diameter of 0.36 metres or more; or</b></p> <p>(ii) With a peak throughput of 120 litres per second or more.</p> <p><del>excluding where—</del></p> <p><del>(a) such infrastructure is for bulk transportation of water or storm water or stormwater drainage inside a road reserve or railway line reserve; or</del></p> <p><del>(b) where such development will occur within an urban area.</del></p>	<p>The proposed development will include pipeline infrastructure exceeding a cumulative length of 1 000 m for the transportation of stormwater. A section of the pipeline will have an internal diameter of 0.6 m.</p> <p>The proposed development will also include water supply network exceeding a cumulative length of 1 000 m.</p>
<p><b>Activity 10</b></p> <p><b>Listing Notice 1</b> of GNR. 327 (983)</p> <p>(2014 EIA Regulations as amended)</p>	<p>The development and related operation of infrastructure <b>exceeding 1 000 metres in length</b> for bulk transportation of sewage, effluent, process water, wastewater, return water, industrial discharge, or slimes –</p> <p>(i) With an internal diameter of 0.36 metres or more; or</p> <p>(ii) With a peak throughput of 120 litres per second or more</p> <p><del>excluding where—</del></p> <p><del>(a) such infrastructure is for the bulk transportation of sewage, effluent, process water, wastewater, return water, industrial discharge or slimes inside a road reserve or railway line reserve; or</del></p> <p><del>(b) where such development will occur within an urban area.</del></p>	The proposed development will include a gravitational system and collector sewers of which the pipeline lengths will cumulatively exceed a 1 000 m.
<p><b>Activity 24</b></p>	<p>The development of a road-</p> <p><del>(i) for which an environmental authorisation was obtained for the</del></p>	The proposed development will include the establishment of a new main access ring road, collector link

<p><b>Listing Notice 1</b> of GNR. 327 (983) (2014 EIA Regulations as amended)</p>	<p><del>route determination in terms of activity 5 in Government Notice 387 of 2006 or activity 18 in Government Notice 545 of 2010; or</del></p> <p>(ii) with a reserve wider than 13.5 metres, or where no reserve exists where the road is wider than 8 metres;</p> <p><del>but excluding a road-</del> (a) which is identified and included in activity 27 in Listing Notice 2 of 2014; (b) where the entire road falls within an urban area; or (c) which is 1 kilometre or shorter.</p>	<p>roads providing access to the clusters. A new road outside the property boundary is also proposed between the south-western corner of the site Glendore Road. As these are new roads no reserve exists. The width of certain roads will exceed 8 m.</p>
<p><b>Activity 28</b></p> <p><b>Listing Notice 1</b> of GNR. 327 (983) (2014 EIA Regulations as amended)</p>	<p>Residential, <b>mixed</b>, retail, commercial, industrial, or institutional developments where such land was used for agriculture, game farming, <b>equestrian purposes</b>, or afforestation on or after 01 April 1998 and where such development:</p> <p><del>(i) will occur inside an urban area, where the total land to be developed is bigger than 5 hectares; or</del></p> <p>(ii) <b>will occur outside an urban area, where the total land to be developed is bigger than 1 hectare;</b></p> <p><del>excluding where such land has already been developed for residential, mixed, retail, commercial, industrial or institutional purposes.</del></p>	<p>The proposed project area was previously used for equestrian purposes (horse racing) between 1950 to 2013 and known as the Arlington Racecourse. The project site falls outside an urban area and the total land to be developed will be 61.4 Ha.</p>
<p><b>Activity 15</b></p> <p><b>Listing Notice 2</b> of GNR. 325 (984) (2014 EIA Regulations as amended)</p>	<p>The clearance of an <b>area of 20 hectares</b> or more of indigenous vegetation, excluding where such clearance of indigenous vegetation is required for—</p> <p><del>(i) the undertaking of a linear activity; or</del></p> <p>(ii) <del>(ii) maintenance purposes undertaken in accordance with a maintenance management plan.</del></p>	<p>The proposed project area is approximately 61.4 Ha in extent and will require the clearance of indigenous vegetation.</p>
<p><b>Activity 2</b></p> <p><b>Listing Notice 3</b> of GNR. 324 (985) (2014 EIA Regulations as amended)</p>	<p>The development of reservoirs, excluding dams, with a <b>capacity of more than 250 cubic metres.</b></p> <p><b>a. Eastern Cape</b></p> <p><del>i. In a protected area identified in terms of NEMPAA, excluding conservancies;</del></p> <p>ii. <b>Outside urban areas, in:</b></p> <p><del>(aa) National Protected Area Expansion Strategy Focus areas;</del></p>	<p>The proposed development will include the installation of tanks exceeding 250 m<sup>3</sup> for the storage of raw (ground) water and potable water. It is likely that the DEDEAT might consider tanks as reservoirs, and so, this Listed Activity is potentially triggered due to site</p>

	<p><del>(bb) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority;</del></p> <p><del>(cc) Sites or areas identified in terms of an international convention;</del></p> <p><del>(dd) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;</del></p> <p><del>(ee) Core areas in biosphere reserves;</del></p> <p><del>(ff) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core area of a biosphere reserve;</del></p> <p><del>(gg) In an estuarine functional zone, excluding areas falling behind the development setback line;</del></p> <p><del>(hh) Areas seawards of the development setback line or within 1 kilometre from the high water mark of the sea if no such development setback line is determined; or</del></p> <p style="padding-left: 40px;"><del>iii. Inside urban areas:</del></p> <p><del>(aa) Areas zoned for use as public open space;</del></p>	<p>being located outside an urban area and 3 km from the Sardinia Bay Nature Reserve, a protected area identified in terms of NEMPAA (2003).</p>
<p><b>Activity 4</b></p> <p><b>Listing Notice 3</b> of GNR. 324 (985) (2014 EIA Regulations as amended)</p>	<p>The development of a road wider than 4 metres with a reserve less than 13,5 metres.</p> <p style="padding-left: 40px;"><b>a. Eastern Cape</b></p> <p style="padding-left: 80px;"><b>i. Outside urban areas:</b></p> <p><del>(aa) A protected area identified in terms of NEMPAA, excluding disturbed areas;</del></p> <p><del>(bb) National Protected Area Expansion Strategy Focus areas;</del></p> <p><del>(cc) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority;</del></p> <p><del>(dd) Sites or areas identified in terms of an international convention;</del></p> <p><del>(ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;</del></p> <p><del>(ff) Core areas in biosphere reserves;</del></p> <p><del>(gg) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of</del></p>	<p><b>The proposed development will include the establishment of a new main access ring road, collector link roads providing access to the clusters. A new road outside the property boundary is also proposed between the south-western corner of the site Glendore Road. As these are new roads no reserve exists. The width of certain roads will exceed 4 m.</b></p> <p><b>The project site is located outside an urban area and ±3 km from the Sardinia Bay Nature Reserve, a protected area identified in terms of NEMPAA (2003).</b></p>

	<p><b>NEMPAA</b> or from the core areas of a biosphere reserve, excluding disturbed areas;</p> <p><del>(hh) Areas seawards of the development setback line or within 1 kilometre from the high water mark of the sea if no such development setback line is determined; or (ii) In an estuarine functional zone, excluding areas falling behind the development setback line; or</del></p> <p>ii. <del>Inside urban areas:</del></p> <p><del>(aa) Areas zoned for use as public open space;</del></p> <p><del>(bb) Areas designated for conservation use in Spatial Development Frameworks adopted by the competent authority or zoned for a conservation purpose; or</del></p> <p><del>(cc) Seawards of the development setback line or within urban protected areas.</del></p>	
<p><b>Activity 12</b></p> <p><b>Listing Notice 3</b> of GNR. 324 (985) (2014 EIA Regulations as amended)</p>	<p><b>The clearance of an area of 300 square metres or more of indigenous vegetation</b> except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan.</p> <p>a. <b>Eastern Cape</b></p> <p>i. <b>Within any critically endangered or endangered ecosystem listed in terms of section 52 of the NEMBA or prior to the publication of such a list, within an area that has been identified as critically endangered in the National Spatial Biodiversity Assessment 2004;</b></p> <p>ii. <del>Within critical biodiversity areas identified in bioregional plans;</del></p> <p>iii. <del>Within the littoral active zone or 100 metres inland from the high water mark of the sea, whichever distance is the greater, excluding where such removal will occur behind the development setback line or even in urban areas;</del></p> <p>iv. <del>Outside urban areas, within 100 metres inland from an estuarine functional zone; or</del></p> <p>v. On land, where, at the time of the coming into effect of this Notice or thereafter <b>such land was zoned open</b></p>	<p><b>More than 300 m<sup>2</sup> of indigenous vegetation will be cleared for the proposed development. The site footprint falls within two vegetation types, namely Sardinia Forest Thicket and Algoa Sandstone Fynbos as identified by the Nelson Mandela Bay Municipality’s Bioregional Plan (NMBMBP) (2015) and the South African National Biodiversity Assessment (SA NBA) (2018), respectively. In respect of its conservation status Algoa Sandstone Fynbos is listed as a Critically Endangered ecosystem according to the most recent Threat Status contained in the SA NBA (2022).</b></p> <p><b>Also, as per the Zoning Scheme Register of the NMBM, most of the development footprint is zoned as Open Space.</b></p>

	space, conservation or had an equivalent zoning	
<b>Activity 15</b>  <b>Listing Notice 3</b> of GNR. 324 (985) (2014 EIA Regulations as amended)	<p>The transformation of land bigger than 1000 square metres in size, to residential, retail, commercial, industrial, or institutional use, where, such land was zoned open space, conservation or had an equivalent zoning, on or after 02 August 2010.</p> <p>a. Eastern Cape</p> <p>i. Outside urban areas, or</p> <p>ii. Inside urban areas:</p> <p>(aa) Areas zoned for conservation use or equivalent zoning, on or after 02 August 2010;</p> <p>(bb) A protected area identified in terms of NEMPAA, excluding conservancies; or</p> <p>(cc) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act as adopted by the competent authority.</p>	<p>The proposed project area is approximately 614 409 m<sup>2</sup> in extent, thus exceeding the 1000 m<sup>2</sup> threshold, and will be transformed to a variety of uses (residential, retail, commercial, or institutional). Most of the development footprint is zoned Open Space and the site falls outside an urban area.</p>

### National Water Act, 1998

Section 21 of the National Water Act (Act No. 36 of 1998) (NWA) provides the list of water use activities that will require an authorisation or registration in accordance with the Act. The proposed Arlington Smart City development likely constitutes five water uses as defined in the National Water Act. These include Section 21 (a), (e) and (g). A description of these uses is provided in **Table 3** below.

*Table 3: Summary of Section 21 Water Uses Applicable to the Proposed Arlington Multi-Use Development.*

SECTION 21 WATER USE ACTIVITY	DESCRIPTION	DISCUSSION
21 (a)	Taking water from a water resource	Water abstraction will be required for the installation of boreholes within the site.
21 (c)	<del>Impeding or diverting the flow of water in a watercourse</del>	<p><del>Given that wetlands are located within 500 m of the site footprint, the proposed development will require a water use authorisation in terms of Section 21 (c).</del></p> <p>As per the Wetland and Aquatic Assessment, (dated, March 2024) and attached as Appendix C8. The Specialist concluded that "No part of</p>

		<p><u>the proposed development site is located within the “regulated area of a watercourse” as defined by the National Water Act (Act No. 36 od 1999). As such, there will be no requirement for the completion of any Water Use License Application for Section 21 (c) and (i) for the development”.</u></p> <p><u>As such Section 21 (c ) will no longer be applied for during the WULA Process.</u></p>
21 (e)	Engaging in a controlled activity identified as such in Section 37(1) or declared under Section 38(1)	<p>The project makes no provision for any activity that is classified under Section 37(1) or 38(1) of the Act as a controlled activity.</p> <p>Treated effluent from the Bio-Rotor wastewater treatment (or similar) facility will be used for irrigation.</p>
21 (g)	Disposing of waste in a manner which may detrimentally impact on a water resource.	Domestic wastewater will be stored for re-use as part of the Bio-Rotor wastewater or similar treatment facility.
21 (i)	<del>Altering the bed, banks, course, or characteristics of a watercourse</del>	<p><del>Given that wetlands are located within 500 m of the site footprint, the proposed development will require a water use authorisation in terms of Section 21 (i).</del></p> <p><u>As per the Wetland and Aquatic Assessment, (dated, March 2024) and attached as Appendix C8. The Specilaist concluded that “No part of the proposed development site is located within the “regulated area of a watercourse” as defined by the National Water Act (Act No. 36 od 1999). As such, there will be no requirement for the completion of any Water Use License Application for Section 21 (c) and (i) for the development”.</u></p> <p><u>As such Section 21 (1 ) will no longer be applied for during the WULA Process.</u></p>

#### Site Location and Description of Property

The proposed Arlington development study area is located to the west of Walmer in Gqeberha within the NMBM on the former Arlington Racecourse property and comprises three erven spanning a cumulative area of approximately 61.4 Ha. A summary of the property details is presented in **Table 4**. The property is bordered by Glendore Road to the west, Walmer Heights to the north and Milkwood Estate to the southwest. The site is further located approximately 500 m west from the former Walmer Country Club and approximately 8 km



from Chief Dawid Stuurman International Airport (former Port Elizabeth Airport). The site is currently accessible via Racecourse Road off Victoria Drive (M18) to the south as shown in **Figure 1** and attached as **Appendix A1**. Both Glendore Road and Victoria Drive can be accessed from Buffelsfontein Road (M09) in the north.

*Table 4: Property Information*

Project Information	Township	Erf No	Portion	Central Co-ordinates
<b>Affected Properties</b>	Walmer	Erf No 3988	0	34°0'80.61S   25°33'45.29E
	Walmer	Erf No 4195	0	34°0'20.96S   25°33'22.39E
	Walmer	Erf No 6991	0	34°0'14.58S   25°34'12.07E
	Walmer	Erf No 14639	0	34°0'22.63S   25°33'26.35E
	Walmer	Erf No 1953	0	34°0'17.87S   25°33'45.23E
	Walmer	Erf No 1948	0	34°0'23.36S   25°33'51.47E
<b>EXTENT OF THE SITE AREA</b>	Approximately 61.4 Ha			
<b>MUNICIPALITY</b>	Nelson Mandela Bay Municipality			
<b>WARD</b>	1 and 4			

The development site is situated on the urban edge of the NMBM. However, the DEDEAT has confirmed that the proposed site is not located within an urban area.

The proposed development site is located approximately 3 km from the Sardinia Bay Nature Reserve towards the southwest and approximately 8 km the Nelson Mandela Bay Metropolitan University Private Nature Reserve towards the southeast as shown in Error! Reference source not found. and attached as **Appendix A2**.

According to the Zoning Scheme Register of the NMBM, most of the development footprint is zoned as Recreational Open Space. The property will therefore require a Rezoning Application prior to the commencement of construction to accommodate the new land use rights of the different zones proposed. A Town Planner has been appointed by the Developer to make this application on their behalf.

### **Feasible and Reasonable Alternatives considered during the assessment process**

#### **Development Footprint**

An alternative viable site location was not identified and evaluated for the project. The specific proposed location for the multipurpose-use development is preferred as it is the only property of its size in the Arlington area which:

- The site is currently vacant and does have abandoned buildings and infrastructure (i.e the race course stadium, betting office, horse stables etc).
- Is located adjacent to existing developments and therefore requires minimal extension of bulk service infrastructure.

- According to the Nelson Mandela Bay Municipality's Bioregional Plan (2015) - a CBA is located less than 65 m northwest of the proposed site footprint and there are a few ESAs surrounding the proposed development, however, none of them are within critical proximity to the proposed development.
- Is easily accessible via two (2) existing roads (Entrance Gate 1 from Glendore Road and Entrance Gate 2 will be off Victoria Drive onto the Racecourse Road).
- Is owned by a landowner willing to become involved in a development of this nature.

Type of Activity to be Undertaken

This development will aim to promote social, economic, and environmental sustainability. The project will be resource efficient through resource management ideas such as the improvement of the water distribution network, rainwater management, digital smart meters, renewable energy generation, sustainable drainage, reduction of water generation, optimisation of waste management.

The development in its entirety will include the following components:

- a) Retail/Business Infrastructure.
- b) Office/Storage Facilities.
- c) Medical Use/Office Facilities.
- d) Special Use High Tech Industrial facility/infrastructure.
- e) Warehouse Facilities.
- f) Community Zone (i.e., child aftercare facilities).
- g) Mixed-residential Housing Units including Social Housing – no more than 3 000 units are proposed.
- h) Club House and Sport Facilities.
- i) A Business Incubator Area.
- j) Parking/Solar Charging Stations.
- k) Special Purposes Infrastructure – solar photovoltaic power park & wastewater treatment plant.
- l) Open spaces.
- m) Installation of internal infrastructure services, such as water, sanitation, irrigation, stormwater, roads, and electricity, to service the proposed infrastructure.
- n) Installation of external infrastructure services, such as stormwater and sanitation connection lines as well as a pedestrian walkway along Racecourse Road and two traffic circles along Glendore Road. An additional road will be constructed between the south-western corner of the site and the northern circle.

The two activity alternatives for the proposed development are:

- 1) The preferred option of the implementation of the proposed development; and
- 2) The no-go development option.

The preferred activity option would infer that the construction of the proposed multiple-use development be undertaken within the preferred development area to address the following:

- Ensure greater social diversity through an integrated housing development.
- Allow a broader range of housing types, such as cottage clusters, town homes, and other “missing middle” typologies.
- Facilitate the development of lower cost housing typologies with dignity.
- Prevent segregated communities’ combination of LSM housing typologies.
- Create a community where individuals regardless of their race or socioeconomic background can live together with a diverse housing inventory.
- Create a robust multifamily preservation strategy.
- Stimulate investment in surrounding areas through a deliberate direction for future growth.
- Creatively utilize land asset to stimulate economic development.
- Promote desired change through perceived and tangible economic perspective of surroundings.
- Promote an enhanced community’s liveability.
- Support needs of existing and future residents.
- Strengthen the community by fostering its racial and socioeconomic diversity.
- Desirable secure location for people to live, work, and play facilitating the current Covid related work from home.
- Create new opportunities for home ownership of the future younger generations.
- Increase housing opportunities for people of all ages, income levels, races, and backgrounds.
- Improve housing conditions through quality environment and security.

The no-go development option is neither advised nor feasible for the proposed development as:

- The potential for short to medium term local job creation and skills development opportunities associated with the site establishment and construction of the proposed housing development will not be realised. Unemployment within the local municipality stands at 27.7 %.
- Framework of the municipality as specified in the IDP.

In the case that the “no-go” alternative is exercised, the existing site will remain open and undeveloped.

### Design Layout

The Preferred Layout of the mixed-use development (dated 14/08/2023) includes the establishment of eight (8) land-use zones; namely: Residential 2, Residential 4, Business 2, Business 1, Community 1, Special Use High Tech Industry, Special Purposes Infrastructure, Private Open Space, comprising of differing extents.

Habitat within the proposed development boundary has been flagged as sensitive according to the preliminary desktop assessments undertaken for the proposed project for the scoping report which have been considered by the Applicant in the determination of the housing development layout – Error! Reference source not found. and **Appendix A3**.

### Technology

Preferred technologies have not yet been investigated for the project; however, best practice construction and implementation is recommended for all infrastructure associated with the project.

Potential alternatives that must be investigated for the proposed development will include:

- Environmentally friendly technology and designs regarding the construction of housing and associated infrastructure such as:
  - Solar power for geysers and general electricity.
  - Efficient rainwater harvesting.
  - Energy efficient lighting (within the houses and streets) and general appliances.
  - Water saving devices such as aerated taps and dual flush toilets.
  - A wastewater treatment works in the form of a Bio-Rotor Treatment System, or similar, is proposed for the treatment of effluent from the northern catchment.
- Waste minimisation activities during the construction and handover phases including the recycling of generated waste, where possible.

Additional feasible technology alternatives will be investigated further and refined during the EIA phase of the proposed development.

### Operational Aspects

The preferred and only operational aspects of the activity involve the maintenance of infrastructure and general service delivery to the area. No alternatives to the operation aspect of the proposed development have been considered.

### No-Go Alternative

The no-go alternative must be included in the assessment phase as the baseline against which the impacts of the other alternatives are assessed. The no-go alternative assumes that the proposed project will not go ahead i.e., the proposed multiple-use development will not occur and therefore the site will remain as is. The no-go alternative is discussed with the report.

### Public Consultation Process

#### Interested and Affected Parties Register

The compilation of a comprehensive Interested and Affected Party database (I&AP Register) is underway for the project. The latest contact details of the relevant key stakeholders, government departments, NGOs, ward councillors, community leaders and directly affected residences and businesses will be captured in the register. The register will be updated with the contact details of I&APs that respond to newspaper adverts,

circulation of the BID, distribution of flyers, the erection of site notices and other documentation made available to the public to view at local public venues (libraries, churches, etc.) during the Scoping and EIA phase.

### Key Stakeholders

The following have been provisionally identified as key stakeholders of the project (as stipulated by the EIA Regulations):

- Eastern Cape Department of Economic Development, Environmental Affairs and Tourism (DEDEAT): Nelson Mandela Bay Region / Sarah Baartman District.
- Eastern Cape Provincial Heritage Resources Authority (ECPHRA).
- EC DEDEAT Waste.
- South African Heritage Resource Agency (SAHRA).
- Department of Water and Sanitation (DWS).
- Department of Forestry, Fisheries, and the Environment (DFFE).
- NMBM: Executive Mayor.
- NMBM: City Manager.
- NMBM: Public Health Directorate.
- NMBM: Infrastructure and Engineering.
- NMBM: Waste Management Directorate.
- NMBM: Water and Sanitation directorate.
- NMBM: Electricity and Energy directorate.
- NMBM: Roads, Stormwater, and Transportation directorate.
- NMBM: Planning directorate and Land Use Management.
- NMBM: Human Settlements.
- NMBM Economic Development (Trade and Investment).
- NMBM Beaches, Resorts & Events Management.
- NMBM: Environmental Health (Air & Noise Pollution).
- Ward 1 Councillor.
- Ward 3 Councillor.
- Ward 4 Councillor.
- NMBM Ratepayers Association.
- EC Department of Roads and Public Works / Department of Transport.
- Department of Rural Development and Land Reform.
- Eskom.
- SA Civil Aviation Authority (SACAA).
- Wildlife and Environmental Society of South Africa (WESSA).
- BirdLife SA

### Background Information Document (BID)

Copies of the BID were circulated by e-mail to key stakeholders, government departments and NGOs to facilitate preliminary comments on the proposed development and to allow the EAP to address any potential issues within the Scoping and EIA phases of the project. This document was circulated by e-mail on the 11<sup>th</sup> and 14<sup>th</sup> of February 2023.

### Written Notification

Notification letters, in English, accompanied by a copy of the BID, were distributed to directly affected residences and businesses located in the general vicinity of the proposed development by the EAP on the 09<sup>th</sup> of February 2023.

### Site Notices

Three (3) English site notices were erected in the vicinity of the proposed development site as part of the pre-application PPP on 09<sup>th</sup> of February 2023.

### Newspaper Advertisements

An advert, in English, was placed in the Local and Regional Newspaper, The Herald, on the 09<sup>th</sup> of February 2023 as part of the pre-application PPP.

### Comments and Response Report

A comment and responses report has been compiled for the Scoping phase of the project. The document will be updated as comments on the proposed development are received from key stakeholders, government departments, NGOs, and members of the public during the ongoing PPP through to the EIA phase of the project.

### Circulation of the Draft Scoping Report

An email to key stakeholders, Government Departments, NGOs, ward councillors, community leaders and directly affected residences and businesses was circulated to notify these parties of the application and availability of the report for 30-day commenting period from 24 October 2023 to 23 November 2023. An advert, in English, was placed in the Local and Regional Newspaper, The Herald, on the 23<sup>rd</sup> of October 2023 notifying the public of the availability of the Draft Scoping Report for 30-day commenting period. An additional two (2) English site notices were erected around the site on 24 October 2023 to notify the public of the availability of the Draft Scoping Report for 30-day commenting period.

Comments received during the 30-day public participation period have been incorporated into this final Scoping report.

Hard copies of the draft report and supporting documentation were placed at two (2) public venues, provided in Error! Reference source not found. of the report, for public viewing from **24 October 2023 to 23 November 2023.**

### Circulation of the Draft Environmental Impact Report

An email to key stakeholders, Government Departments, NGOs, ward councillors, community leaders and directly affected residences and businesses was circulated to notify these parties of the application and availability of the report for 30-day commenting period from **19 April 2024 to 24 May 2024**. An advert, in English, was placed in the Local and Regional Newspaper, The Herald, on the **19 April 2024** notifying the public of the availability of the Draft Environmental Impact Report for 30-day commenting period. An additional two (2) English site notices were erected around the site on **19 April 2024** to notify the public of the availability of the Draft Environmental Impact Report for 30-day commenting period.

Comments received during the 30-day public participation period will be incorporated into the Final Environmental Impact Report for submission to the Department of Economic Development, Environmental Affairs and Tourism.

Hard copies of the draft report and supporting documentation were placed at two (2) public venues, provided in Error! Reference source not found. of the report, for public viewing from the **19 April 2024 to 24 May 2024**.

### Specialist Studies

#### DFFE Screening Tool Report

A Screening Tool Report was generated for the proposed Arlington Multiple-Use Development project using the national web-based Environmental Screening Tool, as required by the NEMA: EIA Regulations 2014 (as amended) and is attached as **Appendix C1**.

**Table 5** indicates the level of sensitivity of each of the environmental themes identified within the National Web-based Screening Tool Report.

*Table 5: Summary of the Screening Tool Report*

ASPECT	SENSITIVITY			
	VERY HIGH	HIGH	MEDIUM	LOW
Agriculture				
Animal species				
Aquatic Biodiversity				
Archaeological and Cultural Heritage				
Palaeontology				
Civil Aviation				
Plant species				
Defence				
Terrestrial Biodiversity				

## Summary of Specialist Studies Undertaken

### Visual Impact Assessment

The proposed development is considered a low-key development, similar in nature to existing development in the area. A potentially low level of intrusion is expected on landscapes or scenic resources with limited change in the visual character of the area. There will not be a particularly noticeable change within the view of frame and experience of the receptor

The approach adopted for the Arlington VIA is that prescribed for a development or activity where a minimal visual impact is expected and will require a Level 3 Visual Assessment.

A desktop exercise was undertaken whereby each of topography, landform, vegetation cover, settlement patterns and special features was mapped for the site and rated from low to high. These maps are overlaid, and the combined areas are assimilated to provide an overall sensitivity.

The visual sensitivity of the site is categorized as medium sensitivity. This is because the site is located on a relatively flat coastal plateau with the potential of high visual intrusion over long distances. The northern surroundings of the study site are densely developed urban areas with mostly single storey buildings while the south of the site is less densely populated. The landscapes as well as vegetation cover screens the surrounding areas from the development site with high visual intrusion occurring mostly within the first 2 km's from the site.

The VAC of a landscape depends on its topography and on the type of vegetation that occurs in the landscape. The size and type of the development also plays a role. Various viewpoints were identified within a 5 km radius of the site.

The site has an overall low visual intrusion as the proposed development will blend in well with the existing surroundings. Various viewpoints were identified within a 10 km radius of the site.

Visually receptors are locations or areas where people may have a significantly increased visual sensitivity or exposure to changes in the surrounding environment. All potential visual receptors within 5 km of the proposed Arlington development have been identified.

- Viewpoint 1 – Glendore Road is immediately adjacent to the project site and will be clearly visible in places. Some large trees do screen the site, even at very close range. A high visual impact is assigned as the new development will stand out in the landscape. The visual impact will be permanent.
- Viewpoint 2 - Victoria Drive is immediately south of the study site and will be clearly visible in places. It is a busy road connecting Skoenmakerskop with the rest of Gqeberha. Some large trees do screen the site. A low visual impact is assigned as the development will blend in with the landscape. The visual impact will be permanent.
- Viewpoint 3 - Beethoven Drive is a road connecting residential houses along the northern boundary of the site. The entire site can be seen from the houses on the southern line of the road. Sensitivity is high with little to no screening (low VAC).
- Viewpoint 4 – Entrance to Algoa Kart Racetrack, no visual impact will occur from this vantage point given the high VAC of the viewpoint. The VAC is predominantly influenced by dense vegetation cover.



- Viewpoint 5 - Along Sardinia Bay Road near The Plantation, no visual impact will occur from this vantage point given the high VAC of the viewpoint. The VAC is predominantly influenced by dense vegetation cover.
- Viewpoint 6 - -- Sappers Hoek, no visual impact will occur from this vantage point given the high VAC of the viewpoint. The VAC is predominantly influenced by dense vegetation cover.

The following Potential Impacts have been identified:

- *Construction Phase*
  - The movement of construction vehicles, machinery and personnel on site shall result in a visual impact on surrounding users.
  - The excavation and construction of infrastructure shall result in disturbance and an unsightly character.
- *Operational Phase*
  - The development of the proposed development will cause a visual intrusion to observers within a 1 km radius from the proposed development.
  - The development of the proposed development will cause a visual intrusion to observers within a 2 km radius from the proposed development.

Several mitigation measures can be recommended to reduce the potential visual impact and visual intrusion potential of the proposed Arlington development. The development will bring landscape change to the parts of the landscape in the areas from which it is able to be viewed and this factor can be partly mitigated.

The following mitigations are proposed during the construction phase of the proposed Arlington development:

*Movement of Construction Vehicles*

Lighting at the plant could potentially exert a visual impact, especially if floodlight-type lighting is used. The following mitigation measures should be implemented with regards to lighting:

- Schedule the movement of construction vehicles and machinery so that they do not interfere with the normal working operations of the town.
- Only work during daylight time (06h00 to 17h00, Monday to Friday).
- Schedule deliveries so that delivery vehicles do not cause an unnecessary nuisance and so that the number of delivery vehicles is limited as far as possible.

*Excavation and Construction of Infrastructure*

- Prohibit excessive signage outside the construction area.
- Keep construction camp lighting to a minimum and prevent the use of flood type lighting as far as possible.
- Ensure that the site is kept neat and clean. Collect and dispose of litter appropriately to prevent any potential wind-blown litter on or off the site.
- Limit site clearing to within the minimum footprint required for construction.
- Retain existing trees along the boundaries of the property where possible.
- Rehabilitate areas as soon as possible following construction.
- Ensure working occur during daylight hours (08h00-17h00) and on weekdays only.

The following mitigations are proposed during the operational phase of the proposed Arlington development:

*Visual Intrusion to Observers within a 1km, 2km, 5km and 10km radius*

- Mitigation to minimize lighting impacts include the following:
  - Shielding the sources of light by physical barriers (walls, vegetation, or structures itself).
  - Limit mounting heights of lighting fixtures, or alternatively using footlights or bollard level lights.
  - Make use of downward directional lighting fixtures.
  - Make use of minimum lumen or wattage in lights, and
  - Use motion sensors to activate lighting ensuring light is available when needed.
- Rehabilitation and post-closure measures:
  - All temporary above-ground structures should be removed, safely disposed of, or possibly recycled for use elsewhere.

*Conclusions and Recommendations*

The proposed development will be highly visible over the first km from where the visual impact will be permanent. The immediate surrounding area consists of a residential development with retail and businesses especially to the north. The visual impact will be permanent from all identified viewpoints, especially existing roads. The proposed development will be visible along Glendore Road and Victoria Drive, while it will only be partially seen further away up to 2 to 3 kms. Greater distances are screened by vegetation, topography and existing urban infrastructure and will be indistinguishable from the surrounding built environment. **A low visual impact is assigned given the high VAC.**

**Terrestrial Biodiversity Assessment**

The findings of this report have indicated that the terrestrial biodiversity (fauna and flora) on the development site has been historically degraded with all the vegetative aspects on the site being secondary in nature. As such, the Animal and Plants Species Theme as well as the Terrestrial Biodiversity Theme on the site is considered to be LOW which is in contradiction with the findings of the DFFE Screening Tool.

The assessment of the potential impacts on the terrestrial biodiversity (fauna and flora) features has indicated that severity of these impacts on the ecology can all be mitigated with the implementation of the management and mitigation measures provided in this report.

As such, it is the specialist's opinion that with the implementation of the management and mitigation measures contained in this assessment, there are not fatal flaws associated with the aquatic ecological baseline that will prevent the application from being authorised.

*Faunal Species Compliance Statement*

A site visit was conducted on the 8<sup>th</sup> of March 2022, and the entire site was assessed. The following was found:

- The site is covered by grassland, thornveld, savanna and dens thicket patches interspersed with scatters infrastructure like buildings, stands, stores, etc. from when it was used as an equestrian racetrack. No fynbos exists.
- Habitats exist for various animal species, especially the dense thicket patches and the open vegetated areas where the racetrack used to be.
- Old buildings, rubble and other infrastructure are good habitats for various reptile species, especially snakes, lizards, and geckos.
- No surface water exists on site.
- No animal species of conservation concern were found on site. The risk of finding any is considered as low.

Based on the above, it is the opinion of the specialist that the land contained within the proposed study site is considered as **low sensitivity with zones of medium sensitivity** for the animal species theme. A full Animal Species Assessment is therefore NOT required. The proposed development may therefore proceed provided that the following mitigations are included into the EMPr:

1. A site representative must be trained in handling dangerous reptiles and scorpions during site construction. This person must inspect the construction site daily before activities start and relocate any snakes, spiders and scorpions if found in holes, trenches, plant, building, or office structures.
2. Animal Search and Rescue (S&R) of the entire site must be done by a qualified faunal specialist prior to commencement of any activity on site. All old buildings must be searched, and animals found must be relocated.

### **Agricultural Resource Impact Assessment**

The sensitivity analysis has identified that the Arlington development area has a Medium sensitivity. The following supports the above-mentioned findings:

#### Desktop Results

- DFFE screening assessment determined the agricultural sensitivity to be dominantly High sensitivity.
- The project is not within a crop field boundary.
- The desktop soil capability rated the project area as High.
- The desktop land capability rated the project area as Moderate-High.

#### Site Assessment Results

- Land capability was determined as low arable potential with severe limitations.
- Land potential was determined to be L4 (Moderate potential); and
- Land use showed no agricultural activity with large areas being landscaped.

#### Agricultural Specialists Recommendations

The potential impacts from the Arlington development include:

- Erosion of exposed soil surfaces.
- Hydrocarbon contamination by heavy machinery.
- Contamination from human waste, both organic and inorganic.
- Proliferation of alien vegetation in disturbed areas; and
- Increased runoff and altered surface and sub-surface flow dynamics.

*These aspects are to be managed to minimise any potential impacts:*

- Erosion control.
- Ablution blocks.
- General waste from people moving into the area.
- Stormwater management; and
- Risks from oil/hydrocarbon spills from vehicles should be mitigated.

*Agricultural Specialists Acceptability Statement*

The specialist opinion is that the proposed project be considered favourably as the DFFE screening tool value of High sensitivity was disputed to be Medium only for the Arlington development by confirming the project was not within any crop farming boundaries. This was further strengthened by the detailed in-field survey confirming the land potential to have a moderate land potential with severe limitations to agriculture.

**Avifaunal Assessment**

A site inspection conducted by the avian species specialist found that the land use on the proposed site appear to be in overall line with the results of the screening tool and online resources, with some intact habitat suitable for SCC present.

Summer is considered to be an appropriate timing for the survey, and relevant to the assessment for the SCC which are at most risk from the proposed development.

*Local Context and Fieldwork Results*

The proposed development site is located on a derelict former racecourse property, within the residential area of Walmer, Gqeberha. The vegetation types of the site are mapped as Algoa Sandstone Fynbos (Critically Endangered) and Sardinia Forest Thicket (Least Concern). There are no NFEPA rivers or wetlands within the proposed development site or the PAOI. The site does not contain any mapped Critical Biodiversity Areas (CBA) or Ecological Support Areas (ESA), but a CBA is mapped in the north-west of the PAOI.

*Predicated and observed species, highlighting Species of Conservation Concern (SCC)*

None of the potential SCC are confirmed or highly likely to be present. However, two SCC, the Knysna Warbler (*Bradypterus sylvaticus*) and Knysna Woodpecker (*Camphethera notata*) have a likelihood of occurrence of medium, and using the pre-cautionary approach were determined as likely present within the PAOI. The remainder were determined to have a low likelihood of occurrence in the PAOI and were determined as unlikely to be present. The number of SCC recorded during the site visit was nil.

### Current Impacts

Large areas of the site have been transformed by previous activities and much of the remaining vegetation appears to be in a degraded condition invaded by alien invasive species with only patches of intact thicket remaining in the western section of the site.

### Site Ecological Importance

Two avifaunal habitat types were identified within the PAOI: Forest thickets and fynbos shrub.

- *Forest Thicket Habitat*

Forest thicket is suitable habitat for Knysna Warbler (Vulnerable) and Knysna Woodpecker (Near threatened) which potentially occur in the PAOI. An area of approximately 6.76 ha of intact and semi-intact forest thicket habitat is located within the development footprint.

The resulting Site Ecological Importance rating for forest thicket was determined as medium, which means that development activities of medium impact would be acceptable if followed by appropriate restoration activities.

- *Fynbos Shrub Habitat*

Fynbos shrub is suitable for a variety of SCC all of which have a low probability of occurrence for the PAOI. This is due to the location of the site within an urban area and the habitat within the site being largely transformed, degraded and invaded with aliens. An area of approximately 22 ha of semi-intact fynbos habitat is located outside of the proposed development footprint within the east of the PAOI and would not be lost by the proposed development proceeding.

The resulting Site Ecological Importance rating for fynbos shrub was determined as medium, which means that development activities of medium impact would be acceptable if followed by appropriate restoration activities.

### Avifaunal Sensitivity and Constraints

Based on the potential occurrence of SCC, available avifaunal habitats and current impacts on the site, the development area is deemed to be of low and medium avifaunal sensitivity. An area of intact forest thicket in the north-west of the PAOI, mapped as a CBA1 was determined as of high avifaunal sensitivity with no development supported.

Development within the intact CBA1 is however not proposed and no areas of high sensitivity and resulting no-go areas were identified within the proposed development site itself. Development within the medium sensitivity areas should be avoided and minimised as much as possible.

The proposed layout avoids all areas of high sensitivity and the majority of areas of medium sensitivity within the PAOI. An area of up to 6.8 ha of forest thicket of medium avifaunal sensitivity within the development footprint could be lost by the proposed development layout, however it appears that the layout partially avoids this area, and parts of this area is mapped to become public open space (POS3) in the proposed development layout.

#### Site Sensitivity Verification (in terms of the National Web-based Screening Tool)

The National Web-based Screening Tool identified the PAOI as of high sensitivity for five avian Species of Conservation Concern (SCCs). The specialist site sensitivity verification confirmed the likely presence of one of these SCC (Knysna Warbler – *Bradypterus sylvaticus*) and determined the remaining four to be unlikely to occur. One further SCC, Knysna Woodpecker (Near threatened), was identified to be potentially present by the specialist site sensitivity verification.

The site sensitivity verification therefore confirms the outcome of the screening tool classification of the site as high due to the potential presence of SCC and confirms that an avian species specialist impact assessment report (this report) must be submitted with an application for environmental authorisation.

#### Description of Identified Impacts and Available Mitigation Measures

The following potential impacts on avifauna by the proposed development were identified for the construction phase:

- Disturbance.
- Habitat loss.

The following potential impacts on avifauna by the proposed development were identified for the operational phase:

- Disturbance.
- Habitat loss.

The proposed development is considered to be permanent, therefore a decommissioning phase has not been assessed.

#### Disturbance

Disturbance during the construction and operational phases can negatively affect all avifauna on an individual or population level by increasing stress, decreasing food and habitat availability, causing displacement into potentially less suitable neighbouring environments, and ultimately potentially decreasing reproductive success. This is particularly true for resident breeding species, some of which are shy, secretive and not habituated to human activities.

Disturbance can be managed and mitigated at the design stage by avoiding important nesting, roosting and foraging areas of sensitive species during site selection and layout design. Landscape features within the site that are potentially frequented by sensitive species or constitute potential or confirmed breeding areas for sensitive species, such as wetlands, ridges, and drainage lines, should be avoided and demarcated as No-go areas. Due to the transformed nature of the majority of the site no high sensitivity (no-go) areas were identified within the proposed development site, and only found in the PAOI. The loss of intact and sensitive avifaunal habitat has thereby been minimised.

The following additional mitigation measures can minimise impacts further:

- The footprint of disturbance must be kept to a minimum surrounding the development footprint, during construction and must be demarcated.
- The CBA area to the north-west of the site within the PAOI must be demarcated as a no-go area during construction and operation.
- In order to ensure no SCCs are breeding within the proposed disturbance footprint prior to the commencement of construction activities, a walkthrough of the site should be conducted by the ECO for the project within two weeks of commencement of construction activities.
- An avian species specialist must train the ECO in the identification of the SCCs (identified as potentially present in the area in this report), if required, and the presence, location and behaviour thereof during any site visits must be reported to the avian species specialist following each site visit.
- Should any SCC be found breeding within the development footprint at any point during construction, all works within 250 m of the breeding site must be halted, and the avian species specialist must be contacted for further instruction.
- Should any SCC be found breeding within the site boundary at any point during operation, the area must be cordoned off and the avian species specialist must be contacted for further instruction.

#### Habitat Loss ad Displacement

Any transformation of vegetation leads to habitat loss for avian species utilising that vegetation, causing displacement into areas which are potentially less suitable or already occupied by competing individuals or species. No areas of high avifaunal sensitivity were identified and development within areas of medium sensitivity should be minimised as far as possible.

#### Discussion and Conclusion

The Site Ecological Importance rating of medium indicates that the site is potentially suitable for development if appropriate mitigation measures and rehabilitation measures are implemented.

The proposed development footprint avoids all areas identified as of high sensitivity for avian species, which are located outside of the proposed development footprint within the PAOI. The proposed development does include the loss of areas of medium avifaunal sensitivity, but as the footprint of this has been minimised, and some areas will be retained, this is considered acceptable from an avifaunal perspective.

The impact assessment has identified potential impacts to avian species, most of which can be mitigated to a low level. Due to the footprint of the proposed development, some loss of SCC habitat is however unavoidable, and even with mitigation this impact is expected to be of medium negative significance for the SCCs that potentially occur (with a medium probability of occurrence) in the habitat that will be lost and could be displaced. These are Knysna Woodpecker and Knysna Warbler. However, due to none of these species having a high probability of occurrence on the proposed development site, and existing disturbance on the site, this loss of habitat is not deemed to have unacceptably high impacts on these species.

The contribution of the proposed development on the cumulative impact of development in this urban area is considered to be low.

It is therefore the avian species specialist's reasoned opinion that the development can proceed as proposed without unacceptable impacts on avian species if all mitigation measures are implemented as recommended.

### **Phase 1 Archaeological and Cultural Impact Assessment**

No archaeological, historical or other heritage material, sites or features were identified during the survey for the proposed Arlington multiple-use development, Walmer, Gqeberha, Nelson Mandela Bay Municipality, Eastern Cape Province. This is due to dense grass / transformed vegetation and some dense thicket vegetation that covers the entire landscape of the proposed development.

However, previous surveys conducted within the surrounding area, especially, towards coastline have recorded historical material dumped within the Driftsands and shell middens extending along the coastline. The proposed development site is located within 5 km of the nearest coastline, which is generally considered an archaeologically sensitive area, up to 5 km, but can extend further inland considering varying landscapes.

An exposed dune surface area has exposed an archaeological site at the eastern end of the Walmer Heights residential area, about 300 m – 400 m of the proposed Arlington development. An archaeological human burial was found exposed during 2019 by a member of the public which was investigated and removed by the Walmer South African Police Services (SAPS) and is currently being housed at the Albany Museum, which is the provincial archaeological repository in the Eastern Cape Province.

Arlington itself, previously St Andrews Racing Club, was opened on Saturday 23 December 1950, by the then Mayor of PE, Mr J.C.K. 'Boet' Erasmus. In October 2007, a new stabling complex was completed at Fairview and all the trainers based at Arlington moved across ([www.sportingpost.co.za/arlington-closes-fond-farewell-to-arlington](http://www.sportingpost.co.za/arlington-closes-fond-farewell-to-arlington)). It can be assumed that most of the remaining buildings, therefore, are older than 60 years and are protected under Section 34 of the National Heritage Resources Act 25 of 1999. A demolition permit is required from the Eastern Cape Provincial Heritage Resources Authority (ECPHRA). It is suggested that a built environment specialist or an historical architect be approached to conduct a built environment heritage assessment and advise on the permit application process.



### Recommendations and Mitigation

The proposed development can be considered as having a *low archaeological heritage significance* from the lack of archaeological material, sites, and features identified during the survey. However, due to the proposed development site's location within an archaeologically sensitive coastal zone and a known archaeological site occurring 300m – 400 m east of the site, as well as the results of previous archaeological and cultural heritage assessments, the proposed development area within the wider cultural landscape can be considered as having a *medium – high archaeological heritage significance*.

Development may proceed as planned however the following recommendations must be considered prior to the commencement of development:

1. A built environment specialist or an historical architect be approached to conduct a built environment heritage assessment and advise on the permit application process for the demolition of the remaining buildings.
2. A professional archaeologist must be appointed, at the expense of the developer to monitor all excavations for the proposed development. The archaeologist must mitigate in the instance of sites being uncovered during the course of the excavations. Phase 2 mitigation in the form of test-pitting/sampling or systematic excavations and collections of the findings will then be conducted to establish the contextual status of the sites and remove the archaeological deposit before development activities continue.
3. Construction managers/foremen and/or the Environmental Control Officer (ECO) should be informed before construction starts on the possible types of heritage sites and cultural material they may encounter and the procedures to follow when they find sites.
4. If concentrations of pre-colonial archaeological heritage material, historical archaeological material, and/or human remains (including graves and burials) are uncovered during construction of the proposed development and / or future excavations for individual graves, all work must cease immediately and be reported to the Albany Museum (046 622 2312) and/or the Eastern Cape Provincial Heritage Resources Agency (ECPHRA) (043 745 0888) so that systematic and professional investigation/excavation can be undertaken. Phase 2 mitigation in the form of test-pitting/sampling or systematic excavations and collections of the findings will then be conducted to establish the contextual status of the sites and remove the archaeological deposit before development activities continue.

### Conclusion

The purpose of the study was to conduct an archaeological and cultural heritage assessment for the proposed development of the Arlington multiple-use development, Walmer, Gqeberha, Nelson Mandela Bay Municipality, Eastern Cape Province.

The survey was conducted to establish the range and importance of the exposed and in situ archaeological heritage material remains, sites and features; to establish the potential impact of the development; and to make recommendations to minimize possible damage to the archaeological heritage.

The proposed development can be considered as having a low archaeological heritage significance from the lack of archaeological material, sites, and features identified during the survey. However, due to the proposed development site's location within an archaeologically sensitive coastal zone and a known archaeological site occurring 300m – 400 m east of the site, as well as the results of previous archaeological and cultural heritage assessments, the proposed development area within the wider cultural landscape can be considered as having a medium – high archaeological heritage significance.

The recommendations must be considered prior to the commencement of development and implemented during the course of development and be included as part of the environmental management plan for the project.

### **Palaeontological Impact Assessment**

The area was surveyed, and it was established that it had previously been highly disturbed, with most of the area having been artificially landscaped to produce an equine racetrack and associated spectator area. In addition, most of the area was vegetated, with the least disturbed western portion of the area being mantled by impenetrably thick vegetation. As a result, natural exposure of underlying strata was minimal.

Small amounts of outcrop in the extreme west of the area include semi consolidated aeolianites consistent with the Nanaga Formation. These aeolianites were, in places, rich in rhizocretes (calcareous root moulds), with a number of terrestrial gastropod species represented by preserved shells. These findings are, however of extremely low palaeontological significance.

There remains the possibility that construction work during development may disturb large vertebrate (eg. mammal) bones, either as isolated occurrences or accumulations made by humans or hyaenas. Should this occur, excavators should be diverted to other areas and a palaeontologist should be informed to assess the occurrence for possible sampling.

### **Aquatic and Wetland Assessment**

No NFEPA Rivers were identified in to be within the development sites.

The National Freshwater Ecosystem Priority Areas (NFEPA) project provides strategic spatial priorities for conserving South Africa's freshwater ecosystems and supports sustainable use of water resources. There priority areas are called Freshwater Ecosystem Priority Areas, or "FEPAs". No wetlands have been identified within a radius of 500m of the development sites.

A South African Inventory of Inland Aquatic Ecosystems (SAIIAE) was established during the National Biodiversity Assessment of 2018 (NBA 2018). The SAIIAE offers a collection of data layers pertaining to ecosystem types and pressures for both rivers and inland wetlands.

The SAIIAE builds on previous efforts while also introducing improvements and several new elements. An inventory of inland aquatic ecosystems responds to a multi-stakeholder need for the planning, conservation

and management of these systems, as mandated by a number of Legislative Acts, including the South African National Water Act (Act No. 36 of 1998) (NWA) and the National Environmental Management: Biodiversity Act (NEMBA).

The dataset indicates the presence of four wetland features within a 500m radius of the development site. These features are identified as “Depression Wetlands”.

#### Identification, delineation and mapping of aquatic features

The site assessment confirmed the absence of any natural wetland features within the study areas. In addition, no wetland features were identified within a 500m radius of the development properties. The wetland features included in the Wetland Map5 were visited and found to not be “Depression Wetlands” as per the dataset. These areas are areas of disturbance in the vegetation that has developed a grass covering consisting of *Stenotaphrum secundatum* (Buffalo Grass).

No watercourse features were identified within the boundaries of the development site or within a 100m radius of the development site.

As no aquatic features were identified either on the development site or within a 500m radius of the site, no further assessment in this regard was necessary.

#### Risk/ Impact Assessment

As no aquatic features were identified either within the boundaries of the development site or within the distances specified to determine the “regulated area of a watercourse” the completion of a Risk Assessment was not necessary.

#### Compliance Statement

As the Site Sensitivity Verification completed in the sections, above, has indicated that the Aquatic Biodiversity of the proposed development site is considered to be “LOW”.

The classification Aquatic Biodiversity Theme in the DFFE Online Screening Tool of “very high” sensitivity is related to the development site’s presence in the Tsitsikamma SWSA. The nature of the development will not impact on the SWSA’s status as it will not result in the impeding of any surface runoff into the localized groundwater regime, and it will not influence the amount of water that is currently provided by the development through runoff and seepage. As such, the “very high” sensitivity of the development site is considered to be “low”.

#### Aquatic and Wetland Specialist – Management and Mitigation Measures (Construction Phase)

- All plant and equipment that make use of petrochemical substances must be checked leakages on a daily basis before operations commence.

- All plant and equipment that are found to be leaking must be removed from the site and only returned once the leakages have been addressed.
- If any petrochemical substances are stored on the site, this storage must be done on an impermeable surface in a bunded area that makes provision for 110% of volume of the substances that are stored.
- All refuelling of plant and equipment must be conducted over a drip-tray.
- If any plant or equipment is to be parked on the site, these must be parked within the demarcated construction footprint that has been cleared.
- If any spillages from plant or equipment occur, the spill must be contained immediately, the contaminated soils must be collected and bagged in impermeable bags and stored on site to be removed and disposed of by a registered service provider.
- The domestic waste from these waste bins must be removed off site and disposed of at a municipal landfill site on a weekly basis or more regularly if the bins fill up quicker.
- Only portable chemical toilets with a sealed reservoir will be allowed on site.
- All portable chemical toilets must be located further than 30m away from the delineated edges of any aquatic feature.
- The capacity of the reservoirs in the portable chemical toilets must be monitored on a daily basis to ensure that they can be serviced timeously.
- All removal of the collected sewage waste from the portable chemical toilets must be conducted by a registered service provider for disposal at a municipal wastewater treatment facility.

### **Conclusion**

No part of the proposed development site is located within the “regulated area of a watercourse” as defined by the National Water Act (Act No. 36 of 1999). As such, there will be no requirement for the completion of any Water Use License Application for Section 21 (c) and (i) for the development.

Similarly, no part of the development is in any aquatic feature or within 32m of any aquatic feature, as such there will be no requirement for any Application for Environmental Authorisation in accordance with the National Environmental Management Act (Act No. 107 of 1998): Environmental Impact Assessment Regulations (2014), as amended.

The classification Aquatic Biodiversity Theme in the DFFE Online Screening Tool of “very high” sensitivity is related to the development site’s presence in the Tsitsikamma SWSA. The nature of the development will not impact on the SWSA’s status as it will not result in the impeding of any surface runoff into the localized groundwater regime, and it will not influence the amount of water that is currently provided by the development through runoff and seepage. As such, the “very high” sensitivity of the development site is considered to be “low”.

As no aquatic feature will be impacted upon, it is the recommendation of this report that there is no reason why this development cannot be authorised.

### **Socio-Economic Assessment**

Although some negative impacts have been identified in this report, they are significantly outweighed by the positive impacts associated with the proposed development. Negative impacts can be managed through the proper implementation of mitigations and the involvement of all affected parties from inception stages, prior commencement of construction.

In consideration of the fact that many of the socio-economic impacts cannot be prevented, management responses as opposed to preventative actions, are proposed to mitigate the severity of the negative impacts or to maintain and improve the positive impacts. Therefore, it is highly recommended that the management/enhancement measures provided in this report must be implemented and incorporated into the Environmental Management Programme of the EIA.

None of the impacts identified and assessed as part of this SIA are considered to be fatal flaws. The assessment revealed that all identified impacts can be mitigated, thus reducing the significance of the impacts. While the development may have short-term negative impacts, they are all outweighed by the positive long-term impacts. The development will significantly contribute to the development of the NMBM area, both socially and economically.

### **Traffic**

Following the investigation and analysis it is concluded that:

- i. The current operating conditions on the road network within the study area are found to be acceptable with no LOS or capacity failures, except for the Victoria Drive/Buffelsfontein Road intersection.
- ii. The posted speed limit of 60 km/h along both Victoria Drive and Glendore Road, in the vicinity of the site accesses, is appropriate for the current and expected future traffic conditions.
- iii. The existing critical peak, in terms of traffic volume, was found to be the AM peak hour while the PM peak hour tested similarly but with marginally lower demands.
- iv. Once developed and fully occupied, the proposed development may be expected to generate in the order of 1130 and 1310 new vehicle trips in AM and PM commuter peak hours respectively. This is considerably higher than the estimated 880 new trips in the SAT peak.
- v. The combined critical peak hour of existing and development trips is found to be the AM peak hour.
- vi. The network is not overloaded when development trips are assigned for any of the given tested peak hours, subject to the recommended road network improvements being undertaken.
- vii. The proposed changes to the layout and road network, adequately serve the proposed development.
- viii. The development is of a magnitude that suggests that a pavement assessment be conducted to determine the structural integrity of the existing roads.

### Recommendations

Based on the investigation and conclusions it is recommended that:

- i. This Traffic Impact Assessment (TIA) be submitted to the Nelson Mandela Bay Municipality (NMBM) and the Eastern Cape Department of Transport (ECDOT) for their perusal.
- ii. The development proposal, that is the proposed rezoning, consolidation and subdivision of the following properties: Erven 10653/4, 3988, 6991 and Remainder of Erf 4195, Gqebera, as submitted and reflected herein, being approved in principle from a traffic impact perspective by the NMBM and the ECDOT. Once the comments are received from the ECDOT, these comments will be forwarded to NMBM for consideration.
- iii. The site layout changes, being made a condition of approval. The required internal road network improvements to be made by the development are as follows:
  - a. parking layout,
  - b. disabled parking bays,
  - c. loading bays,
  - d. control strategy, and
  - e. traffic calming.
- iv. The road network improvements, as listed below to being made a condition of approval. It should however be noted that these improvements may change subject to subsequent investigations in consultation with the road authority. The required public road network improvements to be made to accommodate the development are as follows:
  - a. The construction of a traffic circle at the Glendore Road/Unnamed Road/Access Road and Victoria Drive/Glendore Road intersections.
  - b. Traffic signals, with additional turning auxiliary lanes, being introduced at the Genadendal Road/Buffelsfontein Road intersection.
  - c. The construction of additional lanes, together with changes to the traffic signal phasing and timing, being implemented at the Victoria Drive/Buffelsfontein Road intersection.
  - d. The construction of two public transport bays, one on both of the exits to the Glendore Road/Unnamed Road/Access Road intersections, as well along Victoria Drive at the Victoria Drive/Glendore Road intersection.
  - e. Construction of raised pedestrian tables on all the approaches to the proposed traffic circles.
  - f. An adequate pedestrian and vehicle proof fence/wall being erected along the property boundary with Glendore Road.
  - g. Construction of surfaced pedestrian sidewalk along the internal roads within the development.
  - h. Construction of surfaced pedestrian sidewalk along the western side of the DR01908 between end of the existing sidewalk and the southern access.
  - i. Construction of strategically located raised pedestrian table along the internal road network and at the internal and external traffic circles.
- i. Parking and loading bays being provided as per Table C.1. This is subject to a successful parking departure application. Should the parking departure application not be successful, then the parking

- is to be provided as per Reference Eight, i.e. Port Elizabeth Zoning Scheme Regulations. This will require the SDP to be amended accordingly.
- ii. The developers civil engineer responsible for the roads, undertake the necessary pavement assessment on the surrounding road network. The findings of the assessment must be forwarded to the NMBM for consideration.
  - iii. All costs associated with the internal roads, as indicated in Figure 5.1, being solely to the Developer's account.
  - iv. All costs associated with the recommendations, as listed in "iv", being solely to the Developer's account. It is however suggested that the Developer approach the NMBM to determine whether they would consider a contribution towards the cost of improvements to the Victoria Drive/Buffelsfontein Road intersection as this intersection is currently operating at a poor LOS without the development trips being taken into consideration.

It should be noted that all figures represented in the Traffic Impact Assessment are concept drawings only and are not to be used for construction purposes. These concept drawings are to be developed into engineering drawings by the Developer's appointed civil engineer. The engineering drawings are then to be approved by the relevant road authority officials prior to construction.

#### **Glint and Glare Assessment**

The assessment was conducted with the objective of determining how 'glint' and 'glare' will affect aviation receptors such as pilots on final approach to the airport, as well as the Air Traffic Control Tower (ATCT). These aviation receptors operate at the Chief Dawid Stuurman International Airport (ICAO code: FAPE) in Gqeberha, Eastern Cape.

If the 'glint' and 'glare' effects are strong enough, it has the potential to cause temporary flash blindness in the receptors and hinder their abilities to conduct their operations. The glare is rated in three categories, namely as green, yellow, and red with red being the highest risk from an aviation perspective as an after image could occur.

The modelling results indicate that the FP Runway 35, FP Runway 26, and Air Traffic Control Tower will be exposed to green glare only. No receptors will be exposed to yellow or red glint and glare during the landing phase of flight. This is due to the fixed axis Solar PV arrays being positioned on the northern side of the aviation receptors and angled towards the north.

Green glare has a low potential to cause temporary flash blindness and is therefore acceptable in terms of the United States FAA Regulations. Furthermore, the model does not take into account building heights, these buildings will obstruct the line of sight from the Air Traffic Control Tower to the Solar panels and therefore further prevent glint exposure to the Tower.

It is therefore recommended that the project receive authorisation from the Civil Aviation Authority from a glint and glare perspective.

### ICAO Annex 14 Obstacle Limitation Surfaces (OLS) Report

This report contains the details of the ICAO Annex 14 obstacle limitation surfaces with consideration for the proposed Arlington solar PV development located approximately 1.5NM (2.8km) west of Chief Dawid Stuurman International airport, Eastern Cape, South Africa.

The proposed Arlington solar PV development lies within the Inner Horizontal surface of the FAPE OLS, which is the controlling surface.

As such any structures within the proposed Arlington solar PV development should not exceed the maximum elevation of 101m AMSL in order to remain clear of the FAPE ICAO Annex 14 Obstacle Limitation Surfaces.

Given the nature of the terrain surrounding the proposed PV development, as well as the obstacles indicated in the AIP for FAPE, Annex 14 Vol 1, 4.2.20 allows for the appropriate authority to potentially apply the shielding principle to the proposed PV development.

### Impacts Associated with the Development

The following potential environmental impacts have been identified by the EAP and have been investigated during the application process:

- Permanent Loss of Indigenous Vegetation.
- Spreading of Alien Invasive Plant Species.
- Erosion as a result of construction related disturbances.
- Contamination & Pollution Impact (associated with construction activities).
- Dust & Noise Impact (associated with construction activities).
- Faunal Impact – Loss of Habitat.
- Avifauna Impact – Disturbance
- Avifauna Impact – Habitat Loss

### Environmental Impact Statement

#### *Summary of Key Findings of Impact Assessment – during Construction, Operational and Decommissioning Phase Impacts (before and after mitigation).*

The table below is a summary of the projected impacts that could take place during the construction phase of the development and the associated significance of the impact, post mitigation. These results have been informed by the specialist impact assessment reports undertaken to support this EIA.

Construction Phase Impacts			
Impact	Preferred Alternative: Preferred Site Layout		No-Go Alternative
	Impact Significance (before mitigation)	Impact Significance (after mitigation)	



Permanent Loss of Indigenous Vegetation	Medium	Low	N/A
Spreading of Alien Invasive Plant Species.	High	Medium	N/A
Erosion as a result of construction related disturbances	Medium	Low	N/A
Contamination & Pollution Impact (associated with construction activities)	Medium	Medium	N/A
Dust and Noise Impact (associated with construction activities)	Medium	Negligible	N/A
Faunal Impact – Loss of Habitat	High	High	N/A
Avifauna Impact – Disturbance	Medium	Low	N/A
Avifauna Impact – Habitat Loss	Medium	Medium	N/A
Contamination of the area by petrochemical spillages.	Medium	Low	N/A
Heritage Impact	Medium	Medium	N/A
Socio Economic Impact – Demographic Changes (Influx of Jobseekers)	High	Medium	N/A
Institutional Changes Impact – Pressure on Existing Public Services	High	Medium	N/A
Economic Changes – Local Economical Spin Offs	Medium	Low	N/A
Social Cultural Changes – Employment Opportunities	Medium	Low	N/A
Skills development and Capacity Building of workers and local SMMEs	Medium	Low	N/A
Disruption in daily living and movement patterns	Medium	Low	N/A
Health and Safety Risks for Workers and Surrounding Community	High	Low	N/A
Safety and Security Risk	High	Low	N/A
Disruption and changes to the quality of the living environment	Medium	Low	N/A
Movement of Construction Vehicles	High	Medium	N/A
Excavation and Construction of Infrastructure	High	Medium	N/A
<b>Operational Phase</b>			
Demographic Changes – Employment Opportunities	Low	Medium	
Impacts on Local Economy	Low	Medium	
Avifauna – Habitat Loss	Medium	Medium	
Avifauna - Disturbance	Low	Low	
Visual Intrusion to Observers within a 1 km radius	High	Medium	
Visual Intrusion to Observers within a 2 km radius	High	Medium	
<b>Decommissioning Phase Impacts</b>			
Social Cultural Changed – Disruption in Daily Living and Movement Patterns	Medium	Negligible	
Displacement of Families	Low	Negligible	

Economic Changes – Employment Opportunities	Low	Negligible
Loss of Employment Opportunities	Medium	Medium

The following conclusions can be drawn from the impact assessment findings as shown in the impact tables above for the **operational phase**.

- The development is typically mixed use and includes facilities for businesses. This will result in employment opportunities, albeit fewer than the construction phase.
- During the operation phase, the development may result in local economic opportunities for surrounding businesses. There will also be an opportunity for the establishment of new or expansion of existing businesses due to increased population in the area.
- The local municipality will benefit with the income from rates and taxes that will be collected from the developers.
- Though at a very low level, local businesses may benefit from the supply of maintenance equipment.
- The proposed development footprint avoids all areas identified as of high sensitivity for avian species, which are located outside of the proposed development footprint within the PAOI. The proposed development does include the loss of areas of medium avifaunal sensitivity, but as the footprint of this has been minimised, and some areas will be retained, this is considered acceptable from an avifaunal perspective.
- The loss of indigenous vegetation can be compensated for by the use of indigenous vegetation in the landscaping of the public open space areas within the development.
- All Land Scaping within the public open space areas within the development must make use of the establishment of indigenous vegetation.
- Alien invasive plant species may settle on the development site during operations.
- The conservation of the secondary Sardinia Forest Thicket fragment will result in the creation of bird habitat.
- Conservation measures to improve the vegetative biodiversity within the stand (removal of alien plant species, replacement with appropriate indigenous species, etc.). This should be informed by a qualified Botanist.
- Management measures particularly along the edges of the stand to prevent the establishment of alien invasive plant species along these edges

#### **EAPS Reasoned Opinion and Recommendations**

The proposed project will be located on erven 3988, 4195, 6991, which is earmarked for a Multiple-Use Development and forms part of the urban edge and links directly with established urban infrastructure.

This development will promote social, economic, and environmental sustainability, through the following mechanisms:

- The proposed development will be a mixed-use residential & social housing with up to an additional 3000 units for the area, consisting of roads and parking areas, together with green park areas within different sections.
- The project will be resource efficient through resource management ideas such as the improvement of water distribution network, rainwater management, digital smart meters, renewable energy

generation, sustainable drainage, reduction of water generation, optimisation of waste management.

- The development will integrate 4IR & ICTs infrastructure and smart mobility.
- The development will include, retail, business, office and storage sites, residential units, retirement units, a “Digi 4RI” centre, solar facility, and an early childhood development centre.

The goal of the proposed development is to ameliorate the contemporary urban disconnect with nature by the holistic improvement of urban spaces, integrating aspects of nature into urban environments by considering how the built environment contributes to our health and well-being and employing practical methodologies for the effective design thereof, we not only design favourable environments, but sustainable environments as well.

Activity nodes are incorporated for residents and the extended urban environment to come together to interact. These nodes are in the built form and very often are elements of urban space which foster societal cohesion of the neighbourhood.

**The proposed multiple-use development will create the following for the future of the area:**

- Ensure greater **social diversity** through an integrated housing development.
- Allow a broader range of housing types, such as cottage clusters, town homes, and other “missing middle” typologies.
- Facilitate the development of lower-cost housing typologies with **dignity**.
- **Prevent segregated** communities –combination of LSM housing typologies.
- Create a community where individuals regardless of their race or socioeconomic background can **live together** with a diverse housing inventory.
- Create a robust **multifamily preservation strategy**.
- **Stimulate investment** in surrounding areas through a deliberate direction for future growth.
- Creatively utilize land asset to **stimulate economic** development.
- **Promote desired change** through perceived and tangible economic perspective of surroundings.
- Promote an enhanced **community’s liveability**.
- Support needs of **existing and future** residents.
- **Strengthen the community** by fostering its racial and socioeconomic diversity.
- Desirable secure location for people to **live, work, and play** facilitating the current Covid related work from home.
- Create new opportunities for **home ownership** of the future younger generations.
- Increase housing **opportunities** for people of all ages, income levels, races, and backgrounds.
- Improve housing conditions through **quality environment and security**.

With the current economic situation in South Africa, job creation is of utmost importance. The proposed project comprises of various developments and thus many jobs could be created. The statistics indicate the Nelson Mandela Bay Municipality has an unemployment rate of 36.6 % (<http://www.statssa.gov.za>). According to these statistics new job creation is needed to stem the rising unemployment rate.

## **Feasible and Reasonable Alternatives**

### **Development Footprint**

An alternative viable site location was not identified and evaluated for the project. The specific proposed location for the multi-use development is preferred as it is the only property of its size in the Arlington area which:

- The site is currently vacant and does have abandoned buildings and infrastructure (i.e the race course stadium, betting office, horse stables etc).
- Is located adjacent to existing developments and therefore requires minimal extension of bulk service infrastructure.
- According to the Nelson Mandela Bay Municipality’s Bioregional Plan (2015) - a CBA is located less than 65 m northwest of the proposed site footprint and there are a few ESAs surrounding the proposed development, however, none of them are within critical proximity to the proposed development.
- Is easily accessible via two (2) existing roads (Entrance Gate 1 from Glendore Road and Entrance Gate 2 will be off Victoria Drive onto the Racecourse Road).
- Is owned by a landowner willing to become involved in a development of this nature.

### **Type of Activity to be undertaken**

This development will aim to promote social, economic, and environmental sustainability. The project will be resource efficient through resource management ideas such as the improvement of the water distribution network, rainwater management, digital smart meters, renewable energy generation, sustainable drainage, reduction of water generation, optimisation of waste management.

### **The two activity alternatives for the proposed development are:**

- 1) The preferred option of the implementation of the proposed development; and
- 2) The no-go development option.

**The preferred activity option would infer that the construction of the proposed multiple-use development be undertaken within the preferred development area to address the following:**

- Ensure greater social diversity through an integrated housing development.
- Allow a broader range of housing types, such as cottage clusters, town homes, and other “missing middle” typologies.
- Facilitate the development of lower cost housing typologies with dignity.
- Prevent segregated communities’ combination of LSM housing typologies.
- Create a community where individuals regardless of their race or socio-economic background can live together with a diverse housing inventory.
- Create a robust multifamily preservation strategy.

- Stimulate investment in surrounding areas through a deliberate direction for future growth.
- Creatively utilize land asset to stimulate economic development.
- Promote desired change through perceived and tangible economic perspective of surroundings.
- Promote an enhanced community's liveability.
- Support needs of existing and future residents.
- Strengthen the community by fostering its racial and socioeconomic diversity.
- Desirable secure location for people to live, work, and play facilitating the current Covid related work from home.
- Create new opportunities for home ownership of the future younger generations.
- Increase housing opportunities for people of all ages, income levels, races, and backgrounds.
- Improve housing conditions through quality environment and security.

*The no-go development option is neither advised nor feasible for the proposed development as:*

- The potential for short to medium term local job creation and skills development opportunities associated with the site establishment and construction of the proposed housing development will not be realised. Unemployment within the local municipality stands at 27.7%.
- Framework of the municipality as specified in the IDP.

In the case that the "no-go" alternative is exercised, the existing site will remain as open is and remain undeveloped.

*Design Layout*

The Preferred Layout of the mixed-use development (dated 14/08/2023) includes the establishment of eight (8) land-use zones; namely: Residential 2, Residential 4, Business 2, Business 1, Community 1, Special Use High Tech Industry, Special Purposes Infrastructure, Private Open Space, comprising of differing extents.

*Technology*

Preferred technologies have not yet been investigated for the project; however, best practice construction and implementation is recommended for all infrastructure associated with the project.

Potential alternatives that must be investigated for the proposed development will include:

- Environmentally friendly technology and designs regarding the construction of housing and associated infrastructure such as:
  - Solar power for geysers and general electricity.
  - Efficient rainwater harvesting.
  - Energy efficient lighting (within the houses and streets) and general appliances.
  - Water saving devices such as aerated taps and dual flush toilets.
  - A wastewater treatment works in the form of a Bio-Rotor Treatment System, or similar, is proposed for the treatment of effluent from the northern catchment.

- Waste minimisation activities during the construction and handover phases including the recycling of generated waste, where possible.

Additional feasible technology alternatives will be investigated further and refined during the EIA phase of the proposed development.

#### Operation Aspects

The preferred and only operational aspects of the activity involve the maintenance of infrastructure and general service delivery to the area. No alternatives to the operation aspect of the proposed development have been considered.

#### “No-Go” Alternative

The no-go alternative must be included in the assessment phase as the baseline against which the impacts of the other alternatives are assessed. The no-go alternative assumes that the proposed project will not go ahead i.e., the proposed multiple-use development will not occur and therefore the site will remain as.

#### Visual Impact Assessment

The proposed development will be highly visible over the first km from where the visual impact will be permanent. The immediate surrounding area consists of a residential development with retail and businesses especially to the north. The visual impact will be permanent from all identified viewpoints, especially existing roads. The proposed development will be visible along Glendore Road and Victoria Drive while it will only be partially seen further away up to 2 to 3 kms. Greater distances are screened by vegetation, topography and existing urban infrastructure and will be indistinguishable from the surrounding built environment. A low visual impact is assigned given the high VAC.

#### Terrestrial Biodiversity Assessment

The findings of this report have indicated that the terrestrial biodiversity (fauna and flora) on the development site has been historically degraded with all the vegetative aspects on the site being secondary in nature. As such, the Animal and Plants Species Theme as well as the Terrestrial Biodiversity Theme on the site is considered to be LOW which is in contradiction with the findings of the DFFE Screening Tool.

The assessment of the potential impacts on the terrestrial biodiversity (fauna and flora) features has indicated that severity of these impacts on the ecology can all be mitigated with the implementation of the management and mitigation measures provided in this report.

As such, it is the specialist’s opinion that with the implementation of the management and mitigation measures contained in this assessment, there are not fatal flaws associated with the aquatic ecological baseline that will prevent the application from being authorised.

### **Faunal Species Compliance Statement**

Based on the above, it is the opinion of the specialist that the land contained within the proposed study site is considered as **low sensitivity with zones of medium sensitivity** for the animal species theme. A full Animal Species Assessment is therefore NOT required. The proposed development may therefore proceed provided that the following mitigations are included into the EMPr:

### **Agricultural Resource Impact Assessment**

The specialist opinion is that the proposed project be considered favourably as the DFFE screening tool value of High sensitivity was disputed to be Medium only for the Arlington development by confirming the project was not within any crop farming boundaries. This was further strengthened by the detailed in-field survey confirming the land potential to have a moderate land potential with severe limitations to agriculture.

### **Avifaunal Assessment**

The Site Ecological Importance rating of medium indicates that the site is potentially suitable for development if appropriate mitigation measures and rehabilitation measures are implemented.

The proposed development footprint avoids all areas identified as of high sensitivity for avian species, which are located outside of the proposed development footprint within the PAOI. The proposed development does include the loss of areas of medium avifaunal sensitivity, but as the footprint of this has been minimised, and some areas will be retained, this is considered acceptable from an avifaunal perspective.

The impact assessment has identified potential impacts to avian species, most of which can be mitigated to a low level. Due to the footprint of the proposed development, some loss of SCC habitat is however unavoidable, and even with mitigation this impact is expected to be of medium negative significance for the SCCs that potentially occur (with a medium probability of occurrence) in the habitat that will be lost and could be displaced. These are Knysna Woodpecker and Knysna Warbler. However, due to none of these species having a high probability of occurrence on the proposed development site, and existing disturbance on the site, this loss of habitat is not deemed to have unacceptably high impacts on these species.

The contribution of the proposed development on the cumulative impact of development in this urban area is considered to be low.

It is therefore the avian species specialist's reasoned opinion that the development can proceed as proposed without unacceptable impacts on avian species if all mitigation measures are implemented as recommended

### **Phase 1 Archaeological and Cultural Impact Assessment**

The purpose of the study was to conduct an archaeological and cultural heritage assessment for the proposed development of the Arlington multiple-use development, Walmer, Gqeberha, Nelson Mandela Bay Municipality, Eastern Cape Province.

The survey was conducted to establish the range and importance of the exposed and in situ archaeological heritage material remains, sites and features; to establish the potential impact of the development; and to make recommendations to minimize possible damage to the archaeological heritage.

The proposed development can be considered as having a low archaeological heritage significance from the lack of archaeological material, sites, and features identified during the survey. However, due to the proposed development site's location within an archaeologically sensitive coastal zone and a known archaeological site occurring 300m – 400 m east of the site, as well as the results of previous archaeological and cultural heritage assessments, the proposed development area within the wider cultural landscape can be considered as having a medium – high archaeological heritage significance.

The recommendations must be considered prior to the commencement of development and implemented during the course of development and be included as part of the environmental management plan for the project.

### **Palaeontological Impact Assessment**

The area was surveyed, and it was established that it had previously been highly disturbed, with most of the area having been artificially landscaped to produce an equine racetrack and associated spectator area. In addition, most of the area was vegetated, with the least disturbed western portion of the area being mantled by impenetrably thick vegetation. As a result, natural exposure of underlying strata was minimal.

Small amounts of outcrop in the extreme west of the area include semi consolidated aeolianites consistent with the Nanaga Formation. These aeolianites were, in places, rich in rhizocretes (calcareous root moulds), with a number of terrestrial gastropod species represented by preserved shells. These findings are, however of extremely low palaeontological significance.

There remains the possibility that construction work during development may disturb large vertebrate (eg. mammal) bones, either as isolated occurrences or accumulations made by humans or hyaenas. Should this occur, excavators should be diverted to other areas and a palaeontologist should be informed to assess the occurrence for possible sampling.

### **Aquatic and Wetland Assessment**

No part of the proposed development site is located within the “regulated area of a watercourse” as defined by the National Water Act (Act No. 36 of 1999). As such, there will be no requirement for the completion of any Water Use License Application for Section 21 (c) and (i) for the development.

Similarly, no part of the development is in any aquatic feature or within 32m of any aquatic feature, as such there will be no requirement for any Application for Environmental Authorisation in accordance with the National Environmental Management Act (Act No. 107 of 1998): Environmental Impact Assessment Regulations (2014), as amended.



The classification Aquatic Biodiversity Theme in the DFFE Online Screening Tool of “very high” sensitivity is related to the development site’s presence in the Tsitsikamma SWSA. The nature of the development will not impact on the SWSA’s status as it will not result in the impeding of any surface runoff into the localized groundwater regime, and it will not influence the amount of water that is currently provided by the development through runoff and seepage. As such, the “very high” sensitivity of the development site is considered to be “low”.

As no aquatic feature will be impacted upon, it is the recommendation of this report that there is no reason why this development cannot be authorised.

### **Socio-Economic Assessment**

Although some negative impacts have been identified in this report, they are significantly outweighed by the positive impacts associated with the proposed development. Negative impacts can be managed through the proper implementation of mitigations and the involvement of all affected parties from inception stages, prior commencement of construction.

In consideration of the fact that many of the socio-economic impacts cannot be prevented, management responses as opposed to preventative actions, are proposed to mitigate the severity of the negative impacts or to maintain and improve the positive impacts. Therefore, it is highly recommended that the management/enhancement measures provided in this report must be implemented and incorporated into the Environmental Management Programme of the EIA.

None of the impacts identified and assessed as part of this SIA are considered to be fatal flaws. The assessment revealed that all identified impacts can be mitigated, thus reducing the significance of the impacts. While the development may have short-term negative impacts, they are all outweighed by the positive long-term impacts. The development will significantly contribute to the development of the NMBM area, both socially and economically.

### **Traffic Impact Assessment**

- i. The current operating conditions on the road network within the study area are found to be acceptable with no LOS or capacity failures, except for the Victoria Drive/Buffelsfontein Road intersection.
- ii. The posted speed limit of 60 km/h along both Victoria Drive and Glendore Road, in the vicinity of the site accesses, is appropriate for the current and expected future traffic conditions.
- iii. The existing critical peak, in terms of traffic volume, was found to be the AM peak hour while the PM peak hour tested similarly but with marginally lower demands.
- iv. Once developed and fully occupied, the proposed development may be expected to generate in the order of 1130 and 1310 new vehicle trips in AM and PM commuter peak hours respectively. This is considerably higher than the estimated 880 new trips in the SAT peak.
- v. The combined critical peak hour of existing and development trips is found to be the AM peak hour.
- vi. The network is not overloaded when development trips are assigned for any of the given tested peak hours, subject to the recommended road network improvements being undertaken.

- vii. The proposed changes to the layout and road network, adequately serve the proposed development.
- viii. The development is of a magnitude that suggests that a pavement assessment be conducted to determine the structural integrity of the existing roads.

### **Glint and Glare**

The assessment was conducted with the objective of determining how 'glint' and 'glare' will affect aviation receptors such as pilots on final approach to the airport, as well as the Air Traffic Control Tower (ATCT). These aviation receptors operate at the Chief Dawid Stuurman International Airport (ICAO code: FAPE) in Gqeberha, Eastern Cape.

If the 'glint' and 'glare' effects are strong enough, it has the potential to cause temporary flash blindness in the receptors and hinder their abilities to conduct their operations. The glare is rated in three categories, namely as green, yellow, and red with red being the highest risk from an aviation perspective as an after image could occur.

The modelling results indicate that the FP Runway 35, FP Runway 26, and Air Traffic Control Tower will be exposed to green glare only. No receptors will be exposed to yellow or red glint and glare during the landing phase of flight. This is due to the fixed axis Solar PV arrays being positioned on the northern side of the aviation receptors and angled towards the north.

Green glare has a low potential to cause temporary flash blindness and is therefore acceptable in terms of the United States FAA Regulations. Furthermore, the model does not take into account building heights, these buildings will obstruct the line of sight from the Air Traffic Control Tower to the Solar panels and therefore further prevent glint exposure to the Tower.

It is therefore recommended that the project receive authorisation from the Civil Aviation Authority from a glint and glare perspective.

### **ICAO Annex 14 Obstacle Limitation Surfaces (OLS) Report**

This report contains the details of the ICAO Annex 14 obstacle limitation surfaces with consideration for the proposed Arlington solar PV development located approximately 1.5NM (2.8km) west of Chief Dawid Stuurman International airport, Eastern Cape, South Africa.

The proposed Arlington solar PV development lies within the Inner Horizontal surface of the FAPE OLS, which is the controlling surface.

As such any structures within the proposed Arlington solar PV development should not exceed the maximum elevation of 101m AMSL in order to remain clear of the FAPE ICAO Annex 14 Obstacle Limitation Surfaces.

Given the nature of the terrain surrounding the proposed PV development, as well as the obstacles indicated in the AIP for FAPE, Annex 14 Vol 1, 4.2.20 allows for the appropriate authority to potentially apply the shielding principle to the proposed PV development.

**Based on the findings of the EIA and the information presented by the specialists, the positive impacts of the preferred alternative, the development should be authorised as long as the mitigation measures listed in this Report and the Environmental Management Programme are implemented.**

#### **Recommendation for Condition of the Environmental Authorisation**

- An engineer must design a Detailed Design Stormwater Management Plan based on detailed hydrological flood modelling. This must be done before any land clearing take place. This detailed design plan must take the Conceptual Stormwater Plan included in the engineering services report findings into account. The Detailed plan must take into account avoiding contaminated runoff from the construction phase footprint area from entering the natural environment (appropriate grease traps and spill management plan).
- A Landscaping Plan must be compiled by a professionally registered Landscape Architect.
- Once the above reports are completed, including the detailed structure of the ELC, the reports must be included in the Amended Environmental Management programme which must be approved by the Eastern Cape Department of Economic Development, Environmental Affairs and Tourism (DEDEAT): Nelson Mandela Bay Region / Sarah Baartman District prior to construction commencing.
- The Traffic Impact Assessment (TIA) completed by EMONTI Consulting Engineers cc, dated September 2022 (version2) be submitted to the Nelson Mandela Bay Municipality (NMBM) and the Eastern Cape Department of Transport (ECDOT) for their perusal.
- Animal Search and Rescue (S&R) of the entire site must be done by a qualified faunal specialist prior to commencement of any activity on site. All old buildings must be searched, and animals found must be relocated.
- An ECO must be appointed in the Pre- Construction and Construction Phase to monitor that the applicant is in compliance with all of the requirements of the EMPr and the EA.
- A site representative must be trained in handling dangerous reptiles and scorpions during site construction. This person must inspect the construction site daily before activities start and relocate any snakes, spiders and scorpions if found in holes, trenches, plant, building, or office structures.
- A built environment specialist or an historical architect be approached to conduct a built environment heritage assessment and advise on the permit application process for the demolition of the remaining buildings.
- A professional archaeologist must be appointed, at the expense of the developer to monitor all excavations for the proposed development. The archaeologist must mitigate in the instance of sites being uncovered during the course of the excavations. Phase 2 mitigation in the form of test-pitting/sampling or systematic excavations and collections of the findings will then be conducted to establish the contextual status of the sites and remove the archaeological deposit before development activities continue.
- Construction managers/foremen and/or the Environmental Control Officer (ECO) should be informed before construction starts on the possible types of heritage sites and cultural material they may encounter and the procedures to follow when they find sites.
- If concentrations of pre-colonial archaeological heritage material, historical archaeological material, and/or human remains (including graves and burials) are uncovered during construction of the proposed development and / or future excavations for individual graves, all work must cease

immediately and be reported to the Albany Museum (046 622 2312) and/or the Eastern Cape Provincial Heritage Resources Agency (ECPHRA) (043 745 0888) so that systematic and professional investigation/excavation can be undertaken. Phase 2 mitigation in the form of test-pitting/sampling or systematic excavations and collections of the findings will then be conducted to establish the contextual status of the sites and remove the archaeological deposit before development activities continue.

- There remains the possibility that construction work during development may disturb large vertebrate (eg. mammal) bones, either as isolated occurrences or accumulations made by humans or hyaenas. Should this occur, excavators should be diverted to other areas and a palaeontologist should be informed to assess the occurrence for possible sampling.
- An Environmental Liaison Committee consisting of community representatives, local organisations, relevant authorities and municipal representatives must be established. The ELC must play an oversight role with regard to the implementation of the Environmental Authorisation.
- All of the mitigation measures listed in the EMPr and the specialist reports must be implemented.

## 1. INTRODUCTION

### 1.1 Project Background

The Project Applicant, Afrostructures (Pty) Ltd. has identified a need for a multiple-use development that will be in Walmer, Gqeberha (Port Elizabeth) within the Nelson Mandela Bay Metropolitan Municipality (NMBM) of the Eastern Cape Province. Adendorff Architects (Pty) Ltd. has been assigned as the Principal Agent and Architect to this development whereas Afrostructures (Pty) Ltd will serve as the Applicant for this EA application.

The Applicant intends to establish a multiple-use development, comprising of 25 clusters as well as an internal road network, on erven 3988, 4195 and 6991, along Glendore Road in Walmer. The consolidated development footprint will be 614 409 m<sup>2</sup> (61,4 Ha) in extent. Approximately 3 000 residential units are proposed which will be divided amongst nine (9) clusters designated for General Residential Zone 2 and General Residential Zone 4. In addition, 13 clusters designated for both Business Zone 1 and Business Zone 2 are planned, as well as one (1) cluster for Community Purposes and two (2) clusters for Special Purposes Infrastructure (solar power & wastewater treatment).

This development will aim to promote social, economic, and environmental sustainability. The project will be resource efficient through resource management ideas such as the improvement of the water distribution network, rainwater management, digital smart meters, renewable energy generation, sustainable drainage, reduction of water generation, optimisation of waste management.

The development in its entirety will include the following components:

- a) Retail/Business Infrastructure.
- b) Office/Storage Facilities.
- c) Medical Use/Office Facilities.
- d) Special Use High Tech Industrial facility/infrastructure.
- e) Warehouse Facilities.
- f) Community Zone (i.e., child aftercare facilities).
- g) Mixed-residential Housing Units including Social Housing – approximately 3000 units are proposed.
- h) Club House and Sport Facilities.
- i) A Business Incubator / Substation Area.
- j) Parking/Solar Charging Stations.
- k) Special Purposes Infrastructure – solar photovoltaic power park & wastewater treatment plant.
- l) Open spaces.
- m) Installation of internal infrastructure services, such as water, sanitation, irrigation, stormwater, roads, and electricity, to service the proposed infrastructure. See further details below; and
- n) Installation of external infrastructure services, such as stormwater and sanitation connection lines as well as a pedestrian walkway along Racecourse Road and two traffic circles along Glendore Road. An

additional road will be constructed between the south-western corner of the site and the northern circle.

The Master Layout Plan is attached as **Figure 1** (Refer to Appendix B1) and the Development Zoning Analysis is attached as **Figure 2** (Refer to Appendix B2).



Figure 1: Master Layout Plan

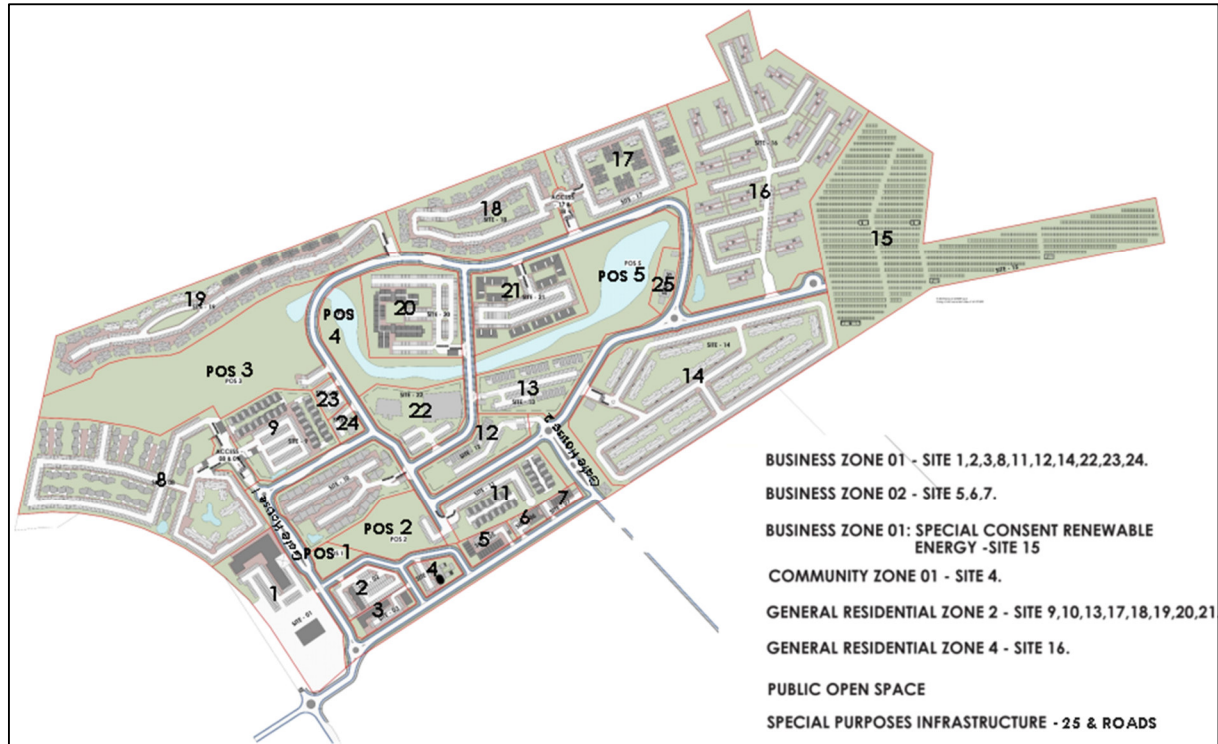


Figure 2: Development Zoning Analysis

The following Infrastructure Services are proposed:

#### **Water Supply:**

It is proposed that approximately 50 % of water is to be supplied from NMBM via the existing Glendore Road water connection, and that 50 % of water is to be supplied from groundwater (with approximately 35  $\ell/s$  to 50  $\ell/s$  supply). The proposed water supply is a connection into the existing 315 mm diameter municipal supply main from Glendore Road. Each of the 25 clusters are to consist of 110 mm diameter supply network with a connection to 300 mm diameter supply main and a peak throughput of 113  $\ell/s$ . Each cluster to consist of 110 mm diameter supply network with connection to units, fire hydrants, isolating valves, and meter to flow measurement per cluster. A Reverse Osmosis treatment system will be employed on site for the purification of the groundwater. In addition, tanks not exceeding 3 000 m<sup>3</sup> will be installed for the storage of raw (ground) water and potable water

#### **Wastewater:**

##### Northern Catchment of Site:

Wastewater is to be discharged via a gravitational system including collector sewers draining each of the clusters to the lowest point of the northern catchment. A wastewater treatment works in the form of a Bio-

Rotor Treatment System (or similar) is proposed for the treatment of effluent from the northern catchment. This treatment works will be equipped with a capacity of 1 125 kℓ/day for the re-use of treated effluent. As an alternate to the wastewater treatment works (in the event of failure of the operation of the wastewater treatment works), the provision of a storage sump of 24 hours storage i.e. 1125 kℓ or 15 m<sup>3</sup> storage and a wastewater pumpstation is proposed, with a capacity of 30l/s together with estimated 500m long 160mm dia pump main, to discharge wastewater from the storage sump to discharge to the outfall for the southern catchment.

**Southern Catchment of Site:**

The wastewater of units within the southern catchment of the site will gravitate to a common collection point, from where the wastewater is to discharge under gravity with a 500 m long 300 mm dia gravity collector sewer to connect into the 355 mm dia NMBM Sewer in Victoria Road.

**Irrigation:**

The treated wastewater effluent is to be piped from the treatment system for purpose of irrigation for green areas and parks within the development.

**Stormwater:**

An internal storm water reticulation system will be developed and 9 000 m<sup>3</sup> detention ponds to accommodate excess stormwater flow from the site. Stormwater is to be discharged via an approximately 500 m long, 600 mm diameter stormwater pipe into the existing municipal stormwater channel along Victoria Road.

**Roadworks:**

The proposed internal road network is to consist of a main access ring road, collector link roads providing access to the clusters, access control points to each of the clusters, parking for each cluster, together with pedestrian sidewalks, crossings, and cycle lanes. As part of the adjoining external road network, an additional road will be constructed between the south-western corner of the site and Glendore Road (which will be the primary access route), directly opposite the already present unnamed road. This new road will link up with Glendore Road by means of a new circle intersection. A second circle intersection is proposed further south at the T-junction of Glendore Road and Victoria Drive. All new traffic circles will be accompanied by raised pedestrian tables and subsequently surfaced pedestrian sidewalks along the adjoining road networks. The construction of additional lanes and changes to traffic signal phasing and timing at Victoria Drive and the Buffelsfontein Road intersections will also be implemented. Additionally, two public transport bays are proposed to be constructed, one on both exits to Glendore Road/Access Road, and one along the Victoria Drive/Glendore Road intersection. All the above-mentioned roadworks will be accompanied with the relevant/applicable traffic signals and additional turning auxiliary lanes (such as at Genadendal/Buffelsfontein Road), as well as pedestrian and vehicle proof fencing/walls being erected along the property boundary adjacent to Glendore Road.



## **Electricity**

### **Bulk electrical connection:**

The electrical connection, from the NMBM Electricity and Energy Department is estimated to be 11 kV, 7 MVA, bulk connection with a main intake sub-station on Glendore Road. The facility will be reticulated internally, for self-consumption and costing, with 11 kV underground cable via a network of numerous 11 kV ring-main units, miniature sub-stations. The mini-substations will be positioned near each gate house of each zone.

### **PV System:**

A space of 5.7 Ha is allocated for the PV ground mount system, which can have a capacity of  $\pm 4\,400$  kW of inverter, with  $\pm 5\,151$  kW (5 MW) panels. This is in line with the maximum allowable as per NERSA and the NMBM EE department, of which only allows 75 % of the connected load to be of equipment/plant on site with 25 % of the connected load to be able to be put back into their grid. The system will be connected via transformers, stepped up from 800 V into the 11 kV network. In the PV area, there will be transformers and control technology housed in various sub-station buildings. See Error! Reference source not found. and **Appendix B3** for the proposed layout of the PV infrastructure.

### **Streetlighting:**

The streetlights, in the main roads, will be down facing only, with self-contained battery and PV panel. The lighting inside each zone, will be connected to the internal system of each zone, also with efficient LED pole lighting to suite the style of the area/zone.

### **Reticulation**

The MV cable reticulation will follow the civil route of the main roads and basically the same routing of the water reticulation, with a take-off at each gate house zone. There will also be infrastructure network of sleeves and manholes installed for the fibre for the development, which will follow the same routing as the above. These infrastructure services will be co-ordinated with the civil works.

## **1.2 Assumptions and Limitations**

Assumptions and limitations as addressed in this Environmental Impact Assessment Report for the proposed Arlington Multiple-use Development are as follows:

- All information provided by the Applicant and Project Manager to the EAP was taken to be correct and valid at the time it was provided.
- The Environmental Assessment Practitioners (EAP) does not accept any responsibility if additional information comes to light at a later stage of the process from the Applicant or Project Manager.
- The scope of work is limited to assessing the existing and potential environmental impacts associated with the proposed Arlington Multiple-Use Development, as indicated in the Engineering Report, Presentation and Design Layouts.

- Descriptions of the natural and social environments are largely based on various desktop studies, complimented by available literature, Site-based information provided by the various specialist's assessments undertaken.

## 2 DETAILS OF THE ENVIRONMENTAL ASSESSMENT PRACTITIONER

JG Afrika (Pty) Ltd. is an engineering and environmental consulting firm with a complement of some 200 staff comprising engineers, environmental scientists, specialist professionals and administrative staff, all working together with the common goal of providing the highest quality of consulting engineering and environmental services, for the benefit of the community and the environment.

Apart from the main operating company the JG Afrika Group also comprises of specialist companies operating in the fields of rail transportation, geotechnical, hydrological, and environmental services, pavement technology, water management, and social development, and has a minority share in an empowerment consultancy specialising in sanitation.

The firm is headquartered in Johannesburg and has offices in most major South African cities, including Pretoria, Pietermaritzburg, Durban, Cape Town and Gqeberha (Port Elizabeth). JG Afrika (Pty) Ltd also has offices outside South Africa, in Mozambique, Lesotho and Botswana.

The company was founded in 1922, as Jeffares and Green (Pty) Ltd, and rebranded in 2016 to JG Afrika (Pty) Ltd, on the back of an internal restructuring process which saw JG Afrika (Pty) Ltd achieve 51 % black ownership and B-BBEE level 1. The JG Afrika Group holds a full (ISO 9001:2015) certification and was the first South African consulting practice to attain this certification for its full range of services, including construction administration.

JG Afrika (Pty) Ltd has been appointed by Adendorff Architects (Pty) Ltd, on behalf of Afrostructures (Pty) Ltd, to apply for Environmental Authorisation (EA) for the proposed Arlington multiple-use development in Walmer, Gqeberha (Port Elizabeth), within the Nelson Mandela Bay Municipality (NMBM) of the Eastern Cape Province. A Scoping and EIA process is required in accordance with the 2014 Environmental Impact Assessment (EIA) Regulations (as amended) promulgated under the National Environmental Management Act, 1998 (Act 107 of 1998) (NEMA).

Error! Reference source not found. provides a summary of the EAP Project Team, and a detailed Curriculum Vitae of the JG Afrika Project Team is attached as **Appendix F**.

*Table 6: Details of JG Afrika (Pty) Ltd Project Team*

<b>COMPANY / ENTITY NAME</b>	JG Afrika (Pty) Ltd.
<b>PHYSICAL ADDRESS</b>	Southern Life Gardens, Block D – Ground Floor, 70 – 2nd Avenue, Newton Park, Port Elizabeth
<b>POSTAL ADDRESS</b>	PO Box 27308, Greenacres, Port Elizabeth, 6057
<b>CONTACT NUMBER</b>	041 390 8700
<b>PROJECT MANAGER</b>	Cherize Coetzee
<b>EMAIL ADDRESS</b>	<a href="mailto:coetzeec@jgafrika.com">coetzeec@jgafrika.com</a>
<b>QUALIFICATIONS</b>	MSc (Zoology), BSc Hons (Zoology); BSc (Biological Sciences)
<b>PROFESSIONAL REGISTRATIONS AND AFFILIATIONS</b>	<b>IAIAsa</b> - Member of the International Association for Impact Assessors South Africa (Membership number: [REDACTED])
<b>EXPERTISE</b>	<p>Cherize is an Environmental Scientist with JG Afrika (Pty) Ltd. With 10 years' experience. Through her postgraduate studies she has conducted research in the rocky shore habitat and estuarine systems.</p> <p>She has, over the years, gained experience with Basic Environmental Impact Assessments (BA), Environmental Management Programmes (EMPr), Environmental Compliance Monitoring, Licence Applications for Waste Management activities and Water Uses, and Pre-Application Screening Assessments. She has undertaken a wide range of projects including substation upgrades, bulk water supply systems, bulk sewer infrastructure, bridge and causeway reconstructions, road upgrades, wastewater facilities etc.</p>
<b>EAP</b>	Deshni Naicker
<b>EMAIL ADDRESS</b>	<a href="mailto:Naickerd@jgafrika.com">Naickerd@jgafrika.com</a>
<b>QUALIFICATIONS</b>	MA (Geog and Env Mgmt.), BA (Hons) (Geog), BA (Geog.)
<b>PROFESSIONAL REGISTRATIONS AND AFFILIATIONS</b>	<p><b>EAPASA</b> - Environmental Assessment Practitioner Association (Membership number: [REDACTED])</p> <p><b>IAIA</b> - International Association of Impact Assessment (Membership number [REDACTED])</p>
<b>EXPERTISE</b>	<p>She is a Senior Environmental Scientist at JG Afrika (Pty) Ltd and has 13 years of experience in the Environmental Management discipline from the various projects that she was involved in for Provincial Government, Local Government, Private Sector and in World Bank Projects.</p> <p>Her expertise lies primarily in Environmental Screening Assessment, Environmental Impact Assessments, Environmental Management Programmes, Due Diligence Assessments, Environmental Control Officer Monitoring and Auditing of Sites, Environmental Awareness Training, Public Participation Facilitation, Section 24G Amendment Applications, Water Use License Application and Mining Applications.</p>

<b>ASSISTANT ENVIRONMENTAL SCIENTIST</b>	Linmarie Troskie
<b>EMAIL ADDRESS</b>	<a href="mailto:Troskiel@jgafrika.com">Troskiel@jgafrika.com</a>
<b>QUALIFICATIONS</b>	BSc Hons (Botany & Environmental Management); BSc (Biological Sciences)
<b>PROFESSIONAL REGISTRATIONS AND AFFILIATIONS</b>	<p><b>SACNASP</b> – Certificated Natural Scientist (Reg No: 151625)</p> <p><b>IAIA</b> - International Association of Impact Assessment (Membership number: 1198897)</p>
<b>EXPERTISE</b>	<p>Linmarie Troskie is a recent post-graduate within her third year of gaining professional experience.</p> <p>Prior to joining JG Afrika, she has worked with specialist consultants, assisting them with the compilation of specialist reports within the fields of aquatic and terrestrial ecology.</p> <p>Throughout the duration of her undergraduate and postgraduate studies, Linmarie focussed primarily within the realm of Botany, specialising in Environmental Management, Landscape Ecology &amp; GIS, and Plant Physiology.</p> <p>At JG Afrika Linmarie forms part of the environmental team where she has the role of Environmental Scientist, dealing mainly with ECO related activities, GIS mapping and assisting with Environmental Assessments.</p>
<b>REVIEWER AND EAP</b>	Ryan Jonas
<b>EMAIL ADDRESS</b>	<a href="mailto:JonasR@jgafrika.com">JonasR@jgafrika.com</a>
<b>QUALIFICATIONS</b>	M.Sc (Environmental Science), BSc (Natural Sciences)
<b>PROFESSIONAL REGISTRATIONS AND AFFILIATIONS</b>	<p><b>SACNASP</b> - Professional Natural Scientist (Environmental Science) (Registration no: [REDACTED])</p> <p><b>EAPASA</b> - Environmental Assessment Practitioner Association (Membership number: [REDACTED])</p> <p><b>IAIA</b> - International Association of Impact Assessment (Membership number: [REDACTED])</p>
<b>EXPERTISE</b>	<p>Ryan Emslie Jonas is a professionally registered Environmental Scientist and works in the field of environmental management for large infrastructure-related developments, mining and Renewable Energy projects (solar and wind energy facilities) within Africa.</p> <p>He has acquired 16 years consulting experience in managing and executing various application processes for a diverse range of large infrastructure developments, mining and renewable energy (solar and wind energy facilities) projects in order to obtain environmental authorisations, licenses for waste management, water uses, air emissions release and compiling and implementing environmental management programmes.</p>

	<p>Ryan has also fulfilled numerous environmental compliance monitoring functions for infrastructure-related developments (e.g. roads, pipelines, airport developments, housing and mixed-used projects), renewable energy and various mining and industrial sites throughout Southern Africa. His project management experience includes client liaison, scheduling, professional services contract (i.e. NEC3) management, progress reporting, managing sub-consultants and junior staff, invoicing and ensuring the quality of deliverables to a Client. Also proficient in tender, expression of interest and proposal writing for local as well as IFC / World Bank projects.</p> <p>Ryan has gained an excellent working knowledge of African (i.e. South Africa, Zambia, Kenya, Lesotho, Mauritius, Namibia) and International Finance Corporation / World Bank environmental legislative requirements for major infrastructure, renewable energy and mining developments.</p>
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### 3 PROJECT NEED AND DESIRABILITY

The proposed project will be located on erven 3988, 4195, 6991, which is earmarked for a Multiple-Use Development. This development will promote social, economic, and environmental sustainability, through the following mechanisms:

- The proposed development will be a mixed-use residential & social housing with up to an additional 3000 units for the area, consisting of roads and parking areas, together with green park areas within different sections.
- The project will be resource efficient through resource management ideas such as the improvement of water distribution network, rainwater management, digital smart meters, renewable energy generation, sustainable drainage, reduction of water generation, optimisation of waste management.
- The development will integrate 4IR & ICTs infrastructure and smart mobility.
- The development will include, retail, business, office and storage sites, residential units, retirement units, a “Digi 4RI” centre, solar facility, and an early childhood development centre.

The goal of the proposed development is to ameliorate the contemporary urban disconnect with nature by the holistic improvement of urban spaces, integrating aspects of nature into urban environments by considering how the built environment contributes to our health and well-being and employing practical methodologies for the effective design thereof, we not only design favourable environments, but sustainable environments as well.

Activity nodes are incorporated for residents and the extended urban environment to come together to interact. These nodes are in the built form and very often are elements of urban space which foster societal cohesion of the neighbourhood.

#### **The proposed multiple-use development will create the following for the future of the area:**

- Ensure greater **social diversity** through an integrated housing development.

- Allow a broader range of housing types, such as cottage clusters, town homes, and other “missing middle” typologies.
- Facilitate the development of lower-cost housing typologies with **dignity**.
- **Prevent segregated** communities –combination of LSM housing typologies.
- Create a community where individuals regardless of their race or socioeconomic background can **live together** with a diverse housing inventory.
- Create a robust **multifamily preservation strategy**.
- **Stimulate investment** in surrounding areas through a deliberate direction for future growth.
- Creatively utilize land asset to **stimulate economic** development.
- **Promote desired change** through perceived and tangible economic perspective of surroundings.
- Promote an enhanced **community’s liveability**.
- Support needs of **existing and future** residents.
- **Strengthen the community** by fostering its racial and socioeconomic diversity.
- Desirable secure location for people to **live, work, and play** facilitating the current Covid related work from home.
- Create new opportunities for **home ownership** of the future younger generations.
- Increase housing **opportunities** for people of all ages, income levels, races, and backgrounds.
- Improve housing conditions through **quality environment and security**.

With the current economic situation in South Africa, job creation is of utmost importance. The proposed project comprises of various developments and thus many jobs could be created. The statistics indicate the Nelson Mandela Bay Municipality has an unemployment rate of 36.6 % (<http://www.statssa.gov.za>). According to these statistics new job creation is needed to stem the rising unemployment rate.

The following National, Provincial and Municipal policy documentation were also interrogated for the proposed development:

- National Development Plan (2030).
- The Integrated Development Plans (IDP) for the Nelson Mandela Bay Municipality.
- The Spatial Development Framework for the Nelson Mandela Bay Municipality.
- The National Environmental Management Act Principles.
- Nelson Mandela Bay Metropolitan Land Use Scheme (2023).

The project has been found to be aligned with the abovementioned policy documentation. Please refer to **Section 4 and 5**, below, for further details in this regard.

## 4 RELEVANT ENVIRONMENTAL LEGISLATION AND GUIDELINES PERTAINING TO THE APPLICATION

### 4.1 The Constitution of South Africa (Act No 108 Of 1996)

Section 24 of the Constitution of South Africa provides the main national legislative obligation towards sustainable environmental management and development. This section forms the foundation of all other subsequent environmental legislation and governance in South Africa. Section 24 states the following:

*“Every person shall have the right -*

- (a) to an environment that is not harmful to their health nor well-being; and*
- (b) to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures, that -*
  - (i) prevent pollution and ecological degradation;*
  - (ii) promote conservation; and*
  - (iii) secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development.*

The following sections provide an overview of the environmental legislation, policies, plans and guidelines relevant to the proposed project, and which have been considered in the preparation of this Environmental Impact Assessment Report.

### 4.2 National Documents

#### 4.2.1 National Environmental Management Act, 1998 (Act 107 of 1998) (NEMA)

The NEMA is the principle/framework legislation governing EIA and subsequent EA processes under the authority of the Department of Environmental Affairs.

NEMA makes provision for co-operative environmental governance by establishing principles for decision-making on matters affecting the environment; institutions that will promote co-operative governance; procedures for co-ordinating environmental functions exercised by Organs of State and to provide for matters connected therewith.

Section 2 of the Act establishes a set of principles which apply to the activities of all Organs of State that may significantly affect the environment. These include the following:

- Development must be sustainable.
- Pollution must be avoided or minimised and remedied.
- Waste must be avoided or minimised, reused or recycled.
- Negative impacts must be minimised, and positive impacts enhanced; and

- Responsibility for the environmental health and safety consequences of a policy, project, product, or service exists throughout its entire life cycle.

These principles are taken into consideration when a Governmental Department needs to exercise its powers for example, during the processes of granting permits or Environmental Authorisations or the enforcement of existing legislation or conditions of approval.

Section 23 of NEMA furthermore provides for general objectives of Integrated Environmental Management (IEM). In alignment with these objectives, the potential impacts of proposed development activities on the biophysical and socio-economic environments are identified and evaluated. These potential environmental impacts have been assessed during the Scoping Report phase and mitigation measures are provided where relevant.

The subsequent Environmental Impact Assessment Regulations, 2014 (as amended) (published in Government Notices R 327, R 325, and R 324 of 7 April 2017), which are also referred to as Listing Notices 1, 2 and 3 respectively, list development activities which will trigger the necessity to conduct either a Basic Assessment or a full Scoping and EIA process prior to EA being obtained for a proposed project. Listing notices 1 and 3 activities require only a Basic Assessment to be conducted while Listing Notice 2 activities trigger the requirement for a full Scoping and EIA process to be conducted.

Considering the nature and scale of the development activities triggered by this proposed project, it was required that a full Scoping and EIA process be conducted to provide sufficient information to the Competent authority for them to make an informed decision regarding the approval or rejection of the EA applied for.

Only once the EA is granted and the required supporting permits have been issued, may the Applicant lawfully commence with the proposed project. The Scoping and EIA process is therefore a critical component in the feasibility and planning stage of any proposed project.

#### 4.2.2 National Environmental Management Biodiversity Act, 2004 (Act 10 of 2004) (NEMBA)

The NEMBA aims to provide for the management and conservation of the country's rich biodiversity within the framework of NEMA. It aids in the protection of species and ecosystems which warrant national protection and provides for the sustainable usage of the country's indigenous biological resources.

NEMBA and its Regulations were therefore utilised for determining the ecological/biodiversity significance, value and subsequently the adequate management of the proposed project area with regards to ecosystems, habitats, and individual species.

The Department of Environmental Affairs is responsible for the implementation and overseeing of this legislation along with the South African National Biodiversity Institute (SANBI).



#### 4.2.3 National Water Act, 1998 (Act 36 of 1998) (NWA)

The NWA aims to ensure sustainable use of water through the protection of the quality of water resources for the benefit of all water users. Its principal focus is the rectification and equitable allocation and use of the scarce and disproportionately distributed water resources of South Africa.

Section 21 of NWA defines the types of water uses which require a Water Use Authorisation to be applied for. The Act stipulates that an application for water use authorisation must be submitted if a development takes place within 100 m of the edge of a natural watercourse, or within a 500-m radius of the edge of a natural wetland. *The proposed Arlington multiple-use development likely constitutes five water uses as defined in the National Water Act. These include Section 21 (a), (c), (e) (a) and (i).*

The Department of Water and Sanitation (DWS) is responsible for the implementation and overseeing of this legislation and is also the Responsible Authority for the issuing of authorisations for water use.

#### 4.2.4 National Heritage Resources Act, 1999 (Act 25 of 1999) (NHRA)

The NHRA aims to provide for the integrated and interactive management and conservation of the national heritage resources in South Africa so that they may be bequeathed for future generations.

In terms of Section 38 of the Heritage Resources Act (Act 25, 1999), a Heritage Impact Assessment must be undertaken for the following developments:

- The construction of a road, wall, power line, pipeline, canal or other similar form of linear development or barrier exceeding 300 m in length.
- The construction of a bridge or similar structure exceeding 50 m in length.
- Any development or other activity which will change the character of a site -
  - Exceeding 5 000 m<sup>2</sup> in extent; or
  - Involving three or more existing erven or subdivisions thereof; or
  - Involving three or more erven or divisions thereof which have been consolidated within the past five years; or
  - The costs of which will exceed a sum set in terms of regulations by SAHRA or a provincial heritage resource authority.
- The re-zoning of a site exceeding 10 000 m<sup>2</sup> in extent; or
- Any other category of development provided for in regulations by SAHRA or a provincial heritage resources authority, must at the very earliest stages of initiating such a development, notify the responsible heritage resources authority and furnish it with details regarding the location, nature, and extent of the proposed development.

#### **A Phase 1 Archaeological and Cultural Impact Assessment (AIA) was undertaken, and the following noted:**

The proposed development can be considered as having a low *archaeological heritage significance* from the lack of archaeological material, sites, and features identified during the survey. However, due to the

proposed development site's location within an archaeologically sensitive coastal zone and a known archaeological site occurring 300m – 400 m east of the site, as well as the results of previous archaeological and cultural heritage assessments, the proposed development area within the wider cultural landscape can be considered as having a medium – high archaeological heritage significance.

The recommendations must be considered prior to the commencement of development and implemented during the course of development.

As a result of the Very High sensitivity triggered by the screening tool and the need for further investigation, a **Palaeontological Impact Assessment** was conducted for the proposed development.

The area was surveyed, and it was established that it had previously been highly disturbed, with most of the area having been artificially landscaped to produce an equine racetrack and associated spectator area. In addition, most of the area was vegetated, with the least disturbed western portion of the area being mantled by impenetrably thick vegetation. As a result, natural exposure of underlying strata was minimal.

Small amounts of outcrop in the extreme west of the area include semi consolidated aeolianites consistent with the Nanaga Formation. These aeolianites were, in places, rich in rhizocretes (calcareous root moulds), with a number of terrestrial gastropod species represented by preserved shells. These findings are, however of extremely low palaeontological significance.

There remains the possibility that construction work during development may disturb large vertebrate (eg. mammal) bones, either as isolated occurrences or accumulations made by humans or hyaenas. Should this occur, excavators should be diverted to other areas and a palaeontologist should be informed to assess the occurrence for possible sampling.

#### 4.2.5 National Development Plan – 2030 (NDP)

The executive summary of the National Development Plan (NDP) commences with the following paragraph,

*“The National Development Plan aims to eliminate poverty and reduce inequality by 2030. South Africa can realise these goals by drawing on the energies of its people, growing an inclusive economy, building capabilities, enhancing the capacity of the state, and promoting leadership and partnerships throughout society.”*

Chapter 8 of the NDP specifically discusses the role and importance of transforming human settlement in the success of the country's economy and reaching the objectives of the NDP. The chapter discusses the recognition of urban inefficiencies and the addressing issues of spatial development as key to systematically responding to entrenched spatial patterns across all geographic scales, that exacerbate social inequality and economic inefficiency. The chapter furthermore states that in addressing these patterns, we must take account of the unique needs and potentials of different rural and urban areas in the context of emerging development corridors.

The proposed Arlington Multiple-Use development will therefore contribute, at a local level, to the achievement of goals or objectives described with regards to human settlements in the NDP by contributing to greater social diversity through an integrated housing development; facilitate the development of lower cost housing typologies with dignity; prevent segregated communities combination of LSM housing typologies; create a community where individuals regardless of their race or socio-economic background can live together with a diverse housing inventory; Creatively utilize land asset to stimulate economic development; increase housing opportunities for people of all ages, income levels, races, and backgrounds; Improve housing conditions through quality environment and security.

### 4.3 Provincial documents

#### 4.3.1 Nature and Environmental Conservation Ordinance, 1974 (No. 19 of 1974)

This ordinance, together with the NEMBA, makes provision for the protection and sustainable utilisation of wild animals, aquatic biota, and plants on a provincial scale in the Eastern Cape. It is therefore used in conjunction with the NEMBA to determine the ecological / biodiversity significance, value, and subsequent management of the proposed project area.

Permit applications in terms of the Ordinance are lodged with the relevant provincial authority, which in this case is the Eastern Cape Department of Economic Development Environmental Affairs and Tourism (DEDEAT).

#### 4.3.2 Eastern Cape Provincial Spatial Development Plan (2010)

The Eastern Cape Provincial Spatial Development Plan (ECPSDP) was formulated in 2010 to meet the requirements of the Municipal Systems Act, 2000 (Act 32 of 2000). Prepared in accordance with a bioregional planning approach adapted to suit the site-specific requirements of the Eastern Cape, the ECPSDP is intended as a guide to inform about where development should be encouraged within the province.

The Plan includes the following aims as part of its development philosophy on Social and Human Settlements:

- The need to formalise and consolidate settlement regions, to avoid un-coordinated and inefficient spatial development. In line with the recommendations of the National Spatial Development Plan, the ECPSDP proposes that development must be organised into clusters of opportunities, in nodes and development corridors, to allow for the achievement of shared impacts.
- The need to manage spatial development to invest in areas of development potential.
- Integrated and comprehensive infrastructure planning, then implementation and monitoring amongst all spheres of government.
- Densification of existing development areas, and integrated land use; together with the prioritisation of higher density accommodation and social housing, linked to economic development clusters along transport routes.
- Environmental integrity and sustainability, and the safeguarding of valuable natural resources.

- Achieving a balance between society, the ecology and economic development.
- Participatory, community-based planning.
- Emphasis on “brownfield” development before adoption of “greenfield” development.

The proposed project has been designed and will be developed in line with this development philosophy.

#### 4.4 Metropolitan Municipality

##### 4.4.1 Nelson Mandela Bay Metropolitan Municipality Integrated Development Plan

The Metropolitan Municipality has developed its vision, development priorities, objectives and strategies with specific outcomes and outputs for the 2017 – 2022 period.

**Vision:** *“An iconic, friendly, ocean city driven by innovation, service excellence and economic development – a destination of choice”.*

**Mission:** *“To create Freedom, Fairness and Opportunity for all in NMBM; stop corruption; create jobs; and improve service delivery”.*

**Objectives** include, amongst others:

- Growing and diversifying the local economy through the attraction of new investment, skills development, and the facilitation of an enabling environment for small business growth and job creation.
- Facilitating and promoting infrastructure-led growth, development, and tourism.
- Spatial and built environment developments that promote integrated neighbourhoods, inclusive communities, and a well-connected Nelson Mandela Bay.
- Ensuring multi-generational planning that promotes sustainable economic growth through research and development, innovation and the optimal use and development of technology; and
- Developing an environmentally sustainable city through proactive planning, and conserving resources and the natural and built environment.

The proposed project will be able to contribute positively to each of these objectives.

##### 4.4.2 Nelson Mandela Bay Metropolitan Municipality Spatial Development Framework

The NMBM SDF forms a core component of the IDP and outlines the desired spatial development of the metropolitan area, setting out basic guidelines for a land-use management system and highlighting priority investment and development areas, with the purpose of achieving radical restructuring of the city, to make it more equitable, integrated, and efficient. The SDF is intended as a decision-making support tool within the context of the IDP and the city-wide Development Strategy.

The SDF notes that most urban areas in South Africa are characterised by urban sprawl, resulting in most people spending a lot of time and money travelling long distances to work, shops, schools and social facilities. It also means that local authorities must spend large amounts on providing and maintaining excessive amounts of infrastructure. For this reason, the SDF, in alignment with the IDP, advocates for:

- Nodal developments in places of high accessibility, characterised by intense concentrations of mixed-use activities such as retail, office, entertainment, community facilities and residential components; and
- Consolidation and densification, promoting more compact urban development, especially in those areas which are well-serviced, thereby ensuring more efficient use of the existing infrastructure.

The SDF, utilising geographical information, translates the municipal spatial development vision contained in the IDP into a graphical representation / map which can be utilised as a tool to guide future development of the municipality.

The proposed project will contribute positively to the achievement of the objectives of the SDF and IDP and will be in line with the municipal spatial vision for the area.

#### 4.4.3 Nelson Mandela Bay Metropolitan Municipality Bioregional Plan (2015)

The purpose of the Bioregional Plan is to provide a map of biodiversity priorities and accompanying guidelines to inform land use planning, environmental assessment and authorisations, and natural resource management by a range of sectors whose policies and decisions impact on biodiversity.

The Bioregional Plan is a spatial plan that shows terrestrial and aquatic features that are critical for conserving biodiversity and maintaining ecosystem functioning. These areas are referred to as Critical Biodiversity Areas (CBAs) and Ecological Support Areas (ESA's). In addition, the Bioregional Plan outlines measures for the effective management of biodiversity.

The Arlington Development is situated on the old Arlington Racecourse, within the residential area of Walmer, Gqeberha. The adjacent properties are mainly designated as urban formal, including the residences in the area of Walmer Heights, Beethoven Avenue and the plots along Glendore Road (which include Welbedacht Estate). To the south of the project footprint lies the Milkwoods Social Housing Development.

In terms of the NMBMBP, the land cover designated to the study area falls primarily under Recreational Open Space, with a portion of the western edge of the site being designated as DONUT – this indicates that the area is open land/space that is undeveloped. A small portion south of the site is designated as urban formal, adjacent to the Milkwoods Social Housing.

According to the NMBMBP, the entire study area falls within the vegetation type – Sardinia Bay Forest Thicket, with a designated threat status of Vulnerable. The stand of vegetation present on the development site consists of a combination of indigenous and exotic vegetation, with a sensitive area detected in the

western corner of the study area. A large portion of the study area has already been disturbed as a result of previous activities that took place on the property. The study area does not intersect with any Critical Biodiversity Areas, or Ecological Support Areas, as designated in the Eastern Cape Biodiversity Conservation Plan (2019) or the NMBMBP (2015).

## 5 APPROVALS REQUIRED PRE-CONSTRUCTION AND PLANNING PHASE

**Table 7** below summarises the various environmental and planning approvals required from the various Authorities, before the construction of the development may take place.

*Table 7: Summary Pre-Construction Environmental & Planning Approvals Required*

Competent Authority	In terms of Legislation	Type of Approval / Licence / Required
Department of Economic Development Environmental Affairs and Tourism (DEDEAT)	National Environmental Management Act (NEMA) and the 2014 EIA Regulations (April 2017)	Environmental Authorisation required in terms of the NEMA EIA Regulations (2014), as amended, for the activities listed below.
Department of Water Affairs & Sanitation (DWS)	The National Water Act (NWA)	A Water Use Authorisation is required for approval of the following water uses: 21 (a) - Taking water from a water resource. 21 (e) - Engaging in a controlled activity identified as such in Section 37(1) or declared under Section 38(1). 21 (g) - Disposing of waste in a manner which may detrimentally impact on a water resource. Application for a WULA will be made on the eWULAAS system.
Eastern Cape Provincial Heritage Authority (ECPHA)	National Heritage Resources Act (NHRA) – Section 38	Final Comment to be received from ECPHA for the development area.
Nelson Mandela Bay Municipality	Zoning Scheme Register of the NMBM	According to the Zoning Scheme Register of the NMBM, most of the development footprint is

		zoned as Recreational Open Space. The property will therefore require a Rezoning Application prior to the commencement of construction to accommodate the new land use rights of the different zones proposed
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The above approvals are informed by the Environmental Impact Assessment (EIA) process, an integrated process through which information regarding the proposed facility will be collected, organized, analysed and communicated to the relevant authorities for consideration.

## 6 LISTED ACTIVITIES TRIGGERED BY THE PROPOSED DEVELOPMENT

### 6.1 Applicable Listed Activities

The proposed Arlington Multiple-Use Development triggers listed activities in terms of the Environmental Impact Assessment (EIA) Regulations (2014) (as amended), Government Regulations (GNR) 324, 326 and 327 of 07 April 2017 in Government Gazette Number 38282 read in conjunction with GN R. 982 and 983 of 04 December 2014 promulgated under the National Environmental Management Act (NEMA) (Act no 107 of 1998). **Table 8** provides a summary of the Listed Activities in terms of the EIA Regulations 2014 that are triggered by the proposed development.

*Table 8: Summary of Listed Activities Triggered by the proposed development. Strikethrough text indicated those sub-sections of the Listed Activity that are not applicable to the proposed development.*

ACTIVITY AND GOVERNMENT NOTICE NUMBER	ACTIVITY DESCRIPTION	DISCUSSION IN TERMS OF APPLICABILITY
<p><b>Activity 1</b></p> <p><b>Listing Notice 1</b> of GNR. 327 (983) (2014 EIA Regulations as amended)</p>	<p>The development of facilities or infrastructure for the generation of electricity from a renewable resource where –</p> <p>(iii) The electricity output is more than 10 megawatts but less than 20 megawatts; or</p> <p><b>(iv) The output is 10 megawatts or less, but the total extent of the facility covers an area in excess of 1 hectare;</b></p> <p><del>Excluding where such development of facilities or infrastructure is for photovoltaic installations and occurs –</del></p> <p><del>(c) Within an urban area; or</del></p>	<p><b>A solar PV ground mount system is proposed as part of the development and will have an electricity output of 5 MW and will cover an area of 5.7 Ha.</b></p>

	(d) <del>On existing infrastructure.</del>	
<p><b>Activity 9</b></p> <p><b>Listing Notice 1</b> of GNR. 327 (983) (2014 EIA Regulations as amended)</p>	<p>The development of infrastructure <b>exceeding 1 000 metres in length</b> for the bulk transportation of water or <b>stormwater</b> –</p> <p>(iii) <b>With an internal diameter of 0.36 metres or more; or</b></p> <p>(iv) With a peak throughput of 120 litres per second or more.</p> <p><del>excluding where –</del></p> <p><del>(a) such infrastructure is for bulk transportation of water or storm water or stormwater drainage inside a road reserve or railway line reserve; or</del></p> <p><del>(b) where such development will occur within an urban area.</del></p>	<p>The proposed development will include pipeline infrastructure exceeding a cumulative length of 1 000 m for the transportation of stormwater. A section of the pipeline will have an internal diameter of 0.6 m.</p> <p>The proposed development will also include water supply network exceeding a cumulative length of 1 000 m.</p>
<p><b>Activity 10</b></p> <p><b>Listing Notice 1</b> of GNR. 327 (983) (2014 EIA Regulations as amended)</p>	<p>The development and related operation of infrastructure <b>exceeding 1 000 metres in length</b> for bulk transportation of sewage, effluent, process water, wastewater, return water, industrial discharge, or slimes –</p> <p>(iii) With an internal diameter of 0.36 metres or more; or</p> <p>(iv) With a peak throughput of 120 litres per second or more</p> <p><del>excluding where –</del></p> <p><del>(a) such infrastructure is for the bulk transportation of sewage, effluent, process water, wastewater, return water, industrial discharge or slimes inside a road reserve or railway line reserve; or</del></p> <p><del>(b) where such development will occur within an urban area.</del></p>	<p>The proposed development will include a gravitational system and collector sewers of which the pipeline lengths will cumulatively exceed a 1 000 m.</p>
<p><b>Activity 24</b></p> <p><b>Listing Notice 1</b> of GNR. 327 (983) (2014 EIA Regulations as amended)</p>	<p>The development of a road-</p> <p><del>(iii) for which an environmental authorisation was obtained for the route determination in terms of activity 5 in Government Notice 387 of 2006 or activity 18 in Government Notice 545 of 2010; or</del></p> <p>(iv) with a reserve wider than 13.5 metres, or where no reserve exists where the road is wider than <b>8 metres;</b></p> <p><del>but excluding a road-</del></p> <p><del>(a) which is identified and included in activity 27 in Listing Notice 2 of 2014;</del></p>	<p>The proposed development will include the establishment of a new main access ring road, collector link roads providing access to the clusters. A new road outside the property boundary is also proposed between the south-western corner of the site Glendore Road. As these are new roads no reserve exists. The width of certain roads will exceed 8 m.</p>



	<p><del>(b) where the entire road falls within an urban area; or</del></p> <p><del>(c) which is 1 kilometre or shorter.</del></p>	
<p><b>Activity 28</b></p> <p><b>Listing Notice 1</b> of GNR. 327 (983) (2014 EIA Regulations as amended)</p>	<p>Residential, <b>mixed</b>, retail, commercial, industrial, or institutional developments where such land was used for agriculture, game farming, <b>equestrian purposes</b>, or afforestation on or after 01 April 1998 and where such development:</p> <p><del>(iii) will occur inside an urban area, where the total land to be developed is bigger than 5 hectares;</del></p> <p><del>or</del></p> <p><b>(iv) will occur outside an urban area, where the total land to be developed is bigger than 1 hectare;</b></p> <p><del>excluding where such land has already been developed for residential, mixed, retail, commercial, industrial or institutional purposes.</del></p>	<p><b>The proposed project area was previously used for equestrian purposes (horse racing) between 1950 to 2013 and known as the Arlington Racecourse. The project site falls outside an urban area and the total land to be developed will be 61.4 Ha.</b></p>
<p><b>Activity 15</b></p> <p><b>Listing Notice 2</b> of GNR. 325 (984) (2014 EIA Regulations as amended)</p>	<p>The clearance of an <b>area of 20 hectares</b> or more of indigenous vegetation, excluding where such clearance of indigenous vegetation is required for—</p> <p><del>(iii) the undertaking of a linear activity;</del></p> <p><del>or</del></p> <p><del>(iv) (ii) maintenance purposes undertaken in accordance with a maintenance management plan.</del></p>	<p><b>The proposed project area is approximately 61.4 Ha in extent and will require the clearance of indigenous vegetation.</b></p>
<p><b>Activity 2</b></p> <p><b>Listing Notice 3</b> of GNR. 324 (985) (2014 EIA Regulations as amended)</p>	<p>The development of reservoirs, excluding dams, with a <b>capacity of more than 250 cubic metres.</b></p> <p><b>b. Eastern Cape</b></p> <p><del>iii. In a protected area identified in terms of NEMPAA, excluding conservancies;</del></p> <p><b>iv. Outside urban areas, in:</b></p> <p><del>(aa) National Protected Area Expansion Strategy Focus areas;</del></p> <p><del>(bb) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority;</del></p> <p><del>(cc) Sites or areas identified in terms of an international convention;</del></p> <p><del>(dd) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;</del></p> <p><del>(ee) Core areas in biosphere reserves;</del></p>	<p><b>The proposed development will include the installation of tanks exceeding 250 m<sup>3</sup> for the storage of raw (ground) water and potable water. It is likely that the DEDEAT might consider tanks as reservoirs, and so, this Listed Activity is potentially triggered due to site being located outside an urban area and 3 km from the Sardinia Bay Nature Reserve, a protected area identified in terms of NEMPAA (2003).</b></p>

	<p>(ff) Areas within 10 kilometres from national parks or world heritage sites or <b>5 kilometres from any other protected area identified in terms of NEMPAA or from the core area of a biosphere reserve;</b></p> <p><del>(gg) In an estuarine functional zone, excluding areas falling behind the development setback line;</del></p> <p><del>(hh) Areas seawards of the development setback line or within 1 kilometre from the high water mark of the sea if no such development setback line is determined; or</del></p> <p>iii. Inside urban areas:</p> <p><del>(aa) Areas zoned for use as public open space;</del></p>	
<p><b>Activity 4</b></p> <p><b>Listing Notice 3</b> of GNR. 324 (985) (2014 EIA Regulations as amended)</p>	<p>The development of a road wider than 4 metres with a reserve less than 13,5 metres.</p> <p><b>b. Eastern Cape</b></p> <p>iii. <b>Outside urban areas:</b></p> <p><del>(aa) A protected area identified in terms of NEMPAA, excluding disturbed areas;</del></p> <p><del>(bb) National Protected Area Expansion Strategy Focus areas;</del></p> <p><del>(cc) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority;</del></p> <p><del>(dd) Sites or areas identified in terms of an international convention;</del></p> <p><del>(ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;</del></p> <p><del>(ff) Core areas in biosphere reserves;</del></p> <p><del>(gg) Areas within 10 kilometres from national parks or world heritage sites or <b>5 kilometres from any other protected area identified in terms of NEMPAA</b> or from the core areas of a biosphere reserve, excluding disturbed areas;</del></p> <p><del>(hh) Areas seawards of the development setback line or within 1 kilometre from the high water mark of the sea if no such development setback line is determined; or (ii) In an estuarine functional zone, excluding areas falling behind the development setback line; or</del></p> <p>iv. Inside urban areas:</p> <p><del>(aa) Areas zoned for use as public open space;</del></p>	<p><b>The proposed development will include the establishment of a new main access ring road, collector link roads providing access to the clusters. A new road outside the property boundary is also proposed between the south-western corner of the site Glendore Road. As these are new roads no reserve exists. The width of certain roads will exceed 4 m.</b></p> <p><b>The project site is located outside an urban area and ±3 km from the Sardinia Bay Nature Reserve, a protected area identified in terms of NEMPAA (2003).</b></p>

	<p><del>(bb) Areas designated for conservation use in Spatial Development Frameworks adopted by the competent authority or zoned for a conservation purpose; or</del></p> <p><del>(cc) Seawards of the development setback line or within urban protected areas.</del></p>	
<p><b>Activity 12</b></p> <p><b>Listing Notice 3</b> of GNR. 324 (985) (2014 EIA Regulations as amended)</p>	<p><b>The clearance of an area of 300 square metres or more of indigenous vegetation</b> except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan.</p> <p><b>b. Eastern Cape</b></p> <p>vi. <b>Within any critically endangered or endangered ecosystem listed in terms of section 52 of the NEMBA or prior to the publication of such a list, within an area that has been identified as critically endangered in the National Spatial Biodiversity Assessment 2004;</b></p> <p>vii. <del>Within critical biodiversity areas identified in bioregional plans;</del></p> <p>viii. <del>Within the littoral active zone or 100 metres inland from the high water mark of the sea, whichever distance is the greater, excluding where such removal will occur behind the development setback line or even in urban areas;</del></p> <p>ix. <del>Outside urban areas, within 100 metres inland from an estuarine functional zone;</del></p> <p><del>or</del></p> <p>x. On land, where, at the time of the coming into effect of this Notice or thereafter <b>such land was zoned open space</b>, conservation or had an equivalent zoning</p>	<p><b>More than 300 m<sup>2</sup> of indigenous vegetation will be cleared for the proposed development. The site footprint falls within two vegetation types, namely Sardinia Forest Thicket and Algoa Sandstone Fynbos as identified by the Nelson Mandela Bay Municipality's Bioregional Plan (NMBMBP) (2015) and the South African National Biodiversity Assessment (SA NBA) (2018), respectively. In respect of its conservation status Algoa Sandstone Fynbos is listed as a Critically Endangered ecosystem according to the most recent Threat Status contained in the SA NBA (2022).</b></p> <p><b>Also, as per the Zoning Scheme Register of the NMBM, most of the development footprint is zoned as Open Space.</b></p>
<p><b>Activity 15</b></p> <p><b>Listing Notice 3</b> of GNR. 324 (985) (2014 EIA Regulations as amended)</p>	<p><b>The transformation of land bigger than 1000 square metres in size, to residential, retail, commercial, industrial, or institutional use, where, such land was zoned open space, conservation or had an equivalent zoning, on or after 02 August 2010.</b></p> <p><b>b. Eastern Cape</b></p> <p>iii. <b>Outside urban areas, or</b></p> <p>iv. <del>Inside urban areas;</del></p>	<p><b>The proposed project area is approximately 614 409 m<sup>2</sup> in extent, thus exceeding the 1 000 m<sup>2</sup> threshold, and will be transformed to a variety of uses (residential, retail, commercial, or institutional). Most of the development footprint is zoned Open Space and the site falls outside an urban area.</b></p>

	<p>(aa) Areas zoned for conservation use or equivalent zoning, on or after 02 August 2010;</p> <p>(bb) A protected area identified in terms of NEMPAA, excluding conservancies; or</p> <p>(cc) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act as adopted by the competent authority.</p>	
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## 6.2 National Water Act, 1998

Section 21 of the National Water Act (Act No. 36 of 1998) (NWA) provides the list of water use activities that will require an authorisation or registration in accordance with the Act. The proposed Arlington Smart City development likely constitutes three water uses as defined in the National Water Act. These include Section 21 (a), (e) and (g). A description of these uses is provided in **Table 9** below.

*Table 9: Summary of Section 21 Water Uses Applicable to the Proposed Arlington Multi-Use Development.*

SECTION 21 WATER USE ACTIVITY	DESCRIPTION	DISCUSSION
21 (a)	Taking water from a water resource	Water abstraction will be required for the installation of boreholes within the site.
21 (c)	<del>Impeding or diverting the flow of water in a watercourse</del>	<p><del>Given that wetlands are located within 500 m of the site footprint, the proposed development will require a water use authorisation in terms of Section 21 (c).</del></p> <p><u>As per the Wetland and Aquatic Assessment, (dated, March 2024) and attached as Appendix C8. The Specialist concluded that "No part of the proposed development site is located within the "regulated area of a watercourse" as defined by the National Water Act (Act No. 36 of 1999). As such, there will be no requirement for the completion of any Water Use License Application for Section 21 (c) and (i) for the development".</u></p> <p><u>As such Section 21 (c) will no longer be applied for during the WULA Process.</u></p>
21 (e)	Engaging in a controlled activity identified as such in Section 37(1) or declared under Section 38(1)	<p>The project makes no provision for any activity that is classified under Section 37(1) or 38(1) of the Act as a controlled activity.</p> <p>Treated effluent from the Bio-Rotor wastewater treatment (or similar) facility will be used for irrigation.</p>

21 (g)	Disposing of waste in a manner which may detrimentally impact on a water resource.	Domestic wastewater will be stored for re-use as part of the Bio-Rotor wastewater or similar treatment facility.
21 (i)	<del>Altering the bed, banks, course, or characteristics of a watercourse</del>	<p><del>Given that wetlands are located within 500 m of the site footprint, the proposed development will require a water use authorisation in terms of Section 21 (i).</del></p> <p>As per the Wetland and Aquatic Assessment, (dated, March 2024) and attached as Appendix C8. The Specialist concluded that “No part of the proposed development site is located within the “regulated area of a watercourse” as defined by the National Water Act (Act No. 36 of 1999). As such, there will be no requirement for the completion of any Water Use License Application for Section 21 (c) and (i) for the development”.</p> <p>As such Section 21 (1) will no longer be applied for during the WULA Process.</p>

## 7 DETAILED DESCRIPTION OF THE PROPOSED PROJECT

### 7.1 Site Location and Description of Property

The proposed Arlington development study area is located to the west of Walmer in Gqeberha within the NMBM on the former Arlington Racecourse property and comprises three erven spanning a cumulative area of approximately 61.4 Ha. A summary of the property details is presented in Error! Reference source not found.. The property is bordered by Glendore Road to the west, Walmer Heights to the north and Milkwood Estate to the southwest. The site is further located approximately 500 m west from the former Walmer Country Club and approximately 8 km from Chief Dawid Stuurman International Airport (former Port Elizabeth Airport). The site is currently accessible via Racecourse Road off Victoria Drive (M18) to the south as shown in Error! Reference source not found. and attached as **Appendix A1**. Both Glendore Road and Victoria Drive can be accessed from Buffelsfontein Road (M09) in the north.

*Table 10: Property Information*

Project Information	Township	Erf No	Portion	Central Co-ordinates
<b>Affected Properties</b>	Walmer	Erf No 3988	0	34°0'80.61S   25°33'45.29E
	Walmer	Erf No 4195	0	34°0'20.96S   25°33'22.39E
	Walmer	Erf No 6991	0	34°0'14.58S   25°34'12.07E
	Walmer	Erf No 14639	0	34°0'22.63S   25°33'26.35E
	Walmer	Erf No 1953	0	34°0'17.87S   25°33'45.23E
	Walmer	Erf No 1948	0	34°0'23.36S   25°33'51.47E
<b>EXTENT OF THE SITE AREA</b>	Approximately 61.4 Ha			
<b>MUNICIPALITY</b>	Nelson Mandela Bay Municipality			
<b>WARD</b>	1 and 4			

*Table 11: SG 21 Digit Code*

Erf No.	S21 Digit Code
Erf No 3988	C05900380000398800000
Erf No 4195	C05900380000419500000
Erf No 6991	C05900380000699100000
Erf No 14639	C05900380001463900000
Erf No 1953	C05900380000195300000
Erf No 1948	C05900380000194800000

The development site is situated on the urban edge of the NMBM. However, the DEDEAT has confirmed that the proposed site is not located within an urban area.



*Figure 3: Locality Map indicating the proposed Arlington Development Study Area.*

The proposed development site is located approximately 3 km from the Sardinia Bay Nature Reserve towards the southwest and approximately 8 km the Nelson Mandela Bay Metropolitan University Private Nature Reserve towards the southeast as shown in **Figure 4** and attached as **Appendix A2**.

According to the Zoning Scheme Register of the NMBM, most of the development footprint is zoned as Recreational Open Space. The property will therefore require a Rezoning Application prior to the commencement of construction to accommodate the new land use rights of the different zones proposed. A Town Planner has been appointed by the Developer to make this application on their behalf.

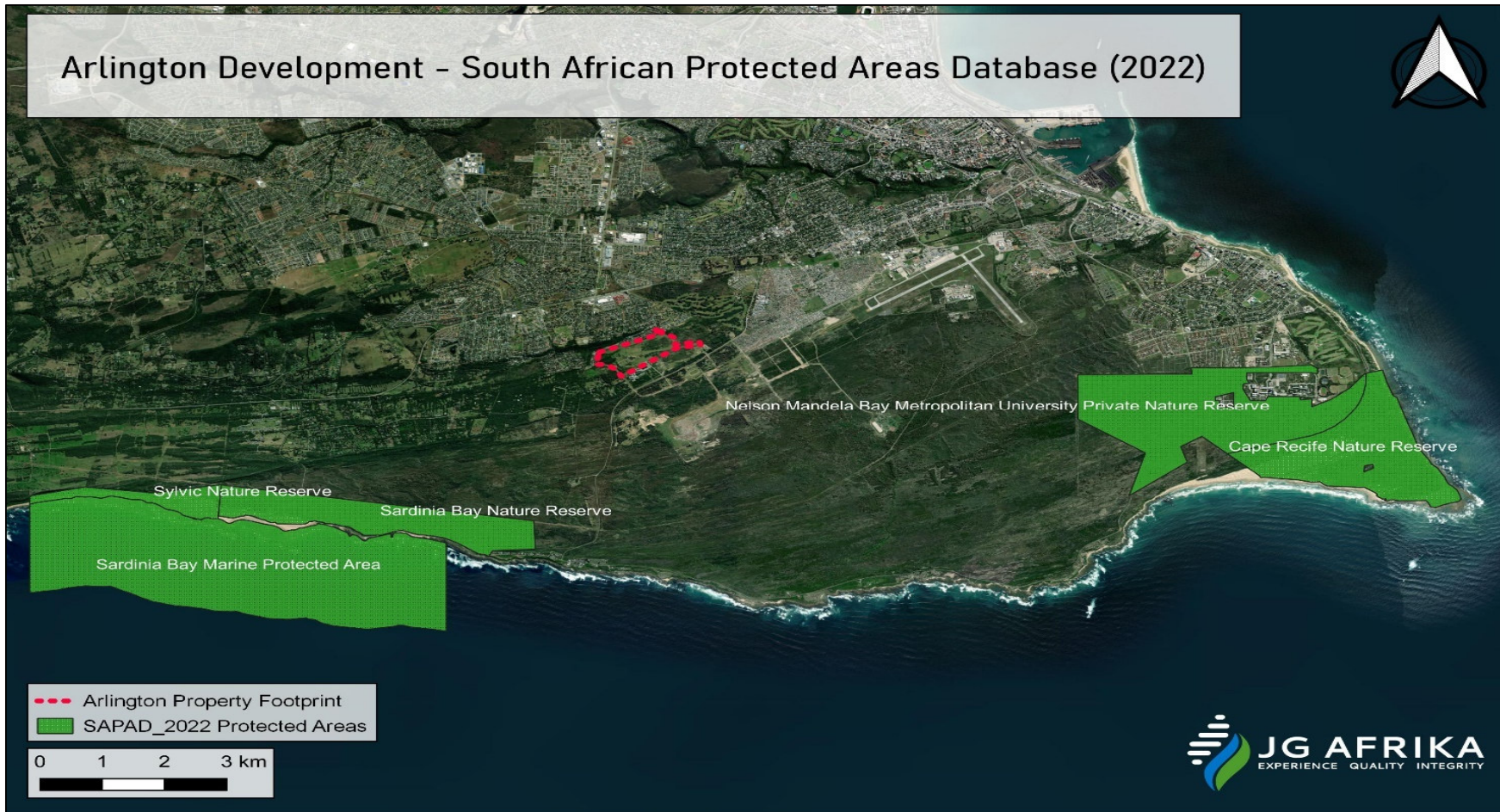


Figure 4: Map indicating Protected Areas in relation to the proposed site as identified by the SAPCAD (2022) in accordance with the NEMPAA (2003).

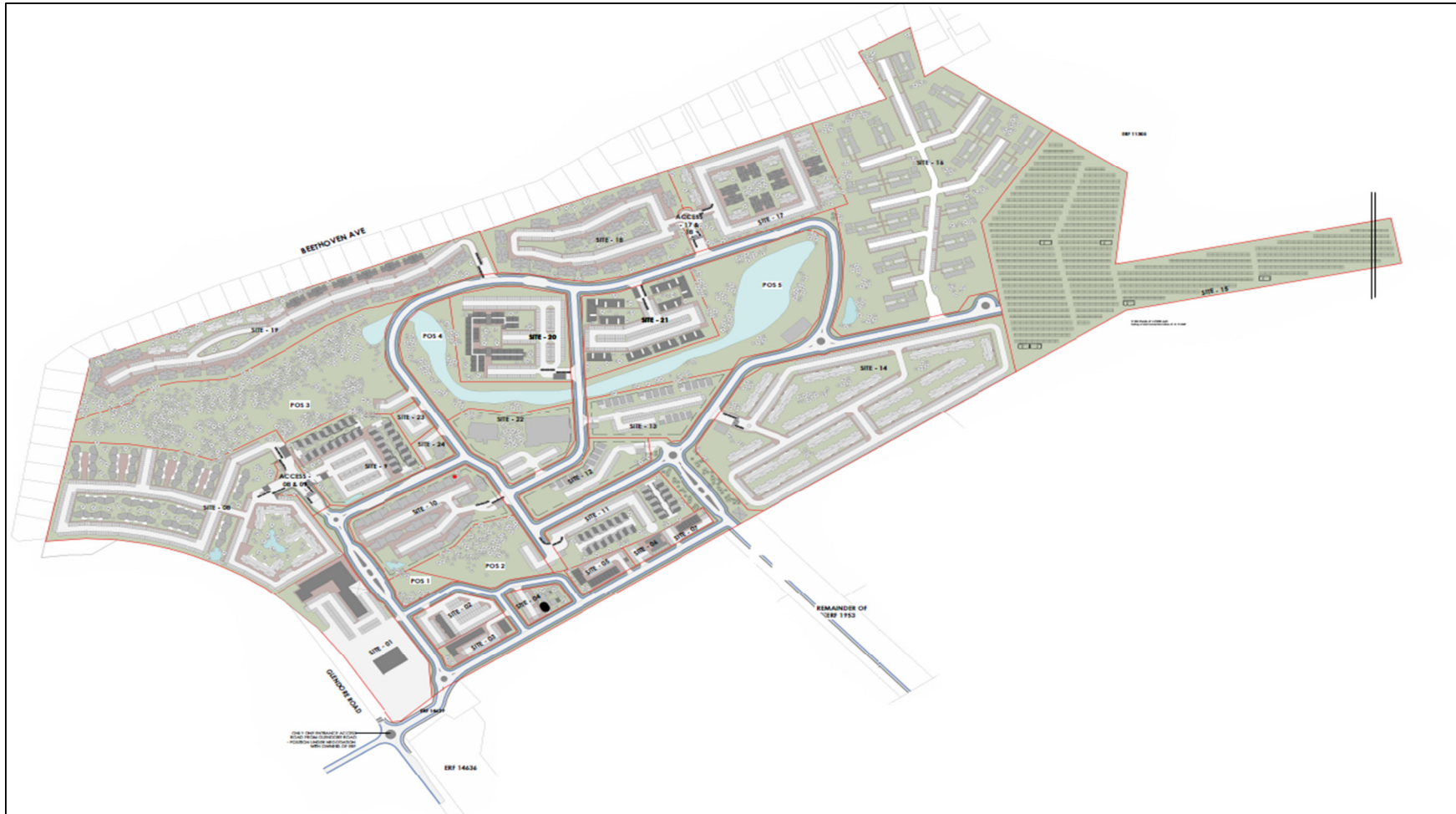


Figure 5: Master Layout Plan



## 7.2 Proposed Area (Erf) Data Summary Sheet

### 7.2.1 Summary Business and associated land usage

SITE NO.	AREA	AREA HA	NUMBER OF UNITS	UNITS PER HA		ZONING PROPOSED	COMMENTS
1	18505,6	1,85				Business Zone 1	Retail
2	4578,31	0,46				Business Zone 1	Office/retail and storage
3	2891,61	0,29				Business Zone 1	Medical and offices
4	2599,65	0,26				Community Zone 1	Curro / Montessori (creche) 0-5 years
5	2672,11	0,27				Business Zone 2	Economic and industrial sectors where in technological innovation is a driver. Computer hardware/ repair/ Entrepreneur startups
6	1314,84	0,13				Business Zone 2	Warehouse with shop front, small manufacturers, and places of business
7	1454,42	0,15				Business Zone 2	Warehouse with shop front, small manufacturers, and places of business
	<b>34016,54</b>	<b>3,40</b>	<b>SUBTOTAL AREA</b>				

### 7.2.2 Residential land use components

SITE NO.	AREA	AREA HA	NUMBER OF UNITS	UNITS PER HA ACHEIVED	PROPOSED UNITS PER HA FOR APPLICATION	ZONING PROPOSED	COMMENTS
8 & 9	2735,6	0,27				Special Purposes Infrastructure	Common gate house entrance with security - one lane in and one lane out
8	46503,21	4,65	358	77 units/ha	80 units/ha	Business Zone 1	Sliding gate with keypad entrance - one lane in and one lane out
9	14074,53	1,41	120	88 units/ha	90 units/ha	General Residential Zone 2	Sliding gate with keypad entrance - one lane in and one lane out
10	15721,54	1,57	128	82 units/ha	85 units/ha	General Residential Zone 2	Sliding gate with keypad entrance - one lane in and one lane out
11	11231,71	1,12	96	81 units/ha	85 units/ha	Business Zone 1	Sliding gate with keypad entrance - one lane in and one lane out
12	7655,13	0,77	48	62 units/ha	75 units/ha	Business Zone 1	Sliding gate with keypad entrance - one lane in and one lane out
13	10450,57	1,05	96	91 units/ha	120 units/ha	General Residential Zone 2	Sliding gate with keypad entrance - one lane in and one lane out
14	52293,47	5,23	390	76 units/ha	80 units/ha	Business Zone 1	Sliding gate with keypad entrance - one lane in and one lane out
16	69131,97	6,91	792	115 units/ha	120 units/ha	General Residential Zone 4	Sliding gate with keypad entrance - one lane in and one lane out
17 & 18	1187,98	0,12				Special Purposes Infrastructure	Common gate house entrance with security - one lane in and one lane out
17	21863,39	2,19	168	77 units/ha	80 units/ha	General Residential Zone 2	Sliding gate with keypad entrance - one lane in and one lane out

SITE NO.	AREA	AREA HA	NUMBER OF UNITS	UNITS PER HA ACHEIVED	PROPOSED UNITS PER HA FOR APPLICATION	ZONING PROPOSED	COMMENTS
18	24828,01	2,48	126	51 units/ha	60 units/ha	General Residential Zone 2	Sliding gate with keypad entrance - one lane in and one lane out
19	34067,56	3,41	216	64 units/ha	70 units/ha	General Residential Zone 2	Sliding gate with keypad entrance - one lane in and one lane out
20	17249,96	1,72	148	88 units/ha	90 units/ha	General Residential Zone 2	Sliding gate with keypad entrance - one lane in and one lane out
21	15713,91	1,57	120	77 units/ha	80 units/ha	General Residential Zone 2	Sliding gate with keypad entrance - one lane in and one lane out
<b><i>SUBTOTAL AREA</i></b>	<b><i>344708,54</i></b>	<b><i>34,47</i></b>	<b><i>2806</i></b>	<b><i>UNITS</i></b>			

### 7.2.3 Private Open Space

SITE NO.	AREA	AREA HA	NUMBER OF UNITS	UNITS PER HA	ZONING PROPOSED	COMMENTS
POS 1	2145,04	0,21			Open Space Zone 2	Entrance Public Art and landscaping.
POS 2	9094,42	0,91			Open Space Zone 2	Development Private Park.
POS 3	39951,37	4,00			Open Space Zone 2	Private braai areas, walking and bike trails, outdoor gyms, skate park and Inclusive Play / Sensory Play / Climbing Walls / Covered Play Structures / Outdoor Learning Spaces / Inter-generational play equipment and multiple play zones.

SITE NO.	AREA	AREA HA	NUMBER OF UNITS	UNITS PER HA		ZONING PROPOSED	COMMENTS
POS 4	13221,12	1,32				Open Space Zone 2	Wetland attenuation, Walking and bike trails, outdoor gyms, Inter-generational play equipment and multiple play zones.
POS 5	24405,63	2,44				Open Space Zone 2	Park and wetland attenuation
	<b>88817,58</b>	<b>8,88</b>	<b>SUBTOTAL AREA</b>				

#### 7.2.4 Other Areas

SITE NO.	AREA	AREA HA				ZONING PROPOSED	COMMENTS
22	10742,33	1,07				Business Zone 1	
23	1627,28	0,16				Business Zone 1	
24	1597,67	0,16				Business Zone 1	
15	61487,17	6,15				Business Zone 1 - Special <b>Purposes Infrastructure</b>	Solar Farm
25	2479,76	0,25				Business Zone 1 - Special <b>Purposes Infrastructure</b>	Pump station and sewer treatment

SITE NO.	AREA	AREA HA				ZONING PROPOSED	COMMENTS
26	68825,03	6,88				Special Purposes Infrastructure	Roads / other
	<b>146759,24</b>	<b>14,68</b>	<b>SUBTOTAL AREA</b>				
Site Total	614301,9	61,43	2806				<b>TOTAL UNITS</b>

### 7.2.5 Total Percentage (5) allocation of site areas

SITE NO.	AREA	AREA HA	NUMBER OF UNITS			% OF TOTAL	COMMENTS
Site 1-7	34016,54	3,40				5,54%	
POS 1-5	88817,58	8,88				14,46%	
Site 8-21	344708,54	34,47	2806			56,11%	
Site 22, 23, 24 ,15,25	77934,21	7,79				12,69%	
Site 26	68825,03	6,88				11,20%	Roads/pavements and green areas
	<b>614301,9</b>	<b>61,43</b>	<b>TOTAL SITE AREA</b>			<b>616500,71</b>	<b>Erf area according to site diagrams</b>

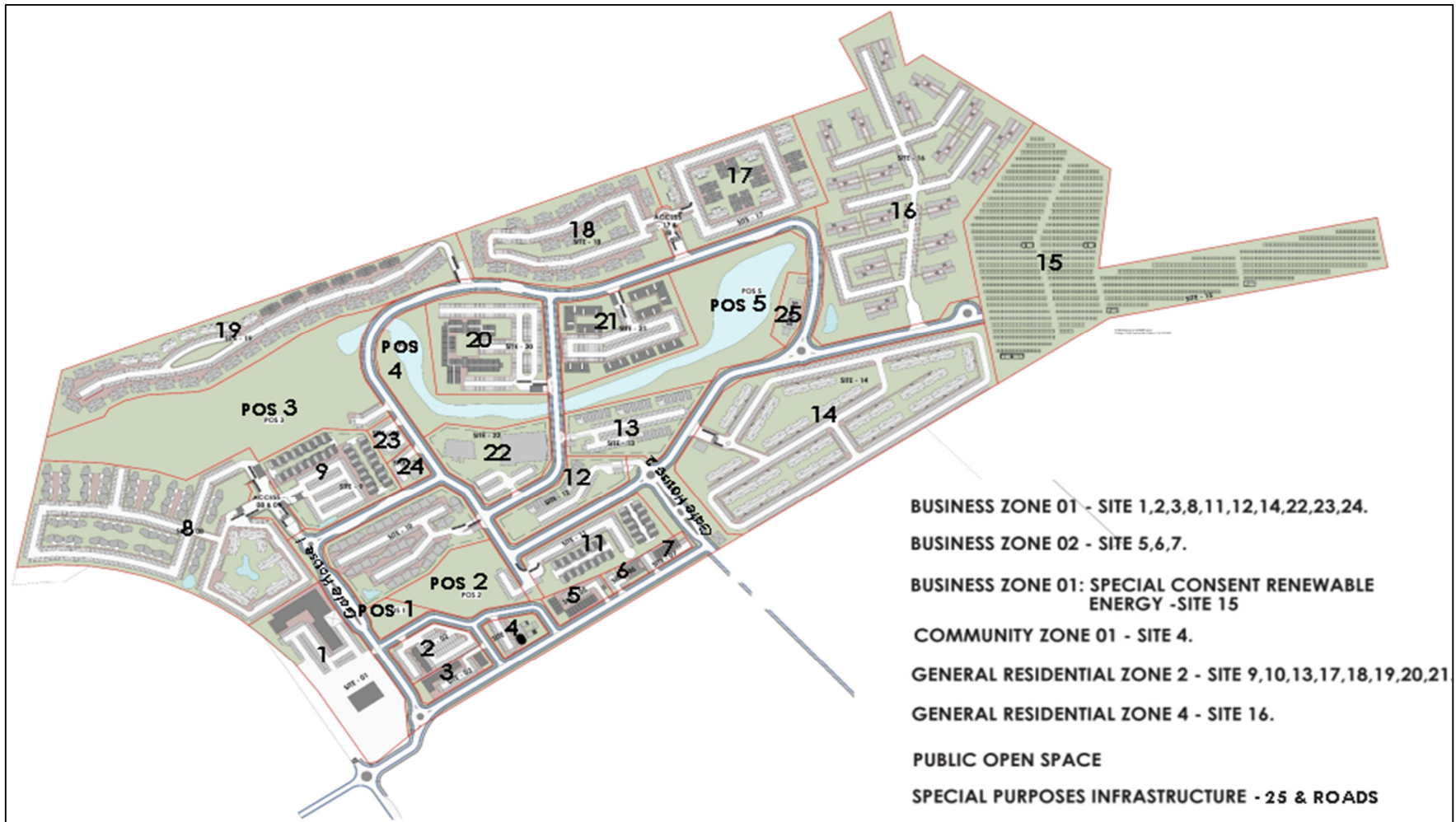


Figure 6: Development Zoning Analysis

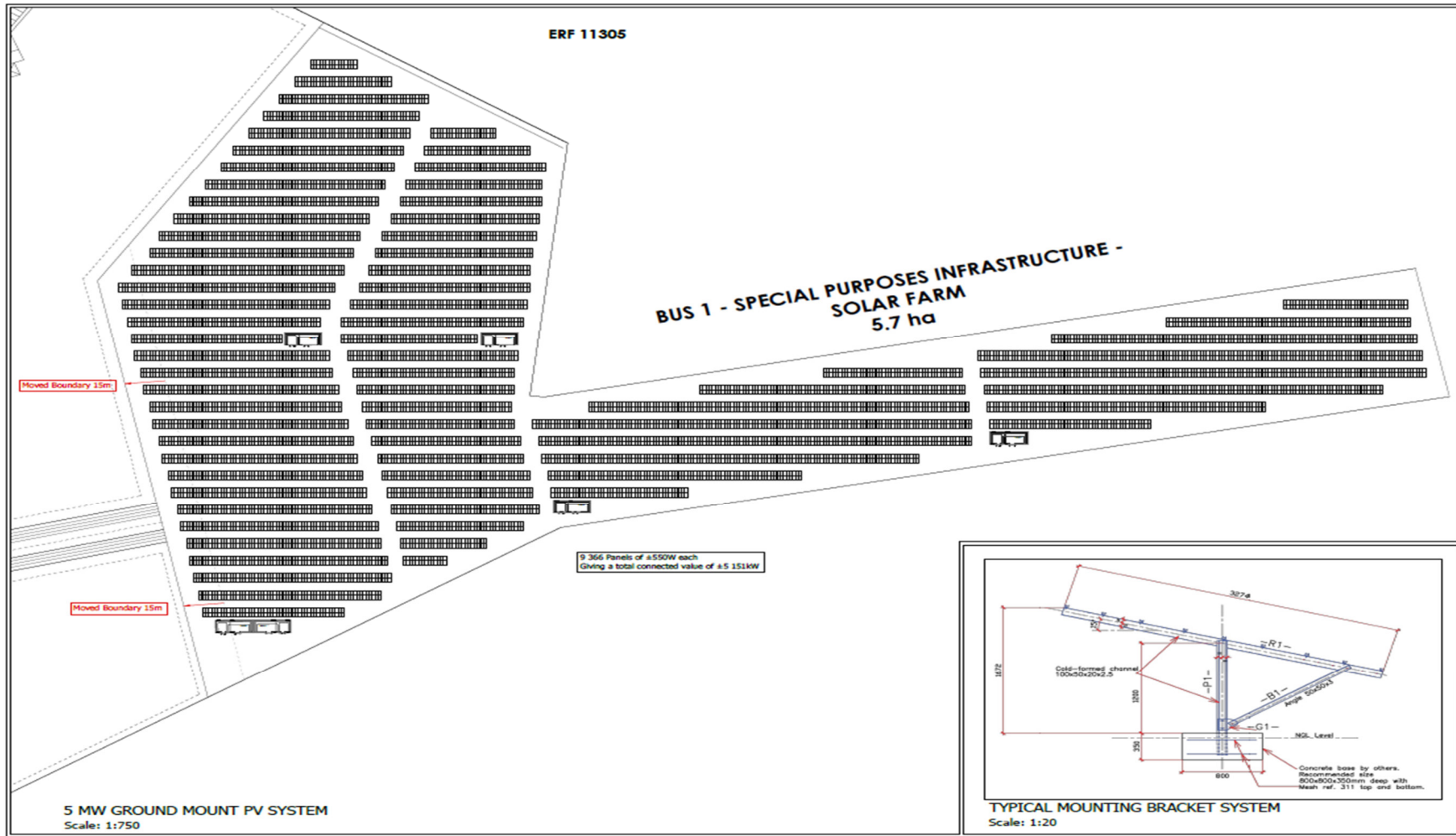


Figure 7: PV Proposed Layout

### 7.3 Site Photographs







Figure 8: Photographs presenting the current condition of the proposed development site.

## 8 DESCRIPTION OF THE RECEIVING ENVIRONMENT

### 8.1 Climate

The Port Elizabeth Airport is the nearest Weather Station to the Arlington Development for which weather data could be freely obtained. Port Elizabeth experiences short, warm summers and long, cool winters. The temperatures typically range from 9°C to 25°C.

The average maximum and minimum temperatures recorded for the months of 2023 are shown in **Figure 9**, as well as the average wind speed, gusts, and dominant wind direction (**Figure 10**).

Wind and Weather Statistics for the Waterkloof Air Force Base (AFB) as obtained from Windfinder: [https://www.windfinder.com/windstatistics/port\\_elizabeth](https://www.windfinder.com/windstatistics/port_elizabeth)

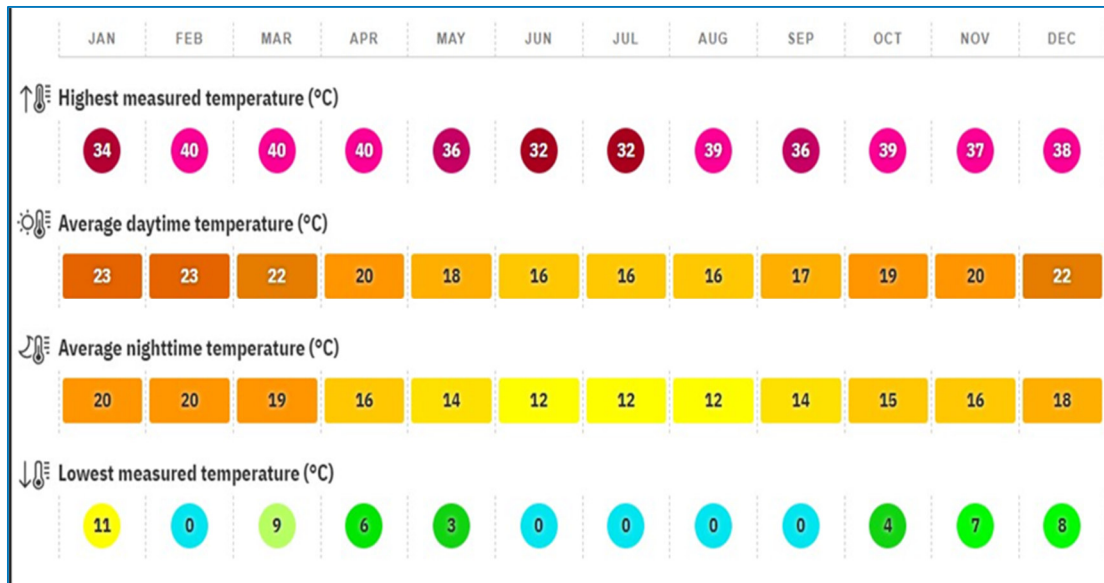


Figure 9: Average maximum and minimum temperatures recorded monthly for Port Elizabeth Airport (Windfinder, 2023).

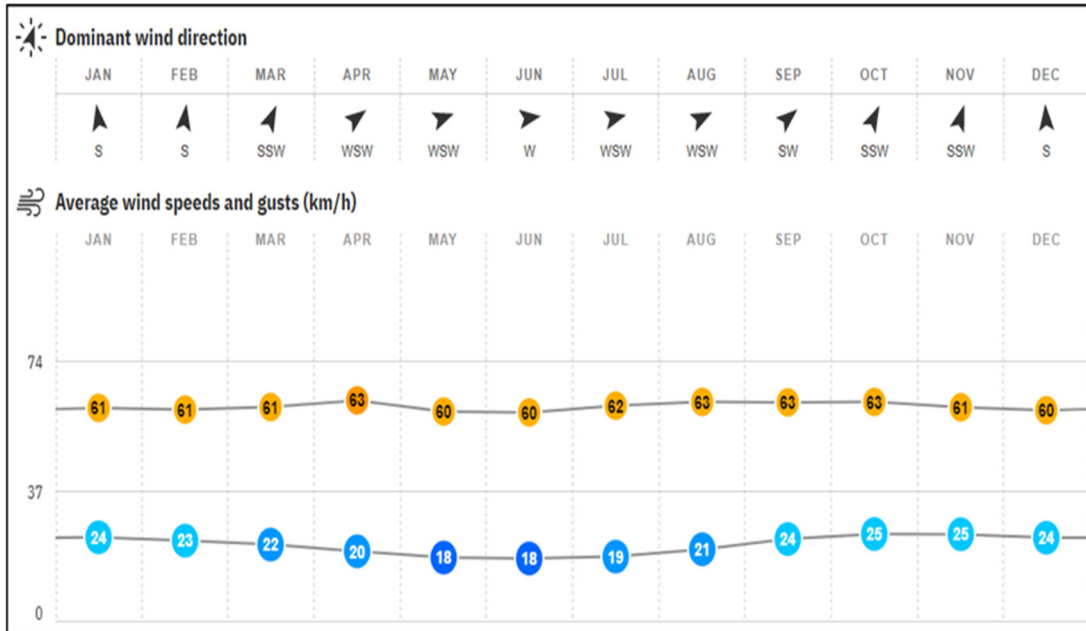


Figure 10: Dominant wind direction and average wind speeds and gusts (in km/h) recorded at Port Elizabeth Airport (Windfinder, 2023).

## 8.2 Current Land Use

The Arlington Development site is situated on the old Arlington Racecourse, within the residential area of Walmer, Gqeberha. The adjacent properties are mainly designated as urban formal, including the residences in the area of Walmer Heights, Beethoven Avenue and the plots along Glendore Road (which include Welbedacht Estate). To the south of the project footprint lies the Milkwoods Social Housing Development.

In terms of the NMBMBP, the land cover designated to the study area falls primarily under Recreational Open Space, with a portion of the western edge of the site being designated as DONUT – this indicates that the area is open land/space that is undeveloped. A small portion south of the site is designated as urban formal, adjacent to the Milkwoods Social Housing Development. Refer to the NMBMBP Land Cover Map provided in **Figure 11**. A copy of this map is also attached to **Appendix A4** of this EIA Report.

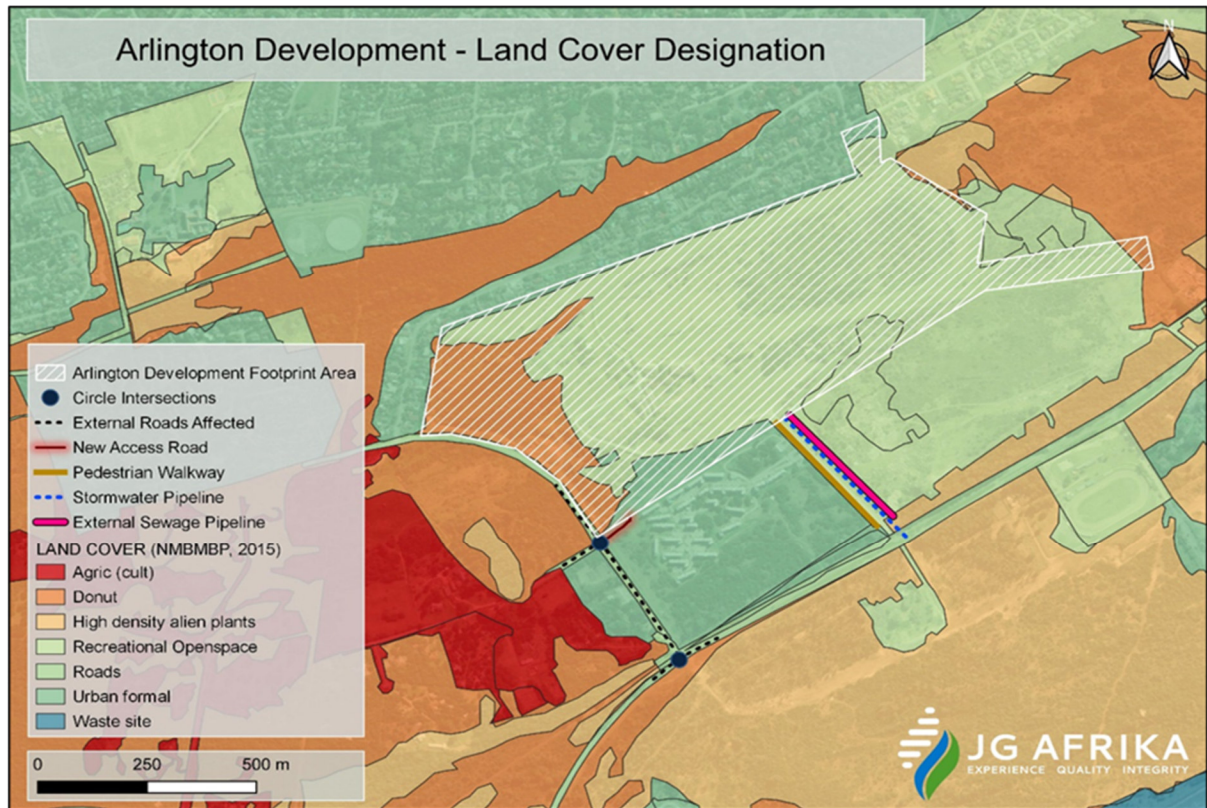


Figure 11: Land Cover Designation for Arlington Development area and surrounds (NMBMBP, 2015).

### 8.3 Topography

The Nelson Mandela Bay Region has a generally low elevation profile with some elevation northwest of the study area. When observing the topography and elevation of the study area, it is generally flat to slightly undulating landscape to the north with an average of 120m above sea level (Error! Reference source not found. and **Appendix A5**).

The topographical and drainage features will need to be confirmed by site investigation, which will be undertaken during the EIR Phase.

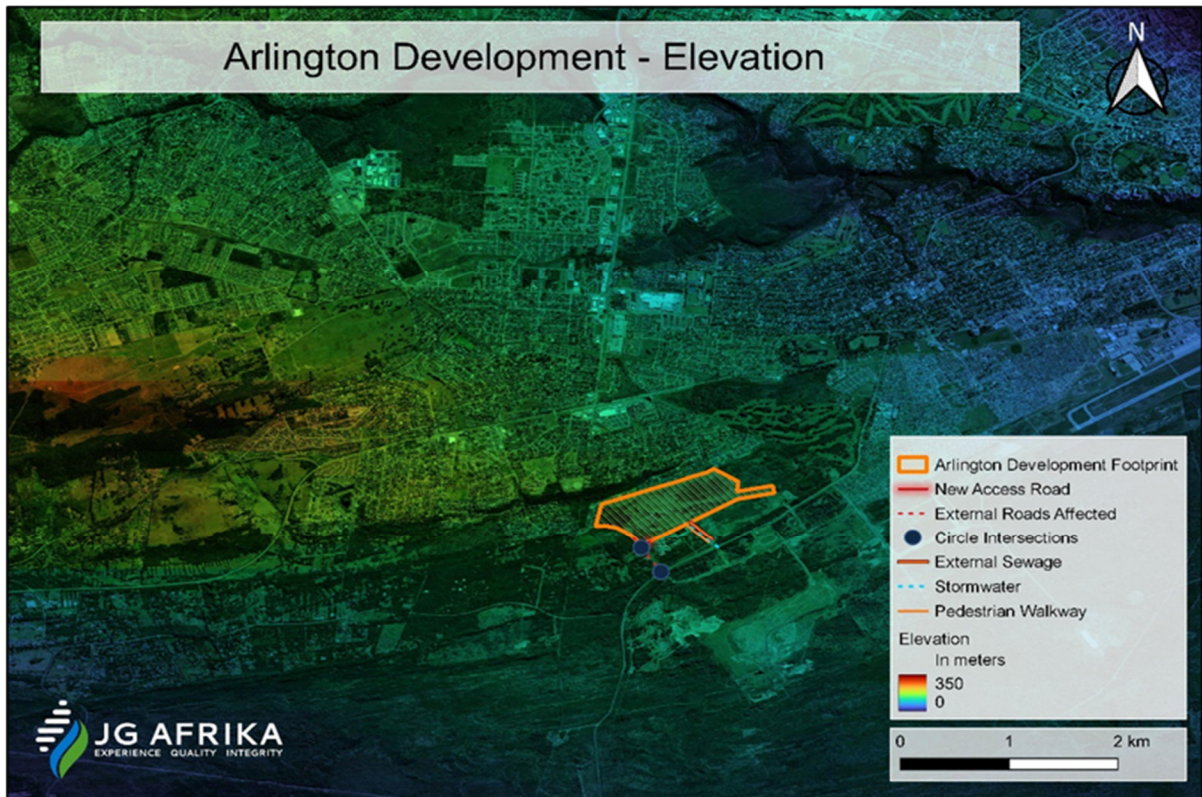


Figure 12: Elevation of the study area and surroundings from 0m to 350mm (blue to red).

#### 8.4 Geology and Soils

According to Mucina & Rutherford (2011), the study area forms part of the Table Mountain Group (Cape Supergroup), with acidic lithosol soils derived from Ordovician Sandstone, with land types of mainly Db and Ha.

#### 8.5 Vegetation and Sensitive Habitats

##### National Biodiversity Assessment

According to the National Biodiversity Assessment (2018), the study area is comprised of two vegetation types: Algoa Sandstone Fynbos, and Sardinia Forest Thicket (**Figure 13 and Figure 14**) and are included as **Appendix A6 and Appendix A7**. According to the most recent version of the National Biodiversity Assessment (2022), Algoa Sandstone Fynbos is designated a status of Critically Endangered, whereas Sardinia Forest Thicket has a status of Least Concern. The status of Algoa Sandstone Fynbos indicates that less than 20% of the original natural habitat remains. As for Sardinia Forest Thicket, its status indicates that more than 80% of the original habitat remains and/or is largely intact.

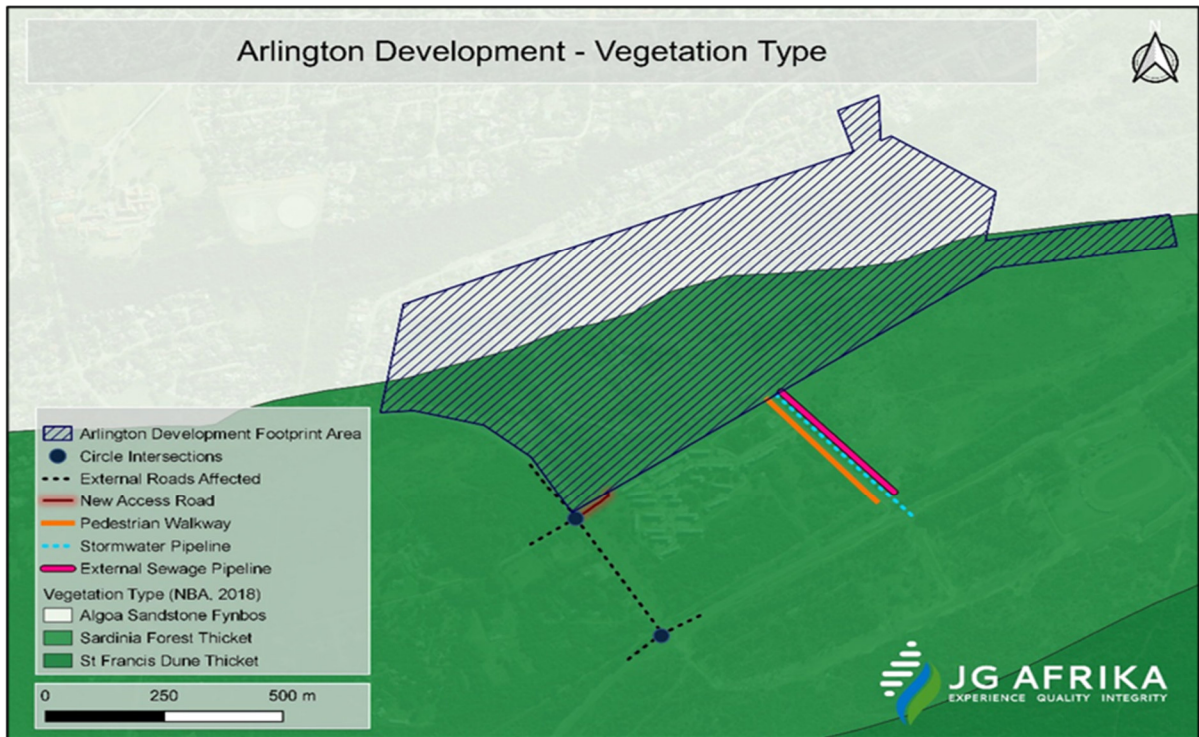


Figure 13: Vegetation Type within the study area (NBA, 2018).

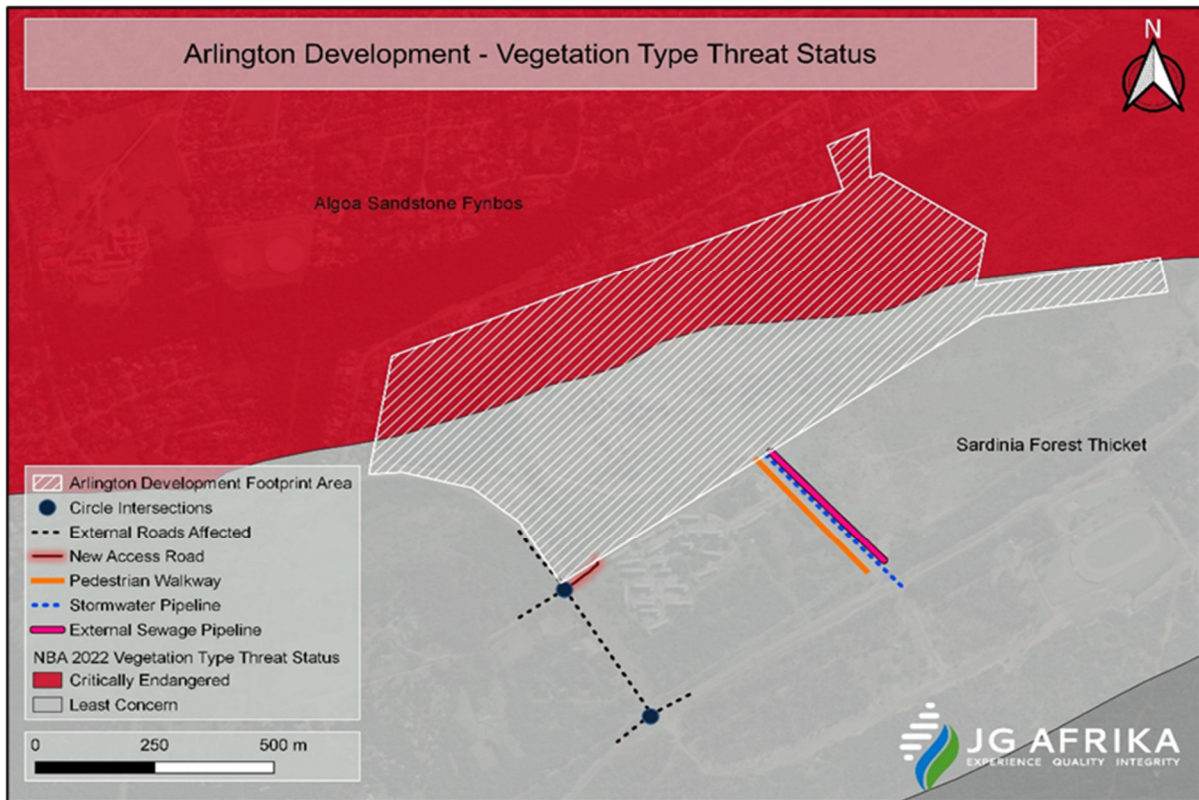
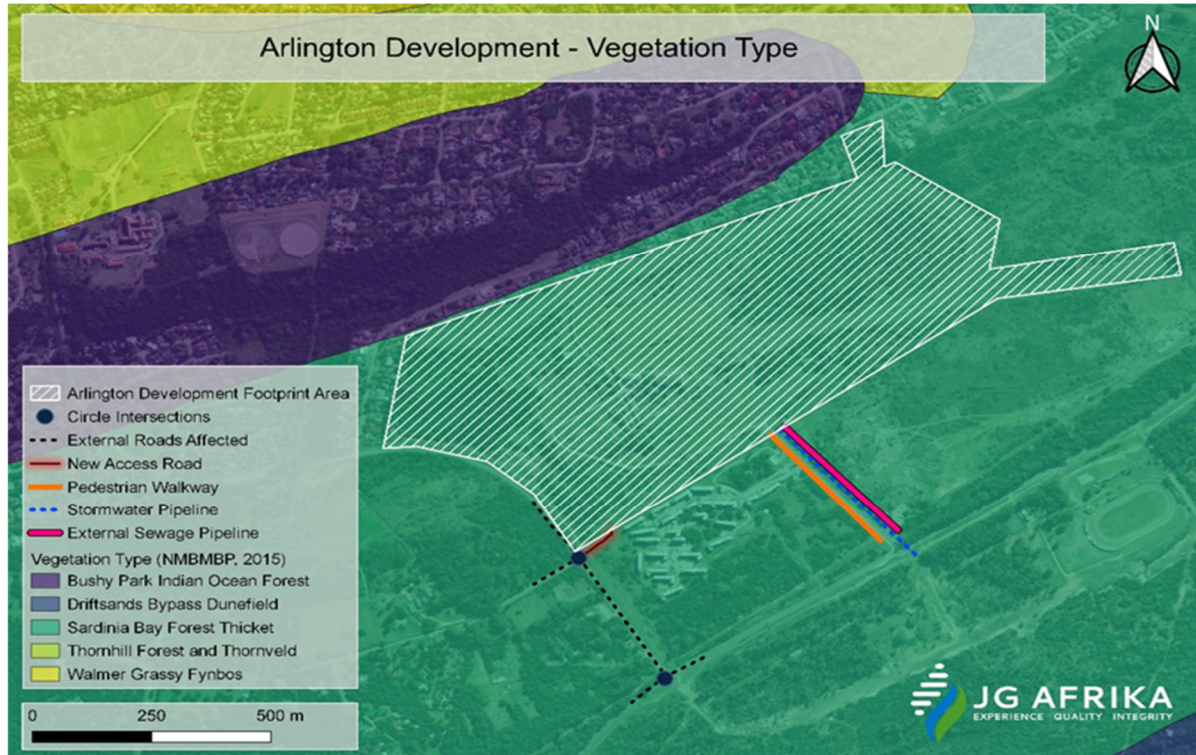


Figure 14: Vegetation Type Threat Status for the study area (NBA, 2018).

### **Nelson Mandela Bay Municipality Bioregional Plan (2015)**

According to the NMBMBP, the entire study area falls within the vegetation type – Sardinia Bay Forest Thicket (**Figure 15 and Appendix A8**), with a designated threat status of **Vulnerable** (**Figure 16 and Appendix A9**).



*Figure 15: Vegetation Type for the study area according to the NMBM BP (2015).*

The stand of vegetation present consists of a combination of indigenous and exotic vegetation, with a preliminary sensitive area being detected in the western corner of the study area (**Figure 17 and Appendix A10**). A large portion of the study area has already been disturbed because of previous activities that took place on the property.

**A Terrestrial Biodiversity Assessment** has been conducted and the findings are included in **Section 13.2** of **this Environmental Impact Assessment Report.**

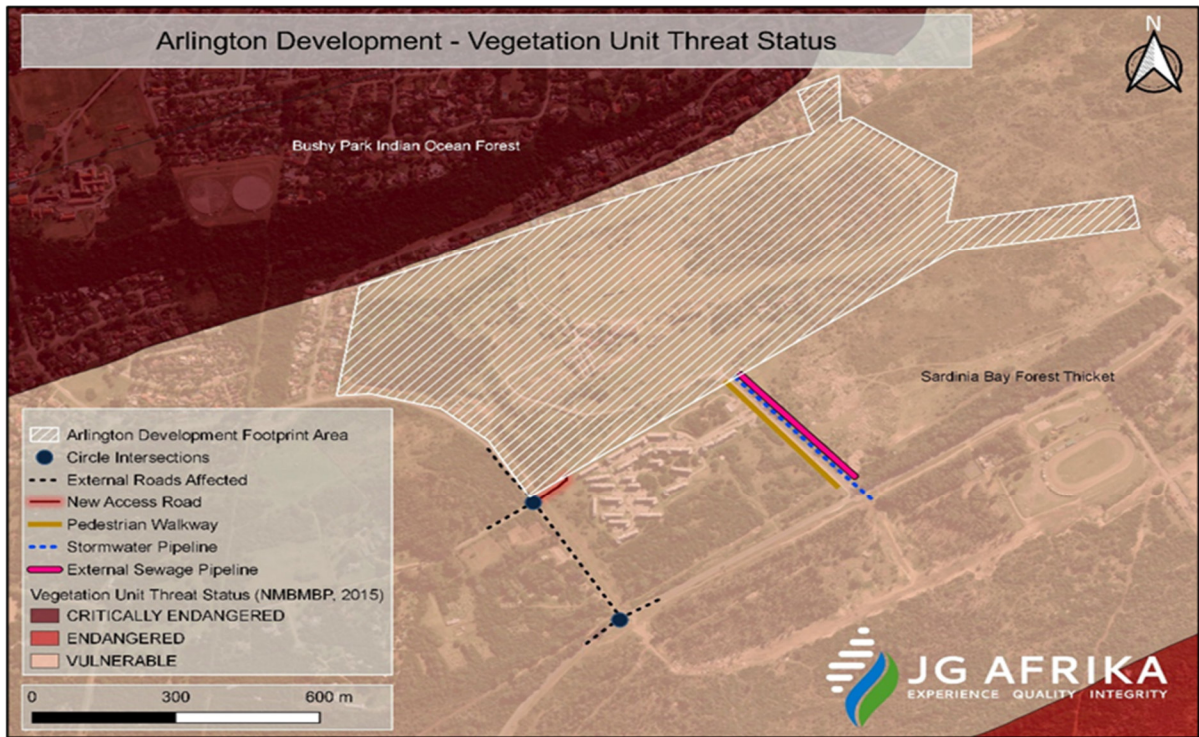


Figure 16: The vegetation unit threat status present within the study are, according to the NMBM BP (2015).



Figure 17: Preliminary Sensitivity Areas identified by the Specialist for the Arlington Development footprint.

## 8.6 Critical Biodiversity Areas and Ecological Support Areas

Critical Biodiversity Areas (CBAs) are areas required to meet biodiversity targets for ecosystems, species, and ecological processes, as identified in a systematic biodiversity plan and/or bioregional plan.

As indicated in the Critical Biodiversity Map (**Figure 18 and Appendix A11**), a CBA is located less than 65 m northwest of the proposed site footprint, according to the Nelson Mandela Bay Municipality's Bioregional Plan (2015). Ecological Support Areas (ESAs) also play an important role in supporting the ecological functioning of Critical Biodiversity Areas and/or in delivering ecosystem services. As shown in the Ecological Support Areas Map (**Figure 18**), there are a few ESAs surrounding the proposed development, however, none of them are within critical proximity to the proposed development.

The study area does not intersect with any Critical Biodiversity Areas, or Ecological Support Areas, as designated in the Eastern Cape Biodiversity Conservation Plan (2019) or the NMBMBP (2015).

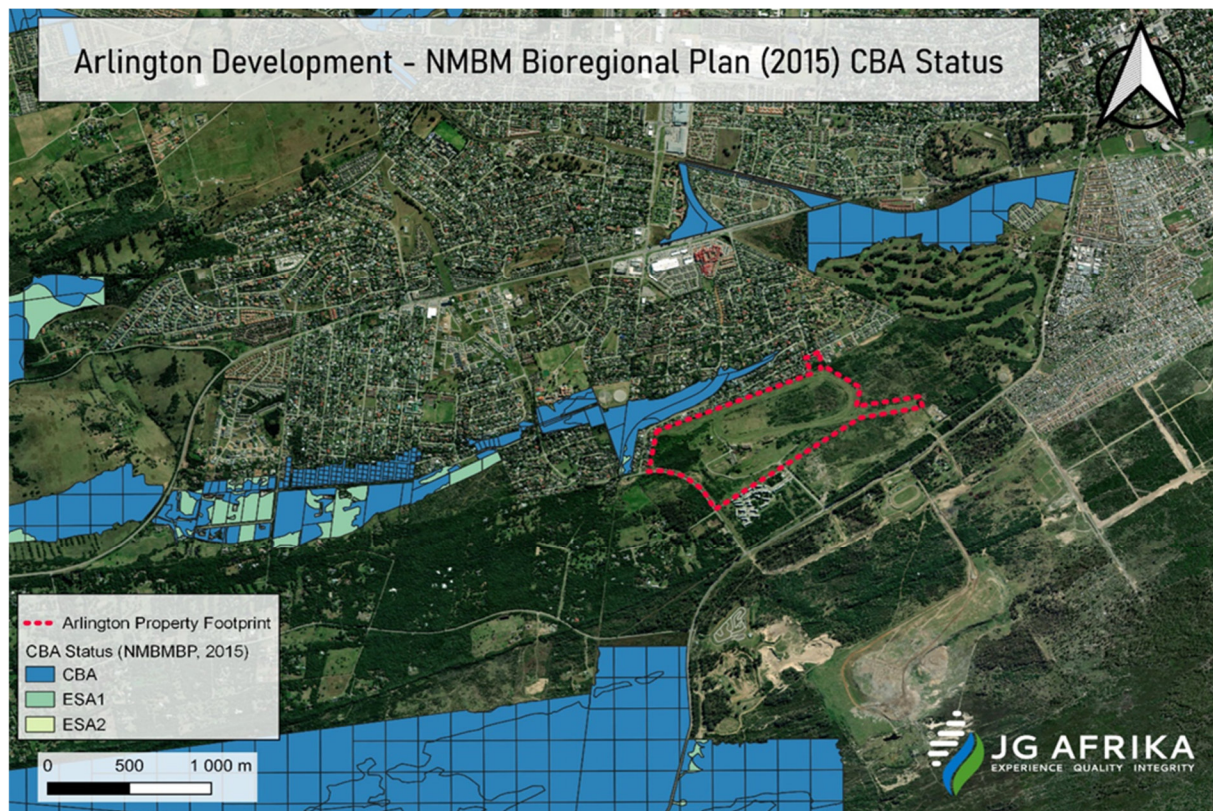


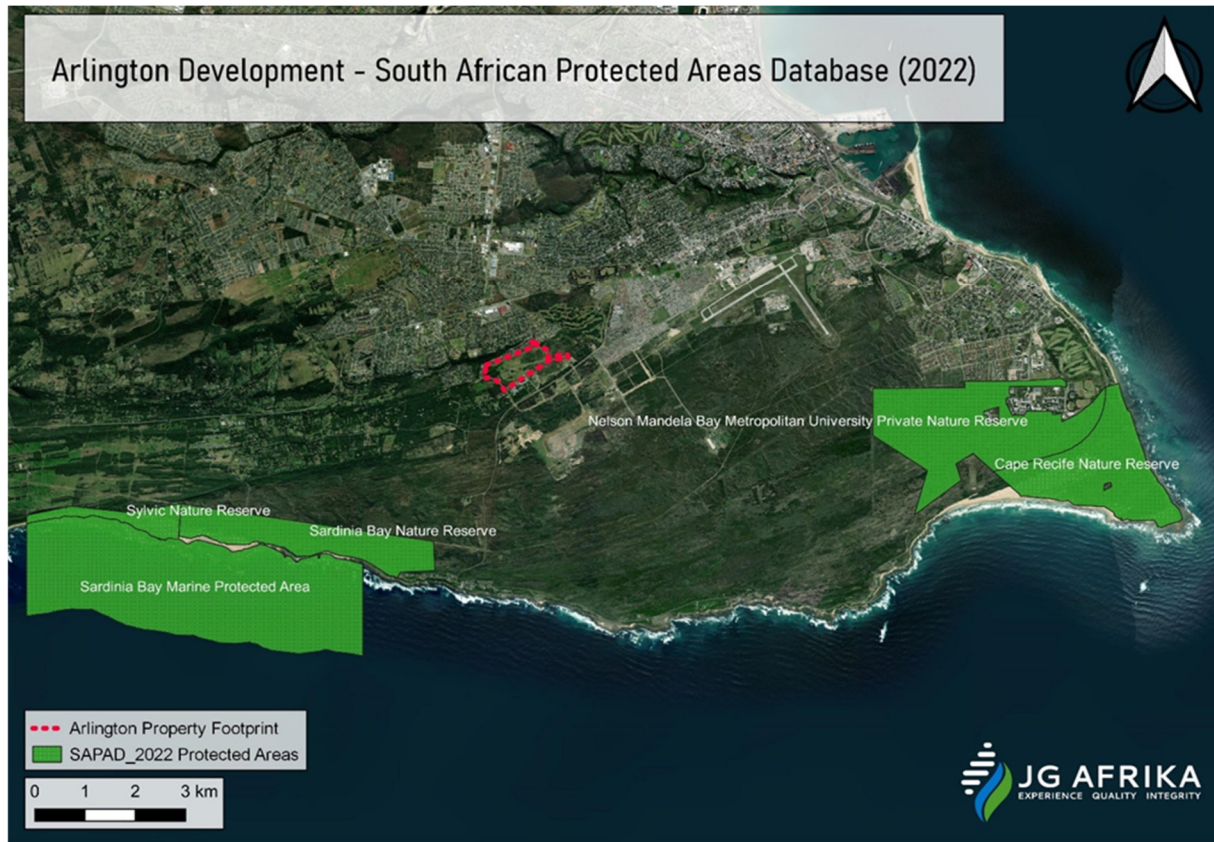
Figure 18: Map indicating the CBAs and ESAs in relation to the proposed site.

## 8.7 Protected Areas

The proposed development site is located approximately 3 km from the Sardinia Bay Nature Reserve towards the southwest and approximately 8 km the Nelson Mandela Bay Metropolitan University Private Nature



Reserve towards the southeast (**Figure 19 and Appendix A2**). These are protected areas identified by the South African Protected and Conservation Areas Database (SAPCAD) (2022) in accordance with the National Environmental Management: Protected Areas Act (NEMPAA - Act 57 of 2003).



*Figure 19: Map indicating Protected Areas in relation to the proposed sites as identified by the SAPCAD (2022) in accordance with the NEMPAA (2003).*

A Faunal Species Compliance Statement to provide animal species input has been undertaken and the findings are included in **Section 13.3** of this Environmental Impact Assessment Report.

An Avifaunal Assessment has been conducted and the findings are included in **Section 13.5** of this Environmental Impact Assessment Report.

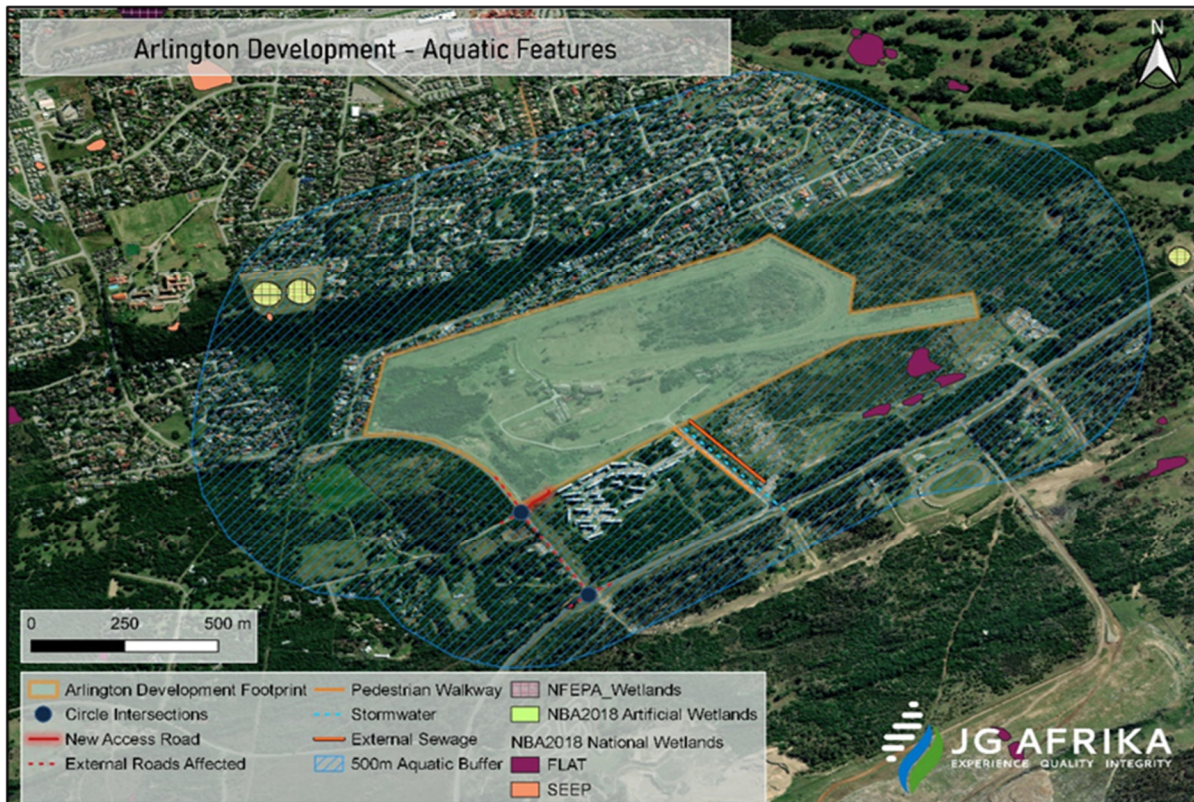
## 8.8 Surface Water Features

The study area is situated within the Mzimvubu Tsitsikamma Water Management Area, within quaternary catchments M20A.

In terms of the NFEPA wetlands database and the NBA (2018) artificial wetlands database, there are two artificial wetlands present within 500 m north-west of the study area, these are in the form of large water reservoirs. According to the NBA National Wetlands Map (2018), there is a cluster of flat wetlands bordering

the eastern strip of the study area (with the nearest situated <65 m from the site border). Another seep wetland lies roughly 325 m north-west of the study area. Refer to Error! Reference source not found. and **Appendix A12**.

An **Aquatic and Wetland Assessment** has been conducted and the findings are included in **Section 13.8** of this Environmental Impact Assessment Report.



*Figure 20: Aquatic Features present in an around the study area (within 500m buffer indicated in blue).*

## 8.9 Archaeological and Cultural Heritage

The Archaeological and Cultural Heritage theme are highlighted as Low sensitivity. The Heritage specialist has undertaken his survey and indicated that there are no sensitive areas from an archaeological perspective that will affect the layout of the proposed development. There may be a building or structure that is over 60 years old, as per the historical background of the premises, but most of these structures are dilapidated and therefore a permit application will be made to the Heritage Authority for demolishing of such structures.

Additionally, according to Section 38 of the National Heritage Resources Act (Act 25 of 1999), should 5000 m<sup>2</sup> of vegetation be cleared, a Heritage Impact Assessment must be undertaken.

A Phase 1 Archaeological and Cultural Heritage Assessment has been undertaken and the findings are included in Section 13.6 of this Environmental Impact Assessment Report.

### 8.10 Palaeontology

Palaeontology sensitivity is highlighted as Very High; however, the palaeontologist has indicated that there are no areas that require exclusion during the design phase of the proposed development.

As a result of the sensitivity triggered by the screening tool and the need for further investigation, a **Palaeontological Impact Assessment** has been undertaken and the findings are included in **Section 13.7 of this Environmental Impact Assessment Report.**

## 9 SOCIO ECONOMIC CONTEXT

Nelson Mandela Bay Municipality is located on the south-eastern coast of Africa in the Eastern Cape. It is one of eight category A municipalities in South Africa. In 2001, the Nelson Mandela Bay Metropolitan Municipality was formed as an administrative area covering Port Elizabeth, the neighbouring towns of Uitenhage and Despatch, and the surrounding agricultural areas. Nelson Mandela Bay is a major seaport and automotive manufacturing centre.

The Coega Industrial Development Zone (IDZ) is situated within the Nelson Mandela Metropolitan Municipality. The initiative is a multibillion-dollar industrial development complex customized for heavy, medium, and light industries. It is adjacent to a deepwater port, the Port of Ngqura, and covers 110 km<sup>2</sup> of land. The city's unique advantage of possessing two ports, namely Port Elizabeth Harbour and Ngqura, creates an opportunity for the city to establish a strong and vibrant maritime sector.

The multiple-use development is proposed to be undertaken within the jurisdiction of the NMBM.

Information on the socio-economic environment within which the development will occur has therefore been sourced from the Stats SA (<https://www.statssa.gov.za/nelson-mandela-bay-municipality>).

### 9.1 Population

The population of the NMBM is 1 152 115 and it covers an area of 1 950 km<sup>2</sup>. Census 2011 also tells us that there are 324 292 households. The official estimate of the population in 2001 was 1 005 779 people and 260 799 households.

According to Census 2011, 60,1 % of respondents described themselves as black African, 23,6 % coloured, 14,4 % white and 1,1 % Indian/Asian. Of the population, 552 994 (48 %) are male and 599 121 (52 %) are female.

Young people (0–14 years) constitute 25,5 % of the population, youth (15–35 years) 37,1 %, adults (36–64 years) 31,4 % and the elderly (65+ years) 6 %.

IsiXhosa is spoken by 53,2 % of the residents as their mother tongue. Afrikaans is the mother tongue of 28,9 %, and English 13,3 %.

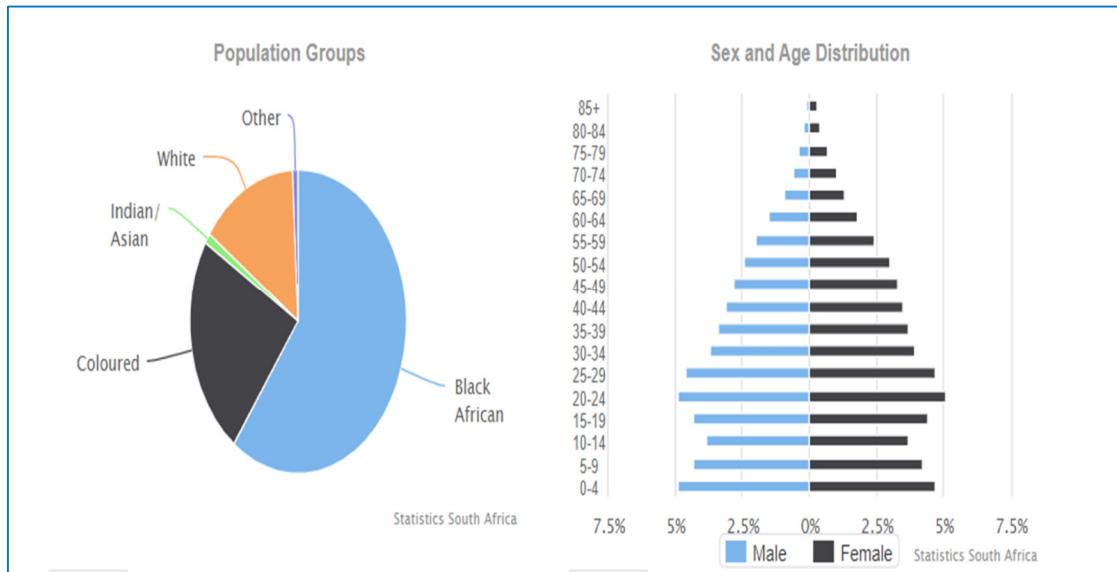


Figure 21: Population data for NMBM – population groups and sex age distribution.

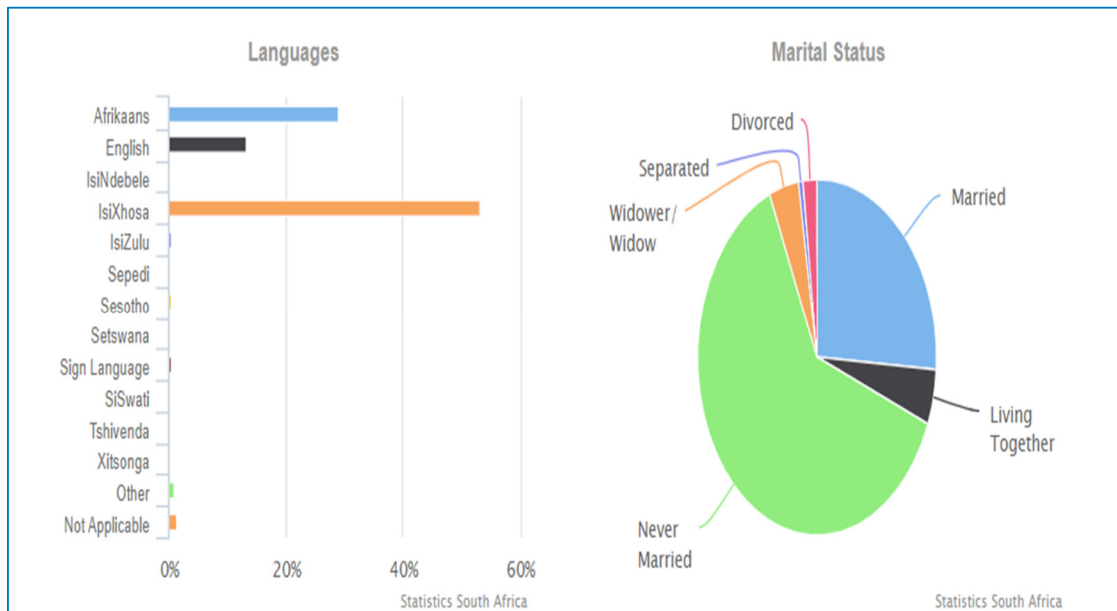


Figure 22: Population data for the NMBM – languages and marital status.

## 9.2 Education

Just over 3 % of the population aged over 20 years have never received any form of schooling, whereas 30.5 % have a matric qualification, whilst only 12 % over the age of 20 have some form of higher education. Error! Reference source not found. gives a visual representation of the highest level achieved by the overall population within the NMBM.

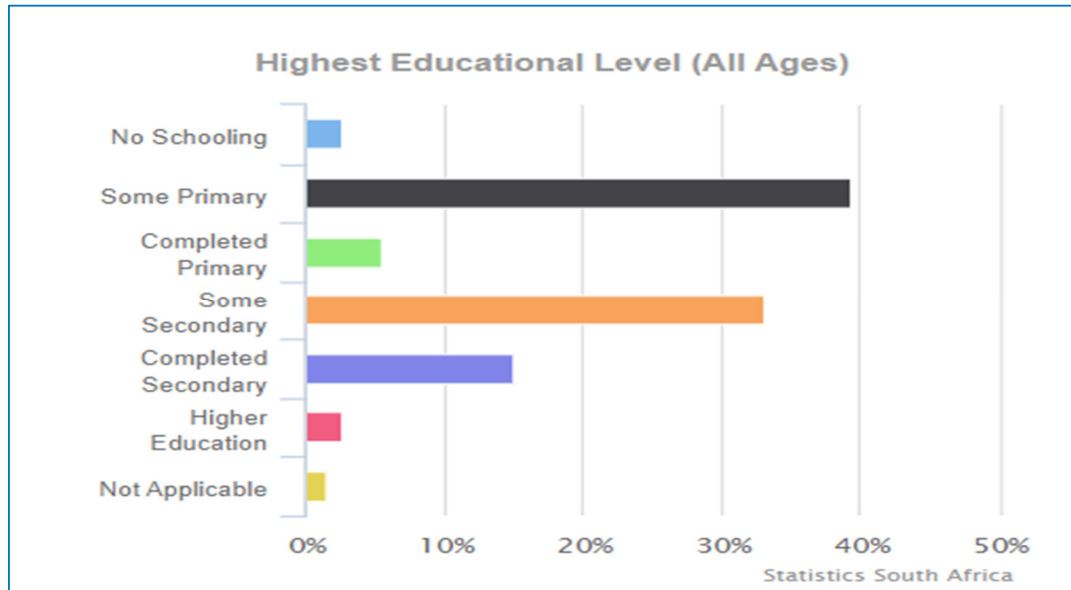


Figure 23: Highest education level achieved by population of NMBM.

## 9.3 Employment

The unemployment rate in the Nelson Mandela Bay Municipality was 36,6 % in 2011, compared to 46,4 % and 36,3 % in 2001 and 1996 respectively.

According to Eastern Cape Socio Economic Consultative Council (ECSECC), the GDP growth rate for the Nelson Mandela Bay Municipality was 2,1 % in 2010 and the GDP per capita R 52 147. The largest economic sectors in the Nelson Mandela Metro are manufacturing, finance, community services and transport. Community services, trade and manufacturing sectors are the sectors that create the most employment in the metro.

Nelson Mandela Bay faces high levels of unemployment, which may be attributed to a decline in economic growth and activities. According to Statistics South Africa the Nelson Mandela Bay Municipality has an unemployment rate of 21,02 %, while youth unemployment is 13,68 %.

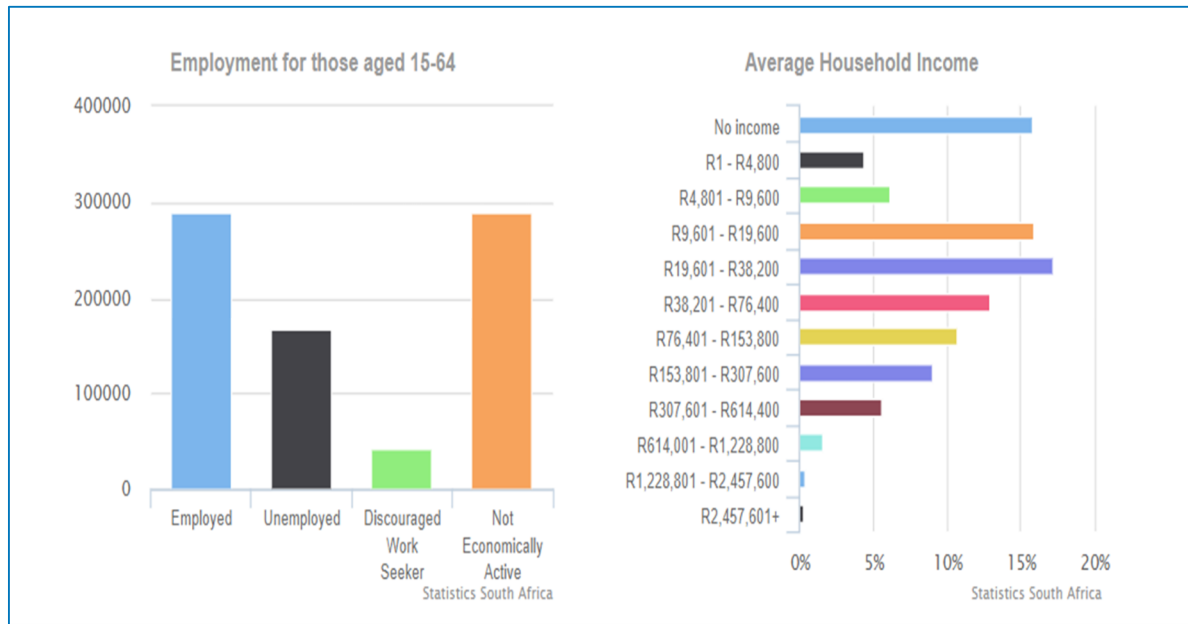


Figure 24: Employment data for the NMBM showing the status of the employment between 15-64, as well as average annual household income.

#### 9.4 Living Conditions

The average household income p.a. increased from R 53 904 in 2001 to R 105 602 in 2011.

Census 2011 shows that 90,5, % of households are using electricity as the main source of energy for lighting, 85,9 % for heating, and 54,5 % for cooking. Of the households, 90 % have access to piped water inside their dwellings.

Nelson Mandela Bay Metro consistently has the highest percentage of households with access to flush/chemical toilets (89,4 %) and lowest percentage with no access to a toilet (1,9 %), compared to other district municipalities in the Eastern Cape.

A Socio-Economic Impact Assessment provides a preliminary identification of potential; socio-economic impacts associated with the proposed Arlington multiple-use development has been conducted and the findings are included in Section 13.9 of this Environmental Impact Assessment Report.

## 10 FEASIBLE AND REASONABLE ALTERNATIVES

“Alternatives”, in relation to a proposed activity, means different means of meeting the general purpose and requirements of the activity, which may include alternatives to —

- (a) the property on which or location where it is proposed to undertake the activity.
- (b) the type of activity to be undertaken.
- (c) the design or layout of the activity.

- (d) the technology to be used in the activity.
- (e) the operational aspects of the activity; and
- (f) the option of not implementing the activity.

Alternatives must include a consideration of all possible means by which the purpose and need of the proposed activity could be accomplished in the specific instance taking account of the interest of the applicant in the which the impacts of the other alternatives are assessed. The determination of whether site or activity (including different processes, etc.) or both is appropriate, needs to be informed by the specific circumstances of the activity and its environment. After receipt of this report the competent authority may also request the applicant to assess additional alternatives that could possibly accomplish the purpose and need of the proposed activity if realistic alternatives have not been considered to a reasonable extent.

Please note that the assessment of alternatives should, where possible, be done in a way that feeds back into the planning or design of the activity, thereby optimising the positive aspects and minimizing the negative aspects that are highlighted during the scoping process. The scoping process should also be interactive where necessary to reflect the optimal formulation of alternatives. In instances where such an interactive and iterative process has been followed in the development of a preferred alternative, it may be appropriate to terminate the assessment of other alternatives, excluding the 'no-go' alternative. To justify the termination of the assessment, or limit the number of possible alternatives, or further assessment of any alternative, it is, however, important to document the interactions and iterations properly.

**Please note that only reasonable and feasible alternatives have been considered during this assessment process.**

### 10.1 Development Footprint

An alternative viable site location was not identified and evaluated for the project. The specific proposed location for the multipurpose-use development is preferred as it is the only property of its size in the Arlington area which:

- The site is currently vacant and does have abandoned buildings and infrastructure (i.e the race course stadium, betting office, horse stables etc).
- Is located adjacent to existing developments and therefore requires minimal extension of bulk service infrastructure.
- According to the Nelson Mandela Bay Municipality's Bioregional Plan (2015) - a CBA is located less than 65 m northwest of the proposed site footprint and there are a few ESAs surrounding the proposed development, however, none of them are within critical proximity to the proposed development.
- Is easily accessible via two (2) existing roads (Entrance Gate 1 from Glendore Road and Entrance Gate 2 will be off Victoria Drive onto the Racecourse Road).
- Is owned by a landowner willing to become involved in a development of this nature.

## 10.2 Type of Activity to be undertaken

This development will aim to promote social, economic, and environmental sustainability. The project will be resource efficient through resource management ideas such as the improvement of the water distribution network, rainwater management, digital smart meters, renewable energy generation, sustainable drainage, reduction of water generation, optimisation of waste management.

The development in its entirety will include the following components:

- a. Retail/Business Infrastructure.
- b. Office/Storage Facilities.
- c. Medical Use/Office Facilities.
- d. Special Use High Tech Industrial facility/infrastructure.
- e. Warehouse Facilities.
- f. Community Zone (i.e., child aftercare facilities).
- g. Mixed-residential Housing Units including Social Housing – no more than 3 000 units are proposed.
- h. Club House and Sport Facilities.
- i. A Business Incubator Area.
- j. Parking/Solar Charging Stations.
- k. Special Purposes Infrastructure – solar photovoltaic power park & wastewater treatment plant.
- l. Open spaces.
- m. Installation of internal infrastructure services, such as water, sanitation, irrigation, stormwater, roads, and electricity, to service the proposed infrastructure.
- n. Installation of external infrastructure services, such as stormwater and sanitation connection lines as well as a pedestrian walkway along Racecourse Road and two traffic circles along Glendore Road. An additional road will be constructed between the south-western corner of the site and the northern circle.

### **Proposed Service Infrastructures**

#### **Water supply:**

It is proposed that approximately 50 % of water is to be supplied from NMBM via the existing Glendore Road water connection, and that 50 % of water is to be supplied from groundwater (with approximately 35 ℓ/s to 50 ℓ/s supply). The proposed water supply is a connection into the existing 315 mm diameter municipal supply main from Glendore Road. Each of the 25 clusters are to consist of 110 mm diameter supply network with a connection to 300 mm diameter supply main and a peak throughput of 113 ℓ/s. Each cluster to consist of 110 mm diameter supply network with connection to units, fire hydrants, isolating valves, and meter to flow measurement per cluster. A Reverse Osmosis treatment system will be employed on site for the purification of the groundwater. In addition, tanks not exceeding 3 000 m<sup>3</sup> will be installed for the storage of raw (ground) water and potable water.



**Wastewater:****Northern catchment of site:**

Wastewater is to be discharged via a gravitational system including collector sewers draining each of the clusters to the lowest point of the northern catchment. A wastewater treatment works in the form of a Bio-Rotor Treatment System (or similar) is proposed for the treatment of effluent from the northern catchment. This treatment works will be equipped with a capacity of 1125 kℓ/day for the re-use of treated effluent. As an alternate to the wastewater treatment works (in the event of failure of the operation of the wastewater treatment works), the provision of a storage sump of 24 hours storage i.e. 1125 kℓ or 15 m<sup>3</sup> storage and a wastewater pumpstation is proposed, with a capacity of 30 ℓ/s together with estimated 500 m long 160mm dia pump main, to discharge wastewater from the storage sump to discharge to the outfall for the southern catchment.

**Southern Catchment of site:**

The wastewater of units within the southern catchment of the site will gravitate to a common collection point, from where the wastewater is to discharge under gravity with a 500 m long 300 mm dia gravity collector sewer to connect into the 355 mm dia NMBM Sewer in Victoria Road.

**Irrigation:** The treated wastewater effluent is to be piped from the treatment system for purpose of irrigation for green areas and parks within the development.

**Stormwater:** An internal storm water reticulation system will be developed and 9 000 m<sup>3</sup> detention ponds to accommodate excess stormwater flow from the site. Stormwater is to be discharged via an approximately 500 m long, 600 mm diameter stormwater pipe into the existing municipal stormwater channel along Victoria Road.

**Roadworks:** The proposed internal road network is to consist of a main access ring road, collector link roads providing access to the clusters, access control points to each of the clusters, parking for each cluster, together with pedestrian sidewalks, crossings, and cycle lanes. As part of the adjoining external road network, an additional road will be constructed between the south-western corner of the site and Glendore Road (which will be the primary access route), directly opposite the already present unnamed road. This new road will link up with Glendore Road by means of a new circle intersection. A second circle intersection is proposed further south at the T-junction of Glendore Road and Victoria Drive. All new traffic circles will be accompanied by raised pedestrian tables and subsequently surfaced pedestrian sidewalks along the adjoining road networks. The construction of additional lanes and changes to traffic signal phasing and timing at Victoria Drive and the Buffelsfontein Road intersections will also be implemented. Additionally, two public transport bays are proposed to be constructed, one on both exits to Glendore Road/Access Road, and one along the Victoria Drive/Glendore Road intersection. All the above-mentioned roadworks will be accompanied with the relevant/applicable traffic signals and additional turning auxiliary lanes (such as at Genadendal/Buffelsfontein Road), as well as pedestrian and vehicle proof fencing/walls being erected along the property boundary adjacent to Glendore Road.

*Bulk electrical connection:*

The electrical connection, from the NMBM Electricity and Energy Department is estimated to be 11 kV, 7 MVA, bulk connection with a main intake sub-station on Glendore Road. The facility will be reticulated internally, for self-consumption and costing, with 11 kV underground cable via a network of numerous 11 kV ring-main units, miniature sub-stations. The mini-sub stations will be positioned near each gate house of each zone.

*PV System:*

The space allocated for the PV ground mount system, can have a capacity of  $\pm 4\,400$  kW of inverter, with  $\pm 5\,151$  kW panels. This is in line with the maximum allowable, as per NERSA and the NMBM EE department, of which only allows 75 % of the connected load to be of equipment/plant on site with 25 % of the connected load to be able to be put back into their grid. The system will be connected via transformers, stepped up from 800 V into the 11 kV network. In the PV area, there will be transformers and control technology housed in various sub-station buildings. See Error! Reference source not found. for the proposed layout of the PV infrastructure.

*Streetlighting:*

The streetlights, in the main roads, will be down facing only, with self-contained battery and PV panel. The lighting inside each zone, will be connected to the internal system of each zone, also with efficient LED pole lighting to suite the style of the area/zone.

*Reticulation*

The MV cable reticulation will follow the civil route of the main roads and basically the same routing of the water reticulation, with a take-off at each gate house zone. There will also be infrastructure network of sleeves and manholes installed for the fibre for the development, which will follow the same routing as the above. These infrastructure services will be co-ordinated with the civil works.

The two activity alternatives for the proposed development are:

- 1) The preferred option of the implementation of the proposed development; and
- 2) The no-go development option.

The preferred activity option would infer that the construction of the proposed multiple-use development be undertaken within the preferred development area to address the following:

- Ensure greater social diversity through an integrated housing development.
- Allow a broader range of housing types, such as cottage clusters, town homes, and other “missing middle” typologies.
- Facilitate the development of lower cost housing typologies with dignity.
- Prevent segregated communities’ combination of LSM housing typologies.
- Create a community where individuals regardless of their race or socioeconomic background can live together with a diverse housing inventory.
- Create a robust multifamily preservation strategy.

- Stimulate investment in surrounding areas through a deliberate direction for future growth.
- Creatively utilize land asset to stimulate economic development.
- Promote desired change through perceived and tangible economic perspective of surroundings.
- Promote an enhanced community's liveability.
- Support needs of existing and future residents.
- Strengthen the community by fostering its racial and socioeconomic diversity.
- Desirable secure location for people to live, work, and play facilitating the current Covid related work from home.
- Create new opportunities for home ownership of the future younger generations.
- Increase housing opportunities for people of all ages, income levels, races, and backgrounds.
- Improve housing conditions through quality environment and security.

The no-go development option is neither advised nor feasible for the proposed development as:

- The potential for short to medium term local job creation and skills development opportunities associated with the site establishment and construction of the proposed housing development will not be realised. Unemployment within the local municipality stands at 27.7 % (see the Socio-Economic Profile in Section 9 of this report).
- Framework of the municipality as specified in the IDP.

In the case that the "no-go" alternative is exercised, the existing site will remain open and undeveloped.

### 10.3 Design Layout

The Preferred Layout of the mixed-use development (dated 14/08/2023) includes the establishment of eight (8) land-use zones; namely: Residential 2, Residential 4, Business 2, Business 1, Community 1, Special Use High Tech Industry, Special Purposes Infrastructure, Private Open Space, comprising of differing extents, as indicated in **Sections 3 and 7** above. An A3 copy of the Preferred Layout is attached in **Appendix B1**.

Habitat within the proposed development boundary has been flagged as sensitive according to the preliminary desktop assessments for the scoping report, which have been considered by the Applicant in the determination of the housing development layout – **Figure 25** and **Appendix A3**.

### 10.4 Technology

Preferred technologies have not yet been investigated for the project; however, best practice construction and implementation is recommended for all infrastructure associated with the project.

Potential alternatives that must be investigated for the proposed development will include:

- Environmentally friendly technology and designs regarding the construction of housing and associated infrastructure such as:
  - o Solar power for geysers and general electricity.

- o Efficient rainwater harvesting.
- o Energy efficient lighting (within the houses and streets) and general appliances.
- o Water saving devices such as aerated taps and dual flush toilets.
- o A wastewater treatment works in the form of a Bio-Rotor Treatment System, or similar, is proposed for the treatment of effluent from the northern catchment.
- Waste minimisation activities during the construction and handover phases including the recycling of generated waste, where possible.

Additional feasible technology alternatives will be investigated further and refined during the EIA phase of the proposed development.

### 10.5 Operational Aspects

The preferred and only operational aspects of the activity involve the maintenance of infrastructure and general service delivery to the area. No alternatives to the operation aspect of the proposed development have been considered.

### 10.6 'No-Go' Alternative

The no-go alternative must be included in the assessment phase as the baseline against which the impacts of the other alternatives are assessed. The no-go alternative assumes that the proposed project will not go ahead i.e., the proposed multiple-use development will not occur and therefore the site will remain as is. The no-go alternative is discussed further in **Section 10**, below.

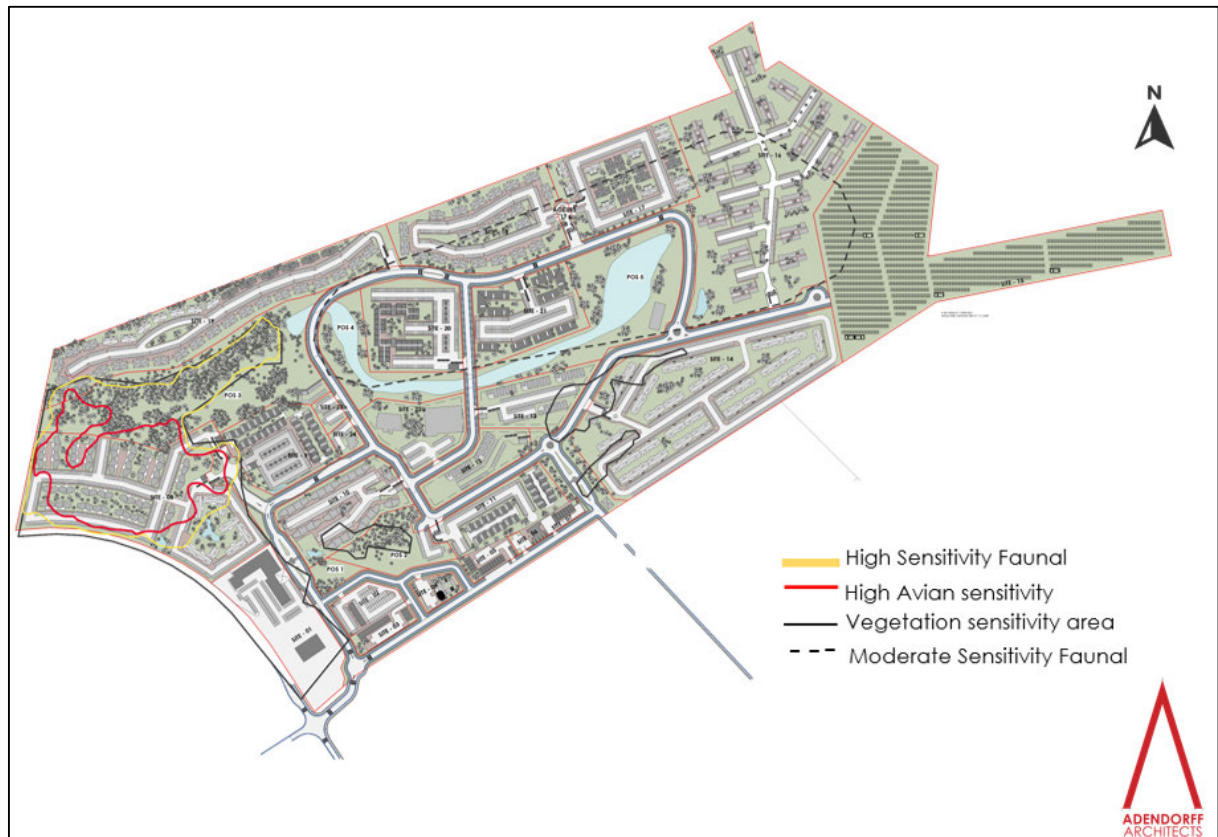


Figure 25: Map indicating the status of the Sensitive Areas.

## 11 PUBLIC PARTICIPATION PROCESS

The purpose of the PPP for the proposed development site is outlined below:

- Provide Interested and Affected Parties (I&APs) with an opportunity to obtain information with regard to the project.
- Allowing I&APs to express their views, issues, and concerns with regard to the proposed project.
- Granting I&APs and opportunity to recommend measures to avoid or decrease negative impacts and enhance positive impacts that are associated with the proposed project.
- Granting I&APs and opportunity to contribute any pertinent, locally known, information; and
- Lastly, to enable the project team to incorporate the needs, concerns and recommendation that are made by the I&APs about the proposed project, where feasible.

The PPP that was followed for the proposed project is governed by NEMA and GNR No. 326 of the 2014 EIA Regulations, as amended in April 2017, and the Public Participation guideline (2017) developed and issued by the Department of Environmental Affairs, Pretoria, South Africa. All public participation material can be referred to in **Appendix D**.

### 11.1 Interested and Affected Parties Register

The compilation of a comprehensive Interested and Affected Party database (I&AP Register) is underway for the project. The latest contact details of the relevant key stakeholders, government departments, NGOs, ward councillors, community leaders and directly affected residences and businesses have been captured in the register. The register will be updated with the contact details of I&APs that respond to newspaper adverts, circulation of the BID, distribution of notification letters, the erection of site notices and other documentation made available to the public to view at local public venues (libraries, community halls, municipality offices etc.) during the Scoping and EIA phase. Please see the I&AP register attached as **Appendix D1** to this document.

### 11.2 Key Stakeholders

The following have been provisionally identified as key stakeholders of the project (as stipulated by the EIA Regulations):

- Eastern Cape Department of Economic Development, Environmental Affairs and Tourism (DEDEAT): Nelson Mandela Bay Region / Sarah Baartman District.
- Eastern Cape Provincial Heritage Resources Authority (ECPHRA).
- EC DEDEAT Waste Department.
- EC DEDEAT Biodiversity Department.
- South African Heritage Resource Agency (SAHRA).
- Department of Water and Sanitation (DWS).
- Department of Agriculture Forestry and Fisheries (DAFF).
- NMBM: Executive Mayor.
- NMBM: City Manager.
- NMBM: Public Health directorate.
- NMBM: Infrastructure and Engineering.
- NMBM: Waste Management directorate.
- NMBM: Water and Sanitation directorate.
- NMBM: Electricity and Energy directorate.
- NMBM: Roads, Stormwater, and Transportation directorate.
- NMBM: Planning directorate and Land use Management.
- NMBM: Human Settlements.
- NMBM Economic Development (Trade and Investment).
- NMBM Beaches, Resorts & Events Management.
- NMBM: Environmental Health (Air & Noise Pollution).
- NMBM Ward 1 Councillor.
- NMBM Ward 3 Councillor.
- NMBM Ward 4 Councillor.
- NMBM Ratepayers Association.
- EC Department of Roads and Public Works / Department of Transport.

- Department of Rural Development and Land Reform.
- Eskom.
- SA Civil Aviation Authority (SACAA).
- Airports Company SA.
- Wildlife and Environmental Society of South Africa (WESSA).
- Birdlife SA.

### 11.3 Background Information Document (BID)

Copies of the BID were circulated by e-mail to key stakeholders, government departments and NGOs to facilitate preliminary comments on the proposed development and to allow the EAP to address any potential issues within the Scoping and EIA phases of the project. This document was circulated by e-mail on the 11<sup>th</sup> and 14<sup>th</sup> of February 2023. The BID was circulated to the following stakeholders shown in Error! Reference source not found..

*Table 12: List of Stakeholder Identified*

COMPANY/DEPARTMENT	CONTACT PERSON
Eastern Cape Department of Economic Development, Environmental Affairs and Tourism (DEDEAT): Nelson Mandela Bay Region / Sarah Baartman District	Manager: EQM Andries Struwig
	Regional Manager: Environmental Affairs Jeff Govender
	Senior Administrative Clerk: Charmaine Struwig
EC DEDEAT (Waste)	Chris Julius
Eastern Cape Provincial Heritage Resources Authority (ECPHRA)	Ayanda Mncwabe-Mama
	Mzikayise Zote
South African Heritage Resource Agency (SAHRA)	Phillip Hine
Department of Water and Sanitation (DWS)	Hammond Visagie Ntombi Mpumela
Department of Forestry, Fisheries & Environment (DFFE)	Babalwa Layini
NMBM: Executive Mayor	Gary van Niekerk
NMBM: City Manager	Noxolo Nqwazi

COMPANY/DEPARTMENT	CONTACT PERSON
NMBM: Public Health directorate	Executive Director: Sizwe Mvunelwa (ED)
	Rosa Blaauw EMS Co-ordinator
NMBM: Environmental Health directorate	Sizwe Mvunelwa
	Patrick Nodwele
	Buyiswa Deliwe (Humani)
NMBM: Director - Infrastructure and Engineering	J Tsatsire
NMBM: Waste Management directorate	Annalisa Dyakala
NMBM: Water and Sanitation directorate	Paul du Plessis
	Barry Martin
NMBM: Electricity and Energy directorate	Luvuyo Magalela
	Siseko Mnqanqeni
	Roark Prinsloo
NMBM: Roads, Stormwater, and Transportation directorate	Yussuf Gaffore
NMBM: Planning directorate and Land use Management	Owethu Pantshwa
NMBM: Infrastructure & Engineering Directorate	Director Planning & Research Division: Laure Pieterse
NMBM Infrastructure & Engineering Directorate	Manager: Planning and Research Mrs. Zoliswa Nyila
NMBM: Human Settlements	Tabiso Mfeya (ED)
NMBM Economic Development (Trade and Investment)	Lutho Nduvane
NMBM Beaches, Resorts & Events Management	Director: Ms. Kithi Ngesi
NMBM Economic Development, Tourism & Agriculture	Mr. Mpho Pebane
Environmental Health (Air & Noise Pollution)	Manager: Mrs. Buyiswa Deliwe Deputy Director: Dr. Patrick Nodwele
Sports, Recreation, Arts and Culture (SRAC)	Acting Executive Director: Sport & Recreation Ms. Bernadine Williams



COMPANY/DEPARTMENT	CONTACT PERSON
Infrastructure and Engineering	Acting Deputy Director: Supply and Reservoirs: Mr. Chandré Barnard Acting Director: Water Management and Bulk Supply: Paul du Plessis
NMB Tourism	M Thorne
NMBM Ward 1	Councillor Andre Van der Westhuizen
NMBM Ward 3 (neighbouring ward)	Councillor David Hayselden
NMBM Ward 4	Councillor Nozuko Mavis Mbambo
NMB Ratepayers Association	Chairman: Kobus Gerber
EC Department of Roads and Public Works / Department of Transport	Randall Moore
	Peter Lotter
Department of Rural Development and Land Reform	Ms Thabile Mehlomakhulu
	Ms Nomfundo Mbewana
Eskom	Howard Bline (Land Rights Officer)
	Manager Environmental Management, Land Development and Environment: Angelina Shalang
	Environmental Officer: Zandi Siyongwana
SA Civil Aviation Authority (SACAA)	Lizell Stroh
Wildlife and Environmental Society of South Africa (WESSA)	Gary Koekemoer

Please see **Appendix D2** to view a copy of the BID and **Appendix D4** proof of its circulation to I&APs.

#### 11.4 Site Notices

Three (3) English site notices were erected in the vicinity of the proposed development site as part of the pre-application PPP on 09<sup>th</sup> of February 2023. Please see **Appendix D3** of this report for further information on this project.

An additional two (2) English site notices were erected around the site on the 24 October 2023 to notify the public of the availability of the Draft Scoping Report for 30-day commenting period.

### 11.5 Written Notification

Notification letters, in English, accompanied by a copy of the BID, were distributed to directly affected residences and businesses located in the general vicinity of the proposed development by the EAP on the 09<sup>th</sup> of February 2023.

Photographs of the distribution of these notification letters were taken by the EAP and participants were asked to complete an acknowledgement of receipt register. For further information on this process, please see **Appendix D4** for further information.

### 11.6 Newspaper Advertisements

An advert, in English, was placed in the Local and Regional Newspaper, The Herald, on the 09<sup>th</sup> of February 2023 as part of the pre-application PPP. An advert, also in English, was placed in the Local and Regional Newspaper, The Herald, on the 23<sup>rd</sup> of October 2023 notifying the public of the availability of the Draft Scoping Report for 30-day commenting period.

An advert, also in English, will be placed in the Local and Regional Newspaper, The Herald, on the **19 of April 2024** notifying the public of the availability of the Draft EIR for 30-day commenting period. Please see **Appendix D5** to view the newspaper adverts.

### 11.7 Comments and Response Report

A comment and responses report has been compiled for the for project and is included as **Table 13** below and included under **Appendix D6**. This document will be updated as comments on the proposed development are received from key stakeholders, government departments, NGOs, and members of the public during the ongoing PPP during the EIA phase of the project.

### 11.8 Circulation of the Draft Scoping Report

An email to key stakeholders, Government Departments, NGOs, ward councillors, community leaders and directly affected residences and businesses was circulated to notify these parties of the application and availability of the report for 30-day commenting period from 24 October 2023 to 23 November 2023. An additional two (2) English site notices were erected around the site on the 24 October 2023 to notify the public of the availability of the Draft Scoping Report for 30-day commenting period. An advert, also in English, was placed in the Local and Regional Newspaper, The Herald, on the 23<sup>rd</sup> of October 2023 notifying the public of the availability of the Draft Scoping Report for 30-day commenting period.

A hard copy of the draft report and supporting documentation were placed at the following public venues for public viewing:

- Fountain Vineyard Church (22 Newcombe Avenue, Walmer Heights, Gqeberha).
- Walmer Library (Main Road, Walmer, Gqeberha).

The draft report was uploaded onto the JG Afrika (Pty) Ltd website <https://www.jgafrika.com/public-participation/> for public viewing.

### 11.8.1 Summary of Issues Raised by I&APs during the Scoping Phase

Provisional comments and issues raised, and reaction to those responses by the EAP have been summarised in **Table 13** below and included under **Appendix D6**.

### 11.9 Submission and Circulation of the Final Scoping Report and Plan of Study

The Final Scoping Report was submitted to the Competent Authority Eastern Cape Department of Economic Development, Environmental Affairs and Tourism (DEDEAT) for their review and acceptance on the 29 November 2023.

An email was submitted to all I&APS on the 06 December 2023, which indicated the following:

- The submission of the Final Scoping Report to the Eastern Cape Department of Economic Development, Environmental Affairs and Tourism (DEDEAT) for their review and acceptance.
- Electronic copies of the Final Scoping Report are available for review at the following locations:
  - <https://www.jgafrika.com/public-participation/proposed-arlington-multiple-use-development-on-erven-3988-4195-and-6991-along-glendore-road-in-walmer-gqeberha-nelson-mandela-bay-municipality-eastern-cape-2/>
  - On request from the undersigned (JG Afrika – Public Participation Process- PE)

### 11.10 Acceptance of the Final Scoping Report and Plan of Study

The Final Scoping Report and Plan of Study was accepted by the Competent Authority Eastern Cape Department of Economic Development, Environmental Affairs and Tourism (DEDEAT) on the 23 February 2024 and is attached as **Appendix D7.3**.

The following has been extracted from the Letter of Acceptance (dated 23 February 2024):

“You are hereby informed that the Department accepts the FSR, and the Plan of Study is hereby approved provided that the following points are addressed in the Draft EIR:

- Written confirmation from the Municipality for available services that will be utilised by the proposed development; and
- Please ensure that all figures/layout plans in the DEIR are of an appropriate size to be clearly visible and readable.

You are thus to proceed to the EIA phase as per the provision of Section 23(a) of the NEMA: EIA Regulations as published in GNR.R326 of 07 April 2017. You are reminded that the final EIR is to be submitted on the **13 June 2024**.

The Environmental Assessment Practitioner is required to notify and inform the applicant in writing that the activity may not commence prior to an environmental authorisation being granted by the competent authority.

*Table 13: Comments Raised by I&APs during Pre-Application, Draft Scoping Phase and Final Scoping Phase and EAPs Response*

COMMENTS & RESPONSES REPORT based on pre-application public participation				
<u>5733- IAP database.xls</u>				
<u>DATE OF COMMENT, FORMAT OF COMMENT, NAME OF ORGANISATION / IAP</u>	<u>IAP / STAKEHOLDER COMMENTS</u>	<u>RESPONSE FROM EAP / APPLICANT / SPECIALIST</u>	<u>METHOD</u>	<u>DATE</u>
10-02-2023  E-mail  NMMM – Ward 1 Office of Cllr Dries van der Westhuizen - Heather Martens	The attached advertisement 9 Feb refers. The ward office has not received any correspondence nor communication with regards to this matter. Kindly forward same as soon as possible.	A notification of the proposed development was sent out over this weekend containing more information of the proposed project (see attached). I trust Ward 1's office has received it.  Please let us know if Ward 1 has any initial comments or queries.	E-mail	13-02-2023
13-02-2023  E-mail  NMMM – Ward 1 Office of Cllr Dries van der Westhuizen - Heather Martens	The ward office acknowledges receipt of the said correspondence and kindly requests a deadline by which to submit comment.	We are currently in the pre-application phase of this EIA which does not have a legislated timeframe for comments.  We will run a formal public participation process next month for a legislated 30 days once the Draft Scoping Report is available for comment.  If you do, however, have any initial comments over the next couple of weeks (before the circulation of the Scoping Report) you can submit these to us and we will capture these and include in the report, but as	E-mail	14-02-2023

5733- IAP database.xls	<b>COMMENTS &amp; RESPONSES REPORT based on pre-application public participation</b>			
<b><u>DATE OF COMMENT, FORMAT OF COMMENT, NAME OF ORGANISATION / IAP</u></b>	<b><u>IAP / STAKEHOLDER COMMENTS</u></b>	<b><u>RESPONSE FROM EAP / APPLICANT / SPECIALIST</u></b>	<b><u>METHOD</u></b>	<b><u>DATE</u></b>
		mentioned you will be provided with a formal commenting period next month.		
01-03-2023  E-mail  NMMM – Ward 1 Office of Cllr Dries van der Westhuizen - Heather Martens	The ward office again requests a deadline for comment to be submitted.	As mentioned before, we are currently in the pre- application phase of this EIA which does not have a legislated timeframe for comments.  We will run a formal public participation process in this month for a legislated 30 days (which will run into April) once the Draft Scoping Report is available for comment.  Any comments we receive before the circulation of the draft scoping, i.e., during this current unlegislated timeframe, will be included in said report. Or else, if comments are received during the legislated period, they will be included in the Final Scoping Report. Any comments received after the scoping phase will be included in the Environmental Impact Report during the next phase.	E-mail	01-03-2023

COMMENTS & RESPONSES REPORT based on pre-application public participation				
<u>DATE OF COMMENT, FORMAT OF COMMENT, NAME OF ORGANISATION / IAP</u>	<u>IAP / STAKEHOLDER COMMENTS</u>	<u>RESPONSE FROM EAP / APPLICANT / SPECIALIST</u>	<u>METHOD</u>	<u>DATE</u>
5733- IAP database.xls				
		In light of the above, if you wish to provide comments during the scoping phase, you will have time more or less to mid-April to submit such. Specific dates will only be confirmed once the Draft Scoping Report has been finalised.  Trust this answers your question.		
03-03-2023  E-mail  NMMM – Ward 1 Office of Cllr Dries van der Westhuizen - Heather Martens	Many thanks for your clarification of the process.  The Background Information Document refers :  1. Does the Traffic Impact Assessment form part of the EIA?   2. When will the TIA be conducted?	Apologies for the delay in reply. Please see below answers in red below:  1. Does the Traffic Impact Assessment form part of the EIA? – Yes, the developer has commissioned such assessment. Findings and recommendations of the TIA will be included in the Environmental Impact Report which will be compiled at a later stage in the EIA process. This report will also be made available for public review.  2. When will the TIA be conducted? – The TIA has already been conducted and the report has been	E-mail	17-03-2023

5733- IAP database.xls	<b>COMMENTS &amp; RESPONSES REPORT based on pre-application public participation</b>			
<b><u>DATE OF COMMENT, FORMAT OF COMMENT, NAME OF ORGANISATION / IAP</u></b>	<b><u>IAP / STAKEHOLDER COMMENTS</u></b>	<b><u>RESPONSE FROM EAP / APPLICANT / SPECIALIST</u></b>	<b><u>METHOD</u></b>	<b><u>DATE</u></b>
	<p>3. Kindly clarify / confirm that a traffic circle(s) is included in the plans and budget of the Developer for the entrance(s) to the clusters on both Glendore and Victoria Drive.</p> <p>Pg 3 Roadworks</p> <p><i>Roadworks: The proposed road network is to consist of a main access ring road, collector link roads providing access to the clusters, access control points to each of the clusters, parking for each cluster, together with pedestrian sidewalks and crossings. An additional road will be constructed between the south-western corner of the site and Glendore Road. This new road will link up with Glendore Road by means of a new circle intersection. A second circle intersection is</i></p>	<p>completed. We can send you a copy of this TIA if you so wish?</p> <p>3. Kindly clarify / confirm that a traffic circle(s) is included in the plans and budget of the Developer for the entrance(s) to the clusters on both Glendore and Victoria Drive. – Traffic circles are included in the development plans and costs of these will be for the developer, yes.</p> <p>Please let us know should you have any further queries.</p>		



5733- IAP database.xls	<b>COMMENTS &amp; RESPONSES REPORT based on pre-application public participation</b>			
<b><u>DATE OF COMMENT, FORMAT OF COMMENT, NAME OF ORGANISATION / IAP</u></b>	<b><u>IAP / STAKEHOLDER COMMENTS</u></b>	<b><u>RESPONSE FROM EAP / APPLICANT / SPECIALIST</u></b>	<b><u>METHOD</u></b>	<b><u>DATE</u></b>
	<p><i>proposed further south at the T-junction of Glendore Road and Victoria Drive.</i></p> <p>Pg 7 Activity 24 Development of a road</p> <p><i>The proposed development will include the establishment of a new main access ring road, collector link roads providing access to the clusters. A new road outside the property boundary is also proposed between the south-western corner of the site Glendore Road. As these are new roads no reserve exists. The width of certain roads will exceed 8m.</i></p>			
<p>17-03-2023</p> <p>E-mail</p> <p>NMMM – Ward 1 Office of Cllr Dries van der Westhuizen - Heather Martens</p>	<p>Please do send a copy of the TIA.</p>	<p>Please see attached as requested.</p>	<p>E-mail</p>	<p>18-03-2023</p>

<b>COMMENTS &amp; RESPONSES REPORT based on pre-application public participation</b>				
<u>5733- IAP database.xls</u>				
<b><u>DATE OF COMMENT, FORMAT OF COMMENT, NAME OF ORGANISATION / IAP</u></b>	<b><u>IAP / STAKEHOLDER COMMENTS</u></b>	<b><u>RESPONSE FROM EAP / APPLICANT / SPECIALIST</u></b>	<b><u>METHOD</u></b>	<b><u>DATE</u></b>
13-02-2023  E-mail  Weymouth Place Property Owner - Paul Robinson	I am a property owner in Weymouth place, Beethoven Ave. I refer to the map on page 15 of the background information document. Is there anywhere that i can view a larger more legible copy? I wish to determine exactly where the development is in relation to Weymouth place & whether it borders on our boundary or how close it is to us.	Attached is the BID which contains a much more legible map. The locality map has also been attached as a separate file.  Please let us know if you have any questions.	E-mail	13-02-2023
13-02-2023  E-mail  Weymouth Place Property Owner - Paul Robinson	With the help of google maps i could clearly identify the shape of the area in question. The knob on top of your picture sits just under the houses at the bottom of Schubert rd.	That is correct yes. Glad you could identify the site in relation to your property. Please let me know if you have any questions. Thank you for the chairman's details. Much appreciated.	E-mail	14-02-2023
13-02-2023  E-mail and I&AP Comment & Registration Form  Weymouth Place Property Owner & Resident – Paul De Vantier	Stated in I&AP comment and registration form:  "Need more information on access roads and development layout".	Apologies for the delayed response. The environmental process has been on hold since March due to amendments being made to the Site Development Plan and updates to the Traffic Impact Assessment (TIA), amongst others.  Your request for information on access roads and the development layout refers –	E-mail	04-10-2023

5733- IAP database.xls	<b>COMMENTS &amp; RESPONSES REPORT based on pre-application public participation</b>			
<b><u>DATE OF COMMENT, FORMAT OF COMMENT, NAME OF ORGANISATION / IAP</u></b>	<b><u>IAP / STAKEHOLDER COMMENTS</u></b>	<b><u>RESPONSE FROM EAP / APPLICANT / SPECIALIST</u></b>	<b><u>METHOD</u></b>	<b><u>DATE</u></b>
		<p>We received the updated TIA Report last month. Kindly note the TIA recommended road network improvements to be undertaken.</p> <p>These road network improvements are recommended and should be made conditions of approval (i.e. approval of town planning applications for the various land-use changes). The required public road network improvements to be made to accommodate the development are as follows:</p> <p>a) The construction of a traffic circle at the Glendore Road/Unnamed Road/Access Road and Victoria Drive/Glendore Road intersections.</p> <p>b) Traffic signals, with additional turning auxiliary lanes, being introduced at the Genadendal Road/Buffelsfontein Road intersection.</p> <p>c) The construction of additional lanes, together with changes to the traffic signal phasing and timing, being implemented at the Victoria Drive/Buffelsfontein Road intersection.</p> <p>d) The construction of two public transport bays, one on both exits to the Glendore Road/Unnamed Road/Access Road intersections, as</p>		

5733- IAP database.xls	<b>COMMENTS &amp; RESPONSES REPORT based on pre-application public participation</b>			
<b><u>DATE OF COMMENT, FORMAT OF COMMENT, NAME OF ORGANISATION / IAP</u></b>	<b><u>IAP / STAKEHOLDER COMMENTS</u></b>	<b><u>RESPONSE FROM EAP / APPLICANT / SPECIALIST</u></b>	<b><u>METHOD</u></b>	<b><u>DATE</u></b>
		<p>well along Victoria Drive at the Victoria Drive/Glendore Road intersection.</p> <p>e) Construction of raised pedestrian tables on all the approaches to the proposed traffic circles.</p> <p>f) An adequate pedestrian and vehicle proof fence/wall being erected along the property boundary with Glendore Road.</p> <p>g) Construction of surfaced pedestrian sidewalk along the internal roads within the development.</p> <p>h) Construction of surfaced pedestrian sidewalk along the western side of the DR01908 between the end of the existing sidewalk and the southern access.</p> <p>i) Construction of strategically located raised pedestrian table along the internal road network and at the internal and external traffic circles.</p> <p>The proposed changes to the road network should adequately serve the proposed development.</p> <p>Regarding the development layout, please note that an updated SDP will be included in the Draft Scoping</p>		

5733- IAP database.xls	<b>COMMENTS &amp; RESPONSES REPORT based on pre-application public participation</b>			
<b><u>DATE OF COMMENT, FORMAT OF COMMENT, NAME OF ORGANISATION / IAP</u></b>	<b><u>IAP / STAKEHOLDER COMMENTS</u></b>	<b><u>RESPONSE FROM EAP / APPLICANT / SPECIALIST</u></b>	<b><u>METHOD</u></b>	<b><u>DATE</u></b>
		<p>Report which will be circulated to all registered I&amp;APs later this month for comment. Amongst others, this Scoping Report will contain a detailed breakdown of the clusters / zones proposed for this development.</p> <p>If there are any other enquiries, please feel free to contact us.</p>		
<p>14-02-2023</p> <p>Telephone</p> <p>Wilfred – Leap Development Africa</p>	<p>Telephonically requested the BID for the Arlington Development.</p>	<p>As requested telephonically, please find attached the BID for the above-mentioned project.</p>	<p>E-mail</p>	<p>14-02-2023</p>
<p>03-03-2023 and 08-03-2023</p> <p>E-mail</p> <p>Dr. Brian Colloty – Resident of Pari Park</p>	<p>Hope you are well?</p> <p>You have my neighbourhood nervous so please could you send me the proposed layout?</p>	<p>Please see attached BID and proposed layout. You are welcome to circulate the BID to your neighbourhood and ask them to please fill in the registration form should they want to be registered as an I&amp;AP.</p> <p>Should I include yourself as an I&amp;AP?</p> <p>We will register you as an i&amp;AP.</p>	<p>E-mail</p>	<p>08-03-2023</p>

<b>COMMENTS &amp; RESPONSES REPORT based on pre-application public participation</b>				
<u>DATE OF COMMENT, FORMAT OF COMMENT, NAME OF ORGANISATION / IAP</u>	<u>IAP / STAKEHOLDER COMMENTS</u>	<u>RESPONSE FROM EAP / APPLICANT / SPECIALIST</u>	<u>METHOD</u>	<u>DATE</u>
5733- IAP database.xls				
	<p>Thanks for the info - ya you can sign me up - always wanted to be a NIMBY!?</p> <p>Will circulate to our homeowners group and Im sure they will comment - Sorry!!</p>		Draft Scoping	-
<p>06-03-2023</p> <p>E-mail</p> <p>Glendore Road Resident – Simon Clark</p>	<p>Please could you provide me with more details of the developments envisaged by this application detailed in the attachment.</p>	<p>Please see attached a Background Information Document providing you with more details on this proposed development and environmental process.</p> <p>Please let us know should you have any questions or concerns.</p>	E-mail	07-03-2023
<p>08-03-2023</p> <p>E-mail and I&amp;AP Comment &amp; Registration Form via Ward 1 NMMM</p> <p>Schoenmakers Ratepayers Association – Chairperson – Comine Gierz</p>	<p>We had a discussion regarding this matter, and we are all for the proposed development.</p> <p>However, we have concerns regarding the access road into Glendore Raod.</p> <p>Glendore Road is not conducive to accepting more traffic as it currently handling. Its narrow, potholes and loads of trucks to and from Arlington tip and Glendore Sands, visitors and residents are using this road on a daily basis.</p>	<p>Apologies for the delayed response. The environmental process has been on hold since March due to amendments being made to the Site Development Plan and updates to the Traffic Impact Assessment (TIA), amongst others.</p> <p>We received the updated TIA Report two days ago.</p> <p>Kindly note the TIA indicated that the road network around the proposed development is not overloaded when development trips are assigned for any of the</p>	E-mail	14-09-2023

5733- IAP database.xls	<b>COMMENTS &amp; RESPONSES REPORT based on pre-application public participation</b>			
<u>DATE OF COMMENT, FORMAT OF COMMENT, NAME OF ORGANISATION / IAP</u>	<u>IAP / STAKEHOLDER COMMENTS</u>	<u>RESPONSE FROM EAP / APPLICANT / SPECIALIST</u>	<u>METHOD</u>	<u>DATE</u>
	<p>Coming from Schoenmakerskop, Summerstrand, etc more people are using this road as Victoria Drive towards Buffelsfontein is being used as a dumping ground, stray animals, robberies etc taking place.</p> <p>We want this issue to be addressed and added to the plans for the way forward.</p> <p>I will complete the designated form for the Schoenmakerskop Ratepayers Association.</p>	<p>given tested peak hours, subject to recommended road network improvements being undertaken.</p> <p>These road network improvements are recommended and should be made condition of approval (i.e. approval of town planning applications for the various land-use changes). The required public road network improvements to be made to accommodate the development are as follows:</p> <ul style="list-style-type: none"> <li>a) The construction of a traffic circle at the Glendore Road/Unnamed Road/Access Road and Victoria Drive/Glendore Road intersections.</li> <li>b) Traffic signals, with additional turning auxiliary lanes, being introduced at the Genadendal Road/Buffelsfontein Road intersection.</li> <li>c) The construction of additional lanes, together with changes to the traffic signal phasing and timing, being implemented at</li> </ul>		

5733- IAP database.xls	<b>COMMENTS &amp; RESPONSES REPORT based on pre-application public participation</b>			
<b><u>DATE OF COMMENT, FORMAT OF COMMENT, NAME OF ORGANISATION / IAP</u></b>	<b><u>IAP / STAKEHOLDER COMMENTS</u></b>	<b><u>RESPONSE FROM EAP / APPLICANT / SPECIALIST</u></b>	<b><u>METHOD</u></b>	<b><u>DATE</u></b>
		<p>the Victoria Drive/Buffelsfontein Road intersection.</p> <p>d) The construction of two public transport bays, one on both exits to the Glendore Road/Unnamed Road/Access Road intersections, as well along Victoria Drive at the Victoria Drive/Glendore Road intersection.</p> <p>e) Construction of raised pedestrian tables on all the approaches to the proposed traffic circles.</p> <p>f) An adequate pedestrian and vehicle proof fence/wall being erected along the property boundary with Glendore Road.</p> <p>g) Construction of surfaced pedestrian sidewalk along the internal roads within the development.</p> <p>h) Construction of surfaced pedestrian sidewalk along the western side of the</p>		



<b>COMMENTS &amp; RESPONSES REPORT based on pre-application public participation</b>				
<u>DATE OF COMMENT, FORMAT OF COMMENT, NAME OF ORGANISATION / IAP</u>	<u>IAP / STAKEHOLDER COMMENTS</u>	<u>RESPONSE FROM EAP / APPLICANT / SPECIALIST</u>	<u>METHOD</u>	<u>DATE</u>
5733- IAP database.xls				
		<p>DR01908 between the end of the existing sidewalk and the southern access.</p> <p>i) Construction of strategically located raised pedestrian table along the internal road network and at the internal and external traffic circles.</p> <p>The proposed changes to the road network will adequately serve the proposed development and we trust that the above-mentioned extract from the TIA has addressed all traffic related concerns the Schoenmakerskop Ratepayers Association may have.</p> <p>If there are any other enquiries, please feel free to contact us.</p>		
<p>13-03-2023</p> <p>E-mail</p> <p>Fiona Richard - Resident</p>	<p>Could you kindly register me as an Interested and Affected Party in the proposed Arlington Multi-Use Development on erven 3988, 4195 and 6991, along Glendor Road, Walmer, Gqeberha.</p>	<p>Thank you for your e-mail. We will register you as an Interested &amp; Affected Party for the proposed project.</p> <p>You will be notified via e-mail as soon as more documentation becomes available.</p>	E-mail	24-03-2023

5733- IAP database.xls	<b>COMMENTS &amp; RESPONSES REPORT based on pre-application public participation</b>			
<b><u>DATE OF COMMENT, FORMAT OF COMMENT, NAME OF ORGANISATION / IAP</u></b>	<b><u>IAP / STAKEHOLDER COMMENTS</u></b>	<b><u>RESPONSE FROM EAP / APPLICANT / SPECIALIST</u></b>	<b><u>METHOD</u></b>	<b><u>DATE</u></b>
27-03-2023  E-mail and I&AP Comment & Registration Form  Tarn Derman – General Manager Eagle Roof Tiles (Eastern Cape)	Thank you for inviting us as interested parties to the proposed development of Arlington Racecourse. Kindly find my completed Registration form. Concerned about the relocation of wildlife, i.e. extensive wildlife being threatened Please keep us updated on further EIA studies and progress of the proposed development.	Thank you for your e-mail and registration form. We will register you as an Interested & Affected Party for the proposed project. You will be notified via e-mail as soon as more documentation becomes available.  Kindly note that a Faunal Impact Assessment will be undertaken by a faunal specialist for this proposed development of which the findings and recommendations will be included in the Environmental Impact Report later during the EIA process as well as in the Environmental Management Programme.	E-mail          Draft Scoping	31-03-2023          -

5733- IAP database.xls	<b>COMMENTS &amp; RESPONSES REPORT based on pre-application public participation</b>			
<b><u>DATE OF COMMENT, FORMAT OF COMMENT, NAME OF ORGANISATION / IAP</u></b>	<b><u>IAP / STAKEHOLDER COMMENTS</u></b>	<b><u>RESPONSE FROM EAP / APPLICANT / SPECIALIST</u></b>	<b><u>METHOD</u></b>	<b><u>DATE</u></b>
17-04-2023  E-mail  Leads2Business - Shanelle Naidoo	Requested an electronic copy of the BID/Draft BAR for the proposed development.	Thank you for your e-mail. Please find attached the BID.  We will be registering you as an Interested & Affected Party for the proposed project, and so you will be notified via e-mail as soon as more documentation becomes available.	E-mail	17-05-2023
18-04-2023  E-mail  Leads2Business - Shanelle Naidoo	Could you possibly assist me with the subjected proposed development?  <ul style="list-style-type: none"> <li>• As per the board that is situated on Glendore Road, who is the client on this project? (Adendorff Architects / Afrostructures (Pty) Ltd)</li> <li>• With regards to Adendorff Architects, were they involved in the early EIA stages as</li> </ul>	Apologies for the delay in response. Please see our comments.  <ul style="list-style-type: none"> <li>• The client /applicant is Afrostructures (Pty) Ltd</li> <li>• Apologies, Adendorff Architects were incorrectly indicated on the site notice boards as the developer – they are in fact the</li> </ul>	E-mail	17-05-2023

COMMENTS & RESPONSES REPORT based on pre-application public participation				
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	<p>consultants? Are they currently the appointed architects on the development?</p> <ul style="list-style-type: none"> <li>• Have any other professionals been appointed to this project yet?</li> <li>• How far is the EIA at current?</li> </ul>	<p>principal agent and architect for this project. Correct, since Adendorff Architects are the principal agent they have been involved from inception.</p> <ul style="list-style-type: none"> <li>• A team of professional consultants, from various disciplines, have been appointed.</li> <li>• Kindly note that application for Environmental Authorisation has not yet been lodged with the DEDEAT. We will only do so once a Draft Scoping Report is completed and ready to be circulated for public review. We are currently in the pre-application Public Participation stage.</li> </ul>		
<p>13-09-2023</p> <p>E-mail</p> <p>Melanie Miles – Leads2Business Private Projects Department</p>	<p>Please could you advise if the EIA process is still ongoing, or if Environmental Authorisation has been received for the proposed Arlington Mixed-Use Development on erven 3988, 4195 and 6991 along Glendore Road, Walmer, Gqeberha?</p>	<p>The EIA process is currently in its initial phase. Hoping to commence with the scoping phase within the next week or 2 whereby the Draft Scoping Report will be circulated for public participation.</p>	E-mail	13-09-2023

COMMENTS & RESPONSES REPORT based on pre-application public participation				
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5733- IAP database.xls				
13-02-2023  E-mail and I&AP Comment & Registration Form  Alan Moore	Please register Thanks and Regards  Has a personal interest in the project as he is a neighbour.	Thank you for your e-mail. We will register you as an Interested & Affected Party for the proposed project. You will be notified via e-mail as soon as more documentation becomes available. We appreciate your interest and participation.	E-mail	13-02-2023
16-02-2023  E-mail  Emily Whitfield	I would like to register as an I&AP for the proposed Arlington multiple use development.	Thank you for your e-mail. We will register you as an Interested & Affected Party for the proposed project. You will be notified via e-mail as soon as more documentation becomes available. We appreciate your interest and participation.	E-mail	17-02-2023
24-03-2023  E-mail and Letter  Ayanda Mncwabe-Mama ECPHRA Archaeologist	<u>BACKGROUND:</u> The Applicant intends to establish a multiple-use development, comprising 30 clusters, on erven 3988, 4195 and 6991 along Glendore Road in Walmer. The consolidated development footprint will be 614 672m <sup>2</sup> (61,5ha) in extent.  ECPHRA FINAL COMMENTS:	Both an Archaeological Impact Assessment and a Paleontological Impact Assessment will be undertaken for this proposed development. Findings of such assessments will be included in the Draft Environmental Impact Report and be made available for public review later in the EIA process.	Draft Scoping	-

COMMENTS & RESPONSES REPORT based on pre-application public participation				
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Mr. Azola Mkosana ECPHRA Manager	<p>This matter was tabled at the Archaeology, Palaeontology and Meteorites (APM) Committee meeting held on 17 March 2023.</p> <p>The proposed project triggers Section 38(1) of the National Heritage Resources Act (Act 25 of 1999) therefore an HIA (Heritage Impact Assessment) which comprises of an AIA (Archaeological Impact Assessment) and a PIA (Paleontological Impact Assessment) will be required by the Eastern Cape Provincial Heritage Authority (ECPHRA).</p>			
15-03-2023  E-mail and I&AP Comment & Registration Form  NMBM Electricity and Energy Directorate - Siseko Mnqanqeni	<p>Please find the attached I&amp;AP comment and registration form and see below the comments:</p> <ol style="list-style-type: none"> <li>There is an existing 11kV overhead line and the substation on erven 4195 &amp; 3988 and no structure will be allowed within 5 metres of the overhead line.</li> </ol>	<ol style="list-style-type: none"> <li>This has been brought to the attention of the client and developer.  CA du Toit Eastern Cape (Pty) Ltd has been appointed to assess the required electrical infrastructure for the proposed development. They have had discussions with the Nelson Mandela Bay Municipality (NMBM): Electrical and Energy Department. The NMBM has requested that the main</li> </ol>	Draft Scoping	-

5733- IAP database.xls	<b>COMMENTS &amp; RESPONSES REPORT based on pre-application public participation</b>			
<b><u>DATE OF COMMENT, FORMAT OF COMMENT, NAME OF ORGANISATION / IAP</u></b>	<b><u>IAP / STAKEHOLDER COMMENTS</u></b>	<b><u>RESPONSE FROM EAP / APPLICANT / SPECIALIST</u></b>	<b><u>METHOD</u></b>	<b><u>DATE</u></b>
	<p>2. This overhead line will be relocated at a cost to be borne by the owner or developer.</p>	<p>intake sub-station, be located close to the Victoria Road entrance road. The substation and other electrical equipment will be carefully co-ordinated with the architect and fit in with aesthetics of the facility.</p> <p>2. Further details of this will be provided during the detailed design stage. However, should the overhead line be relocated, this will be done at the cost of the developer to the requirements and specifications acceptable to the NMBM.</p>		
<p>13-02-2023</p> <p>E-mail</p> <p>Nelson Mandela Bay Municipality - Office of the Executive Mayor</p>	<p>Your correspondence is hereby acknowledged. The office of the Mayor will revert soonest Hope you find this in order.</p>	<p>Thank you for your correspondence.</p>	<p>Draft Scoping</p>	<p>-</p>

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24-02-2023  E-mail and I&AP Comment & Registration Form  Klaus Heimes	Kindly confirm receipt. Has a personal interest in the project related to security.	We confirm receipt of your email and attachment and will register you as a I&AP for this prosed development and EIA process.	Draft Scoping	-
20-02-2023  E-mail and I&AP Comment & Registration Form  Wendy Ridge – Homeowner in Beethoven Avenue	Has an interest in the project as she is a homeowner in Beethoven Avenue.	We confirm receipt of your email and attachment and will register you as a I&AP for this prosed development and EIA process.	Draft Scoping	-
20-02-2023  E-mail and I&AP Comment & Registration Form  Gavin Ridge – Homeowner in Beethoven Avenue	Has an interest in the project as he is a homeowner in Beethoven Avenue.	We confirm receipt of your email and attachment and will register you as a I&AP for this prosed development and EIA process.	Draft Scoping	-



5733- IAP database.xls	<b>COMMENTS &amp; RESPONSES REPORT</b> <b>based on Draft Scoping Report Public Participation</b>			
<b><u>DATE OF COMMENT,</u></b> <b><u>FORMAT OF COMMENT,</u></b> <b><u>NAME OF ORGANISATION</u></b> <b><u>/ IAP</u></b>	<b><u>IAP / STAKEHOLDER COMMENTS</u></b>	<b><u>RESPONSE FROM EAP / APPLICANT / SPECIALIST</u></b>	<b><u>METHOD</u></b>	<b><u>DATE</u></b>
25-Oct-2023  E-mail  NMBM Senior Director of Land Planning and Management - Owethu Pantshwa	Thanks, your email is noted.	EAP: Thank you. Kind regards,	Final Scoping	-
31-Oct-2023  E-mail  NMMM – Ward 1 Office of Cllr Dries van der Westhuizen - Heather Martens	Please advise if the Draft Scoping Report public participation process is subject to the provisions of the SPLUMA by-law of 15 May 2023 in which it states that 30(thirty) WORKING days are permitted for the public participation process.  If yes, then the deadline for comment will be 5 December?	EAP: The Public Participation Process of the Draft Scoping Report is strictly subject to the Environmental Impact Assessment (EIA) Regulations of 2014 (as amended), promulgated under the National Environmental Management Act (NEMA) (Act 107 of 1998), which stipulates that PPP must be conducted	E-mail	02-Nov-2023

COMMENTS & RESPONSES REPORT based on Draft Scoping Report Public Participation				
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	Please kindly confirm at your earliest convenience.	for a period of at least 30 days. Please note these are calendar days.		
31-Oct-2023  E-mail  ECPHRA Archaeologist - Ayanda Mncwabe-Mama	The proposed development has been noted and will be added to our next meeting's agenda on the 16 <sup>th</sup> of November 2023.	EAP: Thank you, Madam. We will await ECPHRA's formal comment.	Final Scoping	-
23-Nov-2023  E-mail  ECPHRA Archaeologist - Ayanda Mncwabe-Mama	Please find attached the ECPHRA comment for the case in subject.	Many thanks, Ma'am.  We will include ECPHRA comment in the Final Scoping Report, for submission to the DEDEAT, and provide a response.	E-mail	29-Nov-2023
ECPHRA Manager - Azola Mkosana	ECPHRA (Eastern Cape Provincial Heritage Authority) FINAL COMMENTS in terms of Section 38(4) / (8) of the National Heritage Resources Act (25 of 1999). This matter was tabled at the Archaeology, Palaeontology and Meteorites (APM) Committee meeting held on 16 November 2023.	Both an Archaeological and Cultural Heritage Impact Assessment and a Paleontological Impact Assessment will be undertaken for this proposed development. Findings of such assessments will be included in the Draft Environmental Impact Report and be made available for public review later in the EIA process.	Final Scoping	-

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<b><u>DATE OF COMMENT, FORMAT OF COMMENT, NAME OF ORGANISATION / IAP</u></b>	<b><u>IAP / STAKEHOLDER COMMENTS</u></b>	<b><u>RESPONSE FROM EAP / APPLICANT / SPECIALIST</u></b>	<b><u>METHOD</u></b>	<b><u>DATE</u></b>
	<p>ECPHRA requires a Phase 1 HIA which must comprise of:</p> <ul style="list-style-type: none"> <li>• An Archaeological and Cultural Heritage Impact Assessment (AIA) and</li> <li>• A Paleontological Impact Assessment (PIA).</li> </ul>			
<p>03-Nov-2023</p> <p>E-mail and letter</p> <p>EC DEDEAT EIM Environmental Officer &amp; Case Officer - Indira Suwankazi</p>	<p>Kindly find the attached acknowledgement letter for your attention. Please take note of the deadline date for submission of the Final Scoping Report.</p>	<p>EAP: Received, thank you very much, ma'am.</p>	E-mail	03-Nov-2023
<p>06-Nov-2023</p> <p>E-mail</p>	<p>Your document has been noted, inputs/comments will be submitted were (sic) pertinent.</p>	<p>EAP: We acknowledge your email and await your formal comment.</p>	Final Scoping	-

COMMENTS & RESPONSES REPORT based on Draft Scoping Report Public Participation				
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Department of Forestry, Fisheries and the Environment Department of Agriculture - Ms. Zimvo Mbuyeleni				
24 –Nov – 2023  E-mail and Letter  EC DEDEAT – Andries Struwig (EQM Manager)	<p>Please find attached comments for the above subject matter.</p> <p>1. Please refer to the Draft Scoping Report submitted by yourself on behalf of Afrostructures Pty Ltd dated 24 October 2023 and received 25 October 2023 that proposes to undertake Listed Activities scheduled in Government Notice R. 327 &amp; 325 of 07 April 2017.</p>	<p>EAP: Your e-mail and attached comments are acknowledged. We will include the DEDEAT's comments and address these and/or provide responses in the Final Scoping Report for submission to the DEDEAT by COB today.</p>	<p>E-mail</p> <p>Final Scoping</p>	<p>29-Nov-2023</p> <p>-</p>

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	<p>2. You are hereby informed that the Department has reviewed your report, and the following has been noted:</p> <p>2.1 Proof of availability of services that will be sourced from the Municipality has not been included, please include it in the Final Scoping Report;</p> <p>2.2 The locality map shows quite a big number of properties that are adjacent to the site. Please confirm to the Department whether all the adjacent landowners have been informed of the proposed development and include proof of circulation;</p> <p>2.3 Figures/Images &amp; the layout plan in the report are too small. Please ensure that all figures/images and plans are of an appropriate size to be clearly visible;</p>	<p>2.1 Kindly note that these services letters are being requested from the NMBM and will be submitted to the DEDEAT during the review and acceptance period of the Final Scoping Report.</p> <p>2.2 JG Afrika can confirm that all adjacent / neighbouring landowners have been informed of the proposed development during informal and formal public participation. Proof of letter drops and circulation to adjacent / neighbouring properties, during the pre-application public participation process, have been included in Appendix D4.</p> <p>2.3 Please note that all maps and layout plans, as included in the Draft Scoping Report, were also included under Appendices A and B of which these appendices were printed on A3 sized paper. Such hard copy of the Draft Scoping Report was provided to the DEDEAT on 25 October 2023. A hard copy of the Final Scoping Report including A3 sized maps and layout plans under Appendices A and B will be provided to the DEDEAT.</p>		

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	<p>2.4 The shades of green used in the legend of the Vegetation type map look too similar and hard to differentiate between the two thicket types. Kindly opt for using distinct colours; and</p> <p>2.5 Please ensure that the Plan of Study section is easily identifiable by putting a heading on it.</p> <p>3. The EAP is advised to remain aware of the 44-day timeframe for submission of the Final Scoping Report as contained within the 2017 Regulations, which period will lapse on 29 November 2023, with specific reference to Regulation 21(1) which provides for a commenting period of 30 days for both I &amp; AP's and the competent authority. All requirements as contained in Appendix 2 of the 2014 EIA Regulations must be addressed in the Final Scoping Report.</p>	<p>2.4 More distinguishable colours have been used to indicate the vegetation types on this map. Please refer to updated map in Figure 13 and Appendix A6.</p> <p>2.5 The EIA Plan of Study is easily identifiable in the Table of Contents as Section 12. Section 12 with the heading "EIA Plan of Study" is further easily identifiable on page 103 of the Final Scoping Report.</p> <p>3. The Final Scoping will be submitted to the DEDEAT on 29 November 2023.</p> <p>4. The Applicant will be notified of this.</p>		

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	4. The Environmental Assessment Practitioner is required to notify and inform the applicant in writing that the activity may not commence prior to an environmental authorisation being granted by the competent authority.			
<p>24 – Nov – 2023</p> <p>Email and Letter</p> <p>DWS - Sonke Ngxeba</p> <p>DWS – Assistant Director: Water Use Authorisation &amp; Licensing</p>	<p>Please find attached comments for the above subject matter.</p> <p>From a water resource management perspective, the associated impacts/risks linked with the establishment of multiple-use development include erosion, waste pollution, surface water, and groundwater pollution. Additionally, the proposed development does trigger water use(s) in terms of Section 21 (e) and (g) of the National Water Act (NWA), 1998 (Act 36 of 1998) and these relate to water quality (i.e., disposal of wastewater in a manner that may be detrimental to a water resource and engaging in a controlled activity, thus, irrigating</p>	<p>EAP: We will include DWS's comments and provide responses in the Final Scoping Report for submission to the DEDEAT.</p>	E-mail	29-Nov-2023

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	<p>with treated effluent). However, this Office has no objections towards the establishment of the multiple-use development provided the following will be taken into consideration:</p> <ul style="list-style-type: none"> <li>• A holistic approach to all waste streams must be addressed through an Aide' Memoir (Water Quality Management Report) which must be included as a specialist study in the Environmental Impact Assessment document;</li> <li>• An initiative to promote sustainable and efficient water use in the development is hereby acknowledged and supported by the Department. However, it has been noted</li> </ul>	<ul style="list-style-type: none"> <li>• This will be addressed through the Water Use Licence Application (WULA) process. JG Afrika (Pty) Ltd, as the appointed consultant for the WULA, will commence with this application process in January / February of 2024 as soon as the Aquatic Impact Assessment Report has been compiled and a Pre-Application Enquiry has been lodged via the e-WULAAS as well as a Pre-Application Consultation Meeting has taken place where the various Section 21 water uses and technical report requirements for this development will be discussed.</li> <li>• An alternate to the Bio-Rotor Treatment System (or similar), is the provision of a storage sump of 24 hours storage i.e. 1125 kℓ or 15 m<sup>3</sup> storage and a wastewater pumpstation which are proposed, with a</li> </ul>	Final Scoping	-



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	<p>that the re-use of treated effluent to irrigate may not be sustainable. For instance, in cases where the practice cannot be exercised due to prolonged precipitation events, what other alternatives are available to safely manage the effluent;</p> <ul style="list-style-type: none"> <li>• A Reverse Osmosis Plant is considered to treat groundwater to potable standards, and it is anticipated that a by-product would be generated in the form of brine or any other concentrated residue which would require to be disposed of or discharged. It must be clearly defined how such waste will be managed and/or discarded;</li> </ul>	<p>capacity of 30l/s together with estimated 500m long 160mm dia pump main, to discharge wastewater from the storage sump to the outfall for the northern catchment. For the southern catchment of the site, the wastewater from the units will gravitate to a common collection point, from where the wastewater is to discharge under gravity with a 500m long 300mm dia gravity collector sewer to connect into the 355mm dia NMBM Sewer in Victoria Road.</p> <ul style="list-style-type: none"> <li>• Brine water to be post treated to acceptable concentrations of salinity and acceptable to NMBM standards, disposed of to the Sewer System to the either the wastewater treatment plant or discharged direct to the southern outfall of the NMBM Sewer system.</li> <li>• NMBM by-laws on the use of potable water for construction purposes will be included</li> </ul>		

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	<ul style="list-style-type: none"> <li>It must be noted that the use of potable water for construction activities is currently restricted. Moreover, the Algoa Bay Catchment Area is still experiencing an eight-year drought, hence alternative sources, such as reclaimed water must be considered for construction purposes. NMBM by-laws on the use of potable water for construction purposes must be adhered to by the Contractors on site;</li> <li>The development sought to discharge some effluent into the municipal sewage reticulation system in the event of system failure. A letter of support from Nelson Mandela Bay Municipality confirming to have sufficient capacity to receive 1125 kl/day peak wet weather sewage flows from the southern catchment site into their Bulk Sanitation System and the subsequent receipt and treatment of sewage into their Wastewater Treatment Works;</li> </ul>	<p>as a requirement in the Construction Environmental Management Programme for the proposed development.</p> <ul style="list-style-type: none"> <li>This letter is being requested from the NMBM. As soon as the NMBM has issued such letter, it will be submitted to the DWS.</li> </ul>		

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	<ul style="list-style-type: none"> <li>The proposed development of an internal stormwater reticulation system and the subsequent 9 000 m<sup>3</sup> attenuation pond which would assist with flood control within the Arlington Multiple-Use Development and later connect to the existing municipal stormwater line is hereby supported. Additionally, it must be noted, that there shall be no discharge of waste or water containing waste into the attenuation pond as well as into any nearby watercourses and the attenuation pond shall not be used for any other purposes, other than stormwater management from the catchment site;</li> <li>Precautionary measures must be undertaken to ensure that no water resources are impacted by the Arlington Multiple-Use Development. Henceforth, the water use activities triggered by the development must be applied for through the Department Electronic Water Use Licence Application &amp; Authorisation System</li> </ul>	<ul style="list-style-type: none"> <li>This will be included into the EIA Report as a recommendation / requirement from the DWS.</li> <li>This will be included into the EIA Report as a recommendation / requirement from the DWS. JG Afrika (Pty) Ltd will commence with an Application for a Water Use Licence in January / February of 2024 as soon as the Aquatic Impact Assessment Report has been compiled.</li> </ul>		

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	<p>(E-WULAAS) that is available on the Departmental website;</p> <ul style="list-style-type: none"> <li>• The construction phase of the project may involve the storage and handling of a variety of chemicals including adhesives, oils and lubricants, and solvents due to the nature of the project. The main wastes expected to be generated during the construction phase include general solid waste, hazardous waste, and liquid waste. It is, therefore, advisable the following be considered: - <ul style="list-style-type: none"> <li>i. All construction materials including fuels and oil should be stored in demarcated areas that are contained within berms/bunds to avoid the spread of any contamination. Washing and cleaning of equipment should also be done in berms or bunds, to trap</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• JG Afrika will ensure that all the below management measures for the construction phase, as listed by the DWS, are covered in the EIA Report and EMPr to be compiled during the EIA phase.</li> </ul>		

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	<p>any cement and prevent excessive soil erosion;</p> <p>ii. Specific areas must be designated on-site for the temporary management of various waste streams, i.e., general refuse, construction waste (wood and metal scrap) and contaminated waste. Location of such areas must seek to minimise the potential for impact on the surrounding environment, including prevention of contaminated runoff, seepage, or infiltration into groundwater resources;</p> <p>iii. Any spills must receive the necessary clean-up action. If required, bioremediation kits are to be kept on-site and used to remediate any spills that may occur. Appropriate arrangements</p>			

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	<p>are to be made for the appropriate collection and disposal of all cleaning materials, absorbents, and contaminated soils (per the waste management plan);</p> <p>iv. Routine servicing and maintenance of vehicles are not to take place on-site (except for emergency situations or large cranes which cannot be moved off-site). If repairs of vehicles must take place on-site, an appropriate drip tray must be used to contain any fuel or oils;</p> <p>v. Disposal of waste must be in accordance with relevant legislative requirements, including the use of licensed contractors;</p> <p>vi. Corrective action must be undertaken immediately if a complaint is received, or a</p>			

5733- IAP database.xls	<b>COMMENTS &amp; RESPONSES REPORT based on Draft Scoping Report Public Participation</b>			
<b><u>DATE OF COMMENT, FORMAT OF COMMENT, NAME OF ORGANISATION / IAP</u></b>	<b><u>IAP / STAKEHOLDER COMMENTS</u></b>	<b><u>RESPONSE FROM EAP / APPLICANT / SPECIALIST</u></b>	<b><u>METHOD</u></b>	<b><u>DATE</u></b>
	<p>potential/actual leak or spill of a polluting substance is identified. This includes stopping the contaminant from further escaping, cleaning up the affected environment as much as practically possible and implementing preventive measures;</p> <p>vii. In the event of a major spill or leak of contaminants, the relevant administering authority must be immediately notified as per the notification of emergencies/incidents within 24 hours of such occurrence;</p> <p>viii. An emergency response protocol must be developed to ensure that such spillages are immediately attended to and that the contaminated site is properly rehabilitated to prevent any</p>			

5733- IAP database.xls	<b>COMMENTS &amp; RESPONSES REPORT based on Draft Scoping Report Public Participation</b>			
<b><u>DATE OF COMMENT, FORMAT OF COMMENT, NAME OF ORGANISATION / IAP</u></b>	<b><u>IAP / STAKEHOLDER COMMENTS</u></b>	<b><u>RESPONSE FROM EAP / APPLICANT / SPECIALIST</u></b>	<b><u>METHOD</u></b>	<b><u>DATE</u></b>
	<p>secondary contamination, and that protocol as indicated in Section 19 of the National Water Act, 1998 (Act 36 of 1998) is complied with;</p> <p>ix. During the construction phase the contractors must be provided with ablution facilities, such facilities must be provided at a ratio of one (1) facility for every fifteen (15) persons, subsequently, must be regularly emptied and their content must be disposed of at a suitable wastewater treatment works. It must be noted, there shall be no location of any sanitary convenience, for any substance which causes or is likely to cause pollution of a water resource within the 1:100-year floodline of any watercourse;</p>			



COMMENTS & RESPONSES REPORT based on Draft Scoping Report Public Participation				
<u>DATE OF COMMENT, FORMAT OF COMMENT, NAME OF ORGANISATION / IAP</u>	<u>IAP / STAKEHOLDER COMMENTS</u>	<u>RESPONSE FROM EAP / APPLICANT / SPECIALIST</u>	<u>METHOD</u>	<u>DATE</u>
5733- IAP database.xls	x. Any Specialists' recommendations and assertions made must be effected in the Environmental Management Plan and shall be adhered to by the Contractor and/or Environmental Control Officer responsible for the project development, if there are any shortcomings, the relevant authorities must promptly be informed.			

COMMENTS & RESPONSES REPORT Final Scoping Report				
<u>DATE OF COMMENT, FORMAT OF COMMENT, NAME OF ORGANISATION / IAP</u>	<u>IAP / STAKEHOLDER COMMENTS</u>	<u>RESPONSE FROM EAP / APPLICANT / SPECIALIST</u>	<u>METHOD</u>	<u>DATE</u>
5733- IAP database.xls				
23-Feb-2024  E-mail Letter	Please refer to the Final Scoping Report submitted by yourself on behalf of Afrostructures Pty Ltd dated 29 November 2023 and received 30 November 2023 that proposes	EAP: Thank you.	DEIR	

<p>MS INDIRA GEORGE  <b>MR ANDRIES STRUWIG</b>  <b>MANAGER: EQM</b>  <b>SARAH BAARTMAN/NMB</b>  <b>REGION</b></p>	<p>to undertake Listed Activities scheduled in Government Notice R.325 of April 2017 for the above project.</p> <p>You are hereby informed that the Department accepts the FSR and the Plan of Study is hereby approved provided that the following points are addressed in the Draft EIR:</p> <ul style="list-style-type: none"> <li>• Written confirmation from the Municipality for available services that will be utilised by the proposed development; and</li> </ul> <ul style="list-style-type: none"> <li>• Please ensure that all figures/layout plans in the DEIR are of an appropriate size to be clearly visible and readable.</li> </ul>	<p>The comments have been noted and have been included and addressed in the Draft EIR.</p> <ul style="list-style-type: none"> <li>• The appointed Engineers (AfriCoast Consulting Engineers had submitted the Engineering Services Report and Layout Plan on the 22 January 2024 to the Municipality for the Arlington Mixed Use Development: Bulk Wastewater Approval.</li> <li>• As per email request from the Municipality, updated reports as per NMBM Sewer Design Requirements were submitted on the 27 February 2024 and hard copies delivered on the 26 March 2024 to the Municipality.</li> </ul> <p><u>As per emails (attached as <b>Appendix G</b>) from the Engineers, the Municipality is still busy reviewing the Engineering Services Report. The Comments from the Municipality with regards to the Approval of the Bulk Wastewater Approval for the Arlington Mixed Use Development will be included in the Submission of the Final EIR.</u></p> <ul style="list-style-type: none"> <li>• <u>All figures/layout plans have been included in the DEIR are of appropriate size, clearly visible and readable and are also attached</u></li> </ul>		
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	<p>You are thus to proceed to the EIA phase as per the provision of Section 23 (a) of the NEMA: EIA Regulations as published in GNR. R326 of 07 April 2017. You are reminded that the final EIR is to be submitted on the <b>13 June 2024</b>.</p> <p>The Environmental Assessment Practitioner is required to notify and inform the applicant in writing that the activity may not commence prior to an environmental authorisation being granted by the competent authority.</p> <p>ANDRIES STRUWIG  MANAGER: EQM  SARAH BAARTMAN/NMB REGION  DATE: 23 February 2024</p>	<p><u>as Appendix A – Maps and Appendix B – Layout Plans</u></p>		
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### 11.11 Circulation of the Draft Environmental Impact Report

An email to key stakeholders, Government Departments, NGOs, ward councillors, community leaders and directly affected residences and businesses will be submitted and circulated to notify these parties of the application and availability of the report for 30-day commenting period from **19 April 2024 to 24 May 2024**.

Two (2) English site notices will be erected around the site on the **19 April 2024** to notify the public of the availability of the Draft Environmental Impact Report for 30-day commenting period. An advert, also in English, will be placed in the Local and Regional Newspaper, The Herald, on the **19 April 2024** notifying the public of the availability of the Draft EIR for 30-day commenting period.

A hard copy of the draft report and supporting documentation will be placed at the following public venues, provided in **Table 14** for public viewing:

*Table 14: Locations of the Draft EIR*

Venue	Address	Times
Fountain Vineyard Church	22 Newcombe Avenue, Walmer Heights, Gqeberha	Tuesday: 08h15 – 14h00 Wednesday: 09h00 – 17h00 Thursday: 08h15 – 14h00 Friday: 08h15 – 14h00 Sunday: 09h00 – 11h00, 18h30 – 20h30
Walmer Library	Main Road, Walmer, Gqeberha	Monday: 09h00 – 17h00 Tuesday: 09h00 – 17h00 Wednesday: 09h00 – 17h00 Thursday: 09h00 – 17h00 Friday: 09h00 – 14h00

Copies of the draft EIA report will also be made available to the relevant authorities as listed in **Section 11.2** of this report. The draft EIR will also be available for download on JG Afrika's website: <https://www.jgafrika.com/public-participation>

All comments received from concerned stakeholders will be included in the Final EIR prior to submission to the competent authority.

#### 11.11.1 Public Meeting

A public meeting will only be held and undertaken if sufficient concern is shown towards the proposed development.

### 11.11.2 Comments and Response Report

All comments that are received during the Draft EIR phase will be added to the existing Comments and Responses Report for the proposed project, which will record the date that issues were raised, a summary of the issue and a response to the issue.

### 11.12 Submission and Circulation of the Final Environmental Impact Report

The Final Environmental Impact Report will be submitted on the 13 June 2024 to the Competent Authority Eastern Cape Department of Economic Development, Environmental Affairs and Tourism (DEDEAT) to arrive at a decision on the application.

An email was submitted to all I&APS on the 13 June 2024, which will indicate the following:

- The submission of the Final Environmental Impact Report to the Eastern Cape Department of Economic Development, Environmental Affairs and Tourism (DEDEAT) for their review and to arrive at a decision on the application.
- Electronic copies of the Final Environmental Impact Report will be available for review at the following locations:
  - <https://www.jgafrika.com/public-participation/proposed-arlington-multiple-use-development-on-erven-3988-4195-and-6991-along-glendore-road-in-walmer-gqeberha-nelson-mandela-bay-municipality-eastern-cape-2/>
  - On request from the undersigned (JG Afrika – Public Participation Process- PE)

### 11.13 Notification of DEDEAT Decision

All concerned I&APs will be notified via email or phone call after a decision on the development has been reached by the DEDEAT. The notification will also include the procedure that one would follow to appeal the decision, as legislated.

## 12 SPECIALIST STUDIES

### 12.1 DFFE Screening Tool Report

A Screening Tool Report was generated for the proposed Arlington Multiple-Use Development project using the national web-based Environmental Screening Tool, as required by the NEMA: EIA Regulations 2014 (as amended) and is attached as **Appendix C1**.

**Table 15** indicates the level of sensitivity of each of the environmental themes identified within the National Web-based Screening Tool Report.

*Table 15: Summary of the Screening Tool Report outcome*

ASPECT	SENSITIVITY			
	VERY HIGH	HIGH	MEDIUM	LOW
Agriculture				
Animal species				
Aquatic Biodiversity				
Archaeological and Cultural Heritage				
Palaeontology				
Civil Aviation				
Plant species				
Defence				
Terrestrial Biodiversity				

#### 12.1.1 Response and Motivation in terms of identified site environmental sensitivities

##### 12.1.1.1 Agriculture

The Agricultural sensitivity of the project is highlighted as being **Very High**. Based in Google Earth Satellite Imagery the proposed site is located on the edge of a well-established urban area towards the north and vacant plots of land towards the south. The disturbed nature of the larger portion of the project area is likely no to be favourable for agriculture and the impacts on agricultural resources will most likely be low, however this will need to be confirmed in the specialist findings report.

As a result of the Very High sensitivity triggered by the screening tool, an **Agricultural Resource Impact Assessment** was deemed necessary for this proposed development and the findings are included in **Section 13.4** of this Environmental Impact Assessment Report.

##### 12.1.1.2 Archaeological and Cultural Heritage

The Archaeological and Cultural Heritage theme are highlighted as Low Sensitivity. The Heritage Specialist has undertaken his survey and indicated that there are no sensitive areas from an archaeological perspective

that will affect the layout of the proposed development. There may be a building or structure that is over 60 years old, as per the historical background of the premises, but most of these structures are dilapidated and there for a permit application will be made to the Heritage Authority for demolishing of such structures.

Additionally, according to Section 38 of the National Heritage Resources Act (Act 25 of 1999), should 5000m<sup>2</sup> of vegetation be cleared, a Heritage Impact Assessment will be required.

A **Phase 1 Archaeological and Cultural Heritage Assessment** has been undertaken and the findings are included in **Section 13.6** of this Environmental Impact Assessment Report.

#### *12.1.1.3 Palaeontology*

Palaeontology sensitivity is highlighted as **Very High**; however, the palaeontologist has indicated that there are no areas that require exclusion during the design phase of the proposed development.

As a result of the sensitivity triggered by the screening tool and the need for further investigation, a **Palaeontological Impact Assessment** has been undertaken and the findings are included in **Section 13.7** of this Environmental Impact Assessment Report.

#### *12.1.1.4 Aquatic Biodiversity*

The Aquatic Biodiversity theme within the project area is highlighted as **Low Sensitivity**. A site visit had been undertaken by the Specialist, who had indicated that there are no wetlands or watercourses identified within the proposed site development footprint and nor has any wetlands been identified in any of the available wetland databases.

However, wetlands identified at desktop level and located within 500m from the site will need to be verified by an aquatic specialist. As a result, an **Aquatic Biodiversity Assessment** must be conducted by a specialist.

An **Aquatic and Wetland Assessment** has been conducted and the findings are included in **Section 13.8** of this Environmental Impact Assessment Report.

#### *12.1.1.5 Terrestrial Biodiversity*

The Terrestrial Biodiversity theme within the project area is highlighted as Very High. The site footprint falls within two vegetation types, namely Sardinia Forest Thicket and Algoa Sandstone Fynbos as identified by the Nelson Mandela Bay Municipality's Bioregional Plan (NMBMBP) (2015) and the South African National Biodiversity Assessment (SANBA) (2018).

In terms of the conservation status of these, none of these vegetation types (ecosystems) are listed as critically endangered or endangered in terms of the 'Nation List of Ecosystems that are Threatened and in Need of Protection

A **Terrestrial Biodiversity Assessment** has been conducted and the findings are included in **Section 13.2** of this Environmental Impact Assessment Report.

A **Faunal Species Compliance Statement** to provide animal species input has been undertaken and the findings are included in **Section 13.3** of this Environmental Impact Assessment Report.

An **Avifaunal Assessment** has been conducted and the findings are included in **Section 13.5** of this Environmental Impact Assessment Report.

## **13 SUMMARY OF SPECIALIST STUDIES UNDERTAKEN**

### **13.1 Terrestrial Biodiversity Assessment**

Ecolink South Africa was appointed to conduct a Terrestrial Biodiversity Assessment associated with the proposed Arlington Multipurpose Development on Erven 3988, 4195 and 6991, Gqeberha, Nelson Mandela Bay Municipality, in the Eastern Cape Province (attached as **Appendix C2**).

#### **13.1.1 Scope of Work**

The first step in the Scope of Works is to complete the Site Sensitivity Verification. The outcome of this verification will guide the next step in the assessment process. If the outcome of the verification is that the sensitives identified in the screening tool are relevant provision will be made to conduct an assessment in accordance with the requirements of the specified protocol, which makes provision for the following:

- The assessment must provide a baseline description of the site which includes, as a minimum, the following aspects:
  - A description of the ecological drivers or processes of the system and how the proposed development will impact these;
  - Ecological functioning and ecological processes (e.g. fire, migration, pollination, etc. that operate within the preferred site;
  - The ecological corridors that the proposed development would impede including migration and movement of flora and fauna;
  - The description of any significant terrestrial landscape features (including rare or important flora-faunal associations, presence of strategic water source areas (SWSAs) or freshwater ecosystem priority area (FEPA) sub catchments;
  - A description of terrestrial biodiversity and ecosystem on the preferred site, including: (a) main vegetation types; (b) threatened ecosystems, including listed ecosystems as well as locally important habitat types identified; (c) ecological connectivity, habitat fragmentation, ecological processes and fine scale habitats; and (d) species, distribution, important habitats (e.g. feeding grounds, nesting sites, etc.) and movement patterns identified;



- The assessment must identify any alternative development footprints within the preferred site which would be of a “low” sensitivity as identified in the screening tool and verified through the site sensitivity verification; and
- The assessment must be based on the results of a site inspection undertaken on the preferred site and must identify:
  - ✓ Terrestrial critical biodiversity areas (CBAs),
  - ✓ Terrestrial ecological support areas (ESAs),
  - ✓ Protected areas as defined by the National Environmental Management: Protected Areas Act (Act No. 57 of 2003),
  - ✓ Priority areas for protected area expansion,
  - ✓ Strategic Water Source Areas (SWSAs),
  - ✓ FEPA sub cathments, and
  - ✓ Indigenous forests.

### 13.1.2 Assumptions and Knowledge Gaps

The following are assumptions made in the completion of the report:

- The assessment of the potential impacts of the proposed development is based on the terrestrial biodiversity features on the development site is based on the development layout that has been provided. If the development layout is amended, the impact identification and assessment contained in this report may also change.
- The findings of the report are limited to a single day long site visits conducted on 28 February 2022 and 7 February 2024 which is considered to be mid-summer. No provision has been made for seasonal visits to the site and is not considered a shortcoming of the report.
- The following standardised and accepted methods to determine the various aspects of the study were used:
  - Electronic biodiversity databases managed by the South African National Biodiversity Institute (SANBI);
  - Available provincial electronic biodiversity databases;
  - South African Bird Atlas 2; and
  - Information from the Virtual Museum managed by the Percy Fitzpatrick Institute.
- It is important to note that the assessment will be limited to the development footprint of the Arlington Multipurpose Development.

### 13.1.3 Site Sensitivity Verification

The Site Sensitivity Verification was initiated by conducting a desktop assessment of the proposed development site. The desktop assessment made use of the following available information:

- Information contained in the DFFE Screening Tool Report;
- Current and historical aerial imagery of the area;
- Biodiversity databases available on the SANBI Website;

- 1 in 50 000 topographical map sheet for the area;
- Recent aerial imagery for the site;
- South African Bird Atlas 2; and
- Information from the Virtual Museum managed by the Percy Fitzpatrick Institute

The site assessments associated with the Site Sensitivity Verification were conducted on 28 February 2022 and 7 February 2024 by Mr Magnus van Rooyen of GCS Water and Environment (Pty) Ltd. The seasonality of the assessment is not considered to compromise the out of the sensitivity verification. The site assessment consisted of a site walkover to identify any possible terrestrial biodiversity features that require investigation and assessment. The assessment also had as a goal to verify the information findings of the desktop assessment.

#### 13.1.4 Site Assessment Findings

The site assessment has as a goal to verify the findings of the desktop assessment discussed above. The site assessments were conducted on 28 February 2022 and 7 February 2024, which is considered to be mid-summer. The seasonality of the assessment is not considered to compromise the findings of the assessment.

##### 13.1.4.1 Vegetation

The vegetation species that were identified in the DFFE Screening Assessment were not found to be present on the development site. This is due to the high level and long duration of anthropogenic disturbances that has occurred on the site. Similarly, no pristine stands of the Algoa Sandstone Fynbos are present within the boundaries of the site. A secondary stand of vegetation is located in the south-western extent of the site contains small elements of vegetation that resemble Sardinia Forest Thicket (see **Figure 26**). However, this stand of vegetation is still considered secondary in nature due to the historic disturbances to the vegetation that occurred in this area. This area has been included in the Site Development Plan as an area that has been identified for public open space (see **Figure 27**) and earmarked for conservation.



*Figure 26: View of the secondary stand of Sardinia Forest Thicket.*



Figure 27: Location and extent of the secondary stand of Sardinia Forest Thicket, shown in yellow.

Furthermore, the site assessments confirmed that the vegetation on the development site has been largely transformed as a result of the long-term presence of the Arlington Racecourse and associated activities and infrastructure.

This has resulted in the dominant grass species on the site consisting of *Stenotaphrum secundatum* (Buffalo Grass) while the woody component mainly consists of *Vachellia karroo* (Sweet Thorn). The presence of these species confirms the disturbed nature of the vegetation on the site as both these species are typical pioneer species that will establish and flourish on disturbed areas. Prominent alien invasive species that occur on the site included *Acacia saligna* (Port Jackson) and *Ricinus communis* (Castor Oil Bush). Both these species are also species typical to disturbed areas.



Figure 28: View of the grass component consisting of *Stenotaphrum secundatum* (Buffalo Grass)



Figure 29: View of the woody component present on the development site consisting of indigenous *Vachellia karroo* (Sweet Thorn) and alien invasive *Acacia saligna* (Port Jackson).

#### 13.1.4.2 Mammals

Of the list of 58 mammal species that have been identified in the map reference associated with the development site, it is likely that the small rodents are likely to be present on the development site. No signs of any of these rodents were observed during the site assessment. It is worthwhile noting that none of these species are considered “critically endangered” or “endangered”.

As mentioned earlier, the list highlights the possible presence of the following species that are classified as “near threatened” and “vulnerable” within the locus 3325DC: *Philantomba monticola* (Blue Duiker),

*Chlorotalpa duthieae* (Duthie's Golden Mole), *Panthera pardus* (Leopard), *Aonyx capensis* (African Clawless Otter) and *Poecilogale albinucha* (African Striped Weasel). *Philantomba monticola* (Blue Duiker) may visit the site, albeit it a very low likelihood due to the limited numbers of the species that may occur in the area due to the land uses surrounding the development site.

*Chlorotalpa duthieae* (Duthie's Golden Mole) is highlighted in the DFFE Online Screening Tool as likely present on the site. It is worthwhile to note that this species is classified as of “medium” sensitivity by the online tool. The presence of this species could not be confirmed during the site assessment as no trapping was done, however, a number of mole hills were viewed during the site assessment (**Figure 30**), which may be as a result of this species. Consideration therefore must be given to possible relocation of these species before construction can commence.



*Figure 30: View of some of the mole hills seen on site that may confirm the presence of *Chlorotalpa duthieae* (Duthie's Golden Mole) as identified in the DFFE Online Screening Tool.*

#### 13.1.4.3 Reptiles

No reptiles were identified in the DFFE Online Screening Tool as sensitive, however, the information from the Virtual Museum provided earlier makes provision for one species that is classified as “endangered” and two species that are classified as “near threatened”. All three these species are sea turtles which makes their presence on the development site impossible as there is no suitable marine habitat on the site.

*Tetradactylus fitzsimonsi* (FitzSimons’ Long-tailed Seps) favours natural grass- and shrubland habitat. This habitat is present on the development site, albeit it in a very disturbed condition. Due to the high level of disturbance of the habitat on the development site and the presence of suitable habitat to the west and

south of the site, the likelihood of this species being present on the site is considered to be low. No sign of this reptile species was observed during the site assessment.

#### 13.1.4.4 Frogs

The frog species that may occur on the study site are all classified as “least threatened”. In the absence of any aquatic habitat on the development site, the presence of any frog species is highly unlikely. No frogs or signs of frogs were observed during the site assessment.

It is important to note, that the establishment of any aquatic features within the development site may attract frogs from the surrounding areas and may settle in these features.

#### 13.1.4.5 Birds

The site assessment focussed on the identification of any signs (direct observation and nesting sites) of the bird species identified in the DFFE Online Screening Tool. These species included *Circus ranivorus* (African Marsh Harrier), *Circus maurus* (Black Harrier), *Neotis denham* (Denham’s Bustard), *Bradypterus sylvaticus* (Knysna Warbler), *Stephanoaetus coronatus* (Crowned Eagle) and *Eupodotis senegalensis* (White-bellied Bustard). The first three species were classified as “high” sensitivity while the last three as “medium” sensitivity.

No signs of any of these species were observed during the site assessment. This is not unexpected, particularly in the case of *Circus ranivorus* (African Marsh Harrier), *Circus maurus* (Black Harrier) and *Stephanoaetus coronatus* (Crowned Eagle) as no suitable habitat is present for these species. The former are species that prefer marshy habitat, which is absent on the site, while the latter favours high trees in which to nest and roost which are also absent from the development site.

In the case of the two bustard species, the high level of disturbance on and in the surrounding areas prevents these species from visiting or nesting on the site.

No signs of *Bradypterus sylvaticus* (Knysna Warbler) observed during the site assessment, however, the small patch of Sardinia Forest Thicket identified in the south-western corner of the development site could form suitable habitat for this species. As previously mentioned, this is one of the key motivations to the developer to exclude development from this area and to designate it as public open space within the layout (see Figure 31).



Figure 31: Location and extent of the secondary stand of Sardinia Forest Thicket, shown in yellow.

### 13.1.5 Outcome of the Site Sensitivity Verification

Outcome of the Site Sensitivity Verification based on the information generated during the desktop and site assessment of the property and is summarised in the **Table 16** below.

Table 16: Desktop and Site Assessment of the Property

Sensitivity theme	Feature	Sensitivity
Plant species theme	Sensitive species 1252, 991, 588, 657, 670, 448, 654	
	<i>Argyrobium crassifolium</i>	Medium
	<i>Aspalathus recurvispina</i>	Medium
	<i>Lotononis acuminata</i>	Medium
	<i>Selago rotundifolia</i>	Medium
	<i>Erica chloroloma</i>	Medium
	<i>Erica zeyheriana</i>	Medium
	<i>Gymnosporia elliptica</i>	Medium
	<i>Centella tridentata</i> var. <i>hermanniifolia</i> <i>Rapanea</i>	Medium
	<i>gilliana</i>	Medium
	<i>Holothrix longicornu</i>	Medium
	<i>Agathosma gonaquensis</i>	Medium
	<i>Agathosma stenopetala</i>	Medium
	<i>Corpuscularia lehmannii</i>	Medium
	<i>Caputia scaposa</i> var. <i>addoensis</i>	Medium
	<i>Erica glumiflora</i>	Medium

*Table 17: Site Sensitivity Findings*

DFFE Screening Tool Theme	DFFE Screening Tool sensitivity rating	Site Sensitivity Verification findings	Discussion
Terrestrial Biodiversity Theme	Very high sensitivity	Low sensitivity	<p>The theme is determined to be of “very high” sensitivity due to the development site’s location in the Tsitsikamma SWSA and in the Algoa Sandstone Fynbos vegetation type that has a “critically endangered” classification.</p> <p>In the case of the Tsitsikamma SWSA, it is believed that the nature of the development will not impact on the SWSA’s status as it will not result in the impeding of any surface runoff into the localized groundwater regime, and it will not influence the amount of water that is currently provided by the development through runoff and seepage. As such, the “very high” sensitivity of the development site is considered to be “low”.</p> <p>In the case of the presence of the Algoa Sandstone Fynbos vegetation type, the desktop findings contained in the assessment (Red Listed Ecosystems, 2022) confirms the absence of the vegetation type on the development site which was confirmed by the site assessment. This is due to the historic and current disturbances associated with the land uses on the development site.</p> <p>As such, the sensitivity of the Terrestrial Biodiversity on the proposed development sites, is considered to be of Low Sensitivity.</p>
Animal Theme	High sensitivity	Low sensitivity	<p>The High Sensitivity rating of this theme is based on the site being located in the distribution area of a several bird species that have high conservation value. None of these species were identified on the development site.</p> <p>As such, the sensitivity of the Animal Theme associated with the proposed development site, is considered to be of Low Sensitivity.</p>



Plant Theme	Medium sensitivity	Low sensitivity	<p>The Site Sensitivity Verification has found that the vegetation on the study site has been significantly transformed from the natural state. As such, the species identified in the DFFE Screening Tool is unlikely to be present on the study site due to the absence of suitable habitat for these species and the historic and ongoing disturbance of the study site. In addition, none of these species were identified during the site assessment.</p> <p>As such, the sensitivity of the Plant Theme associated with the study site, is considered to be of Low Sensitivity.</p>
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### 13.1.6 Impact Identification and Assessment

The likely impacts associated with the proposed development on the identified terrestrial biodiversity baseline have been identified through the undertaking of desktop assessment, site visit, consultation with published information and comments from relevant stakeholders (where applicable).

The identified impacts as well as the proposed management and mitigation measures for inclusion into the Environmental Management Programme are provided in **Table 18**.

*Table 18: Management and mitigation measures to be included in the Environmental Management Programme for the construction and operational phase*

Nature of the impact	Impact summary	Proposed management and mitigation measures
<b>Construction phase</b>		
Loss of indigenous vegetation		The areas that will require the clearance of vegetation must be limited to as small a footprint within the road reserve as possible.

Nature of the impact	Impact summary	Proposed management and mitigation measures
<b>Construction phase</b>		
	<p>Even though the vegetation on the study site is considered to be degraded and secondary in nature, the vegetation meets the definition of “indigenous vegetation” as per the NEMA EIA Regulations (2014), as amended.</p>	<p>The footprint must be survey and clearly demarcated to ensure that the area to be cleared will be limited to the area required. No operations must be allowed outside of the demarcated areas.</p> <p>The areas that have been cleared of vegetation during the implementation of the project must be revegetated with grasses that occur naturally in the area.</p>
<p>Spreading of alien invasive plant species.</p>	<p>Alien invasive plant species are already present in the development site. As such, the clearance of areas for construction will result in bear aeras into which these species can spread.</p>	<p>The disturbance of the vegetative cover during the construction phase of the development will provide an opportunity for the establishment of alien invasive species on these areas.</p> <p>To prevent this from happening, an Alien Invasive Plant Management Plan must be implemented for the duration of the construction phase of the development. This plan must make provision for the following:</p> <ul style="list-style-type: none"> <li>• The construction footprint must be clearly survey and demarcated before any construction of the components of the development is to commence.</li> <li>• This must be done to ensure that areas to be cleared limited to only the areas that are necessary.</li> <li>• The cleared areas must be regularly monitored for the establishment of alien plant species. These must be cleared when they appear.</li> <li>• Identification and eradication of any alien plant species that establish on the site.</li> </ul> <p>The rehabilitation of these cleared areas must commence as soon as practically possible after construction activities have ceased. This rehabilitation must make use of indigenous vegetation.</p>

Nature of the impact	Impact summary	Proposed management and mitigation measures
<b>Construction phase</b>		
<p>Contamination of the area by petrochemical spillages.</p>	<p>The presence of plant and equipment on the construction site that make use of petrochemical substances to operation pose a risk of contamination to the terrestrial biodiversity on the study site.</p>	<p>All plant and equipment that make use of petrochemical substances must be checked leakages on a daily basis before operations commence.</p> <p>All plant and equipment that are found to be leaking must be removed from the site and only returned once the leakages have been addressed.</p> <p>If any petrochemical substances are stored on the site, this storage must be done on an impermeable surface in a bunded area that makes provision for 110% of volume of the substances that are stored.</p> <p>All refuelling of plant and equipment must be conducted over a drip-tray.</p> <p>If any plant or equipment is to be parked on the site, these must be parked within the demarcated construction footprint that has been cleared.</p> <p>If any spillages from plant or equipment occur, the spill must be contained immediately, the contaminated soils must be collected and bagged in impermeable bags and stored on site to be removed and disposed of by a registered service provider.</p>
<p>Contamination of the area by construction waste.</p>	<p>The construction activities will generate an amount of construction waste (wood off-cuts, waste concrete, waste cement, etc.) on the site.</p>	<p>Skips must be made available on-site into which all construction waste can be discarded.</p> <p>All construction waste must be cleared from the site on a daily basis and placed in these skips.</p> <p>The capacity of these skips must be monitored on a daily basis to ensure that a replacement skip can be arranged on the same day as the filled skips are removed.</p> <p>The disposal of the content of these skips must be done at a municipal landfill site.</p>

Nature of the impact	Impact summary	Proposed management and mitigation measures
<b>Construction phase</b>		
Contamination of the area by domestic waste.	The presence of a labour force associated with the construction will generate an amount of domestic waste (food wrapping, plastic bottles, etc.) on the site.	No dumping of construction waste on open areas on the property will be allowed.
		A designated eating area must be established within the construction site.
		Covered domestic waste bins must be present at the eating area to receive all the domestic waste generated by the labour.
		The capacity of these domestic waste bins must be monitored on a daily basis to ensure that they are emptied timeously.  The domestic waste from these waste bins must be removed off site and disposed of at a municipal landfill site on a weekly basis or more regularly if the bins fill up quicker.
Contamination of the area as a result of leaking portable toilet facilities.	Portable toilet facilities will be present of the property to service the labour associated with the construction. These toilets will pose a risk of leakages and spillages which may impact on the terrestrial biodiversity on the site.	Only portable chemical toilets with a sealed reservoir will be allowed on site.
		All portable chemical toilets must be located further than 30m away from the delineated edges of any aquatic feature.
		The capacity of the reservoirs in the portable chemical toilets must be monitored on a daily basis to ensure that they can be serviced timeously.
		All removal of the collected sewage waste from the portable chemical toilets must be conducted by a registered service provider for disposal at a municipal wastewater treatment facility.
<b>Operational phase</b>		
Indigenous vegetation	The loss of indigenous vegetation can be compensated for by the use of indigenous vegetation in the landscaping of the public open space areas within the development	All Land Scaping within the public open space areas within the development must make use of the establishment of indigenous vegetation.
		This indigenous vegetation must be endemic to the area.

Nature of the impact	Impact summary	Proposed management and mitigation measures
<b>Construction phase</b>		
Alien invasive plant species	Alien invasive plant species may settle on the development site during operations.	<p>An Alien Invasive Plant Management Plan must be compiled for the development to manage the possible proliferation of these species during the operations of the development. The plan must make provision for the following key aspects:</p> <ul style="list-style-type: none"> <li>• Provision for the identification of the specific alien invasive plant species on the site.</li> <li>• Identification of the appropriate control measures for each of the identified alien invasive plant species.</li> <li>• Schedule monitoring of the success of the management of the alien invasive plant species.</li> <li>• Schedule review of the applicability of the plan.</li> </ul>
Conservation of the Sardinia Forest Thicket	The conservation of the secondary Sardinia Forest Thicket fragment will result in the creation of bird habitat.	<p>The Conservation Management Plan must be in-place at the commencement of the operation of the first phase of the development and must make provision for the following:</p> <ul style="list-style-type: none"> <li>• Formal inclusion of the area into the Open Space Layout Plan for the development.</li> <li>• Conservation measures to improve the vegetative biodiversity within the stand (removal of alien plant species, replacement with appropriate indigenous species, etc.). This should be informed by a qualified Botanist.</li> <li>• Management measures particularly along the edges of the stand to prevent the establishment of alien invasive plant species along these edges.</li> </ul>

### 13.1.7 Terrestrial Biodiversity Assessment Conclusion

The findings of this report have indicated that the terrestrial biodiversity (fauna and flora) on the development site has been historically degraded with all the vegetative aspects on the site being secondary in nature. As such, the Animal and Plants Species Theme as well as the Terrestrial Biodiversity Theme on the site is considered to be LOW which is in contradiction with the findings of the DFFE Screening Tool.

The assessment of the potential impacts on the terrestrial biodiversity (fauna and flora) features has indicated that severity of these impacts on the ecology can all be mitigated with the implementation of the management and mitigation measures provided in this report.

As such, it is the specialist's opinion that with the implementation of the management and mitigation measures contained in this assessment, there are not fatal flaws associated with the aquatic ecological baseline that will prevent the application from being authorised.

## 13.2 Faunal Species Compliance Statement

BlueLeaf Environmental (Pty) Ltd. was appointed to provide animal species input into the proposed Arlington multiple-use development (attached as **Appendix C3**).

### 13.2.1 Methodology

This report has been drafted in accordance 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 NEMA (G.NR. 1150 of 2020) – Protocol for the specialist assessment and minimum report content requirements for environmental impacts on animal species.

A site sensitivity verification was conducted (see Chapter 5 of this report) to confirm/dispute the current use of the land and animal sensitivity as identified by the Screening Tool. Motivation, with photographic evidence, were provided as part of the site sensitivity verification.

### 13.2.2 Desktop Analysis

This section was completed prior to the site visit and consist of a desktop analysis of the site based on available literature, plans and legislation.

#### 13.2.2.1 Land Use

Current land use has been determined and the map in **Figure 32** shows that the dominant land use for the development site is urban vegetation. The site visit confirmed that footprint consist of urban infrastructure, either building and other built features like walls, stands and roads with isolated patched of naturally wooded land.

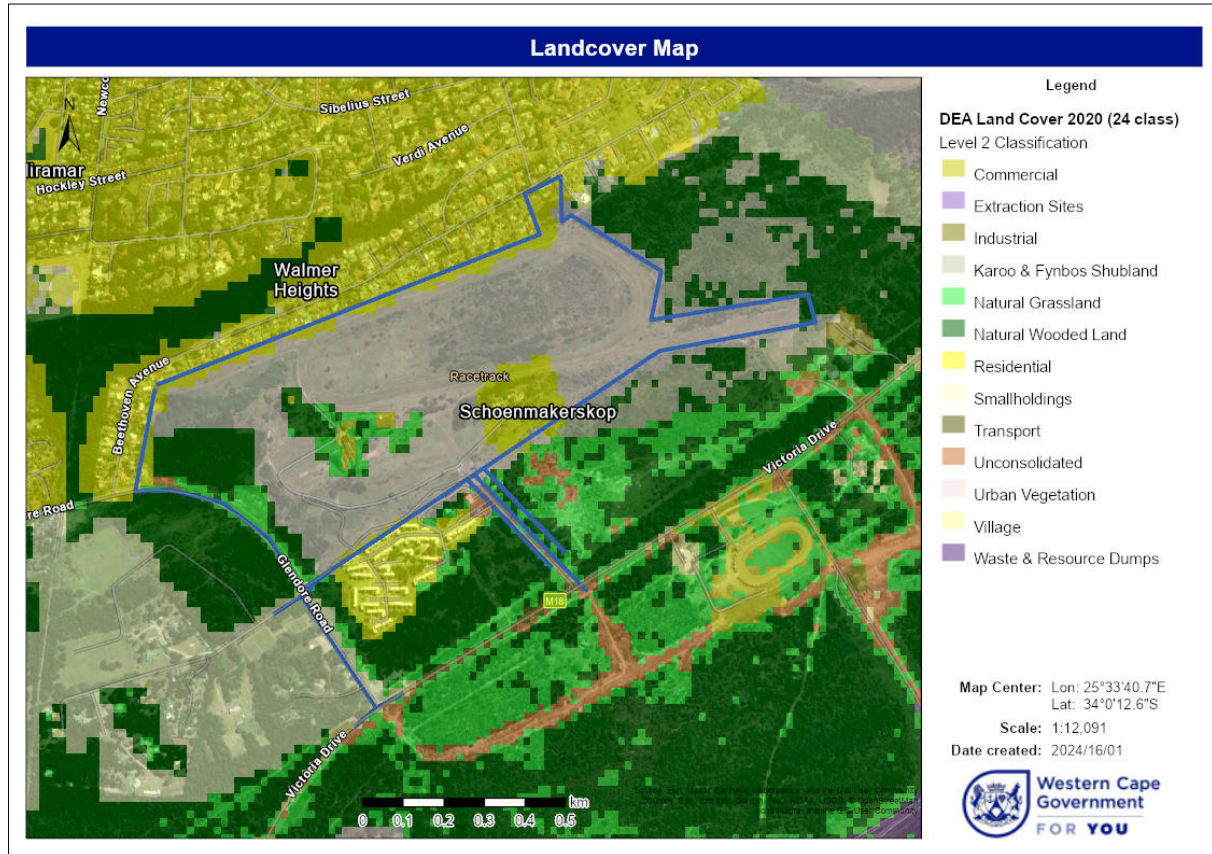


Figure 32: Land cover of the study site and surrounding area.

The site was historically transformed to a horse racetrack. Arlington, previously St Andrews Racing Club, was opened in 1950 with the last race run in 2013. Since then, the land has been vacant with most of the infrastructure becoming decrepit since then and the racetrack itself overgrown with vegetation. No surface water features exist on site. Current land use for the entire site will change to urban development if the projects proceed.

### 13.2.2.2 Vegetation

According to the 2018 SANBI Vegetation map the site is covered by two vegetation types namely Algoa Sandstone Fynbos and Sardinia Forest Thicket (**Figure 33**).

Algoa Sandstone Fynbos occurs on moderately undulating plains and undulating hills supporting vegetation composed of low, medium dense graminoid, dense cupressoid-leaved shrubland, dominated by renosterbush. There are both grassland and shrubland forms of the renosteveld present, probably depending on grazing and fire regimes. Thicket patches are common on termitaria (heuweltjies are absent) and in fire-safe enclaves. Vegetation is dominated by *Aspalathus nivea* in the post-fire, early seral stages.



Figure 33: SANBI VegMap of the study site and surrounding areas.

### 13.2.2.3 Faunal Habitats

Dense vegetation patches occur in various areas on site. The biggest is a forest/thicket patch consisting of dense trees and scrubs occurring in the western part of the site. It is suspected that this is the remnant of the original Sardinia Forest Thicket that used to occur on site before urban development cleared the site of endemic vegetation. Other, smaller dense vegetation patches occur throughout the site. All these areas provide habitat for both small to medium mammals, reptiles and snakes, birds, and a variety of insects. These sites must undergo Search and Rescue by a qualified faunal specialist prior to commencement of any vegetation clearing.

### 13.2.2.4 Animal Species

No animal species of conservation concern (this includes species identified in the Screening Tool) were observed on site. However, this does not mean that they do not occur on site. Potentially suitable habitats do exist, especially for birds so a low risk of animals to be present do exist.



## Mammals

No mammals, other than cattle, were observed but it is assumed that small mammals like mice, rats, shrews and genets may exist. Habitats are large enough to potentially shelter small antelope like Duiker and others.

Duthies Golden Mole (*Chlorotalpa duthieae*), a sensitive species listed in the Screening Tool Report may occur. Its natural habitats are subtropical or tropical moist lowland forests, moist savanna, temperate grassland, arable land, pastureland, plantations, rural gardens, and urban areas. The mole digs an underground nest under the base of a tree and creates shallow passages radiating out into the surrounding area. It forages, mainly at night, in these tunnels and in the leaf litter, feeding mainly on earthworms. Little is known of the animal's breeding habits. On site, it is anticipated they will be found in the dense thicket forest patches and in the thornveld by the old racetrack (**Figure 34**).



*Figure 34: Three high probability habitats for Duthie's Golden Mole.*

## Birds

Birds are common in the area. With no surface water features found on site, species diversity is lower than expected for such a large area and species like the African Marsh Harrier (*Circus ranivorus*), another species listed in the Screening Tool Report are not common on site. Habitats for the Knysna warbler (*Bradypterus sylvaticus*) are found on site. They are found in dense tangled scrub of forest edges, on or relatively near the coast. The Denham's bustard (*Neotis denhami*) occupies grassland habitats. They are mainly distributed in savanna and may be found at any elevation up to 3,000 m. They can be found in a considerable range of secondary habitats including dense shrubland, light woodland, farmland, dried marsh, and arid plains. Bird species observed during the site visit includes:

- Grey heron (*Ardea cinerea*)
- Cattle egret (*Bulbulcus ibis*)
- Hadedda (*Hadedda ibis*)
- Egyptian goose (*Alopochen aegyptiaca*)
- Helmeted guineafowl (*Agelastes meleagrides*)
- Common quail (*Coturnix coturnix*)
- Laughing dove (*Spilopelia senegalensis*)

**Reptiles and amphibians**

Reptiles are common in the Eastern Cape and most reptiles, and all frogs are protected in the Eastern Cape. Most frogs and reptile species merely require removal permits from DEDEAT. These removal permits are not necessary required for the project and should only be applied for if any species required relocation out of the construction footprint during construction phase. Some common reptiles in the area include:











Cape cobra	Puffadder	Rinkhals	Mole snake	Boomslang
				
Tropical house gecko	Cape skink	Cape Dwarf Chameleon	Angulate tortoise	Leopard tortoise
				

Figure 35: Common Reptiles in the area.

**Invertebrates**

No scorpions or large spiders were identified on site. All scorpions as well as Baboon Spiders are however indicator species and must be relocated if observed or found on site. The Yellow-winged Agile Grasshopper (*Aneuryphymus montanus*), listed in the Screening Tool Report, is endemic to the Cape region of South Africa and is known from only 6 localities. The species is associated with fynbos vegetation, where it has been collected "amongst partly burnt stands of evergreen Sclerophyll in rocky foothills" (Brown 1960). It prefers south-facing cool slopes (Kinvig 2005).

**13.2.3 Photographs of Significant Features**

The following photographs were taken of significant features that will assist in confirming/disputing the DFFE Screening Tool’s classification for the animal theme on site:

Dense thicket forest patch in the western section of the site is a high potential habitat for various species:



Various existing urban infrastructure exist. These are good habitats for various snake species:



The area in and around the racing track is also good habitat for various species:



Figure 36: Photographs taken of significant features on site.

#### 13.2.4 Site Sensitivity Verification

A site visit was conducted on the 8<sup>th</sup> of March 2022, and the entire site was assessed. The following was found:

- The site is covered by grassland, thornveld, savanna and dens thicket patches interspersed with scatters infrastructure like buildings, stands, stores, etc. from when it was used as an equestrian racetrack. No fynbos exists.
- Habitats exist for various animal species, especially the dense thicket patches and the open vegetated areas where the racetrack used to be.
- Old buildings, rubble and other infrastructure are good habitats for various reptile species, especially snakes, lizards, and geckos.
- No surface water exists on site.
- No animal species of conservation concern were found on site. The risk of finding any is considered as low.

Based on the above, it is the opinion of the specialist that the land contained within the proposed study site is considered as **low sensitivity with zones of medium sensitivity** for the animal species theme. A full Animal Species Assessment is therefore NOT required. The proposed development may therefore proceed provided that the following mitigations are included into the EMP:r:

1. A site representative must be trained in handling dangerous reptiles and scorpions during site construction. This person must inspect the construction site daily before activities start and relocate any snakes, spiders and scorpions if found in holes, trenches, plant, building, or office structures.
2. Animal Search and Rescue (S&R) of the entire site must be done by a qualified faunal specialist prior to commencement of any activity on site. All old buildings must be searched, and animals found must be relocated.

### 13.3 Agricultural Resource Impact Assessment

Eco-Assist Environmental Consultants (here after Eco-Assist) were appointed by JG Afrika (Pty) Ltd to conduct an Agricultural Impact Assessment for the proposed multiple-use development that will be in Walmer, Gqeberha (Port Elizabeth) within the Nelson Mandela Bay Metropolitan Municipality (NMBM) of the Eastern Cape Province (attached as **Appendix C4**).

#### 13.3.1 Scope of Work

A soil survey be conducted and that the following be assessed as per the Provincial and National Departments of Agriculture recommendations:

- Assess and discuss historic climate statistics;
- Assess and discuss geological information;
- Assess and discuss the terrain features using 5m contours;
- Source best recent satellite or aerial imagery and georeferenced;
- Assess and discuss current agricultural land use on site and comment on crop performance and estimated yields (if any);
- Conduct soil assessment as described in the methodology;
- Assess and discuss agricultural land potential (eight class scale);
- Discuss the impact of the proposed land use change on loss of agricultural land production (If any);
- Recommend best location for proposed development to reduce any impacts;
- Compile informative reports and maps on current land use and agricultural land potential;
- Discuss the impact of the proposed land use change on loss of agricultural land production; and
- A basic soil management guideline will be completed.

The results will be mapped in GIS format and will include the following maps:

- A soil distribution map;
- A current land use map; and
- An agricultural potential map.

An Impact assessment of the proposed development will be conducted, and the recommendations can be used in the Environmental Management Plan (EMP).

#### 13.3.2 Sensitivity Analysis based on the Environmental Screening Tool

The screening tool showed that the project area has a Medium to Very-High agricultural sensitivity. The screening tool requires the specialist to verify or dispute the screening tool sensitivities. The screening tool shows a dominant High sensitivity and a small portion of Very-High and Medium sensitivity. The verification completed later in the report has disputed the High sensitivity and therefore a compliance statement is sufficient.

### 13.3.3 Methodology

#### 13.3.3.1 Desktop Assessment

The following data layers were assessed to determine whether the development could have an impact on important national & provincial feature:

- Aerial imagery (Google Earth™);
- Land Type Data (Land Type Survey Staff, 1972 - 2006);
- National land capability evaluation raster data layers (Department of Agriculture, Forestry and Fisheries, 2017);
- Topographical data;
- Contour data (5 m).

#### 13.3.3.2 Field Procedure

The site was traversed by vehicle and on foot. A soil auger was used to determine the soil form/family and depth. The soil was hand augured to the first restricting layer or 1.5 m. Soil survey positions were recorded as waypoints using a GPS device.

Soils were identified to the soil family level as per the “Soil Classification: A Natural and Anthropogenic System for South Africa” (Soil Classification Working Group, 2018). Landscape features such as existing open trenches were also helpful in determining soil types and depth.

#### 13.3.3.3 Land Capability and Land Potential Assessment

Land capability and agricultural potential is determined by a combination of soil, terrain, and climate features. Land capability is defined by the most intensive long-term sustainable use of land under rain-fed conditions. At the same time an indication is given about the permanent limitations associated with the different land use classes (Smith, 2006).

### 13.3.4 Limitations

The following aspects were considered as limitations of the assessment:

- Hand augers were used, and the limiting layer was the depth to which the auger could drill.
- The assessment is based on the design and layout information provided by the client.
- It has been assumed that the extent of the development area provided by the responsible party is accurate.
- The GPS used for ground truthing is accurate to within five meters. Therefore, the observation site’s delineation plotted digitally may be offset by up to five meters to either side; and
- A soil auger was used for this assessment, as well as existing open pits from the Geotechnical field assessment.

### 13.3.5 Results from Desktop Assessment

#### 13.3.5.1 Climate

According to Climate-Data.org (accessed on the 15th of March 2022) the climate for the area is summarised below:

- The average temperature ranges from 22.1oC to 14.4oC.
- The mean annual precipitation is 563mm.
- The area receives rainfall in both summer and winter months.

The land capability evaluation 2016 data layer is a refined and updated spatial modelled data layer depicting the land capability evaluation values for the country. The climate capability data layer is a sub-set data layer that contributes to the land capability data layer. It includes both the spatial as well as attributes description of the climate capability values (Department of Agriculture, Forestry and Fisheries, 2017). The climate capability as per **Figure 37** shows a Moderate-High to High rating for the project area.

The climate class was determined to be Moderate C4 (Smith, 2006) – Moderately restricted growing season due to low temperatures and severe frost. Good yield potential for a moderate range of adapted crops but planting date options more limited than C3.

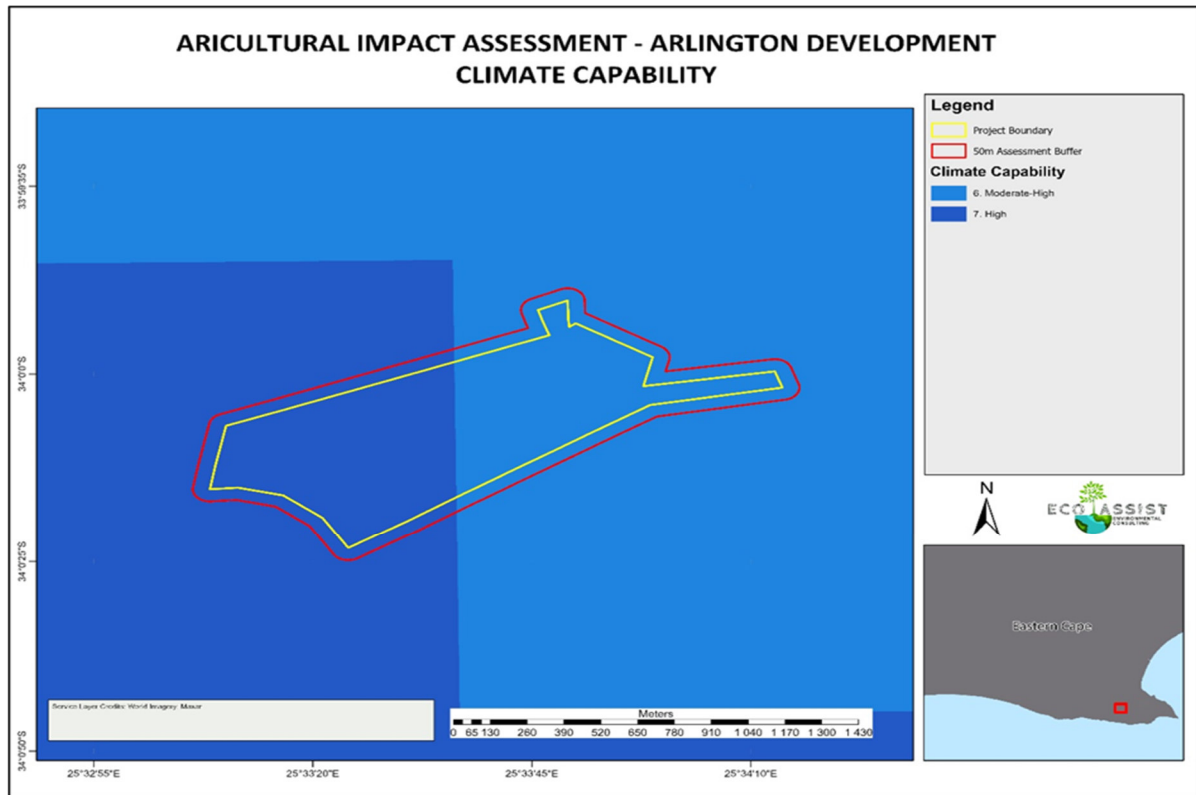
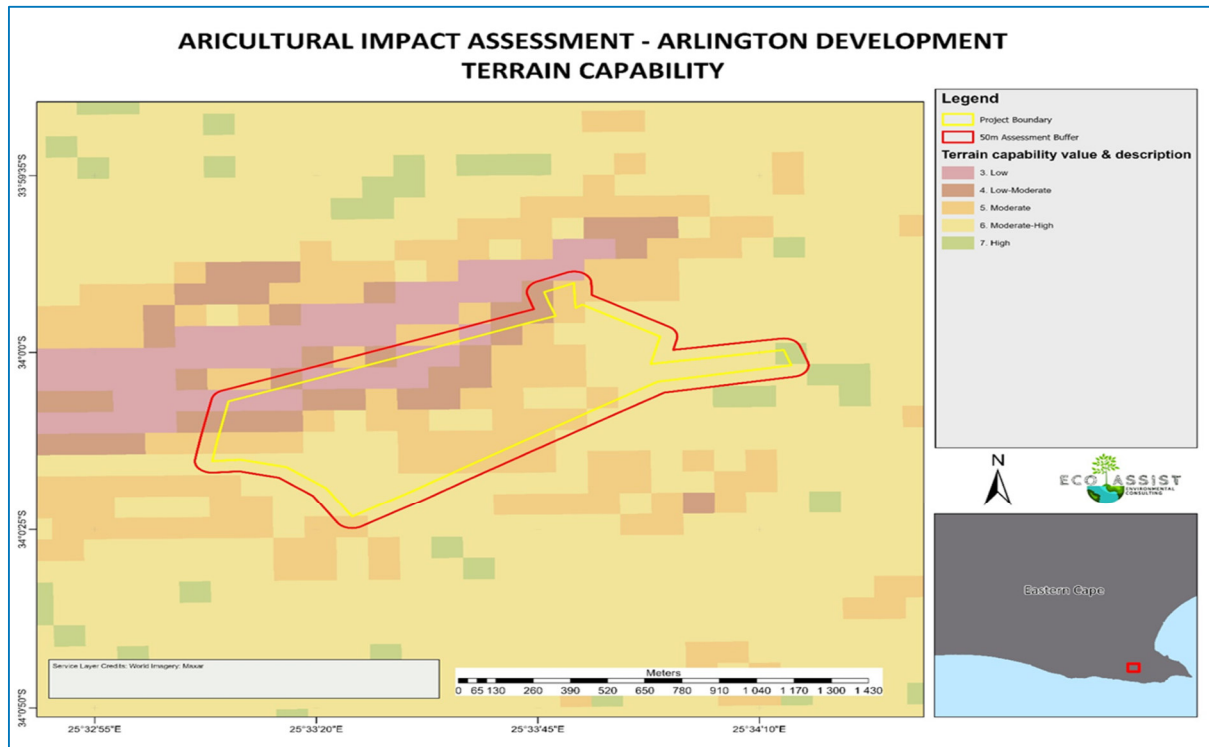


Figure 37: Climate capability for the Arlington project area (Department of Agriculture, Forestry and Fisheries, 2017).

### 13.3.5.2 Terrain

In land capability modelling, terrain plays an important role not only from a plants’ physiological growth requirements but also from a sensitivity and accessibility perspective (Department of Agriculture, Forestry and Fisheries, 2017). Two main terrain modelling concerns were included in the terrain capability modelling exercise namely:





*Figure 38: The terrain capability for the Arlington project area (Department of Agriculture, Forestry and Fisheries, 2017).*

### 13.3.6 Soil Capability

Soil capability takes into consideration all aspects pertaining to the characteristics of the soil and their contributions towards plant production (Department of Agriculture, Forestry and Fisheries, 2017).

To represent the distribution of the land capability evaluation values in the country, used as one of the input data layers to determine and demarcate all high value agricultural land for ensuring that these areas, pending availability, are preserved for continued agricultural production, thereby ensuring long-term national food security (Department of Agriculture, Forestry and Fisheries, 2017).

The data layer is a seamless data layer and does not exclude permanently transformed areas (built up; waterbodies; mining etc.).

The land capability ratings for the project area show that the overall desktop land capability ranged from Low-Moderate (class 7) on the northern boundary to High (class 11) in the southern portion of the area (see **Figure 39**).

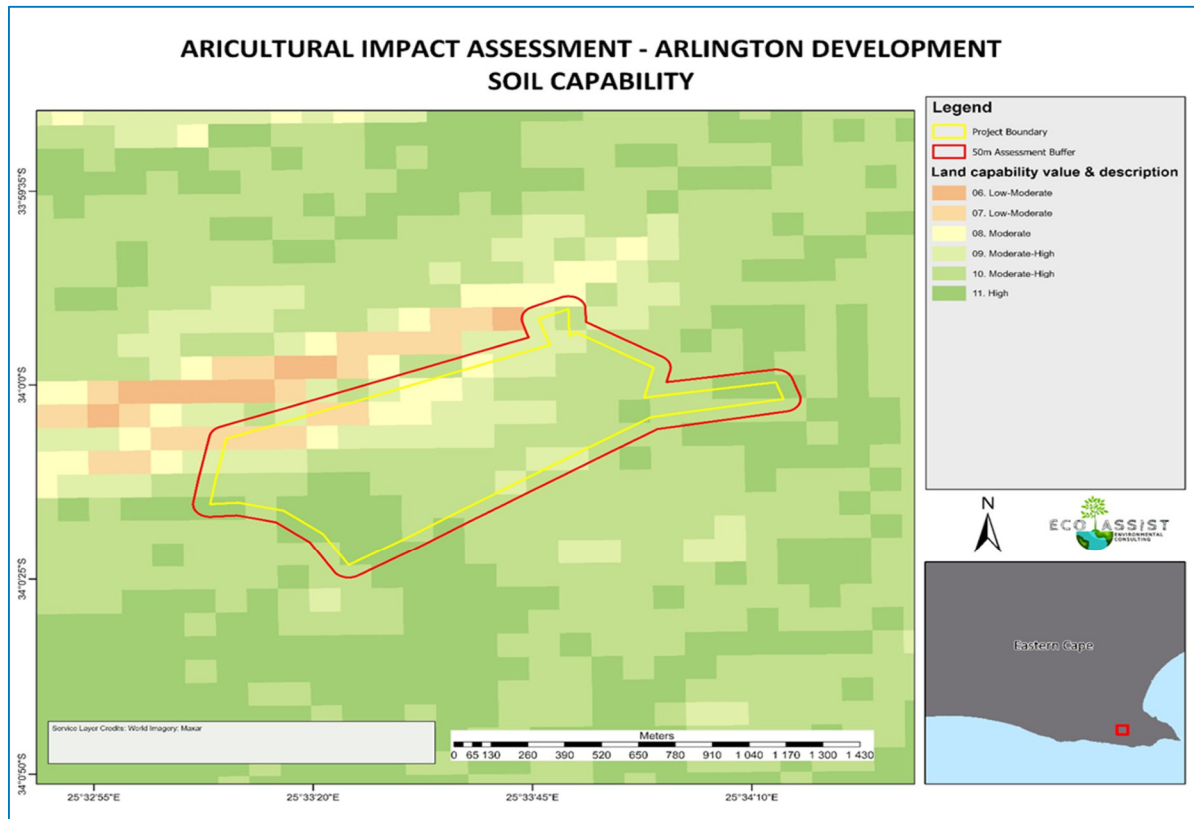


Figure 39: Desktop land capabilities for the Arlington project area (Department of Agriculture, Forestry and Fisheries, 2017).

### 13.3.7 Grazing Capacity

The long-term production potential of the herbaceous layer (grasses and forbs) of an area of vegetation that is required to maintain an animal with a weight of 450 kg (1 Large Stock Unit (LSU)) with an average fodder intake of 10 kg dry mass per day over a period that vegetation is suitable for grazing (mostly 1 year) without degrading the natural resources (vegetation and soil) and is measured in “Hectares per Large Stock Unit” (ha/LSU) (South Africa (Republic), 2018).

The long-term sustainable grazing capacity for the project area was rated as 9 ha per large stock unit (see **Figure 40**). With the overall site being around 62 ha in size, indicates that a maximum of 6 large stock units can utilise this area, and therefore, this is not feasible.



Figure 40: The grazing capacity for the Arlington project area (South Africa (Republic), 2018).

### 13.3.8 Site Assessment Results

A soil survey was conducted for the Arlington Development project area on the 11th of February 2022 using a hand-held auger and a GPS to log all information in the field. The soils were classified to the family level as per the “Soil Classification: A Natural and Anthropogenic System for South Africa” (Soil Classification Working Group, 2018). The soil forms found are described in the subsequent sections and the extents are shown in **Figure 41** below.

#### 13.3.8.1 Soil Forms

The following soil forms were identified within the Arlington development area are shown in **Table 19**.

Table 19: Soil forms within the Arlington project area.

Soil Form	Soil Family	Area (ha)
Cartref (Orthic topsoil over an Albic B-horizon, with a Lithic C-horizon)	1120	6.8
Tubatse (Orthic topsoil over a Neocutanic B-horizon, with a Lithic C-horizon)	3112	36.0
Fernwood (Orthic topsoil over a deep Albic B-horizon)	2110	21.7
Witbank (Ex-natural soil covering natural soil).	1100	7.3
Urban Technosols - Johannesburg (Urban built up sites)	2200	13.3
Total		85.1

The project area is dominated by sandy soil. The project area was historically used as a horse racing track and several areas have been reshaped and landscaped. The dominant soil forms were deep Fernwood soils. The soil where bedrock was reached were classified as Tubatse and Cartref soil forms. The depth of the Fernwood soils exceeded 1200mm, whereas the depth of the Tubatse and Cartref soils ranged from 300mm to 800mm.

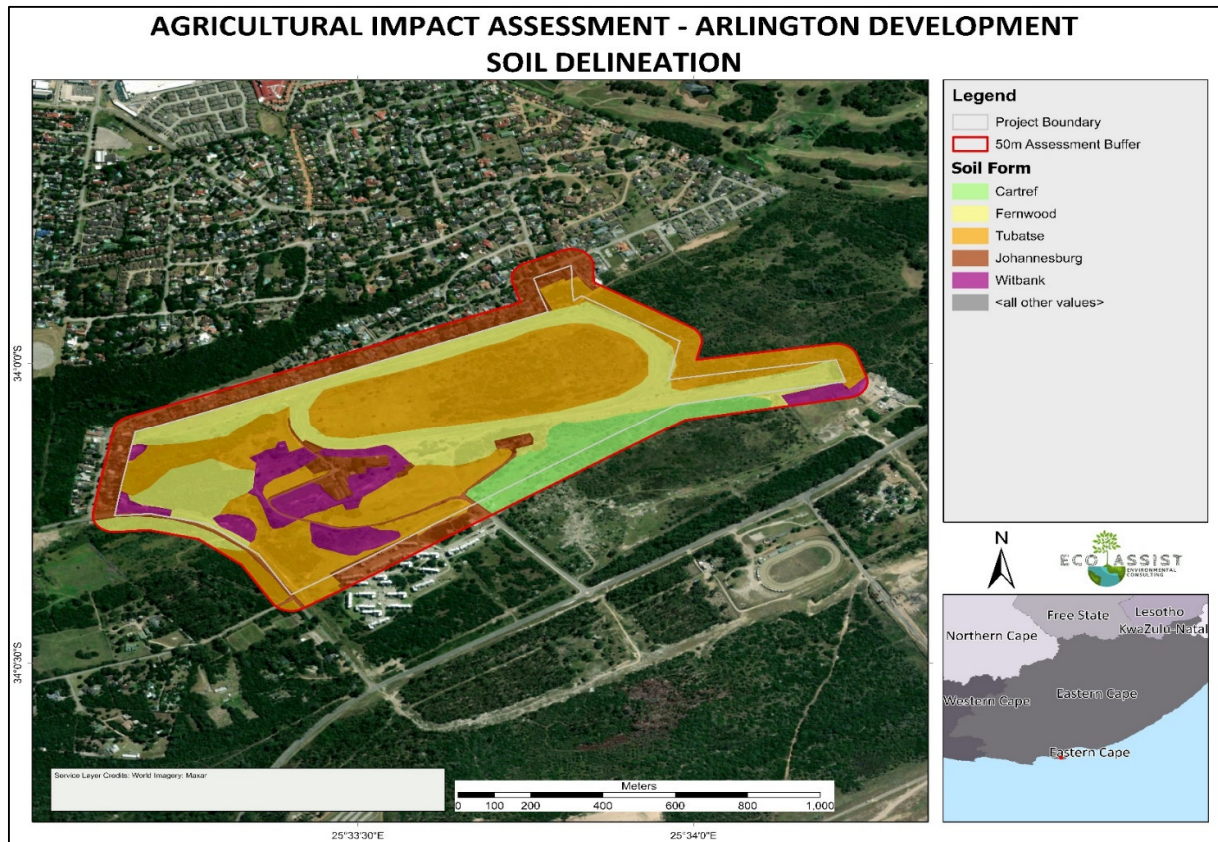


Figure 41: The soil delineation for the Arlington project area.

### 13.3.8.2 Land Capability Classification

The land capability is determined by the physical features of the landscape including the soils present. The land potential or agricultural potential is determined by combining the land capability results and the climate capability for the region.

The land capability for the project area is shown in **Figure 42**. The classification of the soil forms to the associated land capabilities is shown in **Table 20**, with the breakdown of the areas each land capability class represents being shown in **Table 21**.

Table 20: Soil forms and their associated land capability within the Arlington project area.

Soil Form	Land Capability
Cartref	Class IV
Tubatse	Class IV
Fernwood	Class IV
Witbank	N/A
Urban Technosols - Johannesburg	N/A

Table 21: Land capability within the Arlington project area.

Land Capability	Area (ha)
IV	64.5
N/A	20.6
Total	85.1

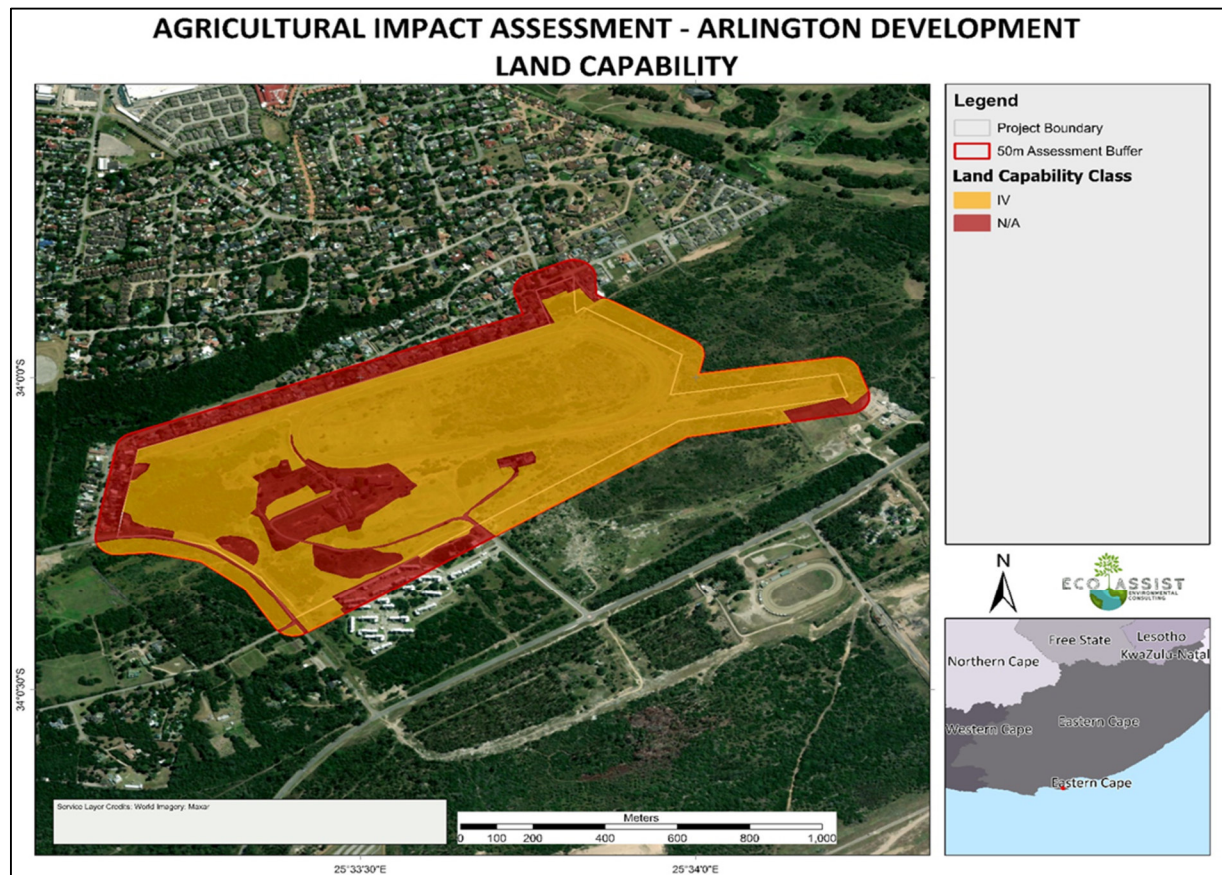


Figure 42: The land capability for the Arlington project area.

### 13.3.9 Land Potential Classification

The climate capability for the project area is determined to be Moderate C4 (Smith, 2006) – Moderately restricted growing season due to low temperatures and severe frost. Good yield potential for a moderate range of adapted crops but planting date options more limited than C3.

The Land potential / Agricultural potential of the project area is shown in Figure 43, with the breakdown of the areas shown in Table 22. The class IV land capability was determined to be class L4 (Moderate potential), accounting for 64.5 ha.

**L4 - Moderate potential:** Moderately regular and/or severe to moderate limitations due to soil, slope, temperatures, or rainfall. Appropriate permission is required prior to ploughing virgin land.

Table 22: Land Potential within the Arlington project area.

Land Potential	Area (ha)
L4	64.5
N/A	20.6
Total	85.1

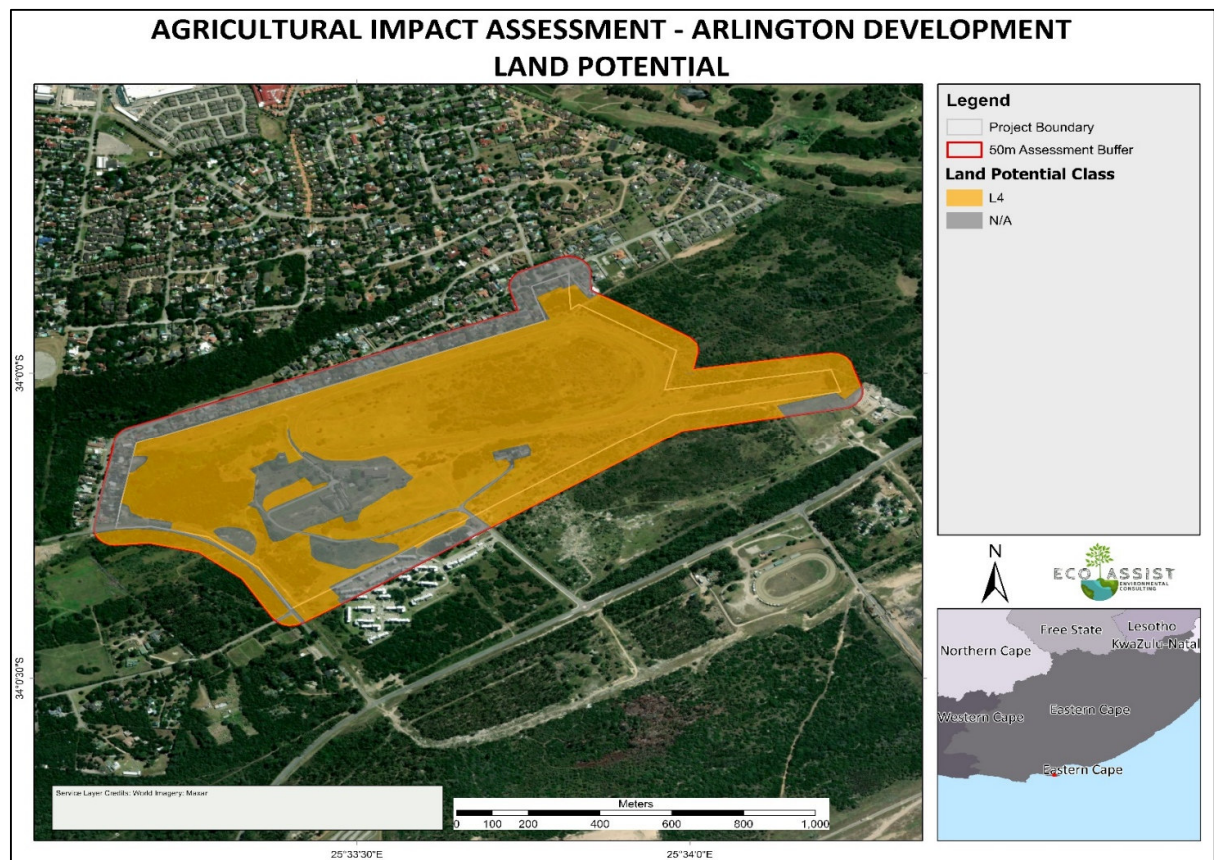


Figure 43: The land potential for the Arlington project area.

### 13.3.10 Verified Site Sensitivity

The screening assessment rated the agricultural sensitivity as dominated by High sensitivity and a small area of Very-High and Medium sensitivities. The desktop results as well as the field verification and detailed soils assessment have disputed the High agricultural potential, and the verified land potential is rated as Medium based on the soils and terrain restrictions that are limiting the potential for sustainable yields. Therefore, an agricultural compliance statement will be sufficient for Arlington development.

### 13.3.11 Agricultural Compliance Statement

The sensitivity analysis has identified that the Arlington development area has a Medium sensitivity. The following supports the above-mentioned findings:

#### Desktop Results.

- DFFE screening assessment determined the agricultural sensitivity to be dominantly High sensitivity.
- The project is not within a crop field boundary.
- The desktop soil capability rated the project area as High.
- The desktop land capability rated the project area as Moderate-High.

#### Site Assessment Results

- Land capability was determined as low arable potential with severe limitations.
- Land potential was determined to be L4 (Moderate potential); and
- Land use showed no agricultural activity with large areas being landscaped.

### 13.3.12 Agricultural Specialists Recommendations

The potential impacts from the Arlington development include:

- Erosion of exposed soil surfaces.
- Hydrocarbon contamination by heavy machinery.
- Contamination from human waste, both organic and inorganic.
- Proliferation of alien vegetation in disturbed areas; and
- Increased runoff and altered surface and sub-surface flow dynamics.

These aspects are to be managed to minimise any potential impacts:

- Erosion control.
- Ablution blocks.
- General waste from people moving into the area.
- Stormwater management; and
- Risks from oil/hydrocarbon spills from vehicles should be mitigated.

### 13.3.13 Acceptability Statement

The specialist opinion is that the proposed project be considered favourably as the DFFE screening tool value of High sensitivity was disputed to be Medium only for the Arlington development by confirming the project

was not within any crop farming boundaries. This was further strengthened by the detailed in-field survey confirming the land potential to have a moderate land potential with severe limitations to agriculture.

### 13.4 Avifaunal Assessment

The National Web-based Screening Tool has identified the proposed development site as of high sensitivity for avian species: Therefore, unless an avian species specialist disputes the land use and sensitivity identified by the Screening Tool, following a site inspection and site sensitivity verification process, a specialist Avian Species Specialist Impact Assessment is required for the proposed development.

Holland & Associates Environmental Consultants was appointed to provide the required avian species specialist services (attached as **Appendix C5**).

#### 13.4.1 Avifaunal Sensitivity

An avifaunal sensitivity map of the PAOI was developed which considers the following features and buffers:

- NFEPA Wetlands and Rivers.
- Critical Biodiversity Areas and Ecological Support Areas.
- Avifaunal Habitat Suitability Models.
- Avifaunal habitats identified within the PAOI and their status.

Areas identified as of high sensitivity should be avoided by development and development within these areas is not supported. Development in areas of medium avifaunal sensitivity should be avoided and minimised as much as possible but may be found acceptable with mitigations applied. Areas of low avifaunal sensitivity are the preferred areas for development with mitigations applied.

It should be noted that the avifaunal sensitivity described here is not equivalent to the classification of the site sensitivity in terms of the National Web-based Screening Tool.

#### 13.4.2 Results

##### 13.4.2.1 Sampling Limitations

This report is based on data collected during a single day survey on site. Therefore, seasonal or daily variations are not accounted for, and a precautionary approach was used in the assessment of impacts. A single-day survey is however deemed sufficient for the sensitivity and size of the site.

##### 13.4.2.2 Regional Context

The proposed development site is located on the outskirts of the town of Gqeberha, formerly known as Port Elizabeth, in the Eastern Cape Province. The closest Important Bird Area (IBA) to the project is the Swartkops Estuary – Redhouse and Chatty Saltpans (Marnewick et al. 2015), approximately 14.5 km north-north-east of



the site. The closest protected area is 3.5 km to the south-west (Sardinia Bay Nature Reserve) and the Nelson Mandela University Private Nature Reserve is located approximately 7 km to the east of the site.

#### *13.4.2.3 Local Context and Fieldwork results*

The proposed development site is located on a derelict former racecourse property, within the residential area of Walmer, Gqeberha. The vegetation types of the site are mapped as Algoa Sandstone Fynbos (Critically Endangered) and Sardinia Forest Thicket (Least Concern). There are no NFEPA rivers or wetlands within the proposed development site or the PAOI (**Figure 44**). The site does not contain any mapped Critical Biodiversity Areas (CBA) or Ecological Support Areas (ESA), but a CBA is mapped in the north-west of the PAOI (**Figure 44**).

#### **General Sampling Conditions**

A site inspection conducted by the avian species specialist found that the land use on the proposed site appear to be in overall line with the results of the screening tool and online resources, with some intact habitat suitable for SCC present. Summer is considered to be an appropriate timing for the survey, and relevant to the assessment for the SCC which are at most risk from the proposed development.

#### **Sampling Effort**

The sampling effort of a single day survey is considered adequate for the type and size of the development and the avifaunal sensitivity of the site. Sampling effort is therefore in line with the Animal Species Protocol (GN 1150 of October 2020, as amended), which refers to the Species Environmental Assessment Guideline (SANBI 2021).

#### **Predicted and observed species, highlighting Species of Conservation Concern (SCC)**

SABAP2 has recorded 21 Species of Conservation Concern and 22 endemic or near-endemic species in the pentads covering the study area. A pentad covers an area of approximately 9x8 km, which is an area much larger than the PAOI, and includes a range of avian habitats that do not occur within the PAOI, in particular shoreline and marine habitats. Therefore, eight species that are deemed as impossible to occur, have been excluded from further analysis. These include shorebirds and seabirds such as penguins, petrels, gannets and shearwaters. Of the remaining 13 SCC two are listed as Endangered (African Marsh Harrier and Secretarybird), six are listed as Vulnerable (African Pygmy Goose, Caspian Tern, Lanner Falcon, Crowned Eagle, Denham's Bustard, and Knysna Warbler) and five are listed as Near threatened (Forest Buzzard, European Roller, Greater Flamingo, Half-collared Kingfisher and Knysna Woodpecker) (**Table 23**). During the site visit, no SCC were recorded, and one near-endemic species was observed.

None of the potential SCC are confirmed or highly likely to be present. However, two SCC (**Table 23**) have a likelihood of occurrence of medium, and using the pre-cautionary approach were determined as likely present within the PAOI. The remainder were determined to have a low likelihood of occurrence in the PAOI and were determined as unlikely to be present. The number of SCC recorded during the site visit was nil.

#### *13.4.2.4 Current Impacts*

Large areas of the site have been transformed by previous activities and much of the remaining vegetation appears to be in a degraded condition invaded by alien invasive species with only patches of intact thicket remaining in the western section of the site.

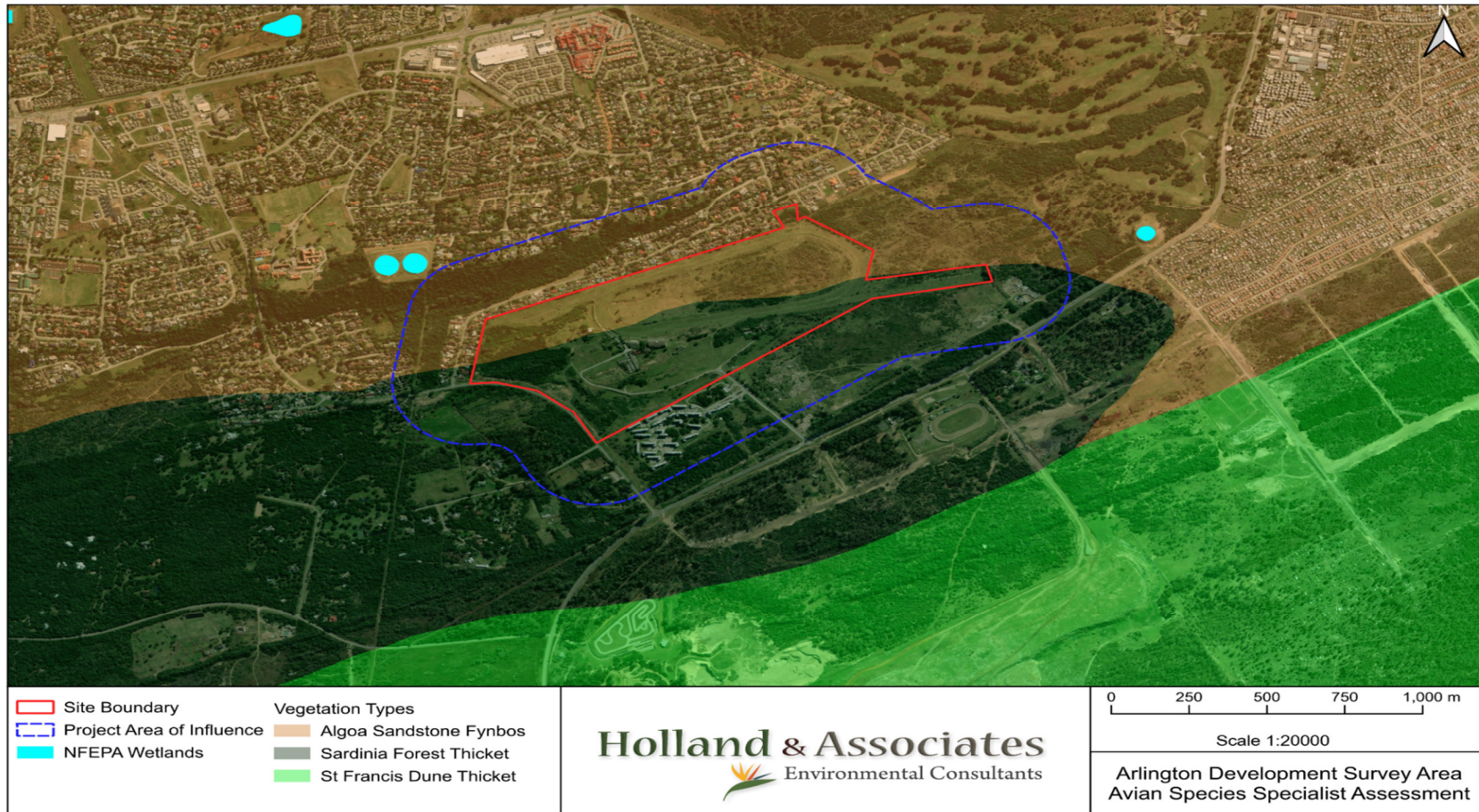


Figure 44: Avian Species Assessment Survey Area

*Table 23: Species of Conservation Concern potentially occurring in the primary PAOI and their Probability of Occurrence (PoC)*

Alphabetical Name	Scientific name	Red Data Status <sup>1</sup>	Habitat requirement <sup>2</sup>	PoC in PAOI	Reason for PoC
African Marsh Harrier	<i>Circus ranivorus</i>	EN	Wetlands. Forages over drier flood plains, grasslands, croplands and fynbos	LOW	Low suitable foraging or breeding habitat in PAOI. Unlikely to occur in urban areas and has a low SABAP2 reporting rate (RR) of 0.34%
African Pygmy Goose	<i>Nettapus auritus</i>	VU	Swamps, marshes, shallow freshwater lakes, dams and rivers	LOW	No aquatic habitat in PAOI and low RR of 0.11% in pentad.
Caspian Tern	<i>Hydroprogne caspia</i>	VU	Lakes, estuaries, lagoons, rivers	LOW	No aquatic habitat in PAOI and low RR of 1.46% in pentad.
Crowned Eagle	<i>Stephanoaetus coronatus</i>	VU	Forest and dense woodland, montane & riverine forests and rarely in exotic plantations and alien trees	LOW	Low RR of 1.01% in pentad, few suitable trees and no suitable forest.
Denham's Bustard	<i>Neotis denhami</i>	VU	Grasslands, shrublands, fynbos and cultivated fields	LOW	The Birdlife SA habitat suitability model determined a probability of occurrence between 0.2 and 0.7 for the PAOI (on a scale of 0 - 1). However, the reporting rate for Denham's Bustard is however low for the pentad (0.11%) and the species is unlikely to occur in urban areas.

<sup>1</sup> [speciesstatus.sanbi.org](https://speciesstatus.sanbi.org) or [iucnredlist.org](https://iucnredlist.org) status (whichever is highest)

<sup>2</sup> [Birdsoftheworld.org](https://birdsoftheworld.org)

Alphabetical Name	Scientific name	Red Data Status <sup>1</sup>	Habitat requirement <sup>2</sup>	PoC in PAOI	Reason for PoC
European Roller	<i>Coracias garrulus</i>	NT	Open woodlands, perching on open dead branches, telephone poles and powerlines	LOW	Potentially suitable habitat on site but vagrant to the area with an RR of 0, and a likely rare vagrant to the area.
Forest Buzzard	<i>Buteo trizonatus</i>	NT	Afromontane forest and exotic plantations, mainly pines	LOW	Relatively medium-low RR of 5.6 but no suitably large forest in PAOI.
Greater Flamingo	<i>Phoenicopterus roseus</i>	NT	Saline or brakish shallow water bodies, saltpans, dams and coastal mudflats	LOW	Very low RR of 0.11 and no suitable aquatic habitat in PAOI
Half-collared Kingfisher	<i>Alcedo semitorquata</i>	NT	Clear, fast-flowing perennial streams, rivers and estuaries,	LOW	No aquatic habitat on site.
Knysna Warbler	<i>Bradypterus sylvaticus</i>	VU	<b>Dense, tangled thickets on edge of forests and along watercourses</b>	MEDIUM	<b>Low RR but difficult to detect when not calling and suitable thicket habitat on site and in PAOI.</b>
Knysna Woodpecker	<i>Camphethera notata</i>	NT	<b>Thickets, forests, thornveld and alien trees</b>	MEDIUM	<b>Available habitat in PAOI and a SABAP2 reporting rate of 13.48%.</b>
Lanner Falcon	<i>Falco biarmicus</i>	VU	Open grassland, open or cleared woodland near cliff or electricity pylons	LOW	Some potentially suitable habitat in PAOI but was recorded at a low reporting rate by SABAP2 in the pentad (2.36%).
Secretarybird	<i>Sagittarius serpentarius</i>	EN	Open grassland, shrubland, open savanna.	LOW	Potentially suitable habitat on site but unlikely to occur in urban area and a low reporting rate in SABAP2 pentad (1.11%).

#### *13.4.2.5 Site Ecological Importance*

The calculation of the Site Ecological Importance is presented in Table 9. Two avifaunal habitat types were identified within the PAOI: Forest thickets and fynbos shrub.

##### **Forest Thicket Habitat**

Forest thicket is suitable habitat for Knysna Warbler (Vulnerable) and Knysna Woodpecker (Near threatened) which potentially occur in the PAOI. An area of approximately 6.76 ha of intact and semi-intact forest thicket habitat is located within the development footprint.

The Conservation Importance for forest thicket was determined as high due to the likely occurrence of Knysna Warbler, an IUCN threatened species listed as vulnerable under criterion B1 and C2.

The Functional Integrity of the forest thicket habitat is rated as medium as the remaining semi-intact areas are less than 20 ha with poor habitat connectivity and a busy used road network between patches.

The Receptor Resilience of forest thicket habitat has been rated as medium as a recovery to restore >75% of functionality is assumed to be slow, but possible with rehabilitation, over more than 10 years.

The resulting Site Ecological Importance rating for forest thicket was determined as medium, which means that development activities of medium impact would be acceptable if followed by appropriate restoration activities (**Table 24**).

##### **Fynbos Shrub Habitat**

Fynbos shrub is suitable for a variety of SCC all of which have a low probability of occurrence for the PAOI. This is due to the location of the site within an urban area and the habitat within the site being largely transformed, degraded and invaded with aliens. An area of approximately 22 ha of semi-intact fynbos habitat is located outside of the proposed development footprint within the east of the PAOI and would not be lost by the proposed development proceeding.

The Conservation Importance for fynbos shrub was determined as low due to no confirmed or highly likely occurrence of SCC and less than 50% of receptor containing natural habitat with limited potential to support SCC.

The Functional Integrity of the fynbos shrub habitat is rated as low as there remains almost no habitat connectivity with a very busy road network surrounding the area.

The Receptor Resilience of fynbos shrub habitat has been rated as medium as a recovery to restore >75% of functionality is assumed to be slow, but possible with rehabilitation, over more than 10 years.

The resulting Site Ecological Importance rating for fynbos shrub was determined as medium, which means that development activities of medium impact would be acceptable if followed by appropriate restoration activities (**Table 24**).

*Table 24: Calculation of Site Ecological Importance*

Habitat	Conservation Importance	Functional Integrity	Biodiversity Importance	Receptor resilience	Site Ecological Importance
Forest thicket	High	Medium	Medium	Medium	Medium
Fynbos Shrub	Low	Low	Medium	Medium	Medium

#### *13.4.2.6 Avifaunal Sensitivity and Constraints*

It must be noted that the avifaunal sensitivity of the site discussed in this section is different to the site sensitivity classification of the National Web-based Screening Tool, which is discussed in **Section 13.5.2.7** below.

Based on the potential occurrence of SCC, available avifaunal habitats and current impacts on the site, the development area is deemed to be of low and medium avifaunal sensitivity. An area of intact forest thicket in the north-west of the PAOI, mapped as a CBA1 was determined as of high avifaunal sensitivity with no development supported (**Figure 45**).

Development within the intact CBA1 is however not proposed and no areas of high sensitivity and resulting no-go areas were identified within the proposed development site itself. Development within the medium sensitivity areas should be avoided and minimised as much as possible.

The proposed layout avoids all areas of high sensitivity and the majority of areas of medium sensitivity within the PAOI. An area of up to 6.8 ha of forest thicket of medium avifaunal sensitivity within the development footprint could be lost by the proposed development layout, however it appears that the layout partially avoids this area, and parts of this area is mapped to become public open space (POS3) in the proposed development layout.

#### *13.4.2.7 Site Sensitivity Verification (in terms of the National Web-based Screening Tool)*

The National Web-based Screening Tool identified the PAOI as of high sensitivity for five avian Species of Conservation Concern (SCCs) (**Figure 45**). The specialist site sensitivity verification confirmed the likely presence of one of these SCC (Knysna Warbler – *Bradypterus sylvaticus*) and determined the remaining four to be unlikely to occur. One further SCC, Knysna Woodpecker (Near threatened), was identified to be potentially present by the specialist site sensitivity verification.

The site sensitivity verification therefore confirms the outcome of the screening tool classification of the site as high due to the potential presence of SCC and confirms that an avian species specialist impact assessment report (this report) must be submitted with an application for environmental authorisation.



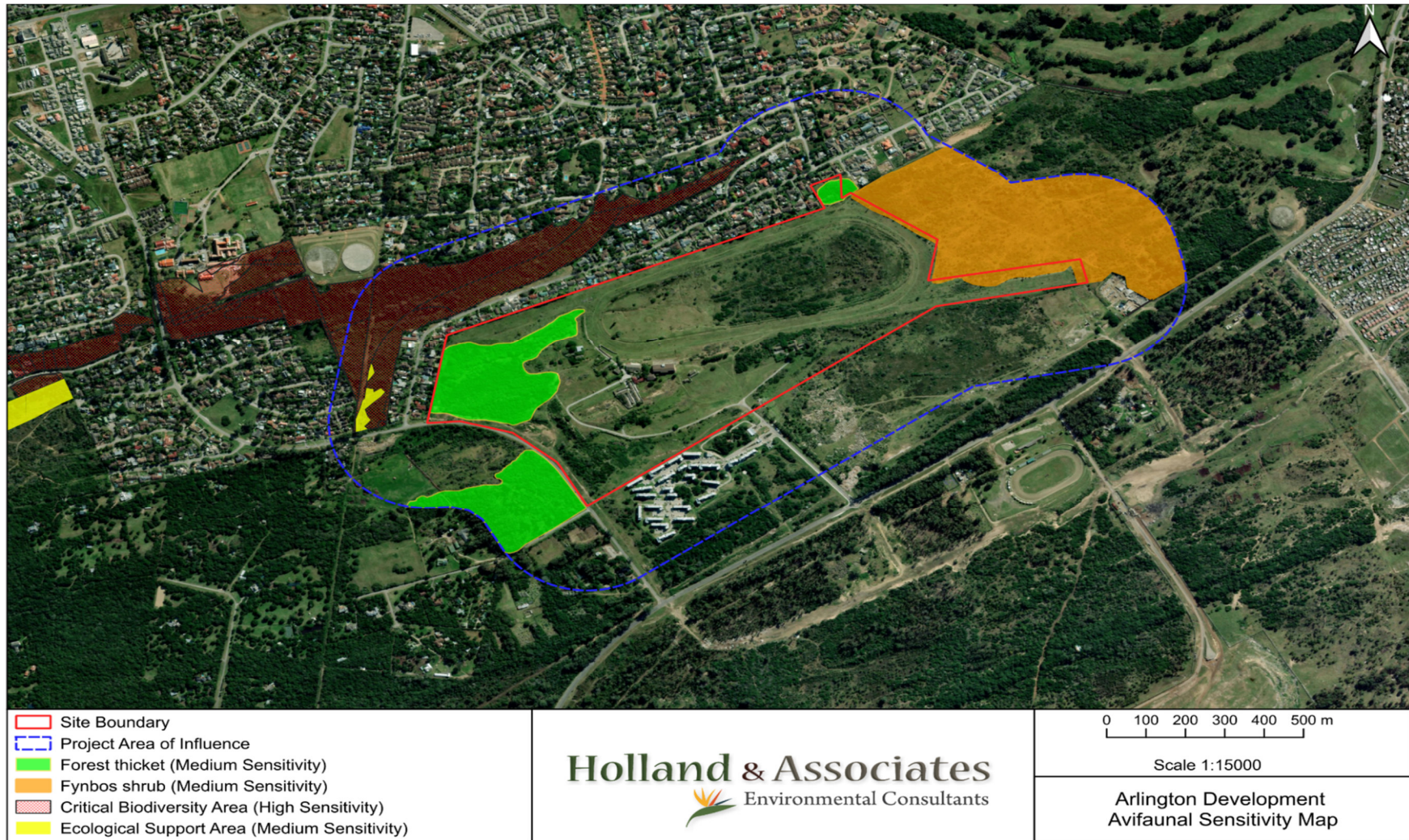


Figure 45: Avifaunal Constraints Map

#### *13.4.2.8 Description of identified impacts and available mitigation measures*

The following potential impacts on avifauna by the proposed development were identified for the construction phase:

- Disturbance.
- Habitat loss.

The following potential impacts on avifauna by the proposed development were identified for the operational phase:

- Disturbance.
- Habitat loss.

The proposed development is considered to be permanent, therefore a decommissioning phase has not been assessed.

#### **Disturbance**

Disturbance during the construction and operational phases can negatively affect all avifauna on an individual or population level by increasing stress, decreasing food and habitat availability, causing displacement into potentially less suitable neighbouring environments, and ultimately potentially decreasing reproductive success. This is particularly true for resident breeding species, some of which are shy, secretive and not habituated to human activities.

Disturbance can be managed and mitigated at the design stage by avoiding important nesting, roosting and foraging areas of sensitive species during site selection and layout design. Landscape features within the site that are potentially frequented by sensitive species or constitute potential or confirmed breeding areas for sensitive species, such as wetlands, ridges, and drainage lines, should be avoided and demarcated as No-go areas. Due to the transformed nature of the majority of the site no high sensitivity (no-go) areas were identified within the proposed development site, and only found in the PAOI. The loss of intact and sensitive avifaunal habitat has thereby been minimised.

The following additional mitigation measures can minimise impacts further:

- The footprint of disturbance must be kept to a minimum surrounding the development footprint, during construction and must be demarcated.
- The CBA area to the north-west of the site within the PAOI must be demarcated as a no-go area during construction and operation.
- In order to ensure no SCCs are breeding within the proposed disturbance footprint prior to the commencement of construction activities, a walkthrough of the site should be conducted by the ECO for the project within two weeks of commencement of construction activities.
- An avian species specialist must train the ECO in the identification of the SCCs (identified as potentially present in the area in this report), if required, and the presence, location and behaviour thereof during any site visits must be reported to the avian species specialist following each site visit.

- Should any SCC be found breeding within the development footprint at any point during construction, all works within 250 m of the breeding site must be halted, and the avian species specialist must be contacted for further instruction.
- Should any SCC be found breeding within the site boundary at any point during operation, the area must be cordoned off and the avian species specialist must be contacted for further instruction.

### **Habitat Loss and Displacement**

Any transformation of vegetation leads to habitat loss for avian species utilising that vegetation, causing displacement into areas which are potentially less suitable or already occupied by competing individuals or species. No areas of high avifaunal sensitivity were identified and development within areas of medium sensitivity should be minimised as far as possible.

#### *13.4.2.9 Discussion and Conclusion*

The Site Ecological Importance rating of medium indicates that the site is potentially suitable for development if appropriate mitigation measures and rehabilitation measures are implemented.

The proposed development footprint avoids all areas identified as of high sensitivity for avian species, which are located outside of the proposed development footprint within the PAOI. The proposed development does include the loss of areas of medium avifaunal sensitivity, but as the footprint of this has been minimised, and some areas will be retained, this is considered acceptable from an avifaunal perspective.

The impact assessment has identified potential impacts to avian species, most of which can be mitigated to a low level. Due to the footprint of the proposed development, some loss of SCC habitat is however unavoidable, and even with mitigation this impact is expected to be of medium negative significance for the SCCs that potentially occur (with a medium probability of occurrence) in the habitat that will be lost and could be displaced. These are Knysna Woodpecker and Knysna Warbler. However, due to none of these species having a high probability of occurrence on the proposed development site, and existing disturbance on the site, this loss of habitat is not deemed to have unacceptably high impacts on these species.

The contribution of the proposed development on the cumulative impact of development in this urban area is considered to be low.

It is therefore the avian species specialist's reasoned opinion that the development can proceed as proposed without unacceptable impacts on avian species if all mitigation measures are implemented as recommended.

### **13.5 Phase 1 Archaeological and Cultural Impact Assessment**

Booth Heritage Consulting was appointed to undertake the Phase 1 Archaeological and Cultural Impact Assessment (AIA) for the proposed Arlington Multiple Used Development (attached as **Appendix C6**).

### 13.5.1 Scope of Work and Terms of Reference

The purpose of the study was to conduct an archaeological and cultural heritage assessment for the proposed Arlington Multiple-Use Development.

The survey was conducted to:

- Identify and map possible heritage sites and occurrences using published and database resources.
- Provide a description of the archaeology and cultural heritage of the site and identify and map any sites of archaeology or cultural significance that may be impacted by the proposed project.
- Assess the sensitivity and conservation significance of any sites of archaeological or cultural heritage significance affected by the proposed project.
- Identify and assess the significance of the potential impacts of the proposed project on archaeological and cultural heritage.
- Make recommendations on the protection and maintenance of any significant cultural heritage and/or archaeological sites that may occur on site.
- Identify practicable mitigation measures to reduce negative impacts on the archaeological resources and indicate how these can be incorporated into the construction and management of the proposed project.
- Provide guidance for the requirement of any permits from the Eastern Cape Provincial Heritage Resources Authority (ECPHRA) that might become necessary.

### 13.5.2 Limitation and Gaps in Knowledge

The gathering of information, consultation and research is limited to archaeological heritage data that is known and has been recorded over time. Little systematic archaeological research has been conducted within the immediate area of the proposed development.

However, several relevant archaeological and heritage impact assessments have been conducted within the region. These impact assessments have identified several Early, Middle, and Later Stone Age artefact scatters and sites, coastal archaeological sites, historical artefacts and built environment structures, as well as evidence of Iron Age agropastoralist occupation and/or interaction by the presence of broken earthenware pot sherds and associated material culture and settlement patterns.

It is always ideal for the entire area to be surveyed on foot especially areas that have not been researched extensively or at all. The identification of archaeological / historical heritage sites is limited to the surface and in areas where archaeological visibility may be hindered by dense vegetation cover, limited to the investigation of disturbed surface areas. The state of archaeological remains can only be determined by surface observation which in itself is limited and does not expose the true state of archaeological evidence. However, a physical survey observation is able to assess the environment where a desktop assessment cannot do justice in determining the significance of the archaeological sensitivity of the proposed development area.

Most importantly, archaeological and heritage resources are a non-renewable resource that cannot be replaced once lost or destroyed, therefore, every effort should be taken to preserve or conserve the most significant of heritage resources. Mitigation measures have been recommended by the author and should be respected and implemented prior to the commencement of the proposed development.

### 13.5.3 Summary of Archaeological and Cultural Impact Assessment

No archaeological, historical or other heritage material, sites or features were identified during the survey for the proposed Arlington multiple-use development, Walmer, Gqeberha, Nelson Mandela Bay Municipality, Eastern Cape Province. This is due to dense grass / transformed vegetation and some dense thicket vegetation that covers the entire landscape of the proposed development.

However, previous surveys conducted within the surrounding area, especially, towards coastline have recorded historical material dumped within the Driftsands and shell middens extending along the coastline. The proposed development site is located within 5 km of the nearest coastline, which is generally considered an archaeologically sensitive area, up to 5 km, but can extend further inland considering varying landscapes.

An exposed dune surface area has exposed an archaeological site at the eastern end of the Walmer Heights residential area, about 300 m – 400 m of the proposed Arlington development (refer to **Figure 46**). An archaeological human burial was found exposed during 2019 by a member of the public which was investigated and removed by the Walmer South African Police Services (SAPS) and is currently being housed at the Albany Museum, which is the provincial archaeological repository in the Eastern Cape Province.

Arlington itself, previously St Andrews Racing Club, was opened on Saturday 23 December 1950, by the then Mayor of PE, Mr J.C.K. 'Boet' Erasmus. In October 2007, a new stabling complex was completed at Fairview and all the trainers based at Arlington moved across ([www.sportingpost.co.za/arlington-closes-fond-farewell-to-arlington](http://www.sportingpost.co.za/arlington-closes-fond-farewell-to-arlington)). It can be assumed that most of the remaining buildings, therefore, are older than 60 years and are protected under Section 34 of the National Heritage Resources Act 25 of 1999. A demolition permit is required from the Eastern Cape Provincial Heritage Resources Authority (ECPHRA). It is suggested that a built environment specialist or an historical architect be approached to conduct a built environment heritage assessment and advise on the permit application process.



Figure 46: Google Earth generated map showing the location of the area for the proposed Arlington multiple-use development and an archaeological site identified during 2019.

#### 13.5.4 Recommendations and Mitigation

The proposed development can be considered as having a *low archaeological heritage significance* from the lack of archaeological material, sites, and features identified during the survey. However, due to the proposed development site's location within an archaeologically sensitive coastal zone and a known archaeological site occurring 300m – 400 m east of the site, as well as the results of previous archaeological and cultural heritage assessments, the proposed development area within the wider cultural landscape can be considered as having a *medium – high archaeological heritage significance*.

Development may proceed as planned however the following recommendations must be considered prior to the commencement of development:

1. A built environment specialist or an historical architect be approached to conduct a built environment heritage assessment and advise on the permit application process for the demolition of the remaining buildings.
2. A professional archaeologist must be appointed, at the expense of the developer to monitor all excavations for the proposed development. The archaeologist must mitigate in the instance of sites being uncovered during the course of the excavations. Phase 2 mitigation in the form of test-pitting/sampling or systematic excavations and collections of the findings will then be conducted to establish the contextual status of the sites and remove the archaeological deposit before development activities continue.

3. Construction managers/foremen and/or the Environmental Control Officer (ECO) should be informed before construction starts on the possible types of heritage sites and cultural material they may encounter and the procedures to follow when they find sites.
4. If concentrations of pre-colonial archaeological heritage material, historical archaeological material, and/or human remains (including graves and burials) are uncovered during construction of the proposed development and / or future excavations for individual graves, all work must cease immediately and be reported to the Albany Museum (046 622 2312) and/or the Eastern Cape Provincial Heritage Resources Agency (ECPHRA) (043 745 0888) so that systematic and professional investigation/excavation can be undertaken. Phase 2 mitigation in the form of test-pitting/sampling or systematic excavations and collections of the findings will then be conducted to establish the contextual status of the sites and remove the archaeological deposit before development activities continue.

### 13.5.5 Conclusion

The purpose of the study was to conduct an archaeological and cultural heritage assessment for the proposed development of the Arlington multiple-use development, Walmer, Gqeberha, Nelson Mandela Bay Municipality, Eastern Cape Province.

The survey was conducted to establish the range and importance of the exposed and in situ archaeological heritage material remains, sites and features; to establish the potential impact of the development; and to make recommendations to minimize possible damage to the archaeological heritage.

The proposed development can be considered as having a low archaeological heritage significance from the lack of archaeological material, sites, and features identified during the survey. However, due to the proposed development site's location within an archaeologically sensitive coastal zone and a known archaeological site occurring 300m – 400 m east of the site, as well as the results of previous archaeological and cultural heritage assessments, the proposed development area within the wider cultural landscape can be considered as having a medium – high archaeological heritage significance.

The recommendations must be considered prior to the commencement of development and implemented during the course of development and be included as part of the environmental management plan for the project.

### 13.6 Palaeontological Impact Assessment

Rob Gess Consulting was appointed to conduct a Palaeontological Impact Assessment for the proposed Alington Mixed Use Development (attached as **Appendix C7**).

According to geological survey maps the area is underlain by late Pliocene to Early Pleistocene aeolian deposits of the Nanaga Formation (Algoa Group). These represent ancient (+/- 3- 1.5 million year old) coastal

sand dunes which display large scale internal cross bedding and are variably consolidated, often comprising sandstones and sandy limestones.

These are overlain, in the south western portion of the area by unconsolidated later aeolian deposits.

### 13.6.1 Site Visit

The site was visited and surveyed by Rob Gess Consulting on 3<sup>rd</sup> of February 2022. It was established that almost the entire property was highly disturbed and much of it had previously been landscaped to form an equine racecourse, with a stadium and betting offices on a raised berm overlooking the race track. The area is extensively vegetated, with very little outcrop visible at surface. Bush cover towards the western side of the property was impenetrable, precluding survey. Limited outcrop was located in the west of the area including outcrop consistent with the Nanaga Formation, rich in rhizocretes and the shells a number of terrestrial snail species.

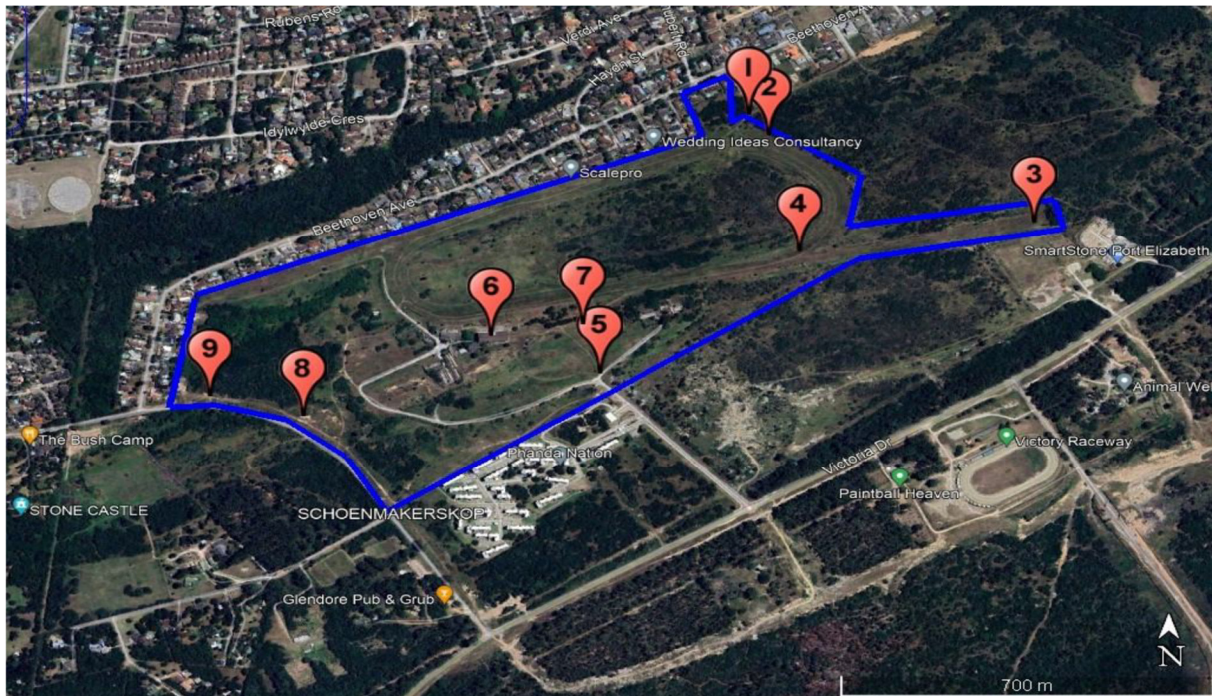


Figure 47: Satellite image of Arlington developmental area (outlined in blue) with numbered points from which subsequent photos were taken.





*Figure 48: Loose aeolian sand exposed along a track in the east of the developmental area, looking westwards from point 1.*



*Figure 49: Largely unconsolidated sand containing small rhizoliths and terrestrial gastropods exposed in bank at point 8.*



*Figure 50: Assorted terrestrial gastropods in sandy bank at point 8, including partial Achatina at bottom.*



*Figure 51: Semi consolidated sand, rich in rhizoliths (root casts) consistent with the Nanaga Formation, exposed at point 9.*

### 13.6.2 Conclusions and Recommendations

The area was surveyed, and it was established that it had previously been highly disturbed, with most of the area having been artificially landscaped to produce an equine racetrack and associated spectator area. In

addition, most of the area was vegetated, with the least disturbed western portion of the area being mantled by impenetrably thick vegetation. As a result, natural exposure of underlying strata was minimal.

Small amounts of outcrop in the extreme west of the area include semi consolidated aeolianites consistent with the Nanaga Formation. These aeolianites were, in places, rich in rhizocretes (calcareous root moulds), with a number of terrestrial gastropod species represented by preserved shells. These findings are, however of extremely low palaeontological significance

**There remains the possibility that construction work during development may disturb large vertebrate (eg. mammal) bones, either as isolated occurrences or accumulations made by humans or hyaenas. Should this occur, excavators should be diverted to other areas and a palaeontologist should be informed to assess the occurrence for possible sampling.**

### 13.7 Aquatic and Wetland Assessment

Ecolink South Africa was appointed to conduct a Wetland and Aquatic Assessment associated with the proposed Arlington Multipurpose Development on Erven 3988, 4195 and 6991, Gqeberha, Nelson Mandela Bay Municipality, in the Eastern Cape Province (attached as **Appendix C8**).

#### 13.7.1 Assumptions and Knowledge Gaps

The following are assumptions made in the completion of the report:

- The assessment of the potential impacts of the proposed development on the aquatic features on the development site is based on the development layout that has been provided. If the development layout is amended, the impact identification and assessment contained in this report may also change.
- The findings of the report are limited to a single day long site visits conducted on 28 February 2022 and 7 February 2024 which is considered to be mid-summer. No provision has been made for seasonal visits to the site and is not considered a shortcoming of the report.
- The classification of any identified aquatic features has been conducted in accordance with the classification system of inland aquatic ecosystem as prescribed by Ollis et al., 2013.
- The following desktop information was used to augment the finding of the assessment:
  - Electronic biodiversity databases managed by the South African National Biodiversity Institute (SANBI);
  - Available provincial electronic biodiversity databases;
  - Wetland and Riparian Habitat Delineation Document (Department of Water and Sanitation report); and
  - Classification system for wetlands and other aquatic ecosystems in South Africa (Inland Systems) (Ollis et al., 2013 – SANBI Biodiversity Series 22).

### 13.7.2 Desktop Assessment Results

The findings presented in this section is based on the desktop assessment of the proposed project site.

#### **Department of Forestry, Fisheries and Environment (DFFE) Online Screening Tool**

The results generated by the DFFE Online Screening Tool has classified the Aquatic Theme sensitivity for the development site to be “VERY HIGH”. This classification is based on the inclusion of the development site in the Tsitsikamma Strategic Water Source Area (SWSA).

A SWSA is defined as an area of land that either: (a) supply a disproportionate quantity of mean annual surface water runoff in relation to their size; or (b) have a high groundwater recharge and where the groundwater forms a nationally important resource; or (c) areas that meet both criteria mentioned above.

#### **Hydrological Setting**

The results of the desktop assessment of the hydrological characteristics of the study site is provided in **Table 25** below

*Table 25: Desktop hydrological characteristics of the study site*

Hydrological characteristic	Result	Comment
Water management area	Mzimvubu – Tsitsikamma	
Primary catchment	Primary region M	Approximately 2 600km <sup>2</sup> in size
Tertiary catchment	M20	<p>Three NFEPA Rivers are located in the M20 Tertiary catchment, these are:</p> <ul style="list-style-type: none"> <li>• Bakens River (PES Class C – Moderately Modified);</li> <li>• Maitland River (PES Class D – Largely Modified); and</li> <li>• Van Stadens River (PES Class D – Largely Modified).</li> </ul> <p>The Bakens River is the closest to the development site, approximately 3.7km to the north of the site.</p>

No NFEPA Rivers were identified in to be within the development sites.

#### **National Freshwater Ecosystem Priority Area (NFEPA) (2014)**

The National Freshwater Ecosystem Priority Areas (NFEPA) project provides strategic spatial priorities for conserving South Africa’s freshwater ecosystems and supports sustainable use of water resources. There priority areas are called Freshwater Ecosystem Priority Areas, or “FEPAs”. No wetlands have been identified within a radius of 500m of the development sites.

### 13.7.3 South African Inventory of Inland Aquatic Ecosystems (SAIAE) (2018)

A South African Inventory of Inland Aquatic Ecosystems (SAIAE) was established during the National Biodiversity Assessment of 2018 (NBA 2018). The SAIAE offers a collection of data layers pertaining to ecosystem types and pressures for both rivers and inland wetlands.

The SAIAE builds on previous efforts while also introducing improvements and several new elements. An inventory of inland aquatic ecosystems responds to a multi-stakeholder need for the planning, conservation and management of these systems, as mandated by a number of Legislative Acts, including the South African National Water Act (Act No. 36 of 1998) (NWA) and the National Environmental Management: Biodiversity Act (NEMBA).

The dataset indicates the presence of four wetland features within a 500m radius of the development site (refer to **Figure 52**). These features are identified as “Depression Wetlands”.



*Figure 52: Location of the wetland features, (shown in green) identified in the Wetland Map5 dataset within a 500m radius, shown in yellow, of the development sites.*

### 13.7.4 Site Assessment Results

The findings presented in this section is based on the desktop assessment of the proposed project site discussed above. The information from the desktop assessment was used to inform the site assessment.

#### 13.7.4.1 Identification, delineation and mapping of aquatic features

The site assessment confirmed the absence of any natural wetland features within the study areas. In addition, no wetland features were identified within a 500m radius of the development properties. The wetland features included in the Wetland Map5 were visited and found to not be “Depression Wetlands” as per the dataset. These areas are areas of disturbance in the vegetation that has developed a grass covering consisting of *Stenotaphrum secundatum* (Buffalo Grass).



*Figure 53: View of the area identified in the Wetland Map5 as a “Depression Wetland” that does not have any wetland markers.*

No watercourse features were identified within the boundaries of the development site or within a 100m radius of the development site.

As no aquatic features were identified either on the development site or within a 500m radius of the site, no further assessment in this regard was necessary.

#### 13.7.5 Risk / Impact Assessment

As no aquatic features were identified either within the boundaries of the development site or within the distances specified to determine the “regulated area of a watercourse” the completion of a Risk Assessment was not necessary.

### 13.7.6 Compliance Statement

As the Site Sensitivity Verification completed in the sections, above, has indicated that the Aquatic Biodiversity of the proposed development site is considered to be “LOW”.

The classification Aquatic Biodiversity Theme in the DFFE Online Screening Tool of “very high” sensitivity is related to the development site’s presence in the Tsitsikamma SWSA. The nature of the development will not impact on the SWSA’s status as it will not result in the impeding of any surface runoff into the localized groundwater regime, and it will not influence the amount of water that is currently provided by the development through runoff and seepage. As such, the “very high” sensitivity of the development site is considered to be “low”.

### 13.7.7 Aquatic and Wetland Specialist – Management and Mitigation Measures (Construction Phase)

**Table 26** provides the management and mitigation measures that are proposed by the Aquatic and Wetland Specialist during the Construction Phase.

*Table 26: Management and mitigation measures for the construction phase*

Nature of the impact	Impact summary	Proposed management and mitigation measures
Contamination of the area by petrochemical spillages.	The presence of plant and equipment as well as possible petrochemical stores on the construction site that make use of petrochemical substances a risk of contamination to the possible groundwater that may occur under the site.	All plant and equipment that make use of petrochemical substances must be checked leakages on a daily basis before operations commence.
		All plant and equipment that are found to be leaking must be removed from the site and only returned once the leakages have been addressed.
		If any petrochemical substances are stored on the site, this storage must be done on an impermeable surface in a bunded area that makes provision for 110% of volume of the substances that are stored.
		All refuelling of plant and equipment must be conducted over a drip-tray.
		If any plant or equipment is to be parked on the site, these must be parked within the demarcated construction footprint that has been cleared.
		If any spillages from plant or equipment occur, the spill must be contained immediately, the contaminated soils must be collected and bagged in impermeable bags and stored on site to be removed and disposed of by a registered service provider.
		The domestic waste from these waste bins must be removed off site and disposed of at a municipal landfill site on a weekly basis or more regularly if the bins fill up quicker.
		Only portable chemical toilets with a sealed reservoir will be allowed on site.



Nature of the impact	Impact summary	Proposed management and mitigation measures
Contamination of the area as a result of leaking portable toilet facilities.	Portable toilet facilities will be present of the property to service the labour associated with the construction.	All portable chemical toilets must be located further than 30m away from the delineated edges of any aquatic feature.
	These toilets will pose a risk of leakages and spillages which may impact on the possible groundwater that may occur on the site.	The capacity of the reservoirs in the portable chemical toilets must be monitored on a daily basis to ensure that they can be serviced timeously.
		All removal of the collected sewage waste from the portable chemical toilets must be conducted by a registered service provider for disposal at a municipal wastewater treatment facility.

### 13.7.8 Conclusion

No part of the proposed development site is located within the “regulated area of a watercourse” as defined by the National Water Act (Act No. 36 of 1999). As such, there will be no requirement for the completion of any Water Use License Application for Section 21 (c) and (i) for the development.

Similarly, no part of the development is in any aquatic feature or within 32m of any aquatic feature, as such there will be no requirement for any Application for Environmental Authorisation in accordance with the National Environmental Management Act (Act No. 107 of 1998): Environmental Impact Assessment Regulations (2014), as amended.

The classification Aquatic Biodiversity Theme in the DFFE Online Screening Tool of “very high” sensitivity is related to the development site’s presence in the Tsitsikamma SWSA. The nature of the development will not impact on the SWSA’s status as it will not result in the impeding of any surface runoff into the localized groundwater regime, and it will not influence the amount of water that is currently provided by the development through runoff and seepage. As such, the “very high” sensitivity of the development site is considered to be “low”.

As no aquatic feature will be impacted upon, it is the recommendation of this report that there is no reason why this development cannot be authorised.

### 13.8 Socio-Economic Impact Assessment

Imbewu Environmental and Waste Services (Pty) Ltd was appointed to undertake the SIA in accordance with the requirements of the EIA Regulations (2014, as amended) and is attached as **Appendix C9**.

The socio-economic impact assessment component of the report provides a preliminary identification of potential; socio-economic impacts associated with the proposed Arlington multiple-use development.

The process entails the description of anticipated impacts associated with the various social change processes, which is followed by the preliminary assessment of identified impacts. A rating scale is used to define the significance of an impact, which is aligned to a mitigation (negative impacts) or enhancement (positive impacts) measure.

#### 13.8.1 Socio-Economic Impact Identification

**Table 27** below, provides the socio-economic impacts that have been identified for the proposed project.

Table 27: Socio-Economic Impact Identification

ISSUE (THEME)	IMPACT	IMPACT DESCRIPTION	PRE-MITIGATION SIGNIFICANCE	MITIGATION	POST-MITIGATION SIGNIFICANCE
<b>CONSTRUCTION PHASE</b>					
Demographic changes	Influx of jobseekers	The development may attract the influx of skilled and semi-skilled jobseekers into the local area. this may result in the following: <ul style="list-style-type: none"> <li>Conflict between locals and outsiders, especially when the outsider labour force receives preferential treatment.</li> <li>Cultural diversity conflicts.</li> </ul>	MEDIUM NEGATIVE	The developer must ensure the establishment of a Project Steering Committee (PSC) to facilitate the following: <ul style="list-style-type: none"> <li>Conduct an audit of the affected communities in terms of employment capacity.</li> <li>Identify potential workers from the affected and surrounding communities.</li> <li>Identify possible conflicts in and between communities.</li> <li>Set up a central labour desk where all workers register and only workers registered on the database should be considered for employment.</li> <li>Recommend support programmes that would assist with conflict minimisation and resolution.</li> <li>Contractually oblige sub-contractors to only employ workers through the labour force desk.</li> </ul>	LOW NEGATIVE
Institutional changes	Pressure on existing public services	The development employees and jobseekers temporarily residing in the project area may place pressure on the existing public services. This is most likely to result in the following: <ul style="list-style-type: none"> <li>Increased number of informal settlements and pressure on the metro for housing and related public services.</li> <li>The potential increase in the spread of communicable diseases may place pressure on public healthcare facilities.</li> <li>An increase in social ills such as substance abuse resulting in increased crime rate, may place pressure on public safety and security.</li> <li>Increased unemployment rate within jobseekers and a growing crime rate for survival.</li> </ul>	LOW NEGATIVE	<ul style="list-style-type: none"> <li>Health and safety campaigns must be held in collaboration with public health servants, to educate construction workers on the spread of communicable diseases.</li> <li>The contractor must collaborate with the local SAPS to regulate the behaviour of construction workers, and the regulation of site access by the public and jobseekers.</li> </ul>	LOW NEGATIVE
Economic changes	Local economic spin-offs	The development may result in local and regional economic spin-offs owing to construction expenditure on local suppliers, and the increased buying power of the development employees. The positive impacts can be as follows: <ul style="list-style-type: none"> <li>The injection of income into the area, in the form of wages and business sales, will contribute to local economic growth.</li> <li>General construction material and equipment sourcing could benefit the local businesses, and this will have an indirectly positive impact on the local economy.</li> <li>Off-site accommodation would also be required for those construction staff not residing in the area, with potential contribution to localised accommodation facilities.</li> <li>Transport services to and from site will also be required, and this indirect spend boosts the local economy.</li> </ul>	LOW POSITIVE	<ul style="list-style-type: none"> <li>The developer must ensure that the principle of utilising local business resources is in accordance with government policies relating to local procurement.</li> <li>The developer must establish a database of local companies which qualify as potential service providers, prior commencement of the tendering process.</li> <li>The use of local contractors especially SMMEs from communities around the project area where ever possible should be promoted.</li> </ul>	MEDIUM POSITIVE

ISSUE (THEME)	IMPACT	IMPACT DESCRIPTION	PRE-MITIGATION SIGNIFICANCE	MITIGATION	POST-MITIGATION SIGNIFICANCE
		<ul style="list-style-type: none"> <li>Supporting industries and/or small businesses, such as for catering, accommodation, suppliers of construction material and equipment, transport, etc., may benefit from the construction phase of the development.</li> </ul>			
Socio-cultural changes	Employment opportunities	The construction phase will result in the availability of temporary employment opportunities for skilled, semi-skilled and unskilled labour force.	MEDIUM POSITIVE	<ul style="list-style-type: none"> <li>Where reasonable and practical, preference must be given to local SMMEs, especially for the low skills levels.</li> <li>Equal job opportunities for women and men must be promoted.</li> <li>Culture and tradition must be considered when planning the division of labour for construction.</li> <li>Employment must be managed by the PSC that uses a selection system a fair recruitment of semi and unskilled workers from all local impacted communities in accordance with government policies related to local procurement. This must ensure a fair and equitable recruitment process.</li> </ul>	HIGH POSITIVE
	Skills development and capacity building of workers and local SMMEs	The construction phase of the development may be an opportunity for skills transfer and capacity building by skilled and experienced workers for the unskilled and upcoming workers.	LOW POSITIVE	<ul style="list-style-type: none"> <li>The developer must include a contractual obligation for larger contractors to work with small SMMEs to train and transfer skills.</li> <li>The developer must implement on-the-job training for unskilled labourers.</li> <li>The developer should look into developing a skills development programme, which may include training in business, management, monitoring and evaluation.</li> </ul>	MEDIUM POSITIVE
	Disruption in daily living and movement patterns	The construction phase of the development may result in the disruption of the daily living and movement patterns of surrounding communities, due to traffic and other intrusions caused by construction activities.	MEDIUM NEGATIVE	<ul style="list-style-type: none"> <li>Construction activities must be limited to the construction site only.</li> <li>Proper and timeous notification must be given to residents when an activity will affect their movement (such as road closure).</li> <li>Surrounding communities must have access to a grievance reporting mechanism, e.g. through a project steering committee.</li> <li>The developer should at all times avoid using busy roads and roads within densely populated areas.</li> </ul>	LOW NEGATIVE
	Health and safety risks for workers and surrounding community.	<p>Inadequate management of general construction activities could result in health and safety risks; such as construction related accidents, respiratory infections from dust generation and air pollution, unsafe potable water, increased prevalence of communicable diseases, etc. This is associated with the following:</p> <ul style="list-style-type: none"> <li>Uncontrolled access into the construction site resulting in theft, safety and security issues and vandalism.</li> <li>Threat to surrounding properties due to uncontrolled fires.</li> <li>Threat to surrounding properties owing to potential pollution causing flies, rodents and pests, and the contamination of surrounding water resources.</li> </ul>	LOW NEGATIVE	<ul style="list-style-type: none"> <li>Measures to suppress dust must be implemented at all times.</li> <li>Construction workers must wear all relevant protective clothing.</li> <li>Dangerous equipment must be used under strict supervision.</li> <li>Waste must be safely disposed at the nearest licensed waste disposal facility.</li> <li>Provide safe and clean drinking water on site.</li> <li>Provide sufficient ablution facilities for the site staff.</li> </ul>	INSIGNIFICANT
	Safety and security risk	Safety and security issues for the surrounding communities may be introduced due to an influx of jobseekers.	LOW NEGATIVE	<ul style="list-style-type: none"> <li>The construction site must be fenced off and safe guarded at all times, to prevent trespassing.</li> </ul>	INSIGNIFICANT

ISSUE (THEME)	IMPACT	IMPACT DESCRIPTION	PRE-MITIGATION SIGNIFICANCE	MITIGATION	POST-MITIGATION SIGNIFICANCE
		Valuable construction equipment and material could also attract criminals.		<ul style="list-style-type: none"> <li>Construction workers must be provided with identity tags and access to site by unauthorised people must be prohibited.</li> <li>Jobseekers should not be allowed to gather around the construction site.</li> <li>The local SAPS must be allowed entry to site anytime, to monitor security and safety.</li> </ul>	
	Disruption and changes to the quality of living environment	Intrusion impacts such as noise and visual intrusion, and aesthetic impacts, resulting from emissions, movement of construction vehicles, earthworks, etc.; may cause a decrease in the quality of the physical environment for the surrounding residents, businesses, schools and other social facilities.	MEDIUM NEGATIVE	<ul style="list-style-type: none"> <li>The surrounding residents must be advised at construction commencement, and guided on how they could lodge complaints when necessary.</li> <li>All dust suppressing techniques must be applied.</li> <li>All construction vehicles and equipment must be regularly serviced, to prevent the emission of air pollutants.</li> </ul>	LOW NEGATIVE
<b>OPERATIONAL PHASE</b>					
Socio-cultural changes	Employment opportunities	The development is typically mixed use and includes facilities for businesses. This will result in employment opportunities, albeit fewer than the construction phase.	MEDIUM POSITIVE	Local labour force must receive primary priority.	MEDIUM POSITIVE
Economic changes	Impact on the local economy	<p>During the operation phase, the development may result in local economic opportunities for surrounding businesses. there will also be an opportunity for the establishment of new or expansion of existing businesses due to increased population in the area.</p> <p>The local municipality will benefit with the income from rates and taxes that will be collected from the developers.</p> <p>Though at a very low level, local businesses may benefit from the supply of maintenance equipment.</p>	HIGH POSITIVE	<ul style="list-style-type: none"> <li>Local businesses must receive primary priority, with fair opportunity for various business levels.</li> </ul>	HIGH POSITIVE
<b>DECOMMISSIONING PHASE</b>					
Socio-cultural changes	Disruption in daily living and movement patterns	The decommissioning of the development will result in the disruption of daily living and movement patterns.	LOW NEGATIVE	<ul style="list-style-type: none"> <li>The surrounding residents must be advised at commencement of decommissioning activities, and guided on how they could lodge complaints when necessary.</li> <li>All dust suppressing techniques must be applied.</li> <li>All construction vehicles and equipment must be regularly serviced, to prevent the emission of air pollutants.</li> <li>The developer should ensure that the decommissioning activities should cause minimum disruption to local communities. For example, traffic control measures must be put in place to reduce traffic impacts. If traffic uses dust roads, dust suppression measures must be implemented.</li> </ul>	LOW NEGATIVE

ISSUE (THEME)	IMPACT	IMPACT DESCRIPTION	PRE-MITIGATION SIGNIFICANCE	MITIGATION	POST-MITIGATION SIGNIFICANCE
	Displacement of families	The decommissioning of the development will result in the displacement of families who occupied the residential area of the development.	LOW NEGATIVE	No mitigation	LOW NEGATIVE
Economic changes	Employment opportunities	The decommissioning phase of the development will result in employment opportunities typical of those required in the construction phase.	LOW POSITIVE	Local labour must be considered for semi and unskilled labourers.	MEDIUM POSITIVE
	Loss of employment opportunities	The decommissioning phase will also result in the loss of jobs from the businesses within the multiple-se development.	LOW NEGATIVE	No mitigation	LOW NEGATIVE

A standard rating scale is used to ensure compatibility and consistency of impact assessment. The issues and impacts identified above are described in detail, assessed in terms of selected criteria and mitigation measures recommended to reduce negative impacts and enhance positive impacts.

### 13.8.2 Assumptions and Limitations

It should be noted that the assessment of social impacts differs from identifying and measuring environmental impacts, for the following key reasons:

- The social impact of a development is not always measurable, and assessment thereto often entails a subjective dimension. Considering whether such an impact is positive or negative is also a value judgement in itself. Consequently, such impacts need to be informed by a clear understanding of the social processes and knowledge of the communities under study.
- Social impacts are often cumulative, clustered and interdependent.
- Social impacts are greatly influenced by public perceptions and intensity thereof could thus be altered as and when the receiving environment changes with development, when new policy guidelines are formed, or when stakeholders and other parties become desensitised towards changes in the social environment.
- Social impacts are dynamic and can change when community dynamics and social processes change.
- Social impacts are often unintended and unavoidable, making them extremely difficult to mitigate. Therefore, mitigation measures need to be conceptualised as strategies of managing change, as opposed to entirely avoiding impacts. It is also expected that successful management of potentially negative impacts may even change the impacts from negative to positive.
- Social impacts are greatly influenced by public perceptions and intensity thereof could thus be altered as and when the receiving environment changes with development, when new policy guidelines are formed, or when stakeholders and other parties become desensitised towards changes in their social environment.

### 13.8.3 Social Impact Assessment - Conclusions and Recommendation

Although some negative impacts have been identified in this report, they are significantly outweighed by the positive impacts associated with the proposed development. Negative impacts can be managed through the proper implementation of mitigations and the involvement of all affected parties from inception stages, prior commencement of construction.

In consideration of the fact that many of the socio-economic impacts cannot be prevented, management responses as opposed to preventative actions, are proposed to mitigate the severity of the negative impacts or to maintain and improve the positive impacts. Therefore, it is highly recommended that the management/enhancement measures provided in this report must be implemented and incorporated into the Environmental Management Programme of the EIA.

None of the impacts identified and assessed as part of this SIA are considered to be fatal flaws. The assessment revealed that all identified impacts can be mitigated, thus reducing the significance of the impacts. While the development may have short-term negative impacts, they are all outweighed by the positive long-term impacts. The development will significantly contribute to the development of the NMBM area, both socially and economically.

### 13.9 Traffic Impact Assessment

Emonti Consulting Engineers CC was approached to prepare a Traffic Impact Assessment (TIA) for the proposed rezoning, consolidation and subdivision of the following properties: Erven 10653/4, 3988, 6991 and Remainder of Erf 4195, Gqeberha – situated within the Nelson Mandela Bay Municipality (NMBM) area (attached as **Appendix C10**).

According to South African Traffic Impact and Site Traffic Assessment Manual, Volume 1, commonly referred to as TMH16 (Reference Four), a TIA must be undertaken when:

- i. An application is submitted for a change in land use, and
- ii. The highest total additional hourly vehicular trip generation (including pass-by and diverted trips) as a result of the application exceeds 50 trips per hour.

Both these conditions are met with this application and therefor the need to undertake this TIA in support for the proposed rezoning, consolidation and subdivision of the said development.

#### 13.9.1 Existing Traffic Volumes

In order to establish the current traffic conditions, relevant traffic count information was used. **Table 28** provides a summary of the traffic count information utilised in this study.

*Table 28: Traffic count data used*

No.	Station	Data Type	Date
1	Genadendal Road/Buffelsfontein Road	12 hr manual unclassified traffic volume	21 July 2022
2	Victoria Drive/Glendore Road		
3	Victoria Drive/DR01908		
4	Buffelsfontein Road/Victoria Drive		

The analysis of current traffic performance is based on the observed traffic data that, when necessary, have been adjusted and smoothed in order to represent a balance network of traffic volumes for 2022.

#### 13.9.2 Future Traffic Volumes

For purposes of this study, it was assumed that the development will be functional in 2022 and therefore a design horizon of five years (i.e. 2027) was used for the future operational LOS analysis.

In terms of COTLO (Reference Four) an assessment must be undertaken for the hours during which the combined effect of background and development traffic will result in the highest traffic demand.” In this regard, most of the proposed land uses have their peak traffic volumes being a week day AM and PM peaks, except for the relatively small retail component. Before choosing the weekday AM and PM as the critical peaks, a check was undertaken on the trip generation for a Saturday (i.e. the time when retail has the highest trip generation). The proposed development is expected to generate in the order of 1130, 1310 and 880 new



trips in each of the AM, PM and SAT peaks respectively. When adding these to the current traffic in those peaks, the critical peaks remain the weekday AM and PM. It was for this reason that the SAT peak was not analysed any further. A typical day, in this case a Thursday was counted for a 12 hour period. This included both the AM and PM peaks.

The recommended critical peak hours for analysing retail developments are weekday PM and SAT peak hours and weekday AM and PM peak hours for most other land uses. In this study the analyses were made for both the future weekday AM and PM peaks to address anticipated capacity problems in the peak hours most relevant to the development. The trips generated for the SAT peak were lower than the weekday PM peaks and were therefore not analysed further.

It is acceptable to project future traffic volumes by taking the recorded growth history of traffic counts into consideration. The generally accepted growth rate in the study area is 3% per annum. Applying the growth rate of 3% from the base year to the design horizon year the growth factor would be 1.16, meaning an increase in background traffic volume of 16% over the five year design horizon.

According to **Table 29** (Reference Five), this can be regarded as a “low to average growth area”.

*Table 29: Typical traffic growth rates*

Development Area	Growth rate
Low growth area	0 - 3%
Average growth area	3 - 4%
Above average growth area	4 - 6%
Fast growing area	6 - 8%
Exceptionally high growth area	> 8%

For the future scenario analysis, the current traffic volumes were maintained as background traffic and increased by an annual growth factor. New trips relating to the proposed development were added to obtain the future estimated traffic volumes for 2027.

### 13.9.3 Internal Circulation and Parking

#### Internal circulation

It would be advisable for the Developer to plan, design and build the internal layout to a standard acceptable by the municipality in order to allow for accessibility of service and emergency vehicles, etc. The layout, as recommended in **Figure 54**, should meet these requirements and provides acceptable internal circulation.

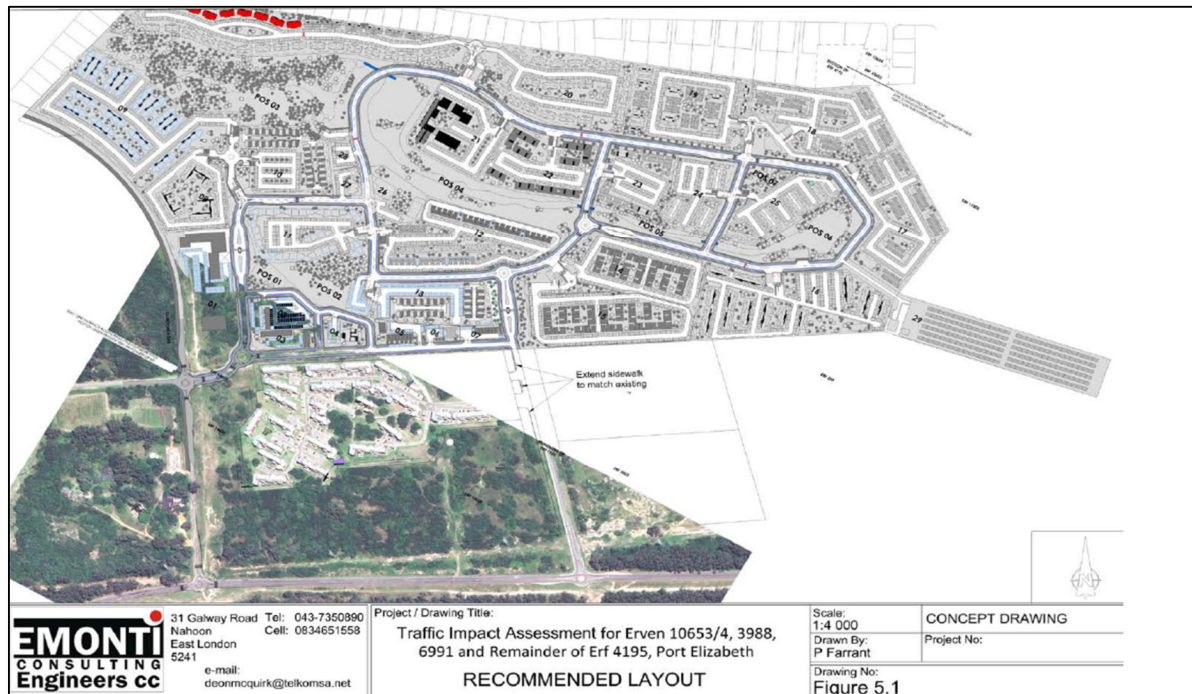


Figure 54: Proposed layout for internal circulation.

### **Parking and loading facilities**

Refuse loading will occur near the main accesses to the development and other loading associated with deliveries, removals etc. will occur from the dedicated load bays indicated. All parking and loading requirements are to be catered for on the individual sites.

It is expected that the area will be serviced by a large percentage of public transport vehicles.

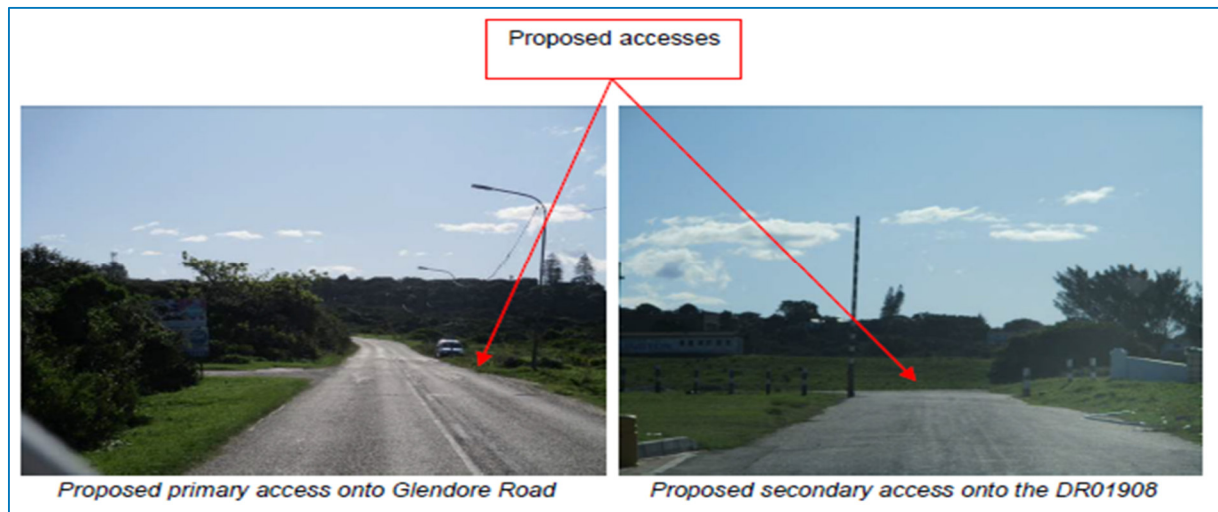
It is therefore proposed that the parking requirements be reduced. This proposed reduction will require the necessary departures to be formalised. This formal application for a parking reduction is being undertaken as a separate process by the Town Planner for the proposed development. Should this departure application not be successful, then the developer will amend the SDP to reflect the required number of parking bay

It is also requested that the parking provision for the commercial components of the development be adjusted for the provision of public transport, the percentage of patrons expected to walk between the residential and commercial sections, and the mixed use nature of the development. Based on the above the Developer should approach the Municipality, via the same parking departure application process, to reduce the required number of parking bays for the commercial components by providing bicycle bays and taxi bays (with one taxi bay being equivalent to 6 standard bays) in lieu of some standard parking bays.

### 13.9.4 Access Proposals

#### Vehicular Access

The proposed primary access (western access) to the site is onto Glendore Road, with a proposed secondary access (southern access) onto Victoria Drive via the DR01908. The positions of the proposed primary and secondary accesses to the site are shown in the photographs below (refer to **Figure 55**).



*Figure 55: Photo's depicting positions of proposed primary and secondary accesses to the site.*

The intersection sight distance for turning manoeuvres associated with the specific posted speed limit of 60 km/h and the site gradients experienced are approximately 150m. Both approaches on Glendore Road and Victoria Drive at the proposed primary and secondary accesses respectively, meet this minimum requirement.

It is important to ensure that the western access be located directly opposite the Unnamed Road.

#### Pedestrian and bicycle access

Pedestrian and bicycle access to the site is via the proposed accesses.

Due to the location and nature of the development it is expected to generate local pedestrian traffic and the appropriate pedestrian facilities have been recommended as listed below:

- i. surfaced pedestrian sidewalk along the internal roads within the development.
- ii. surfaced pedestrian sidewalk along the western side of the DR01908 between end of the existing sidewalk and the southern access, and
- iii. strategically located raised pedestrian table along the internal road network and at the internal and external proposed traffic circles.

## Access Control

The development indicates that the internal roads will be zoned private. The proposed access controls are illustrated in **Figure 56**. The proposed positions of the access controls should provide security to the development while keeping the relevant road network open to traffic. The proposed positions have been determined assuming the use of a swipe magnetic card and manual recording system for residents and visitors respectively, with one entry lane and one exit lane. No access control is proposed for the commercial components of the development.

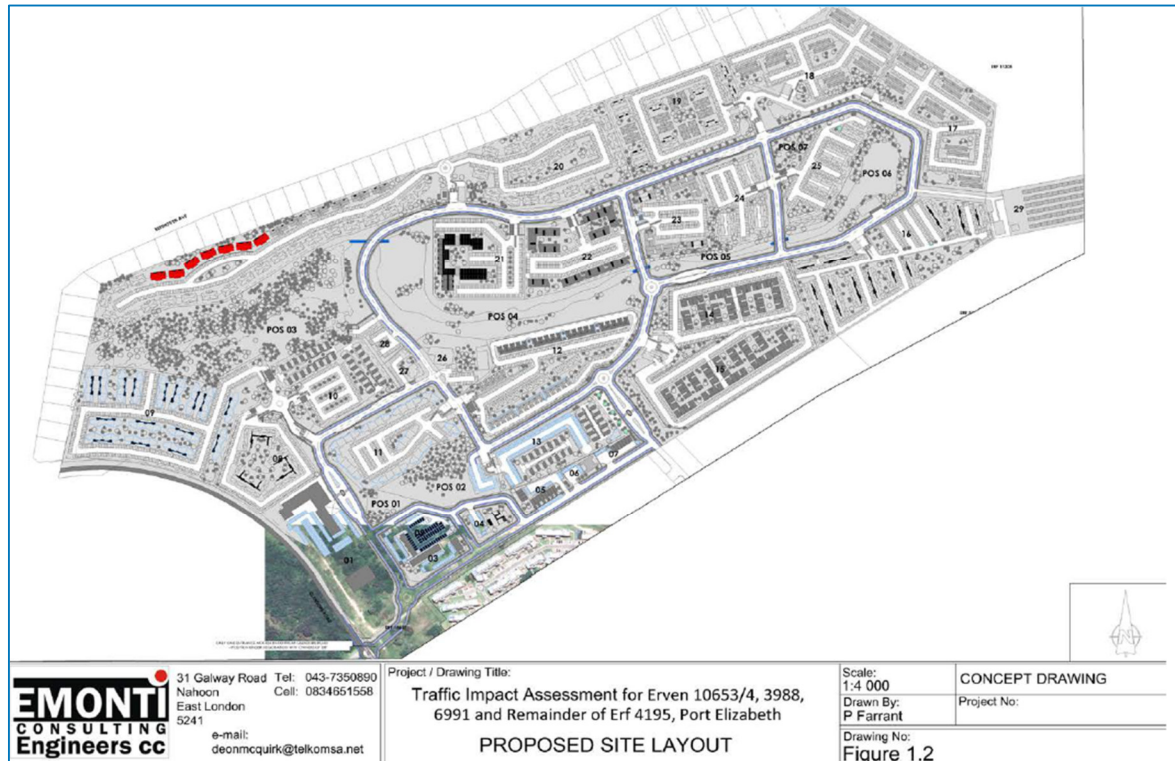


Figure 56: Proposed Site Layout indicating the proposed access controls.

### 13.9.5 Analysis Results

**Tables 30 to 31** contain a summary of the SIDRA analysis results as undertaken at the various intersections, where **Table 32** shows the control types assumed for the analysis for the various scenarios.

Table 30: Intersection Level of Service (AM) peak

		KEY									
		A-C	D	E	F	NA					
No.	Intersections	Level of Service									
		2022 AM status quo		2022 AM develop.		2027 AM option 1		2027 AM option 2		2027 AM option 3	
		APPR.	INTERS.	APPR.	INTERS.	APPR.	INTERS.	APPR.	INTERS.	APPR.	INTERS.
1	Genadendal Road/Buffelsfontein Road	C	B	NA	NA	F	D	B	A	C	B
2	Glendore Road/Unnamed Road/Access Road	NA	NA	NA	NA	C	B	A	A	NA	NA
3	Victoria Drive/Glendore Road	NA	NA	NA	NA	B	A	B	A	A	A
4	Victoria Drive/DR01908	NA	NA	NA	NA	C	A	NA	NA	NA	NA
5	Buffelsfontein Road/Victoria Drive	F	F	NA	NA	F	E	D	C	NA	NA

Table 31: Intersection Level of Service (PM peak)

		KEY									
		A-C	D	E	F	NA					
No.	Intersections	Level of Service									
		2022 PM status quo		2022 PM develop.		2027 PM option 1		2027 PM option 2		2027 PM option 3	
		APPR.	INTERS.	APPR.	INTERS.	APPR.	INTERS.	APPR.	INTERS.	APPR.	INTERS.
1	Genadendal Road/Buffelsfontein Road	E	D	NA	NA	F	E	C	B	C	B
2	Glendore Road/Unnamed Road/Access Road	NA	NA	NA	NA	B	B	A	A	NA	NA
3	Victoria Drive/Glendore Road	NA	NA	NA	NA	A	A	A	A	A	A
4	Victoria Drive/DR01908	NA	NA	NA	NA	A	A	NA	NA	NA	NA
5	Buffelsfontein Road/Victoria Drive	F	E	NA	NA	F	E	D	D	NA	NA

Table 32: Intersection Control Type

No.	Intersections	Intersection control type				
		2022 status quo	2022 develop.	2027 option 1	2027 option 2	2027 option 3
1	Genadendal Road/Buffelsfontein Road	Priority/stop	NA	Priority/stop	Traffic circle	Traffic signals
2	Glendore Road/Unnamed Road/Access Road	NA	NA	Priority/stop	Extra lanes	Traffic circle
3	Victoria Drive/Glendore Road	NA	NA	Priority/stop	Traffic circle	NA
4	Victoria Drive/DR01908	Traffic circle	NA	Traffic circle	NA	NA
5	Buffelsfontein Road/Victoria Drive	Traffic signals	NA	Traffic signals	Extra lanes	NA

From the results it is clear that while the two peak periods test similarly, the current critical peak hour is the AM peak hour. On completion of the development the AM peak hour remains the more critical in terms of volume and LOS at intersections.

The anticipated impact of the proposed development varies depending on the road segment under review. From the SIDRA analyses results, together with on-site observations, the following road segments require mentioning and are displayed in **Figures 57** and **58**.

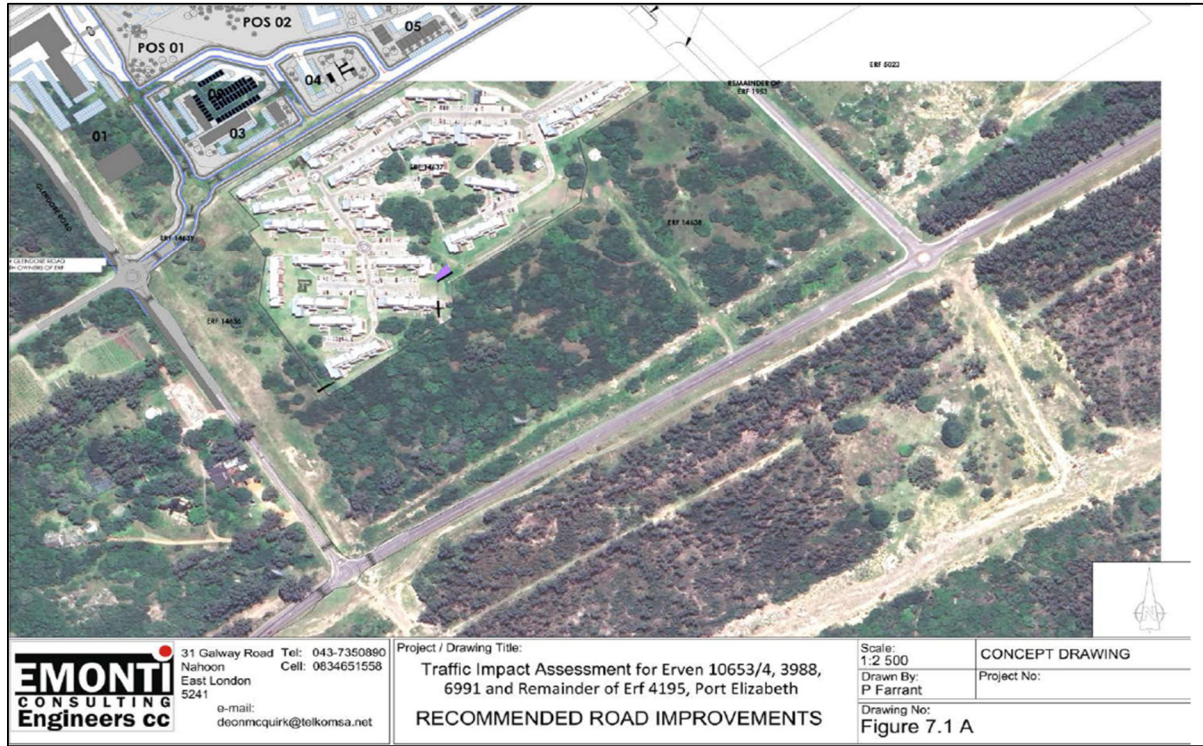


Figure 57: Recommended Road improvements

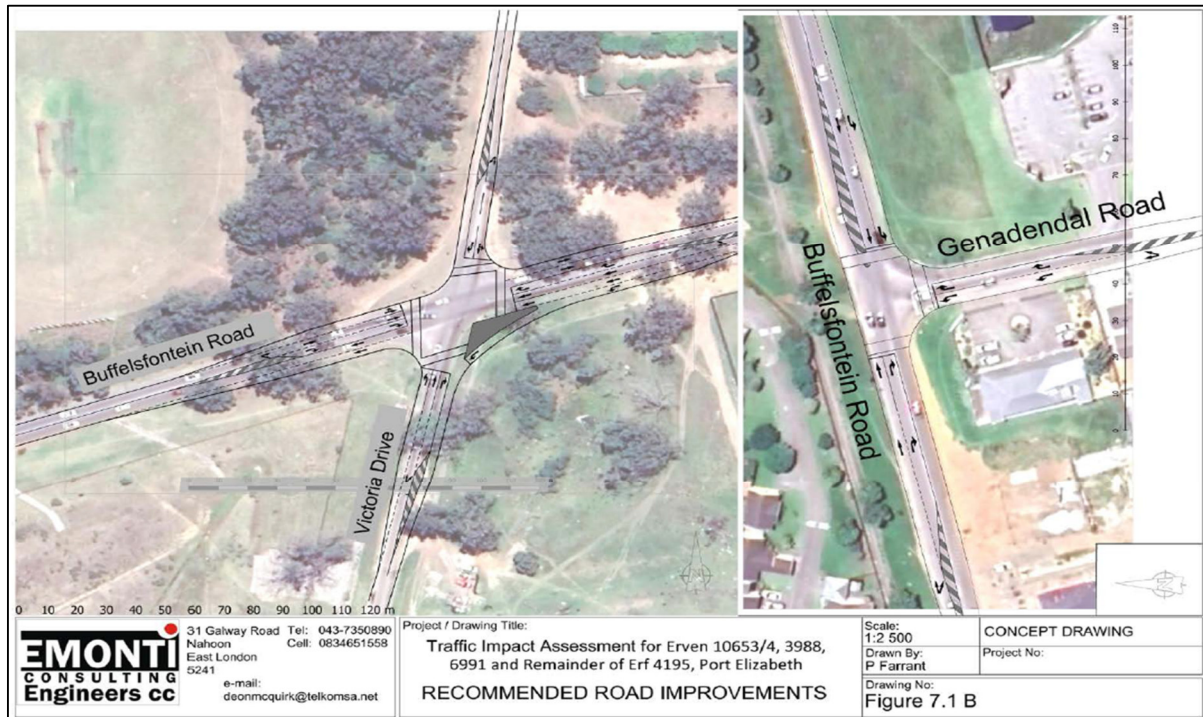


Figure 58: Recommended Road improvements (Buffelsfontein Road, Victoria Drive and Genadendal Road intersections).

According to Reference Four<sup>3</sup>, the primary study area is the area from which transportation elements are selected for the TIA.

The elements to be included in the primary study area shall be selected as follows:

- i. Accesses to the site. All accesses (vehicle, pedestrian and cyclist) to the site. Such accesses are also included in the study area of Site Traffic Assessments.
- ii. External roads. These roads shall be restricted to Class 4 and 5 roads in the vicinity of the development up to the first Class 1 to 3 roads that can be reached by the Class 4 and 5 road network from the development, up to and including the first connection(s) on the Class 1 to 3 roads.

The elements shall be restricted to those within a maximum distance of 1.5 km from the accesses to the site, measured along the shortest routes to the accesses, provided that there is at least one intersection within this distance. Where there is no such intersection, the distance will be extended to include at least one intersection.

Currently the Buffelsfontein Road/Victoria Drive intersection and the Genadendal Road/ Buffelsfontein Road intersection are 2.4km and 3.5km respectively away from the accesses to the development, with a number of intersections between the development accesses and these intersections. Under normal circumstances these two intersections would be excluded from the impact of traffic generated by this development. However, these two intersections will be used by traffic from the development to gain access to the broader road network. They have therefore been analysed in this report.

#### **Victoria Drive/DR01908 intersection**

Based on traffic volumes this intersection does not require any upgrading.

#### **Glendore Road/Unnamed Road/Access Road intersection**

This intersection currently operates at an acceptable LOS as a priority/stop controlled intersection. However, from a safety perspective, it is advisable to introduce a traffic circle at this intersection.

Further, it is important that the intersection be located directly opposite the Unnamed Road to the west of Glendore Road.

#### **Victoria Drive/Glendore Road intersection**

Similarly to the Glendore Road/Unnamed Road/Access Road intersection, this intersection currently operates at an acceptable LOS. The introduction of a traffic circle will be beneficial for traffic safety at this intersection.

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<sup>3</sup> South African Traffic Impact and Site Traffic Assessment Manual, Volumes 1 and 2 (TMH16) August 2012.

### **Genadendal Road/Buffelsfontein Road intersection**

This intersection currently operates at an acceptable LOS. However, with the increase in traffic from the development an alternative form of control is recommended. Three alternatives were considered here, i.e. priority/stop control with extra lanes, traffic signals with extra lanes and a traffic circle

The stop/priority control did not operate at an acceptable LOS. However, both the traffic signals and traffic circle options produced acceptable improvements to the LOS. As most of the intersections along Buffelsfontein Road are currently traffic signal controlled, it is recommended that traffic signals, with additional auxiliary turning lanes, be introduced.

### **Victoria Drive/Buffelsfontein Road intersection**

This intersection currently operates at a poor LOS and requires changes in order to improve the LOS. The situation worsens when the traffic generated by the development is added to the intersection.

Here additional lanes are to be introduced in conjunction with traffic signal phasing and timing changes.

### **Public transport bays**

Due to the location and nature of the development it is expected to generate public transport. It is essential for public transport bays to be introduced, together with the associated pedestrian facilities. It is therefore recommended that two public transport bays be constructed, one on both of the exits to the Glendore Road/Unnamed Road/Access Road intersections, as well along Victoria Drive at the Victoria Drive/Glendore Road intersection. Internal public transport embayment's and parking bays are also proposed as illustrated in **Figure 59**.



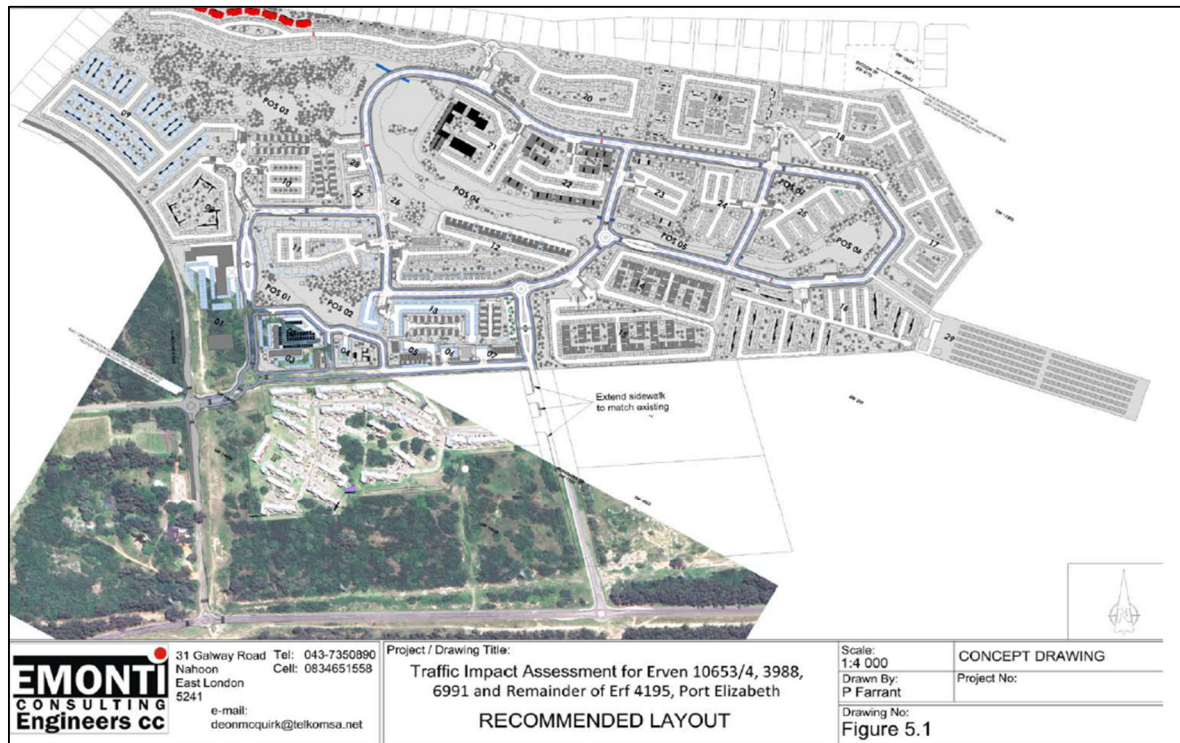


Figure 59: Proposed internal public transport embayment's and parking bays.

### Traffic calming

Currently the Victoria Drive/DR01908 intersection has raised pedestrian tables on all approaches to the traffic circle. These raised tables improve the safety for both the vehicles and pedestrians making use of the traffic circles. It is therefore recommended that raised pedestrian tables be introduced on all the approaches to the proposed traffic circles. This applies to traffic circles both internally and externally to the site.

### Limited access

It is essential to ensure that no vehicular, bicycle or pedestrian accesses are permitted onto Glendore Road other than at the proposed access. It is therefore recommended that a suitable barrier be erected to prohibit such access. In this regard, an adequate pedestrian and vehicle proof fence/wall is to be erected along the property boundary with Glendore Road.

### 13.9.6 Conclusions

Following the investigation and analysis it is concluded that:

- i. The current operating conditions on the road network within the study area are found to be acceptable with no LOS or capacity failures, except for the Victoria Drive/Buffelsfontein Road intersection.

- ii. The posted speed limit of 60 km/h along both Victoria Drive and Glendore Road, in the vicinity of the site accesses, is appropriate for the current and expected future traffic conditions.
- iii. The existing critical peak, in terms of traffic volume, was found to be the AM peak hour while the PM peak hour tested similarly but with marginally lower demands.
- iv. Once developed and fully occupied, the proposed development may be expected to generate in the order of 1130 and 1310 new vehicle trips in AM and PM commuter peak hours respectively. This is considerably higher than the estimated 880 new trips in the SAT peak.
- v. The combined critical peak hour of existing and development trips is found to be the AM peak hour.
- vi. The network is not overloaded when development trips are assigned for any of the given tested peak hours, subject to the recommended road network improvements being undertaken.
- vii. The proposed changes to the layout and road network, as shown in **Figures 57 and 58** respectively, adequately serve the proposed development.
- viii. The development is of a magnitude that suggests that a pavement assessment be conducted to determine the structural integrity of the existing roads.

### 13.9.7 Recommendations

Based on the investigation and conclusions it is recommended that:

- i. This Traffic Impact Assessment (TIA) be submitted to the Nelson Mandela Bay Municipality (NMBM) and the Eastern Cape Department of Transport (ECDOT) for their perusal.
- ii. The development proposal, that is the proposed rezoning, consolidation and subdivision of the following properties: Erven 10653/4, 3988, 6991 and Remainder of Erf 4195, Gqebera, as submitted and reflected herein, being approved in principle from a traffic impact perspective by the NMBM and the ECDOT. Once the comments are received from the ECDOT, these comments will be forwarded to NMBM for consideration.
- iii. The site layout changes, as shown in **Figure 57**, being made a condition of approval. The required internal road network improvements to be made by the development are as follows:
  - a. parking layout,
  - b. disabled parking bays,
  - c. loading bays,
  - d. control strategy, and
  - e. traffic calming.
- iv. The road network improvements, as listed below and shown in **Figure 58**, to being made a condition of approval. It should however be noted that these improvements may change subject to subsequent investigations in consultation with the road authority. The required public road network improvements to be made to accommodate the development are as follows:
  - a. The construction of a traffic circle at the Glendore Road/Unnamed Road/Access Road and Victoria Drive/Glendore Road intersections.
  - b. Traffic signals, with additional turning auxiliary lanes, being introduced at the Genadendal Road/Buffelsfontein Road intersection.
  - c. The construction of additional lanes, together with changes to the traffic signal phasing and timing, being implemented at the Victoria Drive/Buffelsfontein Road intersection.

- d. The construction of two public transport bays, one on both of the exits to the Glendore Road/Unnamed Road/Access Road intersections, as well along Victoria Drive at the Victoria Drive/Glendore Road intersection.
- e. Construction of raised pedestrian tables on all the approaches to the proposed traffic circles.
- f. An adequate pedestrian and vehicle proof fence/wall being erected along the property boundary with Glendore Road.
- g. Construction of surfaced pedestrian sidewalk along the internal roads within the development.
- h. Construction of surfaced pedestrian sidewalk along the western side of the DR01908 between end of the existing sidewalk and the southern access.
- i. Construction of strategically located raised pedestrian table along the internal road network and at the internal and external traffic circles.
- i. Parking and loading bays being provided for. This is subject to a successful parking departure application. Should the parking departure application not be successful, then the parking is to be provided as per Reference Eight, i.e. Port Elizabeth Zoning Scheme Regulations. This will require the SDP to be amended accordingly.
- ii. The developers civil engineer responsible for the roads, undertake the necessary pavement assessment on the surrounding road network. The findings of the assessment must be forwarded to the NMBM for consideration.
- iii. All costs associated with the internal roads, as indicated in **Figure 55**, being solely to the Developer's account.
- iv. All costs associated with the recommendations, as listed in "iv", being solely to the Developer's account. It is however suggested that the Developer approach the NMBM to determine whether they would consider a contribution towards the cost of improvements to the Victoria Drive/Buffelsfontein Road intersection as this intersection is currently operating at a poor LOS without the development trips being taken into consideration.

It should be noted that all figures represented in this Traffic Impact Assessment are concept drawings only and are not to be used for construction purposes. These concept drawings are to be developed into engineering drawings by the Developer's appointed civil engineer. The engineering drawings are then to be approved by the relevant road authority officials prior to construction.

### 13.10 Glint and Glare Impact Assessment

Future Impact was appointed to conduct a desktop review pertaining to glint and glare impacts on aviation receptors as a result of light reflecting off a solar PV installation at the proposed Arlington Multiple-Use Development in Gqeberha Eastern Cape (attached as **Appendix C11**).

#### 13.10.1 Terms of Reference

This report aims to determine the effect that potential solar PV 'glint and glare' may have on various aviation receptors due to the construction and operation of the Solar PV Installation as part of the Arlington Multiple-Use Development in Gqeberha, Eastern Cape, South Africa ("The proposed project"). The main receptors of

concern are the aviation receptors (i.e., the pilots and ATCT operator) at the Chief Dawid Stuurman International Airport (FAPE).

The proposed project is located approximately 2.8km to the west of the threshold of the Runway 08/26. The Airport consists of two perpendicular, asphalt runways and one air traffic control tower. The primary runway 08/26 is orientated South-West to North-East. The secondary runway 17/35 is orientated North-West to South-East.

Other community receptors have not been modelled, such as the nearby suburbs and motor vehicles, as this report's focus is solely on the aviation receptors.

At certain angles, the sun may reflect light in a specular manner off the surface of the Photovoltaic panels and affect the receptors vision, thereby causing an 'after-image' or 'temporary blindness' depending on the strength of the specular reflection. In South Africa, there is limited literature and no regulatory framework with regards to the 'glint and glare' effects from solar panels in relation to airspace use. In the absence of a regulatory requirement, the United States Federal Aviation Authority's (FAA) Technical Guidance for Evaluating Selected Solar Technologies on Airports, version 1.1 of April 2018 was used as the main reference. Within this guideline are numerous case studies of solar projects similar to this project. The FAA approved ForgeSolar software package was used to predict the effects of the glint and glare from the PV panels.

### 13.10.2 Assumptions and Limitations

The design specifications of the project were supplied by the client. A summary of assumptions and abstractions required by the ForgeSolar analysis methodology is provided below:

- The algorithm does not rigorously represent the detailed geometry of a system; detailed features such as gaps between modules, variable height of the PV array, and support structures may impact actual glare results. However, the software developers have validated the models against several systems, including a PV array causing glare to the air-traffic control tower at Manchester-Boston Regional Airport and several sites in Albuquerque USA, and the tool accurately predicted the occurrence and intensity of glare at various times and days of the year.
- Several calculations utilize the PV array centroid, rather than the actual glare spot location, due to algorithm limitations. This may affect results for large PV footprints. Additional analyses of array sub-sections can provide additional information on expected glare. This primarily affects analyses of path receptors.
- Random number computations are utilized by various steps of the annual hazard analysis algorithm. Predicted minutes of glare can vary between runs as a result. This limitation primarily affects analyses of Observation Point receptors, including Air Traffic Control Towers (ATCT's). The ForgeSolar methodology relies on an analytical, qualitative approach to accurately determine the overall hazard (i.e., green vs. yellow) of expected glare on an annual basis.
- The subtended source angle (glare spot size) is constrained by the PV array footprint size. Partitioning large arrays into smaller sections will reduce the maximum potential subtended angle, potentially

impacting results if actual glare spots are larger than the sub-array size. Additional analyses of the combined area of adjacent sub-arrays can provide more information on potential glare hazards. (See previous point on related limitations.)

- The algorithm does not consider obstacles (either man-made or natural) between the observation points and the prescribed solar installation that may obstruct observed glare, such as trees, hills, buildings, etc.
- The variable direct normal irradiance (DNI) feature scales the user-prescribed peak DNI using a typical clear-day irradiance profile. This profile has a lower DNI in the mornings and evenings and a maximum at solar noon. The scaling uses a clear-day irradiance profile based on a normalized time relative to sunrise, solar noon, and sunset, which are prescribed by a sun-position algorithm and the latitude and longitude obtained from Google maps. **The actual DNI on any given day can be affected by cloud cover, atmospheric attenuation, and other environmental factors such as smoke from fire, mist etc.**
- The ocular hazard predicted by the tool depends on several environmental, optical, and human factors, which can be uncertain. The developers provide input fields and typical ranges of values for these factors so that the user can vary these parameters to see if they have an impact on the results.
- The system output calculation is a DNI-based approximation that assumes clear, sunny skies year-round.
- Hazard zone boundaries shown in the Glare Hazard plot are an approximation and visual aid. Actual ocular impact outcomes encompass a continuous, not discrete, spectrum.
- Glare locations displayed on receptor plots are approximate. Actual glare-spot locations may differ.
- Glare vector plots are simplified representations of analysis data. Actual glare emanations and results may differ.

### 13.10.3 Receiving Environment

The proposed project may impact on aviation receptors located in and around the Chief Dawid Stuurman International Airport (ICAO code: FAPE). The Airport consists of two runways with four Flight Paths (FPs) as follows:

- Runway 08/26
  - FP Runway 08
  - FP Runway 26
- Runway 17/35
  - FP Runway 17
  - FP Runway 35

Additionally, one Air Traffic Control Tower ("1-ATCT") is present. The flight paths used in modelling are two miles long (miles is used in aviation studies as the flight navigational aids are referenced in miles). **Figure 60** below shows the four flight paths that were assessed. The air traffic control tower is located at 33° 59' 01.31" S; 25° 36' 45.81" E. Due to limited information regarding the geometry of the ATCT, the height for the ATCT

receptor is estimated at 15m, although it likely that it is slightly lower (and therefore subject to less impact due to obstacles affecting line of sight between the receptor and the development).



Figure 60: Receiving Environment

### 13.10.4 Results

The modelling results indicate that receptors will experience green glare. No yellow glare or red glare will be present.

The analysis parameters and observer eye characteristics were as follows:

- Analysis time interval: 1 minute.
- Ocular transmission coefficient: 0.5.
- Pupil diameter: 0.002 meters.
- Eye focal length: 0.017 meters.
- Sun subtended angle: 9.3 milliradians.

*Table 33: Glint and Glare Exposure Time Summary*

Receiver Name	Green Glare (mins)	Yellow Glare (mins)	Red Glare (mins)
<b>FP Runway 08</b>	0	0	0
<b>FP Runway 17</b>	0	0	0
<b>FP Runway 26</b>	2 631	0	0
<b>FP Runway 35</b>	96	0	0
<b>1-ATCT</b>	1 178	0	0
<b>Total</b>	<b>3 905</b>	<b>0</b>	<b>0</b>

### 13.10.5 Modelling Results per Receptor

As shown in **Table 33** above, the Flight Paths approaching Runway 08 and Runway 17 will be exposed to no glare. Details are provided below regarding glint and glare exposure to the receptors “FP Runway 26”, “FP Runway 35” and the Air Traffic Control Tower (“1-ATCT”).

#### **FP Runway 26**

The 2-Mile Flight Path approaching Runway 26 (approaching the primary runway from Northeast) will experience 2 631 minutes (43.9 hours) of green glare exposure in a given year. **Figure 61** below shows that the glare exposure will occur at dawn, between 17h45 and 19h00, when the sun sets in the west.

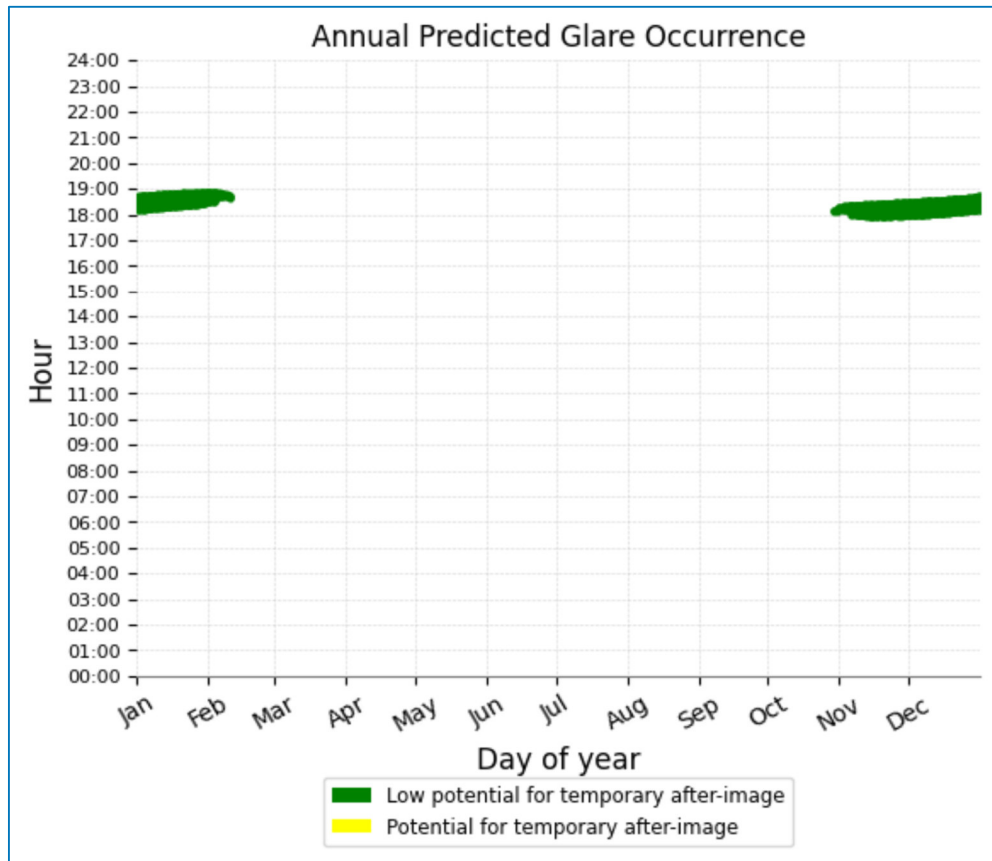


Figure 61: Time of Exposure for FP Runway 26

Furthermore, the exposure will occur along the final three-quarters of the 2-mile Approach Flight Path, as shown in **Figure 62** below.



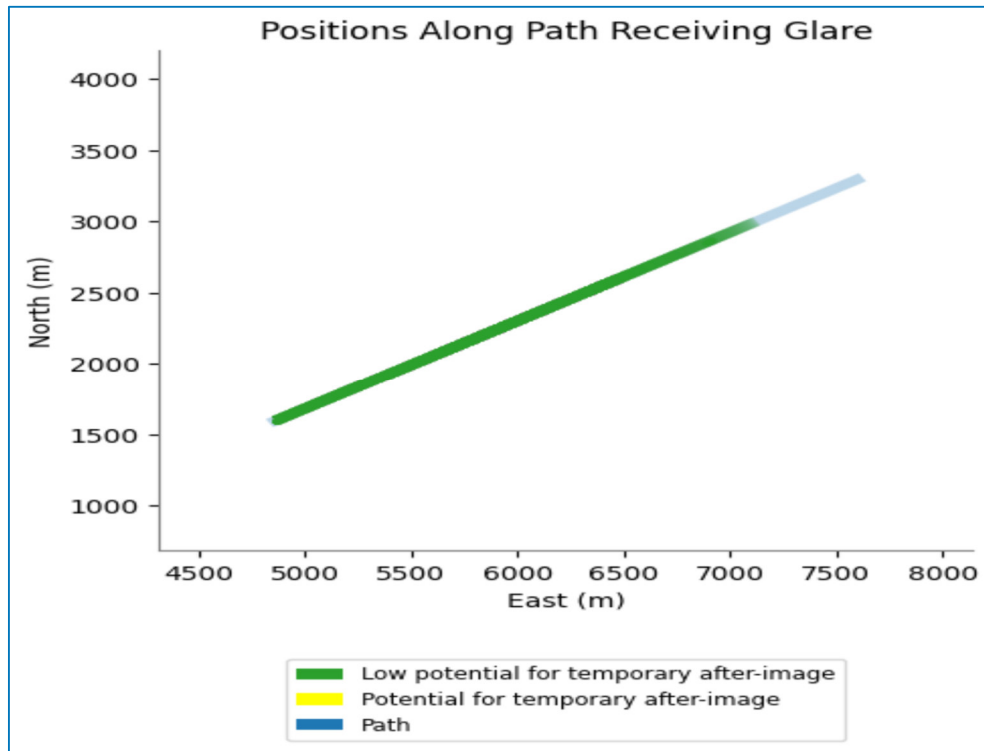


Figure 62: Positions of Exposure Along the Flight Path for Runway 26

Figure 63 below shows that the entire Solar PV Footprint will cause the exposure to green glare for the FP Runway 26 receptor.

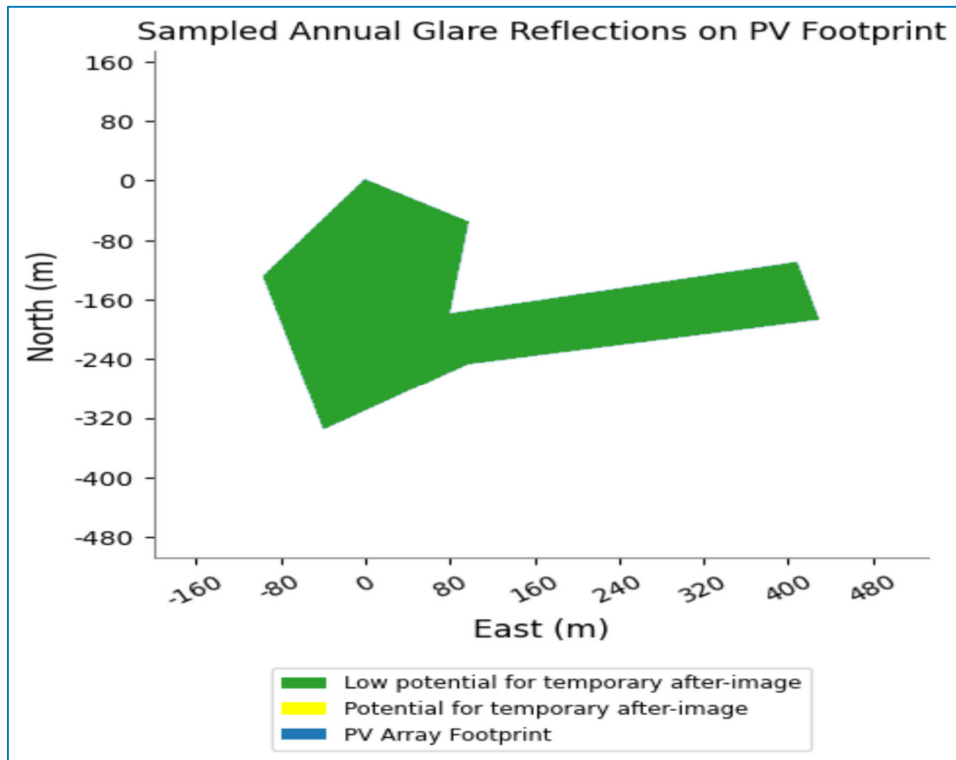


Figure 63: PV Array Footprint Responsible for Glare on the Flight Path for Runway 26

**FP Runway 35**

The 2-Mile Flight Path approaching Runway 35 (approaching from the secondary runway from the Southeast) will experience 96 minutes (1.6 hours) of green glare exposure in a given year. **Figure 64** below shows that the glare exposure will occur for brief periods at dawn, around 18h00, when the sun sets in the west. This exposure will only occur for a few days around the end of March/beginning of April and then again in September.

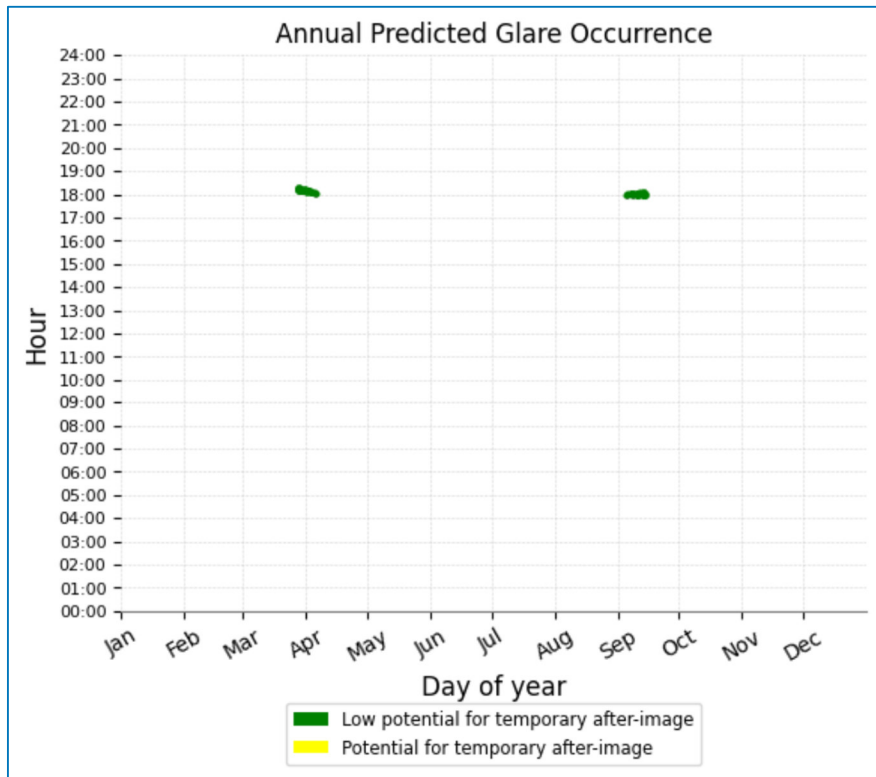


Figure 64: Time of Exposure for FP Runway 35

Furthermore, the exposure will occur briefly around the midway point of the 2-mile Approach Flight Path, as shown in **Figure 65** below.

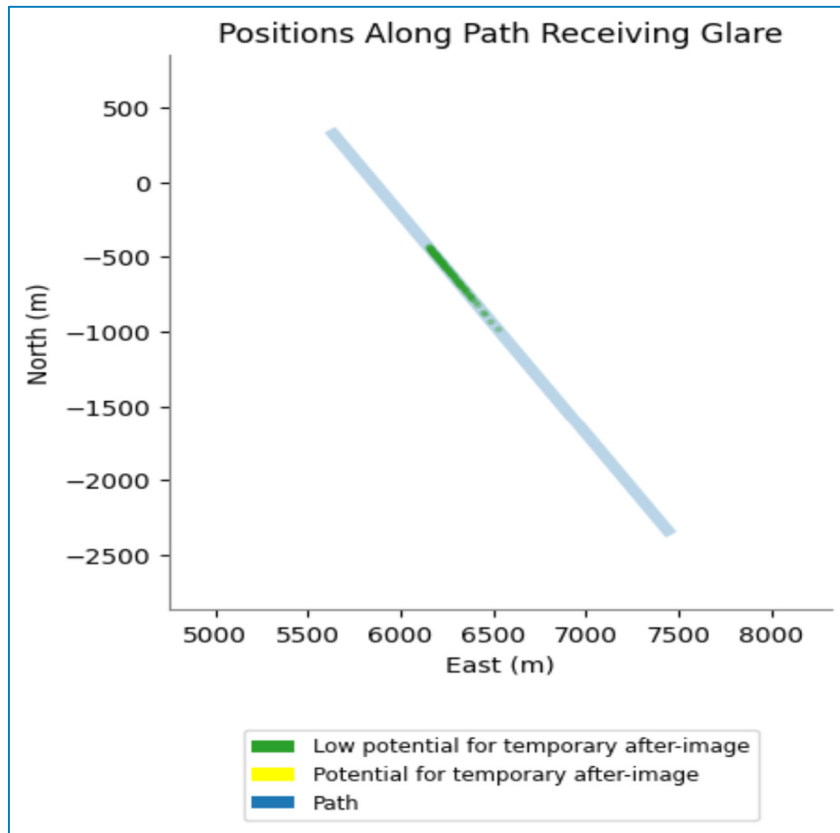


Figure 65: Positions of Exposure Along the Flight Path for Runway 35

Figure 66 below shows that the entire Solar PV Footprint will cause the exposure to green glare for the FP Runway 35 receptor.

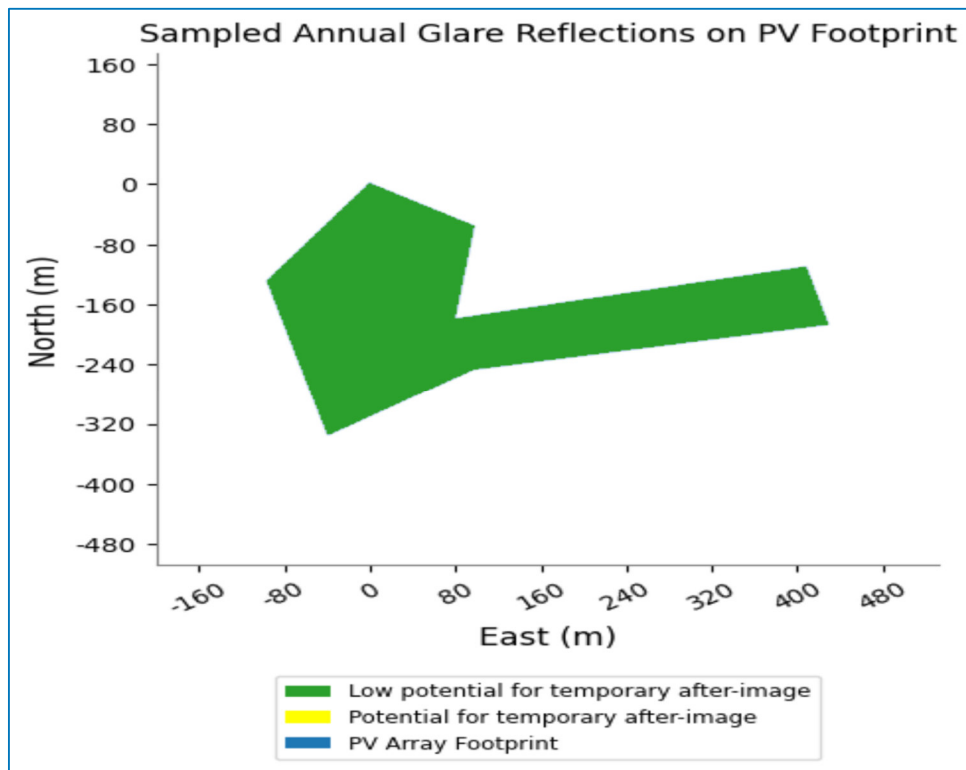


Figure 66: PV Array Footprint Responsible for Glare on the Flight Path for Runway 35

#### Air Traffic Control Tower (1-ATCT)

The Air Traffic Control Tower at the Chief Dawid Stuurman International Airport will experience 1 178 minutes (19.6 hours) of green glare exposure in a given year. This exposure will occur from early November to the beginning of February the following year. **Figure 67** below shows that the glare exposure will occur at dawn, between 18h00 and 19h00, when the sun sets in the west.

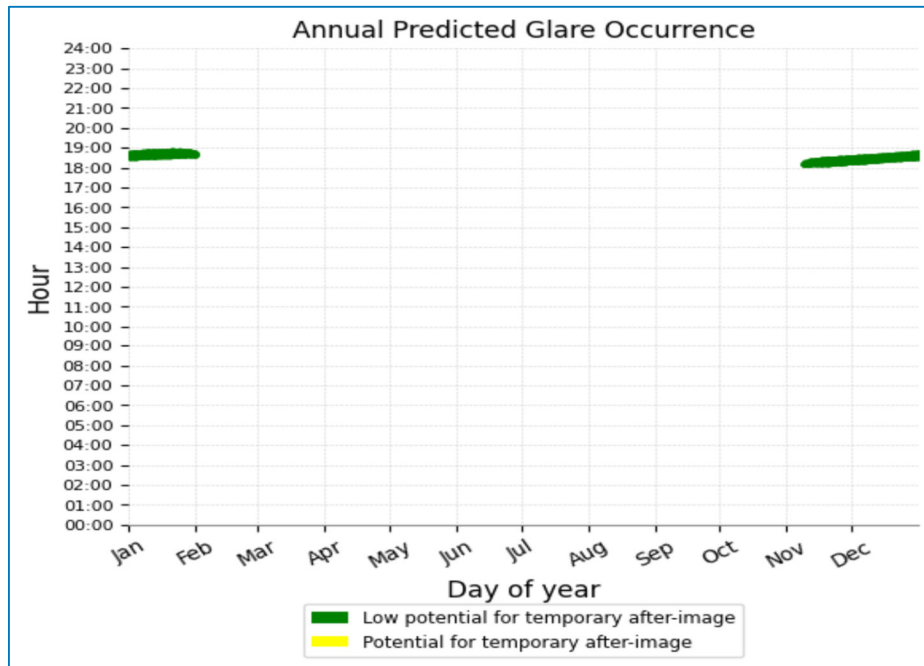


Figure 67: Time of Exposure for the Air Traffic Control Tower

The FAA Guidelines regard Air Traffic Control Towers to be more sensitive to glint and glare exposure. Despite green glare being present for the Air Traffic Control Tower receptor, it is unlikely to have an impact due to the numerous buildings that are obstructing the line of sight between the development and the receptor.

### 13.10.6 Conclusions and Recommendations

The aim of this study was to determine the impact that solar glint and glare would have on various aviation receptors. The FAA model considered the 2-mile receptors on the approach to the various runways at the Chief Dawid Stuurman International Airport (ICAO: FAPE). The Air Traffic Control Tower (1-ATCT) was also considered.

The modelling results indicate that the FP Runway 35, FP Runway 26, and Air Traffic Control Tower will be exposed to green glare only. No receptors will be exposed to yellow or red glint and glare during the landing phase of flight. This is due to the fixed axis Solar PV arrays being positioned on the northern side of the aviation receptors and angled towards the north.

Green glare has a low potential to cause temporary flash blindness and is therefore acceptable in terms of the United States FAA Regulations. Furthermore, the model does not take into account building heights, these buildings will obstruct the line of sight from the Air Traffic Control Tower to the Solar panels and therefore further prevent glint exposure to the Tower.

It is therefore recommended that the project receive authorisation from the Civil Aviation Authority from a glint and glare perspective.

### 13.11 ICAO ANNEX 14 OBSTACLE LIMITATION SURFACE REPORT

This report contains the details of the ICAO Annex 14 obstacle limitation surfaces (OLS) with consideration for the proposed Arlington solar PV development located approximately 1.5NM (2.8km) west of Chief Dawid Stuurman International airport, Eastern Cape, South Africa (attached as **Appendix 12**).

#### 13.11.1 Purpose

The purpose of the Annex 14 Obstacle Limitation Surfaces (OLS) is to define the volume of airspace that should be ideally kept free or safeguarded from obstacles, and to take the necessary measures to ensure the safety of aircraft, and thereby the passengers and crews aboard them, while taking-off or landing, or while flying in the vicinity of an airport

This is achieved by a process of checking proposed developments so as to:

- Protect the blocks of air through which aircraft fly, by preventing penetration of these surfaces' lower limits.
- Protect the integrity of radar and other electronic aids to air navigation, by preventing reflections and diffractions of the radio signals involved.
- Protect visual aids, such as Approach and Runway lighting, by preventing them from being obscured, or preventing the installation of other lights which could be confused for them.

Basic ILS Surfaces represent a simple form of protection for ILS operations. These surfaces are considered to correspond to a subset of the Annex 14 OLS as specified for precision approach runway code numbers 3 and 4.

Under the terms of their license, as issued by the South African CAA, airports are normally required to prevent new developments or extensions to existing structures from infringing the OLS. The OLS completely surround the aerodrome, but those surfaces aligned with the runway(s) used to protect aircraft landing or taking-off can be more limiting than those surrounding the rest of the aerodrome, particularly as you get closer to the aerodrome.

#### 13.11.2 Considerations

In ideal circumstances all the surfaces will be free from obstacles, but when a surface is infringed, any safety measures required by the South African CAA will have regard to:

- The nature of the obstacle and its location relative to the surface origin, to the extended centreline of the runway or normal approach and departure paths and to existing obstructions.
- The amount by which the OLS is infringed.
- The gradient presented by the obstacle to the surface origin.
- The volume and type of air traffic at the aerodrome; and

- The instrument approach procedures published for the aerodrome. It is for this reason that accurate information on the location and height of the proposed development/obstacle is required.

### 13.11.3 Infringement of OLS

Aerodrome operators must monitor the applicable OLS of the aerodrome and report any infringement or potential infringement of the OLS to the South African CAA.

In order to determine potential infringements, aerodrome operators need to liaise with the appropriate planning authorities and companies that are involved in erecting tall structures. Every effort should be made to implement the OLS standards and limit the introduction of new obstacles.

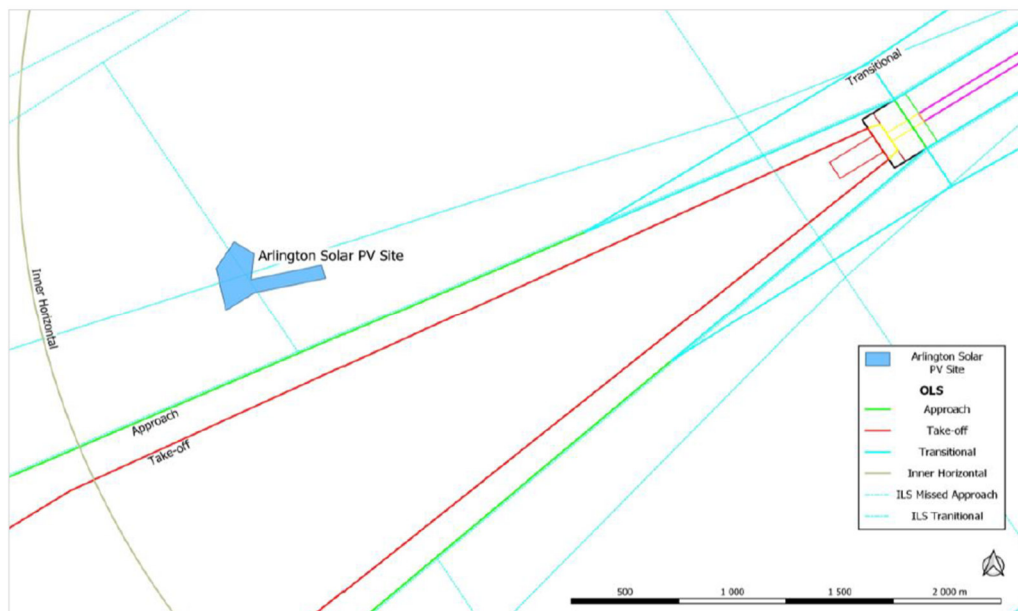
When a new obstacle is detected, aerodrome operators must ensure that the information is passed on to pilots, through NOTAM, in accordance with the standards for aerodrome reporting procedures.

### 13.11.4 Annex 14 Surface Parameters

The broad purpose of the OLS is to define a volume of airspace that is ideally kept free of obstacles in order to minimize the danger to aircraft during the final visual segment of an instrument approach procedure.

### 13.11.5 Proposed Arlington Solar PV Development Relative to FAPE OLS

The proposed Arlington solar PV development lies within the Inner Horizontal, ILS Missed Approach and ILS Transitional surfaces of the FAPE OLS and basic ILS surfaces (**Figures 68 and 69**).



*Figure 68: Proposed Arlington solar PV development in relation to Chief Dawid Stuurman International Airport OLS*



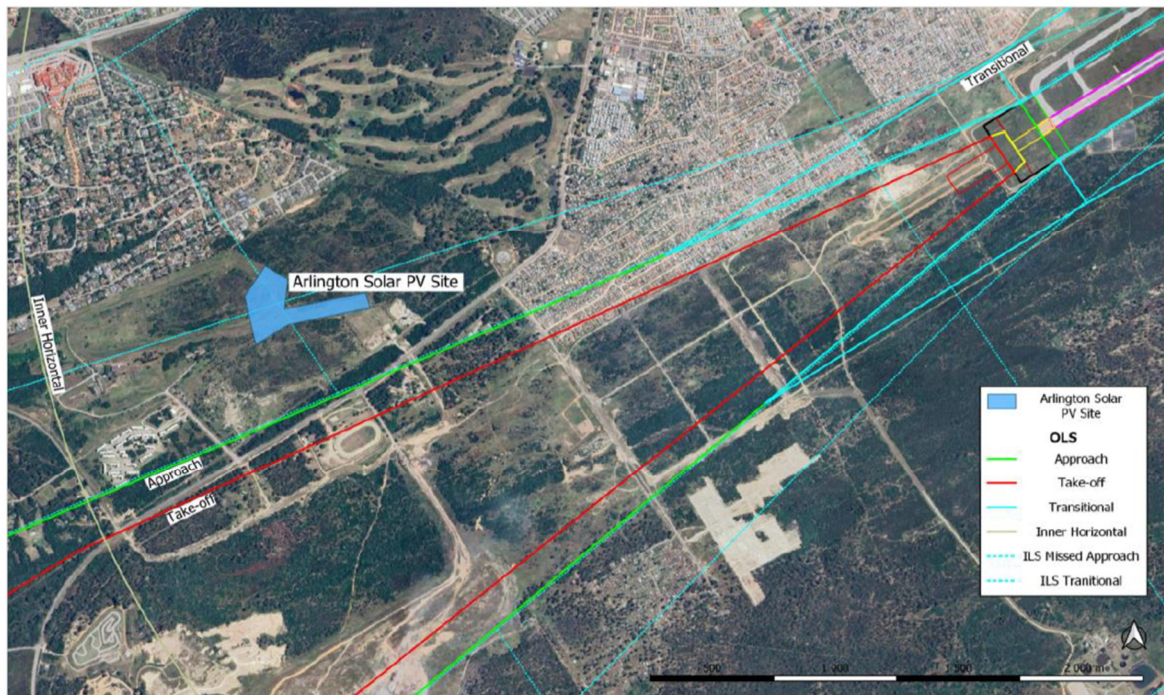


Figure 69: Proposed Arlington solar PV development in relation to Chief Dawid Stuurman International Airport OLS

The table below contains the maximum elevations permissible, Above Mean Sea Level (AMSL), which structures within the proposed Arlington solar PV development are allowed before they would begin penetrating the respective surfaces. Note that all elevations are specified as AMSL.

Table 34: Maximum elevation per OLS

Surface	Max Surface Elevation (AMSL)	Runway Name	DSG
Inner Horizontal	101	08/26	08
ILS Missed Approach	153 to 165	08/26	26
ILS Transitional	162 to 214	08/26	26

The Inner Horizontal has the lowest maximum elevation of 101m AMSL making it the controlling surface for the proposed Arlington solar PV development. Structures within the proposed PV development should be restricted to below 101m AMSL if they are to remain clear of the FAPE OLS (Figures 70 and 71).

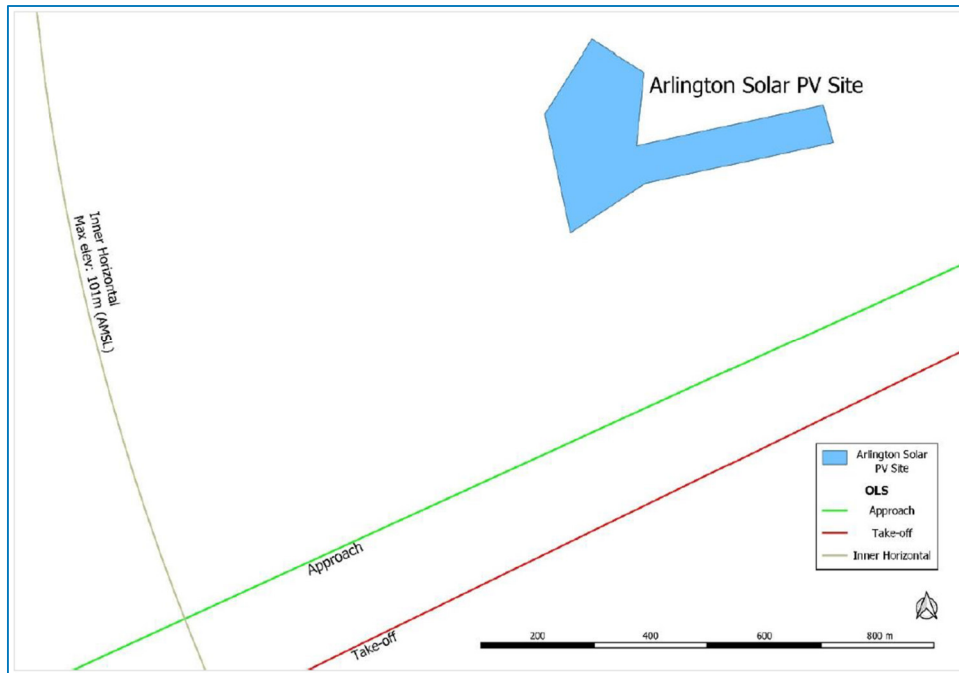


Figure 70: Inner Horizontal max elevation 101m (AMSL)



Figure 71: Inner Horizontal max elevation 101m (AMSL)

**NOTE:** Using the available SRTM data as an indication of ground elevation shows terrain around the proposed PV development is above 101m AMSL (Figures 72 and 73).

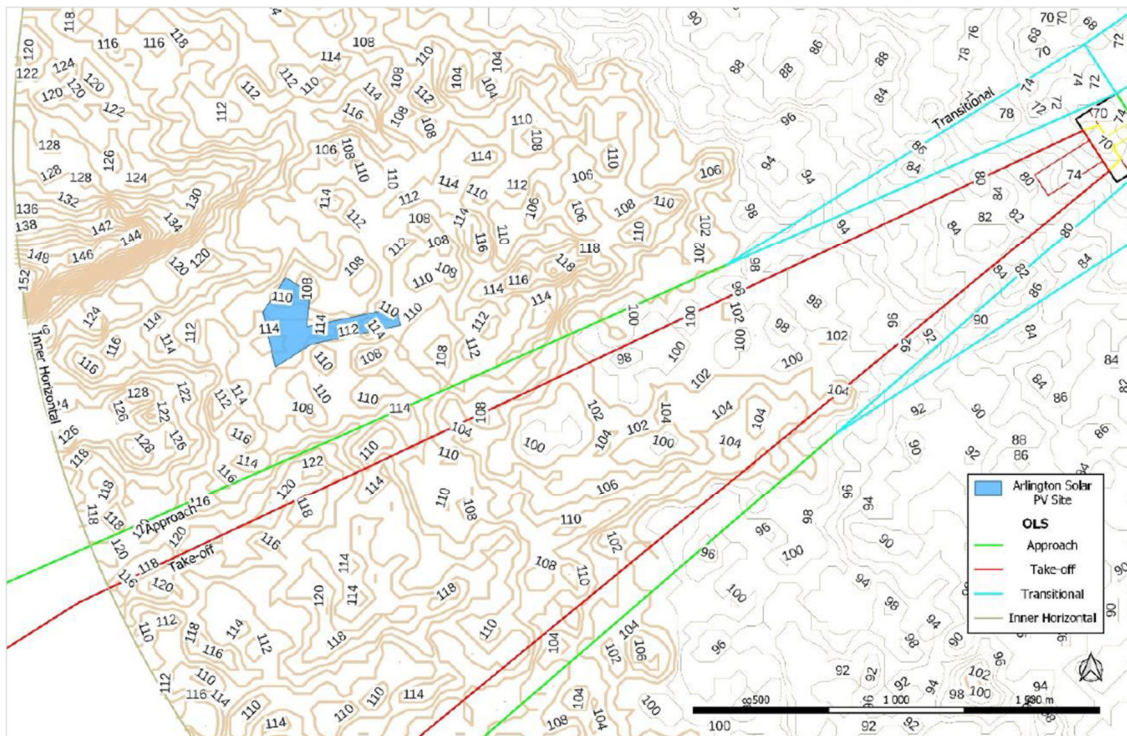


Figure 72: SRTM data showing terrain above 101m (AMSL)

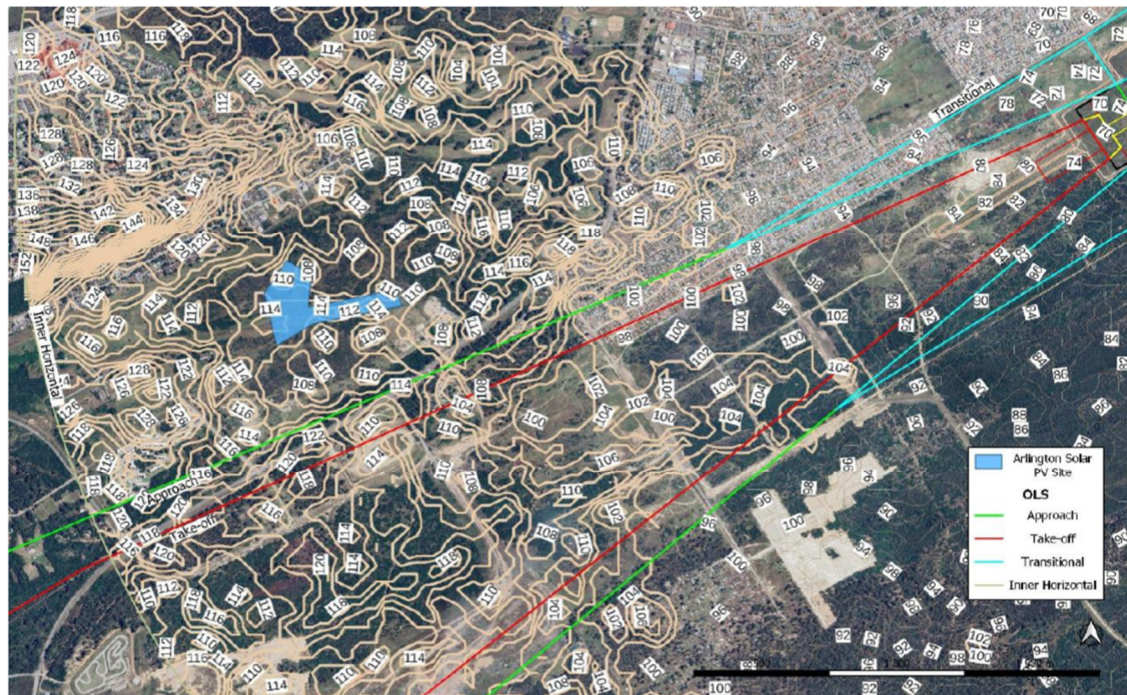


Figure 73: SRTM data showing terrain above 101m (AMSL)

**NOTE:** In addition, the SRTM data show areas surrounding the proposed PV development where the terrain is above 114m AMSL (the approximate SRTM elevation through the proposed PV site) (**Figures 74 and 75**).

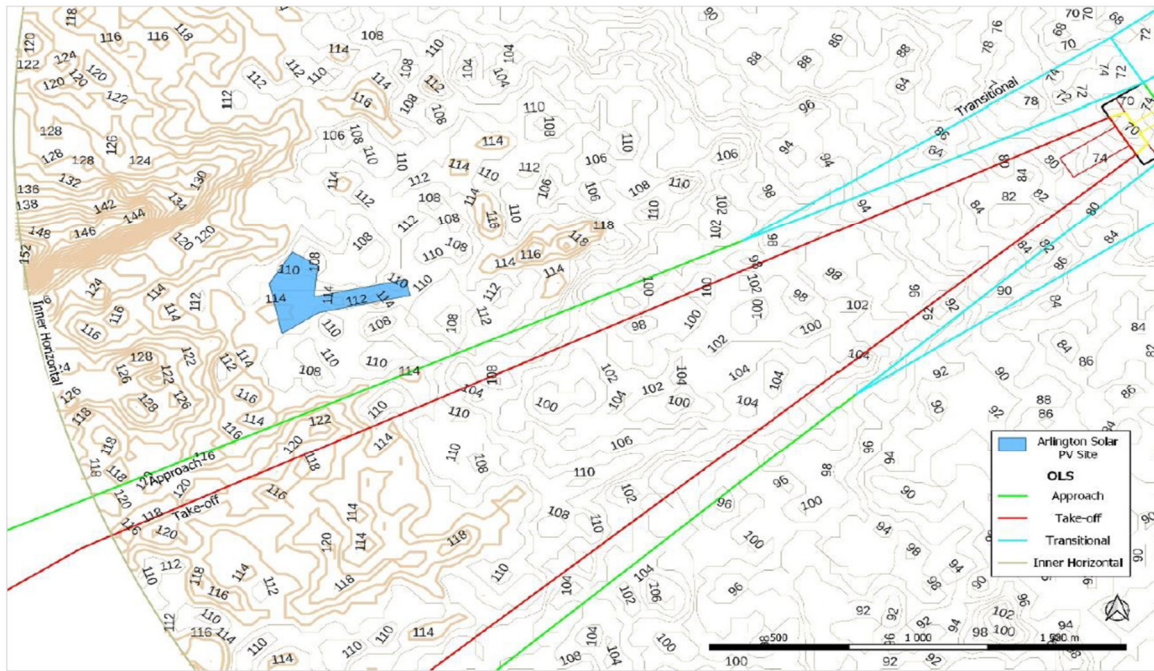


Figure 74: SRTM data showing terrain at and above 114m (AMSL)



Figure 75: SRTM data showing terrain at and above 114m (AMSL)

**NOTE:** The AIP section AD 2-FAPE indicates aerodrome obstacles, lighting masts, in the vicinity of the proposed PV development (approximately 20m-25m AGL). The surrounding areas also show various structures already present, as well as two transmission pylons in the vicinity (approximately 35m AGL) (Figures 76 and 77).

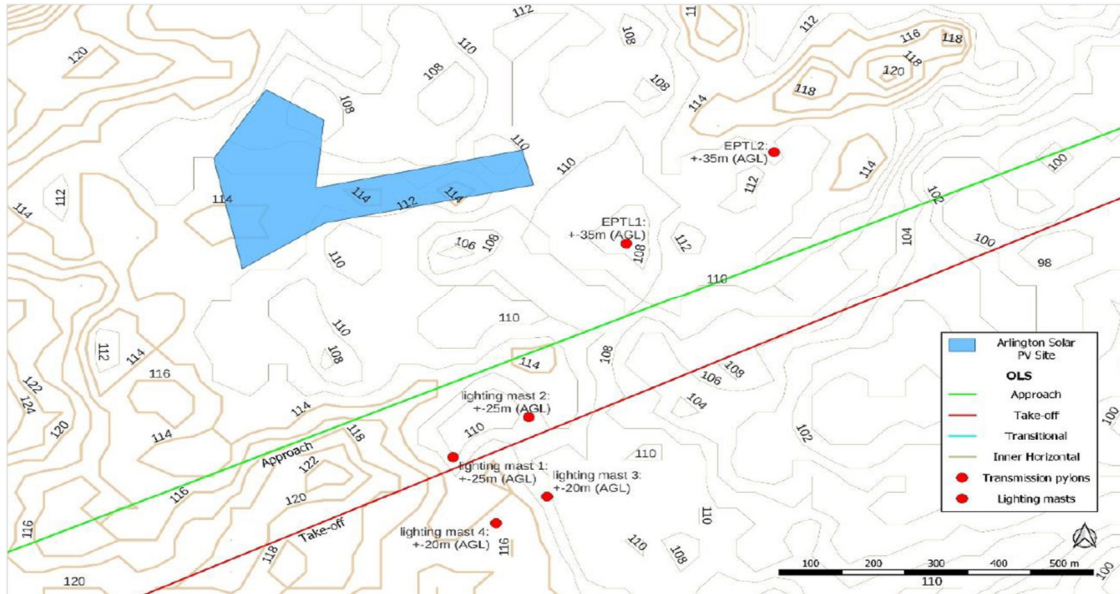


Figure 76: AIP and other obstacles within the vicinity of the proposed PV development



Figure 77: AIP and other obstacles within the vicinity of the proposed PV development

**NOTE:** Given the nature of the terrain surrounding the proposed PV development, as well as the obstacles indicated in the AIP, and others, allows for the shielding principle to potentially be applied to the proposed PV development. Airport Services Manual (Doc 9137), Part 6, 2.9, allows for circumstances in which the shielding principle may reasonably be applied.

**NOTE:** Annex 14 Vol 1, 4.2.20 also allows the appropriate authority to apply the shielding principle:

**Recommendation.** - New objects or extensions of existing objects should not be permitted above the conical surface and the inner horizontal surface except when, in the opinion of the appropriate authority, an object would be shielded by an existing immovable object, or after aeronautical study it is determined that the object would not adversely affect the safety or significantly affect the regularity of operations of aeroplanes

### 13.11.6 Visual Aids for Denoting Obstacles

#### 13.11.6.1 Purpose

The marking and/or lighting of obstacles are intended to reduce hazards to aircraft by indicating the presence of the obstacles. It does not necessarily reduce operating limitations which may be imposed by an obstacle.

Aeronautical Ground Lighting (AGL) provides flight crew with location, orientation and alignment information in adverse visibility conditions and at night. Below is an example of a Precision Approach Path Indicator (PAPI), as used by the pilot during final approach to land. The units are normally installed on the left hand side of the runway, viewed from the approach; a right hand installation is permitted if it is not practicable to position them on the left or if a second set is required.

#### **These are protected by:**

- Preventing them from being obscured.
- Preventing the installation and display of other lights, particularly street lighting, in a pattern or colour which could be mistaken for visual aids.
- Preventing a high level of background lighting which could diminish their effectiveness.
- Preventing other lights which could confuse pilots.

All structures and buildings in and around an airport, treated as an obstacle, shall be clearly marked and identified in accordance with the requirements of ICAO Annex 14, Chapter 6.

### 13.11.7 PANS-OPS Evaluation

No PANS-OPS Assessment was performed for this report.

### 13.11.8 Summary

#### 13.11.8.1 ICAO ANNEX 14 OBSTACLE LIMITATION SURFACES

- This report contains the details of the ICAO Annex 14 obstacle limitation surfaces with consideration for the proposed Arlington solar PV development located approximately 1.5NM (2.8km) west of Chief Dawid Stuurman International airport, Eastern Cape, South Africa.
- The proposed Arlington solar PV development lies within the Inner Horizontal surface of the FAPE OLS, which is the controlling surface.
- As such any structures within the proposed Arlington solar PV development should not exceed the maximum elevation of 101m AMSL in order to remain clear of the FAPE ICAO Annex 14 Obstacle Limitation Surfaces.
- Given the nature of the terrain surrounding the proposed PV development, as well as the obstacles indicated in the AIP for FAPE, Annex 14 Vol 1, 4.2.20 allows for the appropriate authority to potentially apply the shielding principle to the proposed PV development.
- The Appendix A attached to the ICAO Annex 14 Obstacle Limitation Surface Report.

### 13.11.9 Certification

This completes the ICAO Annex 14 obstacle limitation surfaces (OLS) report with consideration for the proposed Arlington solar PV development located approximately 1.5NM (2.8km) west of Chief Dawid Stuurman International airport, Eastern Cape, South Africa.

## 13.12 Visual Impact Assessment

Blue Leaf Environmental (Pty) Ltd (Blue Leaf) was appointed to conduct the Visual Impact Assessment as part of a NEMA EIA application for the proposed Arlington Mixed-use Development located in Port Elizabeth, Eastern Cape Province (attached as Appendix **C13**).

### 13.12.1 Methodology

This report has been drafted in accordance 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 NEMA (G.NR. 1150 of 2020) – Site Sensitivity Verification Requirements where a Specialist Assessment is Required but no Specific Assessment Protocol has been prescribed. Appendix 6 of Government Notice Regulation 326 of 7 April 2017 outlines the basic requirements of a Specialist Report.

The Report further adheres to the criteria outlined by the Department of Environmental Affairs and Development Planning (DEA&DP) Guideline for Involving Visual and Aesthetic Specialists in the Environmental Impact Assessment (EIA) process (the DEA&DP Guidelines) (Oberholzer, 2005), which recommends that the following concepts underpin the visual evaluation of the project proposals:

- Understand that '*visual*' implies the full range of visual, aesthetic, cultural and spiritual aspects of the environment, which together contribute to the local character and sense of place.

- Understand that '**impact**' means a noticeable change to the status quo when perceived under normal conditions and this change is not necessarily negative or positive but may contain aspects of both.
- Identify all significant **scenic resources**, including protected areas, scenic drives, sites of special interest and tourist destinations, together with their relative importance within the region.
- Understand the dynamic **landscape processes**, including geological, biological, horticultural, and human settlement patterns, which contribute to landscape character, visual attributes and scenic amenity value.
- Include both **quantitative criteria**, such as visibility, **and qualitative criteria**, such as aesthetic value or sense of place to achieve a balanced perception of visual impact.
- Include **visual input** as an integral part of the project planning and design process, to ensure that the visual findings and recommended measures for mitigation can influence the final design pro-actively, and
- Determine the **value and significance of visual and aesthetic resources** responsibly through a rigorous process, of which participatory public engagement forms an essential component.

To meet these requirements, the following methodology was applied:

1. All the required data were collected, which included data on topography, existing visual character, and quality, plans of the proposed development and other background information.
2. Fieldwork was conducted on the 8 March 2023. The objectives of the fieldwork were to:
  - familiarize the author with the site and its surroundings.
  - to identify key viewpoints/ corridors and visual receptors.
  - ground truth the sensitivity of the landscape, and
  - determine the distance from which visual impacts are likely to become discernible.
3. Landscape characterization was done by mapping the site location and context and describing the landscape character and quality. This considered geological and topographical features, vegetation, and land-use.
4. The landscape quality was described as per the following criteria. Visual quality is high when:
  - The landscape offers dramatic, rugged topography and /or visually appealing water forms are present.
  - Pleasing, dramatic or vivid patterns and combinations of landscape features and vegetation are found.
  - The landscape is without visually intrusive or polluting urban, agriculture or industrial development (i.e.it reveals a high degree of integrity), and/or
  - Outstanding or evocative features and landmarks are present, and
  - The landscape/townscape can convey meaning.
5. Visual sampling was undertaken using photography from several viewpoints in a 10 km radius of the site. The location of the viewpoints was recorded with a GPS and mapped on Google Earth Pro and photographs were taken at a depth of field between 45-55mm. A selection of these is used in the assessment phase of the VIA to illustrate the likely zone of influence and visibility.
6. The zone of influence was determined. The visual zone of influence (viewshed) is defined as the area, including all the major observation sites, from which the proposed activities will be visible. This area varies for each visual intrusion or impact.



7. ArcGIS Spatial Analyst extension was used to calculate the viewshed making use of a 20m contour interval SRTM Digital Elevation Model (DEM) as the input raster.
8. Visual concerns and potential impacts were identified.
9. The potential magnitude of visual impacts was evaluated using the standard VIA criteria and rating methodologies.
10. Potential visual impacts were assessed, for each impact, the extent (spatial scale), magnitude (severity of impact) and duration (time scale) is described. These criteria are then considered to ascertain the significance of the impact, firstly in the case of no mitigation and then with the implementation of mitigation measures.

### 13.12.2 Objectives

- Identification of issues and values relating to visual, aesthetic, and scenic resources through involvement of I&APs and the public.
- Identification of landscape types, landscape character and sense of place, generally based on geology, landforms, vegetation cover and land use patterns.
- Identification of viewsheds, view catchment area and the zone of visual influence, generally based on topography.
- Identification of important viewpoints and view corridors within the affected environment, including sensitive receptors.
- Indication of distance radii from the proposed project to the various viewpoints and receptors.
- Determination of the visual absorption capacity (VAC) of the landscape, usually based on topography, vegetation cover or urban fabric in the area.
- Determination of the relative visibility, or visual intrusion, of the proposed project.
- Determination of the relative compatibility or conflict of the project with the surroundings, and
- A comparison of the existing situation with the probable effect of the proposed project, through visual simulation, generally using photomontages.

### 13.12.3 Assumptions and Limitations

1. This report is based on background information provided by JG Africa and is assumed to be accurate and representative of the project.
2. Determination of the viewshed does not consider vegetation and built structures. It therefore represents an exaggerated visibility and can be considered the maximum theoretical area from which the proposed development may be visible.
3. Comments and concerns pertaining to visual issues from interested and affected parties (I&APs) have not yet been tabulated and will be considered if required.

### 13.12.4 Approach to the VIA

As per Oberholzer (2005), the category of development influences the level of visual impact to be expected. As is illustrated in **Table 35** below, a multiple-use development is considered a category four development.

*Table 35: Key to categories of development (Oberholzer, 2005)*

<p><b>Category 1 development:</b> e.g. nature reserves, nature-related recreation, camping, picnicking, trails and minimal visitor facilities.</p> <p><b>Category 2 development:</b> e.g. low-key recreation / resort / residential type development, small-scale agriculture / nurseries, narrow roads and small-scale infrastructure.</p> <p><b>Category 3 development:</b> e.g. low-density resort / residential type development, golf or polo estates, low to medium-scale infrastructure.</p> <p><b>Category 4 development:</b> e.g. medium density residential development, sports facilities, small-scale commercial facilities / office parks, one-stop petrol stations, light industry, medium-scale infrastructure.</p> <p><b>Category 5 development:</b> 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, largescale infrastructure generally. Large-scale development of agricultural land and commercial tree plantations. Quarrying and mining activities with related processing plants.</p>
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**Table 36** below indicates that VIAs become less critical where small-scale development in a high-density urban area where there are areas of medium scenic, cultural, or historic value.

*Table 36: Categorization of issues to be addressed by the visual assessment.*

Type of environment	Type of development (see Table 4.1)				
	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

Based on the above, moderate visual impact is expected. The proposed development is considered a low-key development, similar in nature to existing development in the area. A potentially low level of intrusion is expected on landscapes or scenic resources with limited change in the visual character of the area. There

will not be a particularly noticeable change within the view of frame and experience of the receptor.

Based on the above considerations, the approach adopted for the Arlington VIA is that prescribed for a development or activity where a minimal visual impact is expected. According to Oberholzer (2005), this will require a **Level 3 Visual Assessment**

Approach	Type of issue (see Table 36)				
	Little or no visual impact expected	Minimal visual impact expected	Moderate visual impact expected	High visual impact expected	Very high visual impact expected
Level of visual input recommended	Level 1 visual input	Level 2 visual input	Level 3 visual assessment	Level 4 visual assessment	

A Level 3 Visual Assessment consist of the following main elements:

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

### 13.12.5 Visual Assessment of the Site

The DEA&DP Guideline (Oberholzer (2005) for involving visual & aesthetic specialists in EIA processes provides several criteria that relate specifically to Visual Study namely:

1. Visibility of the project.
2. Visual exposure.
3. Visual sensitivity of the area.
4. Visual sensitivity of receptors.
5. Visual Absorption Capacity (VAC), and
6. Visual Intrusion.

The proposed project was assessed against these criteria to determine a sensitivity to the visual environment. Each criteria are discussed below:

#### 13.12.5.1 Visibility of the Project

The geographical area from which the project will theoretically be visible, or view catchment area, is dictated primarily by topography, and is often related to the catchment area of a river(s) and its watershed. Theoretically, the site could be seen from afar as it is located on a flattened low undulating landscape. This is clearly seen in the Viewshed developed for this project (**Figure 78**).

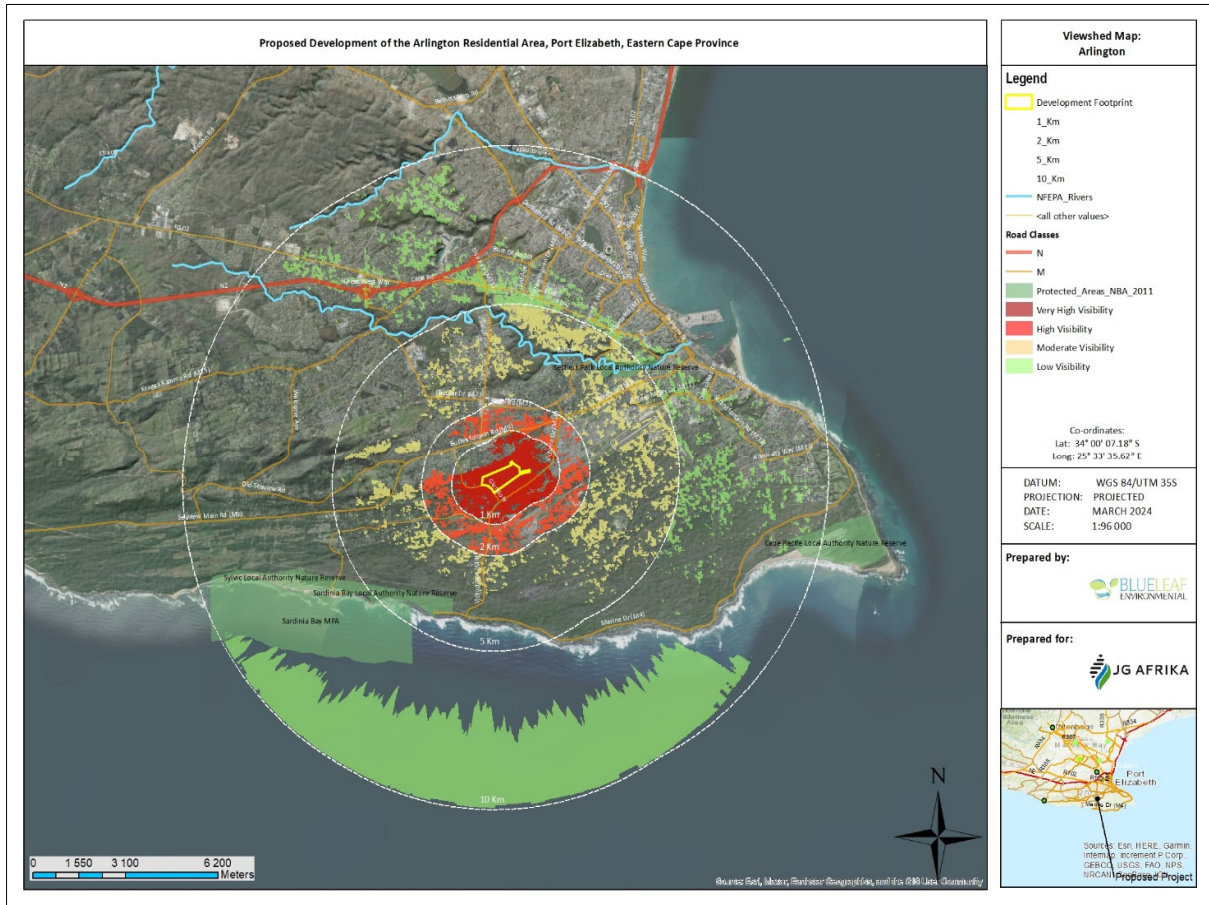


Figure 78: Viewshed for the proposed Arlington development in Walmer.

However, distance, infrastructure, vegetation, and topography will reduce the actual zone of visual influence that the site and project will have, to a much smaller area.

**Zone of Visual Influence**

The site is situated on a coastal slope within urban areas of the city of Gqeberha. The highest visibility will therefore be within the first 5 km of the site where the proposed development can be partially seen provided there is no screening of vegetation and buildings. After that the visibility declines. Various roads and dwellings also occur in the surrounding environment including multistorey buildings, houses, roads, businesses and shops, telephone masts, lamp poles, tall trees, and dense coastal thickets (vegetation).

**13.12.5.2 Visual Receptors**

The level of visual impact considered acceptable, as is dependent on the type of receptors within the surrounding environment:

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

Highly sensitive receptors of the site include residential within the first 2 km of the site. Various moderate sensitivity receptors like businesses, residential houses, sports areas, and places of work are also scattered throughout up to 5 km away. High residential areas like Walmer Heights and Pari Park occur to the north of the site while low residential and open landscapes are common in the south. Various streets surround the site including Victora Drive located 280 m to the south and Glendore Road located on the western boundary of the site.

### 13.12.5.3 Visual Exposure

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

Within the Zone of Visual Influence - view corridors, viewpoints and receptors will experience “Visual Exposure” to the site and proposed expansion. Based on distance from the project to selected view corridors, viewpoints, or receptors, the ‘visual exposure’ or visual impact tends to diminish exponentially with distance.

The combined result of the viewshed analysis for the proposed Arlington development shows the viewshed of the site and surroundings (**Figure 78** above). The visibility analysis was undertaken at an average building height of sixteen meters (16 m), to simulate the view from building tops and to indicate prominence of the structures within the landscape. Furthermore, **Figure 78** indicates proximity radii from the proposed Arlington development as a reference to determine the Visual Absorption Capacity (VAC). It must be noted that the Digital Terrain Model (DTM) utilized from the viewshed analysis does not include the effect of vegetation cover and built structures. These features may influence visual exposure to some degree.

#### **0 km – 1 km (short distance)**

Within the short distance zone, the visual impact is high in all areas. The proposed development will be highly visible over the first hundred meters (100 m) from where the visual impact will be permanent. The area in question consists mainly of dense urban residential development. The proposed development will be visible along Glendore Road as illustrated by Viewpoint 1 situated on the western boundary of the site (0-10 m), from the traffic circle at Victoria Drive as illustrated by Viewpoint 2 (400 m), and from the residences along Beethoven Road located on the northern boundary of the site (0-100m) as illustrated by Viewpoint 3.

#### **1 km – 2 km (short to medium distance)**

Within the short to medium distance zone the visual impact is considered as high in most areas although all these areas are screened by urban buildings or dense and high trees. A single Viewpoint (point 4) was identified at the entrance to the Algoa Kart and Motorcycle Club (1.2 km) located to the southwest. Screened visual receptors include Victoria Drive, Sardinia Bay Road and Skoenmakerskop.

#### **2 km – 5 km (medium to long distance)**

Within the medium to long-distance zone the visual impact is heavily diluted by natural landscape screening. This includes vegetation, houses, and topography. A single Viewpoint (point 5) was identified at the entrance to the Plantation along Sardinia Bay Road (3 km) located to the south-southwest. The low visual impact is assigned due to the dense vegetation cover of the study area which results in a high landscape compatibility. Except for the vantage point discussed no further visual impact will occur within the medium to long-distance zone given the dense vegetation cover of the study area coupled with the

undulating topography thereof.

#### **Greater than 5 km (long-distance)**

Visibility beyond five kilometers (5km) from the proposed Arlington development is expected to be negligible due to the distance between the object and the observer. As per the viewshed analysis the proposed development may be visible within the long-distance zone from Sappers Hoek shown by Viewpoint 6 which is situated just over 5 km to the south. Within the long-distance zone the VAC is predominantly influenced by the dense vegetation cover and undulating topography of the study area.

#### ***13.12.5.4 Visual Sensitivity***

The inherent visibility of the sites' landscape is usually determined by a combination of topography, landform, vegetation cover, settlement pattern and special features. This translates into visual sensitivity.

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

A desktop exercise was undertaken whereby each of topography, landform, vegetation cover, settlement patterns and special features was mapped for the site and rated from low to high. These maps are overlaid, and the combined areas are assimilated to provide an overall sensitivity (see **Figure 79**).

#### **Vegetation**

According to the 2018 SANBI Vegetation map the site is covered by two vegetation types namely **Algoa Sandstone Fynbos** and **Sardinia Forest Thicket**.

**Algoa Sandstone Fynbos** occurs on moderately undulating plains and undulating hills supporting vegetation composed of low, medium dense graminoid, dense cupressoid-leaved shrubland, dominated by renosterbush. There are both grassland and shrubland forms of the renosteveld present, probably depending on grazing and fire regimes. Thicket patches are common on termitaria (heuweltjies are absent) and in fire-safe enclaves. Vegetation is dominated by *Aspalathus nivea* in the post-fire, early seral stages.

A site visit confirmed that alien and invasive vegetation dominate the landscape, both within the study site and in the surrounding landscape.

#### **Topography**

Topography refers to the form and structure of a landscape. The terrain is characterized by even topography with a slight slope from the north-east to the south-west towards a watercourse that drains into a dam at the southwestern corner of the site. The average gradient is  $\pm 6\%$ .

#### **Screening Report**

The screening report does not classify the sensitivity of the visual environment. It does, however, list the study as one of the required specialist studies that must be conducted as part of the BAR process for the proposed project. The aim of this report is to determine sensitivity allocations through a detailed analysis

and site verification as per GN R 320 of 2020 (Protocol for the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on the General Environment).

### **Visual Sensitivity**

The visual sensitivity of the site is categorized as medium sensitivity. This is because the site is located on a relatively flat coastal plateau with the potential of high visual intrusion over long distances. The northern surroundings of the study site are densely developed urban areas with mostly single storey buildings while the south of the site is less densely populated. The landscapes as well as vegetation cover screens the surrounding areas from the development site with high visual intrusion occurring mostly within the first 2 km's from the site.

#### *13.12.5.5 Visual Absorption Capacity*

Visual Absorption Capacity (VAC) is the potential of the landscape to conceal the proposed project. VAC can be described as:

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

The VAC of a landscape depends on its topography and on the type of vegetation that occurs in the landscape. The size and type of the development also plays a role. Various viewpoints were identified within a 5 km radius of the site (**Figure 79**). The VAC of each viewpoint was determined as per the above criteria.

#### *13.12.5.6 Visual Intrusion*

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

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

The site has an overall low visual intrusion as the proposed development will blend in well with the existing surroundings. Various viewpoints were identified within a 10 km radius of the site (**Figure 79**). The visual intrusion of each viewpoint was determined as per the above criteria.

#### *13.12.5.7 Visual Receptors*

Visually receptors are locations or areas where people may have a significantly increased visual sensitivity or exposure to changes in the surrounding environment. **Figure 79** below indicates all potential visual receptors within 5 km of the proposed Arlington development.

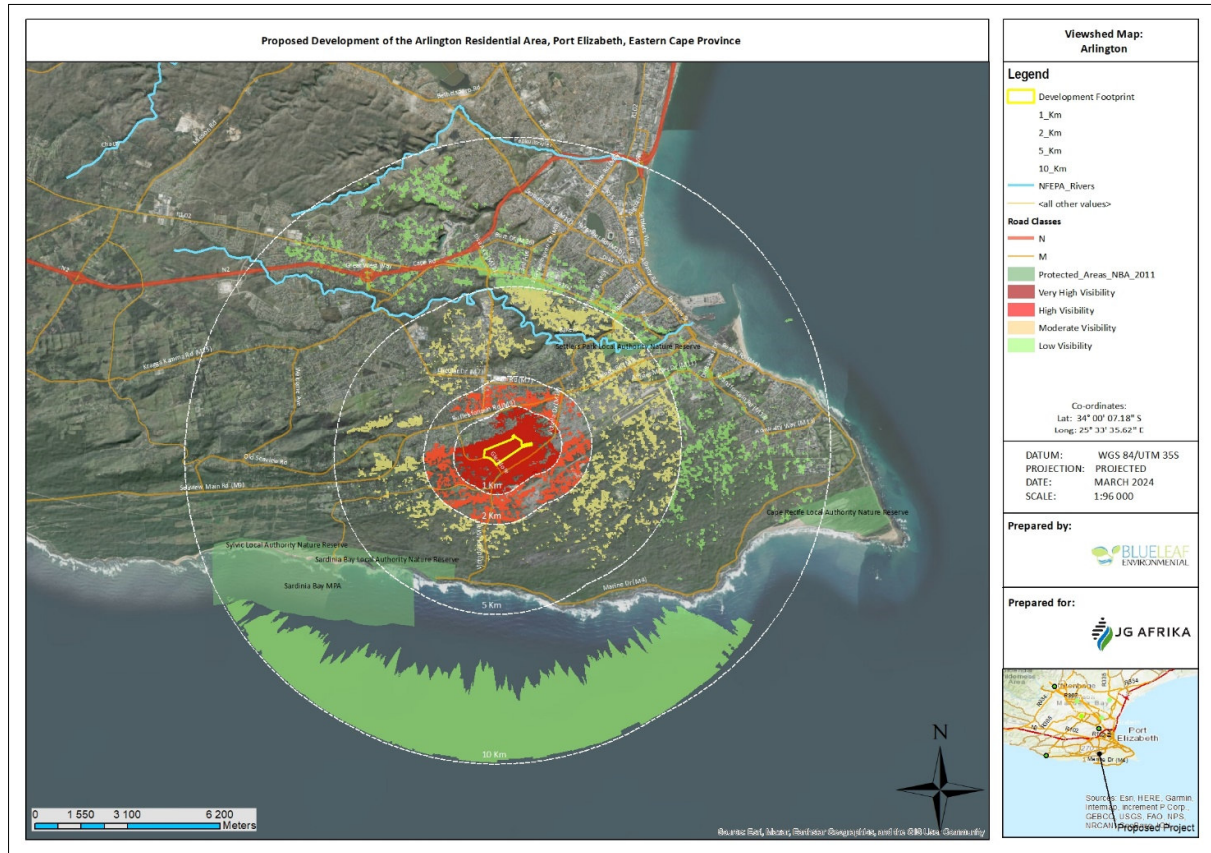




Figure 79: Locations of identified viewpoints


Below is a tabulated discussion of each viewpoint:




Viewpoint 1 - <del>Glendore Road</del>	Coordinates: -34°-0.382'S; 25°-33.396'E
Distance from site boundary: 0--20-m	Direction from site: West
	
High visual exposure	High sensitive visual impact
High visual sensitivity	Low VAC
Moderate visual intrusion	Low visual impact
<p><del>Glendore Road is immediately adjacent to the project site and will be clearly visible in places. Some large trees do screen the site, even at very close range. A high visual impact is assigned as the new development will stand out in the landscape. The visual impact will be permanent.</del></p>	

<b>Viewpoint 2—Victoria Drive</b>	Coordinates: 34°-0.385'S; 25°-33.842'E
Distance from site boundary: 380-m	Direction from site: South
	
Moderate visual exposure	High sensitive visual impact
High visual sensitivity	Moderate VAC
Moderate visual intrusion	Low visual impact
<p>Victoria Drive is immediately south of the study site and will be clearly visible in places. It is a busy road connecting Skoenmakerskop with the rest of Gqeberha. Some large trees do screen the site. A low visual impact is assigned as the development will blend in with the landscape. The visual impact will be permanent.</p>	

Viewpoint 3—Residential houses along Beethoven Drive	Coordinates: 33°59.984'S; 25°33.576'E
Distance from site boundary: 0--100 m	Direction from site: North
	
High visual exposure	High sensitive visual impact
High visual sensitivity	Low VAC
High visual intrusion	High visual impact
Beethoven Drive is a road connecting residential houses along the northern boundary of the site. The entire site can be seen from the houses on the southern line of the road. Sensitivity is high with little to no screening (low VAC).	

Viewpoint 4—Entrance to Algoa Kart Racetrack	Coordinates: 34°-0.808'S; 25°-33.311'E
Distance from site boundary: 800-m	Direction from site: Southwest
	
Low visual exposure	High sensitive visual impact
Low visual sensitivity	High VAC
Low visual intrusion	No visual impact
No visual impact will occur from this vantage point given the high VAC of the viewpoint. The VAC is predominantly influenced by dense vegetation cover.	

Viewpoint 5—Along Sardinia Bay Road near The Plantation	Coordinates: 34° 0.792'S; 25° 32.417'E
Distance from site boundary: 1.5 km	Direction from site: Southeast
	
Low visual exposure	High sensitive visual impact
Low visual sensitivity	High VAC
Low visual intrusion	No visual impact
No visual impact will occur from this vantage point given the high VAC of the viewpoint. The VAC is predominantly influenced by dense vegetation cover.	

<b>Viewpoint-6</b> —Sappers-Hoek	Coordinates:-34°-2.401'S;-25°-32.801'E
Distance-from-site-boundary:-5-km	Direction-from-site:South-southwest
	
Low-visual-exposure	<u>High-sensitive-visual-impact</u>
Low-visual-sensitivity	<u>High-VAC</u>
Low-visual-intrusion	<u>No-visual-impact</u>
No-visual-impact-will-occur-from-this-vantage-point-given-the-high-VAC-of-the-viewpoint. The-VAC-is-predominantly-influenced-by-dense-vegetation-cover.	

### 13.12.6 Potential Impacts

#### 13.12.6.1 *Impact Assessment Methodology*

The assessment of visual impacts is based on a synthesis of criteria including nature of impact, extent, duration of the impact, intensity, probability of occurrence, reversibility, Irreplaceable loss of resources, cumulative effect, and level of significance.

#### 13.12.6.2 *Nature of Impacts*

The following impacts have been identified:

##### **Construction Phase**

- The movement of construction vehicles, machinery and personnel on site shall result in a visual impact on surrounding users.
- The excavation and construction of infrastructure shall result in disturbance and an unsightly character.

##### **Operational Phase**

- The development of the proposed development will cause a visual intrusion to observers within a 1 km radius from the proposed development.
- The development of the proposed development will cause a visual intrusion to observers within a 2 km radius from the proposed development.

### 13.12.7 Summary of Impacts

**Table 37** summarizes each visual impact identified and its respective ratings for each criteria:

*Table 37: Summary of each visual impact identified and its respective ratings for each criteria.*

Impacts identified	Alternative	Mitigation	Criteria						
			Extent of impact	Magnitude of impact	Duration of impact	Significance	Probability	Confidence	Reversibility
<b>Construction phase</b>									
Movement of construction vehicles	Alternative 1	Without mitigation	Site specific	High	Construction period	High	Definite	Certain	Reversible
		With mitigation	Site specific	High	Construction period	High	Definite	Certain	Reversible
Excavation and construction of infrastructure	Alternative 1	Without mitigation	Site specific	High	Construction period	High	Probable	Certain	Reversible
		With mitigation	Site specific	High	Construction period	High	Probable	Certain	Reversible
<b>Operational phase</b>									
Visual intrusion to observers within a 1 km radius	Alternative 1	Without mitigation	Site specific	High	Permanent	High	Definite	Certain	Irreversible
		With mitigation	Site specific	High	Permanent	High	Definite	Certain	Irreversible
	Alternative 1	Without mitigation	Site specific	Medium	Permanent	Medium	Definite	Certain	Irreversible
		With mitigation	Site specific	Medium	Permanent	Medium	Definite	Certain	Irreversible
Visual intrusion to observers within a 2 km radius	Alternative 1	Without mitigation	Site specific	High	Permanent	High	Definite	Certain	Irreversible
		With mitigation	Site specific	High	Permanent	High	Definite	Certain	Irreversible
	Alternative 1	Without mitigation	Site specific	Medium	Permanent	Medium	Definite	Certain	Irreversible
		With mitigation	Site specific	Medium	Permanent	Medium	Definite	Certain	Irreversible
		With mitigation	Local	Low	Permanent	Very low	Definite	Certain	Irreversible



### 13.12.8 Mitigations

Several mitigation measures can be recommended to reduce the potential visual impact and visual intrusion potential of the proposed Arlington development. The development will bring landscape change to the parts of the landscape in the areas from which it is able to be viewed and this factor can be partly mitigated.

The following mitigations are proposed during the construction phase of the proposed Arlington development:

#### 13.12.8.1 *Movement of Construction Vehicles*

Lighting at the plant could potentially exert a visual impact, especially if floodlight-type lighting is used. The following mitigation measures should be implemented with regards to lighting:

- Schedule the movement of construction vehicles and machinery so that they do not interfere with the normal working operations of the town.
- Only work during daylight time (06h00 to 17h00, Monday to Friday).
- Schedule deliveries so that delivery vehicles do not cause an unnecessary nuisance and so that the number of delivery vehicles is limited as far as possible.

#### 13.12.8.2 *Excavation and Construction of Infrastructure*

- Prohibit excessive signage outside the construction area.
- Keep construction camp lighting to a minimum and prevent the use of flood type lighting as far as possible.
- Ensure that the site is kept neat and clean. Collect and dispose of litter appropriately to prevent any potential wind-blown litter on or off the site.
- Limit site clearing to within the minimum footprint required for construction.
- Retain existing trees along the boundaries of the property where possible.
- Rehabilitate areas as soon as possible following construction.
- Ensure working occur during daylight hours (08h00-17h00) and on weekdays only.

The following mitigations are proposed during the operational phase of the proposed Arlington development:

#### 13.12.8.3 *Visual Intrusion to Observers within a 1km, 2km, 5km and 10km radius*

- Mitigation to minimize lighting impacts include the following:
  - Shielding the sources of light by physical barriers (walls, vegetation, or structures itself).
  - Limit mounting heights of lighting fixtures, or alternatively using footlights or bollard level lights.
  - Make use of downward directional lighting fixtures.
  - Make use of minimum lumen or wattage in lights, and
  - Use motion sensors to activate lighting ensuring light is available when needed.
- Rehabilitation and post-closure measures:
  - All temporary above-ground structures should be removed, safely disposed of, or possibly recycled for use elsewhere.

#### 13.12.8.4 Conclusion and Recommendations

The proposed development will be highly visible over the first km from where the visual impact will be permanent. The immediate surrounding area consists of a residential development with retail and businesses especially to the north. The visual impact will be permanent from all identified viewpoints, especially existing roads. The proposed development will be visible along Glendore Road and Victoria Drive as illustrated by viewpoints 1 and 2 while it will only be partially seen further away up to 2 to 3 kms. Greater distances are screened by vegetation, topography and existing urban infrastructure and will be indistinguishable from the surrounding built environment. A low visual impact is assigned given the high VAC.

## 14 IMPACT ASSESSMENT AND MITIGATION

According to Appendix 3, Section 3 (1), of the 2014 EIA Regulations (as amended in 2017) an Environmental Impact Assessment Report must include the following:

***“(h) a full description of the process followed to reach the proposed development footprint within the approved site as contemplated in the accepted scoping report, including:***

*(v) the impacts and risks which have informed the identification of each alternative, including the nature, significance, consequence, extent, duration and probability of such identified impacts, including the degree to which these impacts—*

*(aa) can be reversed;*

*(bb) may cause irreplaceable loss of resources; and*

*(cc) can be avoided, managed or mitigated;*

*(vi) the methodology used in determining and ranking the nature, significance, consequences, extent, duration and probability of potential environmental impacts and risks;*

*(vii) positive and negative impacts that the proposed activity and alternatives will have on the environment and on the community that may be affected focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects;*

*(viii) the possible mitigation measures that could be applied and level of residual risk.*

***(i) a full description of the process undertaken to identify, assess and rank the impacts the activity and associated structures and infrastructure will impose on the preferred development footprint on the approved site as contemplated in the accepted scoping report through the life of the activity, including—***

*(i) a description of all environmental issues and risks that were identified during the environmental impact assessment process; and*

*(ii) an assessment of the significance of each issue and risk and an indication of the extent to which the issue and risk could be avoided or addressed by the adoption of mitigation measures;*

***(j) an assessment of each identified potentially significant impact and risk, including—***

*(i) cumulative impacts;*

*(ii) the nature, significance and consequences of the impact and risk;*

*(iii) the extent and duration of the impact and risk;*

(iv) the probability of the impact and risk occurring;  
 (v) the degree to which the impact and risk can be reversed;  
 (vi) the degree to which the impact and risk may cause irreplaceable loss of resources; and  
 (vii) the degree to which the impact and risk can be mitigated."

#### 14.1 Methodology for Identifying and Ranking Impacts

Prior to the ranking or rating of impacts, the impacts must first be categorised into positive or negative impacts and as well as direct, indirect or cumulative impacts (**Table 38**).

*Table 38: Nature and Type of Impact*

Criteria	Categories		Explanation
<b>Nature</b>	Negative		Negative impact on affected biophysical or human environment
	Positive		Benefit to the affected biophysical or human environment.
<b>Type</b>	Direct		Are caused by the action and occur at the same time and place.
	Indirect		Are caused by the action and are later in time or farther removed in distance but are still reasonably foreseeable. May include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems.
	Cumulative		The impact on the environment, which results from the incremental impact of the action when added to other past, present and reasonably foreseeable future actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.
<b>Extent (E)</b>	Local	1	Extends to the site and its immediate surroundings.
	Regional	2	Impact on the region but within the province.
	National	3	Impact on an interprovincial scale.
	International	4	Impact outside of South Africa
<b>Duration (D)</b>	Short Term	1	0–2 years
	Medium-term	2	2-5 years
	Long-term	3	5-10 years

	Permanent	4	Mitigation is either by natural process or by human intervention, will not occur in such a way or in such a time span that the impact can be considered transient.
<b>Severity (S)</b>	Negative		Based on separately described categories examining whether the impact is destructive or benign, whether it destroys the impacted environment, alters its functioning or slightly alters the environment itself. <b>0</b> - small and will have no meaningful effect on the environment; <b>2</b> - minor and will not result in an impact on processes; <b>4</b> - low and will cause a slight impact on processes; <b>6</b> - moderate and will result in processes continuing but in a modified way; <b>8</b> - high (processes are altered to the extent that they temporarily cease); <b>10</b> - very high and results in complete destruction of patterns and permanent cessation of processes.
	Positive		
<b>Reversibility (R)</b>	Completely Reversible (0)		The impact can be completely reversed with the implementation of correct mitigation and rehabilitation measures.
	Partly Reversible (0.5)		The impact can be partly reversed providing mitigation measures are implemented and rehabilitation measures are undertaken.
	Irreversible (1)		The impact cannot be reversed, regardless of the mitigation or rehabilitation measures.
<b>Irreplaceable Loss (I)</b>	Resource will not be lost (0)		The resource will not be lost or destroyed provided mitigation and rehabilitation measures are implemented.
	Resource may be partly destroyed (0.5)		Partial loss or destruction of the resource will occur even though all management and mitigation measures are implemented.
	Resource cannot be replaced (1)		The resource cannot be replaced no matter which management or mitigation measures are implemented.
<b>Probability of Occurrence (P)</b>	Unlikely (1)		<40% probability. Very improbable (probably will not happen).
	Possible (2)		40% probability. Improbable (some possibility, but low likelihood).
	Probable (3)		>70% probability. Probable (distinct possibility).
	Highly Probable (4)		>80%. Highly probable (most likely).
	Definite (5)		>90% probability. Definite (impact will occur regardless of any prevention measures).

<b>Mitigation Potential (the ability to manage or mitigate an impact given the necessary resources and feasibility of application)</b>	High	Relatively easy and cheap to manage. Specialist expertise or equipment is generally not required. The nature of the impact is understood and may be mitigated through the implementation of a management plan or through 'good housekeeping'. Regular monitoring needs to be undertaken to ensure that any negative consequences remain within acceptable limits. The significance of the impact after mitigation is likely to be low or negligible.
	Medium	Management of this impact requires a higher level of expertise and resources to maintain impacts within acceptable levels. Such mitigation can be tied up in the design of the Project. The significance of the impacts after mitigation is likely to be low to moderate. May not be possible to mitigate the impact entirely, with a residual impact(s) resulting.
	Low	Will not be possible to mitigate this impact entirely regardless of the expertise and resources applied. The potential to manage the impact may be beyond the scope of the Project. Management of this impact is not likely to result in a measurable change in the level of significance

The impact significance rating is calculated using the following basic formula:

$$\text{Impact Significance} = (D+E+R+S+I) \times P$$

Based on the total, an impact significance rating is then assigned to each impact for both pre- and post-mitigation significance (**Table 39**). The EAP, as well as the specialists utilising this impact assessment methodology, may choose to amend the overall significance based on certain other factors that are not accounted for the methodology.

*Table 39: Impact Significance Table*

<b>Impact Significance</b>	<b>Negligible (0-22)</b>	Risk/impact may result in very minor alternations of the environment and can easily be avoided by implementing appropriate mitigation measures and will not have an influence on decision-making.
	<b>Low (&gt;22 ≤ 45)</b>	Risk/impact may result in very minor alternations of the environment and can easily be avoided by implementing appropriate mitigation measures and will not have an influence on decision-making.
	<b>Medium (&gt;45 ≤ 68.5)</b>	Risk/impact will result in moderate alternation of the environment and can be reduced or avoided by implementing appropriate mitigation measures and will only have an influence on decision-making if not properly mitigated.

	<b>High (&gt;68.5 ≤ 90)</b>	Risk/impact will result in high alternation of the environment even with the implementation of appropriate mitigation measures and will have an influence on decision-making.
	<b>Very High (&gt;90 - 105)</b>	Risk/impact will result in major alternation of the environment even with the implementation of appropriate mitigation measures and will have an influence on decision-making.

## 14.2 Precautionary Principle

The significance scoring follows the Precautionary Principle. The Precautionary Principle is based on the following statement: *“When the information available to an evaluator is uncertain as to whether or not the impact of a proposed development on the environment will be adverse, the evaluator must accept as a matter of precaution, that the impact will be detrimental. It is a test to determine the acceptability of a proposed development. It enables the evaluator to determine whether enough information is available to ensure that a reliable decision can be made”.*

In addition, the Applicant is obliged to adhere to the requirements of Section 28 of the NEMA (Duty of Care and Remediation of Environmental Damage) which states that: *“Duty of care and remediation of environmental damage: “(1) Every person who causes has caused or may cause significant pollution or degradation of the environment must take reasonable measures to prevent such pollution or degradation from occurring, continuing or recurring, or, in so far as such harm to the environment is authorised by law or cannot be reasonably be avoided or stopped, to minimise and rectify such pollution or degradation of the environment”.*

## 14.3 Impacts Associated with the Development

The following potential environmental impacts have been identified by the EAP and have been investigated during the application process:

- Permanent Loss of Indigenous Vegetation (Construction Phase).
- Spreading of Alien Invasive Plant Species (Construction Phase).
- Erosion as a result of construction related disturbances (Construction Phase).
- Contamination & Pollution Impact (Construction Phase).
- Dust & Noise Impact (Construction Phase).
- Faunal Impact – Loss of Habitat (Construction Phase and Operational Phase).
- Disturbance to Avifauna (Construction Phase).
- Loss of Avifauna Habitat (Construction Phase).
- Disturbance to Avifauna (Operational Phase).
- Contamination of the area by petrochemical spillages (Construction Phase).
- Loss of Heritage Resources (Construction Phase).
- Socio-Economic Impact – Demographic Changes (Influx of Jobseekers) (Construction Phase and Operational Phase).

- Institutional Changes Impact – Pressure on Existing Public Services (Construction Phase and Operational Phase).
- Economic Impact – Local Economical Spin Offs (Construction Phase and Operational Phase).
- Socio-cultural Changes Impact – Employment Opportunities (Construction Phase and Operational Phase).
- Skills development and Capacity building of workers and local SMMEs (Construction Phase and Operational Phase).
- Disruption in daily living and movement patterns (Construction Phase and Operational Phase).
- Health and Safety Risks for Workers and Surrounding Community (Construction Phase).
- Safety and Security Risk (Construction Phase).
- Disruption and changes to the quality of living environment (Construction Phase and Operational Phase).
- Demographic Changes – Employment Opportunities (Construction Phase).
- Movement of Construction Vehicles (Construction Phase).
- Excavation and Construction of Infrastructure (Construction Phase).
- Impacts on the Local Economy (Construction Phase and Operational Phase).
- Visual Intrusion to Observers within a 1 km radius (Operational Phase).
- Visual Intrusion to Observers within a 2 km radius (Operational Phase).
- Socio Cultural Changes – Disruption in Daily Living and Movement Patterns (Decommissioning Phase).
- Displacement of Families (Decommissioning Phase).
- Economic Changes – Employment Opportunities (Decommissioning Phase).
- Loss of Employment Opportunities (Decommissioning Phase).

## 15 IMPACT ASSESSMENT AND MITIGATION

### 15.1 Description and Assessment of the Significance of Impacts Prior and After Mitigation

#### 15.1.1 Construction Phase Impacts

Note: There is only one site location proposed for the development and one Layout Alternative (Preferred Site Layout) is being assessed. The preferred layout has been assessed compared to the NO-GO (Alternative 2).

##### 15.1.1.1 Permanent Loss of Indigenous Vegetation

	<b>Permanent Loss of Indigenous Vegetation</b>	
	<b>Preferred Alternative: Preferred Site Layout</b>	<b>NO-GO Alternative</b>
<b>Description of Impact</b>	Site clearing before construction will result in the blanket clearing of vegetation within the affected footprint.	No Impact, as no clearing would occur
<b>Nature of impact</b>	Negative	No Impact
<b>Extent and duration of impact</b>	Local, Permanent	N/A
<b>Probability of occurrence</b>	Probable	N/A
<b>Degree to which the impact can be reversed</b>	Partly Reversible	N/A
<b>Degree to which the impact may cause irreplaceable loss of resources</b>	Partial loss or destruction of the resource will occur even though all management and mitigation measures are implemented	N/A
<b>Cumulative impact prior to mitigation</b>	High	N/A
<b>Significance rating of impact prior to mitigation</b>	Medium	N/A
<b>Degree to which the impact can be mitigated</b>	Can be partly mitigated	N/A



<b>Proposed mitigation:</b>	<ul style="list-style-type: none"> <li>• The areas that will require the clearance of vegetation must be limited to as small a footprint within the road reserve as possible.</li> <li>• The footprint must be survey and clearly demarcated to ensure that the area to be cleared will be limited to the area required. No operations must be allowed outside of the demarcated areas</li> <li>• The areas that have been cleared of vegetation during the implementation of the project must be revegetated with grasses that occur naturally in the area.</li> <li>• Remove alien invasive plants and rehabilitate.</li> <li>• Develop and implement fire management program.</li> <li>• Development of an EMPr to control construction impacts.</li> </ul>	N/A
<b>Cumulative impact post mitigation</b>	Low	N/A
<b>Significance rating of impact after mitigation</b>	Low	N/A

*15.1.1.2 Spreading of Alien Invasive Plant Species*

	Loss of Species of Conservation Concern	
	Preferred Alternative: Preferred Site Layout	NO-GO Alternative
<b>Description of Impact</b>	Alien invasive plant species are already present in the development site. As such, the clearance of areas for construction will result in bear areas into which these species can spread.	No Impact
Nature of impact	Negative	N/A
Extent and duration of impact	Local; Permanent	N/A
Probability of occurrence	Definite	N/A

Degree to which the impact can be reversed	Completely Reversible	N/A
Degree to which the impact may cause irreplaceable loss of resources	The resource will not be lost or destroyed provided mitigation and rehabilitation measures are implemented	N/A
Cumulative impact prior to mitigation	High	N/A
Significance rating of impact prior to mitigation	High	N/A
Degree to which the impact can be mitigated	Can be mitigated	N/A
Proposed mitigation:	<ul style="list-style-type: none"> <li>The construction footprint must be clearly survey and demarcated before any construction of the components of the development is to commence.</li> <li>This must be done to ensure that areas to be cleared limited to only the areas that are necessary.</li> <li>The cleared areas must be regularly monitored for the establishment of alien plant species. These must be cleared when they appear.</li> <li>Identification and eradication of any alien plant species that establish on the site.</li> </ul>	N/A
Significance rating of impact after mitigation	Medium	N/A

### 15.1.1.3 Erosion as a result of construction related disturbances

	<b>Erosion as a result of construction related disturbances</b>	
	<b>Preferred Alternative: Preferred Site Layout</b>	<b>NO-GO Alternative</b>
<b>Description of Impact</b>	Removal of vegetation cover and soil disturbance may result in some areas being susceptible to soil erosion after completion of the activity	No Impact, as no vegetation clearing or soil disturbance
<b>Nature of impact</b>	Negative	No Impact
<b>Extent and duration of impact</b>	Site Specific; Short Term	N/A
<b>Probability of occurrence</b>	Highly Probable	N/A
<b>Degree to which the impact can be reversed</b>	Partly Reversible	N/A
<b>Degree to which the impact may cause irreplaceable loss of resources</b>	Partial loss or destruction of the resource will occur even though all management and mitigation measures are implemented.	N/A
<b>Cumulative impact prior to mitigation</b>	Medium	N/A
<b>Significance rating of impact prior to mitigation</b>	Medium	N/A
<b>Degree to which the impact can be mitigated</b>	Can be mitigated	N/A
<b>Proposed mitigation:</b>	<ul style="list-style-type: none"> <li>Suitable measures must be implemented in areas that may be susceptible to erosion, including but not limited to gabions and runoff diversion berms (if necessary).</li> <li>Areas must be rehabilitated, and a suitable cover planted once specific phases of construction is completed.</li> <li>If site development does not occur soon after preparation of the site, a suitable cover to be established as a temporary measure.</li> </ul>	N/A

	<ul style="list-style-type: none"> <li>Development of an Environmental Management Plan (EMP) to control construction impacts.</li> </ul>	
Cumulative impact post mitigation	Low	N/A
Significance rating of impact after mitigation	Low	N/A

#### 15.1.1.4 Contamination & Pollution Impact (associated with construction activities)

	Contamination & Pollution Impact – Associated with Construction Activities	
	Preferred Alternative: Preferred Site Layout	NO-GO Alternative
<b>Description of Impact</b>	Construction activities will generate waste. In addition, fuel, oil, lubricants and other pollutants may leak from vehicles/ machinery and contaminate the soil. Pollution and soil contamination could also occur from chemical toilets, cement mixing directly on the soil and stormwater runoff may flow over the site camp area and carry contaminants off-site.	No Impact.
Nature of impact	Negative	No Impact
Extent and duration of impact	Local; Medium term	N/A
Probability of occurrence	Highly Probable	N/A
Degree to which the impact can be reversed	Partly reversible	N/A
Degree to which the impact may cause irreplaceable loss of resources	Partial loss or destruction of the resource will occur even though all management and mitigation measures are implemented.	N/A
Cumulative impact prior to mitigation	Medium	N/A

Significance rating of impact prior to mitigation	Medium	N/A
Degree to which the impact can be mitigated	Can be mitigated	N/A
Proposed mitigation:	<p>The appointed Environmental Control Officer (ECO) must undertake at least one site inspection per week, for the duration of the construction phase, and to produce a short monthly ECO monitoring audit report, auditing on the compliance of the property developer with the conditions of the Environmental Authorisation and the approved EMP.</p> <p><b>General Pollution Management:</b></p> <ul style="list-style-type: none"> <li>• No pollution of surface water or ground water resources may occur due to any activity on the site.</li> <li>• No storm water runoff from any premises containing waste, or water containing waste emanating from construction activities may be discharged into the environment. Polluted stormwater must be contained on the site.</li> <li>• Cement batching / mixing may not take place directly on the soil surface, it must be done on an impervious lining that will prevent cement particles from contaminating the soil.</li> </ul> <p><b>General Waste Management:</b></p>	N/A

	<ul style="list-style-type: none"> <li>• Dedicated waste bins or skips must be provided on site and kept in a demarcated area on an impermeable surface.</li> <li>• Separate waste bins/skips must be provided for recyclable waste, general waste and hazardous waste. Recovered builder’s rubble &amp; green waste may be stockpiled on the ground within the site camp, or in separate skips until removal.</li> <li>• Waste must be placed in the appropriate waste bins/skips/ stockpiles.</li> <li>• Hazardous waste bins must be kept on an impermeable bunded surface capable of holding at least 110% of the volume of the bins.</li> <li>• Skips/ bins must be provided with secure lids or covering that will prevent scavenging and windblown waste or dust.</li> <li>• Waste bins/skips must be regularly emptied and must not be allowed to overflow.</li> <li>• Construction workers must be instructed not to litter and to place all waste in the appropriate waste bins provided on site.</li> <li>• The Contractor must ensure that all workers on site are familiar with the correct waste disposal procedures to be followed.</li> <li>• Waste generated on site must be classified and managed in accordance with the National</li> </ul>	
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	<p>Environmental Management: Waste Act – Waste Classification and Management Regulations (GN No. R. 634 of August 2013).</p> <ul style="list-style-type: none"> <li>• Disposal of waste to landfill must be undertaken in accordance with the National Environmental Management: Waste Act – National Norms and Standard for the Assessment of Waste for Landfill Disposal (GN No. R. 635 of August 2013).</li> <li>• All waste, hazardous as well as general, which result from the proposed activities must be disposed of appropriately at a licensed Waste Disposal Facility (WDF).</li> </ul> <p><b><u>Pollution Management – hydrocarbons (oil, fuel etc.)</u></b></p> <ul style="list-style-type: none"> <li>• Vehicles and machinery must be in good working order and must be regularly inspected for leaks.</li> <li>• If a vehicle or machinery is leaking pollutants it must, as soon as possible, be taken to an appropriate location for repair. The ECO has the authority to request that any vehicle or piece of equipment that is contaminating the environment be removed from the site until it has been satisfactorily repaired.</li> <li>• Repairs to vehicles/ machinery may take place on site, within a designated maintenance area at the site camp. Drip trays, tarpaulin or other impermeable layer must be laid down prior to undertaking repairs.</li> </ul>	
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	<ul style="list-style-type: none"><li>• Refuelling of vehicles/ machinery may only take place at the site camp or vehicle maintenance yard. Where refuelling must occur, drip trays should be utilised to catch potential spills/ drips.</li><li>• Drip trays must be utilised during decanting of hazardous substances and when refilling chemical/ fuel storage tanks.</li><li>• Drip trays must be placed under generators (if used on site) water pumps and any other machinery on site that utilises fuel/ lubricant, or where there is risk of leakage/spillage.</li><li>• Where feasible, fuel tanks should be elevated so that leaks are easily detected.</li><li>• A spill kit to neutralise/treat spills of fuel/ oil/ lubricants must be available on site, and workers must be educated on how to utilise the spill kit.</li><li>• Soil contaminated by hazardous substances must be excavated and disposed of as hazardous waste.</li></ul> <p><b><u>Pollution Management – Ablution facilities</u></b></p> <ul style="list-style-type: none"><li>• Chemical toilets should be kept at the site camp, on a level surface and secured from blowing over.</li><li>• Toilets must be located well outside of any storm water drainage lines and may not be linked to the storm water drainage system in any way.</li></ul>	
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	<ul style="list-style-type: none"> <li>• Chemical toilets must be regularly emptied, and the waste disposed of at an appropriate waste water disposal/ treatment site. Care must be taken to prevent spillages when moving or servicing chemical toilets.</li> </ul> <p><b><u>Pollution Management – Hazardous Substances</u></b></p> <ul style="list-style-type: none"> <li>• Any hazardous substances (materials, fuels, other chemicals etc.) that may be required on site must be stored according to the manufacturers’ product-storage requirements, which may include a covered, waterproof bunded housing structure.</li> <li>• Material Safety Data Sheets (MSDSs) shall be readily available on site for all chemicals and hazardous substances to be used on site. Where possible and available, MSDSs should additionally include information on ecological impacts and measures to minimise negative environmental impacts during accidental releases.</li> <li>• Hazardous chemicals and fuels should be stored on bunded, impermeable surfaces with sufficient capacity to hold at least 110% of the capacity of the storage tanks.</li> </ul> <p><b><u>Cement Batching</u></b></p> <ul style="list-style-type: none"> <li>• Cement batching must take place on an impermeable surface large enough to retain any slurry or cement</li> </ul>	
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	<p>water run-off. If necessary, plastic/ bided lined detention ponds (or similar) should be constructed to catch the run-off from batching areas. Once the water content of the cement water/ slurry has evaporated the dried cement should be scraped out of the detention pond and disposed of at an appropriate disposal facility authorised to deal with such waste</p> <ul style="list-style-type: none"> <li>• Cement batching should take place on already transformed areas within the footprint of the facility.</li> <li>• Unused cement bags must be stored in such a way that they will be protected from rain. Empty cement bags must not be left lying on the ground and must be disposed of in the appropriate waste bin.</li> <li>• Washing of excess cement/concrete into the ground is not allowed. All excess concrete/ cement must be removed from site and disposed of at an appropriate location.</li> </ul>	
Cumulative impact post mitigation:	Medium	N/A
Significance rating of impact after mitigation	Medium	N/A

*15.1.1.5 Dust & Noise Impact – (associated with construction activities)*

	Dust and Noise Impact – (associated with construction activities)	
	Preferred Alternative: Preferred Site Layout	NO-GO Alternative

<b>Description of Impact</b>	Dust impacts may result due to construction activities and excavation activities on the site. Excavations and associated earth-moving activities may generate noise and vibration which may pose a nuisance to surrounding residents and other land users. Movement of heavy vehicles to & from the site may generate noise, which may affect surrounding residents	No Impact
Nature of impact	Negative	No Impact
Extent and duration of impact	Site, Short Term	N/A
Probability of occurrence	Probable	N/A
Degree to which the impact can be reversed	Completely Reversible	N/A
Degree to which the impact may cause irreplaceable loss of resources	No loss of resource	N/A
Cumulative impact prior to mitigation	Medium	N/A
Significance rating of impact prior to mitigation	Medium	N/A
Degree to which the impact can be mitigated	Can be mitigated	N/A
Proposed mitigation:	<p><b><u>Dust Mitigation</u></b></p> <ul style="list-style-type: none"> <li>• Land clearing and earthmoving activities should not be undertaken during strong winds, where possible.</li> <li>• Cleared areas should be provided with a suitable cover as soon as possible, and not left exposed for extended periods of time.</li> </ul>	N/A

	<ul style="list-style-type: none"><li>• Stockpiles of topsoil, spoil material and other material that may generate dust must be protected from wind erosion (e.g. covered with netting, tarpaulin or other appropriate measures. Note that topsoil should not be covered with tarpaulin as this may kill the seedbank).</li><li>• The location of stockpiles must take into account the prevailing wind direction and should be situated so as to have the least possible dust impact to surrounding residents, road-users and other land-users.</li><li>• Speed limits must be enforced in all areas, including public roads and private property to limit the levels of dust pollution.</li><li>• The speed limit should be set at 20-40km/h.</li><li>• Dust must be suppressed on access roads and the construction site during dry periods by the regular application of water or a biodegradable soil stabilisation agent. Water used for this purpose must be used in quantities that will not result in the generation of excessive run off.</li><li>• Dust suppression measures such as the wetting down of sand heaps as well as exposed areas around the site must be implemented especially on windy days.</li><li>• The use of straw worked into the sandy areas may also help and the ECO must advise when this is necessary.</li><li>• If dust appears to be a continuous problem the option of using shade cloth to cover open areas may be necessary</li></ul>	
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	<p>or the erecting of shade netting above the fenced off area may need to be explored.</p> <ul style="list-style-type: none"> <li>• All vehicles transporting sand need to have tarpaulins covering their loads which will assist in any windblown sand occurring off the trucks.</li> <li>• Work on site must be well-planned and should proceed efficiently so as to minimise the handling of dust generating material.</li> <li>• Dust levels specified in the National Dust Control Regulations (GN 827 of November 2013) may not be exceeded. i.e. dust fall in residential areas may not exceed 600mg/m<sup>2</sup>/day, measured using reference method ASTM D1739.</li> <li>• A Complaints Register must be available at the site office for inspection by the ECO of dust complaints that may have been received.</li> </ul> <p><b><u>Noise Mitigation:</u></b></p> <ul style="list-style-type: none"> <li>• noise complaints register will be opened.</li> <li>• Excavations and earth-moving activities must be restricted to normal construction working hours (7:30 – 17:30) as far as possible.</li> <li>• Work on site must be well-planned and should proceed efficiently so as to limit the duration of the disturbance.</li> <li>• Vehicles and equipment must be kept in good working condition.</li> </ul>	
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	<ul style="list-style-type: none"><li>• Machinery and equipment should be fitted with mufflers/ exhaust silencers.</li><li>• No unnecessary disturbances should be allowed to emanate from the construction site.</li><li>• Due to the proximity of the proposed development site to residents, noise levels must be kept to a minimum at all times. If excessive noise is expected on the boundary of the residential erven bordering the site, they must be informed in advance of when the high noise levels will occur and for how long they will occur.</li><li>• Workers should be educated on how to control noise-generating activities that have the potential to become disturbances, particularly over an extended period of time.</li><li>• Noise levels must comply with the relevant health &amp; safety regulations and SANS codes and should be monitored by the Health &amp; Safety Officer as necessary and appropriate.</li><li>• Affected parties must be informed of the excessive noise factors.</li><li>• The noise management and monitoring measures prescribed in the EMPr must be adhered to.</li></ul> <p>The appointed Environmental Control Officer (ECO) must undertake a site inspection once per week, for the duration of the construction phase, and to produce a short monthly ECO</p>	
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	monitoring audit report, auditing on the compliance of the property developer with the conditions of the Environmental Authorisation and the approved EMP. These reports should be distributed to the Environmental Liaison Committee consisting of community representatives, local organisations, relevant authorities and municipal representatives must be established	
Cumulative impact post mitigation:	Negligible	N/A
Significance rating of impact after mitigation	Negligible	N/A

#### 15.1.1.6 Faunal Impact – Loss of Habitat

	Faunal Impact – Loss of Habitat	
	Preferred Alternative: Preferred Site Layout	NO-GO Alternative
<b>Description of Impact</b>	Activity will result in the loss of habitat for faunal species	No Impact
Nature of impact	Negative	N/A
Extent and duration of impact	Local; Permanent	N/A
Probability of occurrence	Definite	N/A
Degree to which the impact can be reversed	Partly Reversible	N/A
Degree to which the impact may cause irreplaceable loss of resources	Partial loss or destruction of the resource will occur even though all management and mitigation measures are implemented	N/A
Cumulative impact prior to mitigation	High	N/A

Significance rating of impact prior to mitigation	High	N/A
Degree to which the impact can be mitigated	Can be partly mitigated	N/A
Proposed mitigation:	<ul style="list-style-type: none"> <li>• Ensure that sufficient quality, quantity and connectivity of habitat is provided to accommodate the reptile population (ecological corridors).</li> <li>• Remove alien invasive plants and rehabilitate</li> </ul>	N/A
Cumulative impact post mitigation	High	N/A
Significance rating of impact after mitigation	High	N/A

#### 15.1.1.7 Disturbance to Avifauna (Construction Phase)

	Disturbance to Avifauna	
	Preferred Alternative: Preferred Site Layout	NO-GO Alternative
<b>Description of Impact</b>	Disturbance during the construction and operational phases can negatively affect all avifauna on an individual or population level by increasing stress, decreasing food and habitat availability, causing displacement into potentially less suitable neighbouring environments, and ultimately potentially decreasing reproductive success.	No Impact
Nature of impact	Negative	N/A
Extent and duration of impact	Local; Permanent	N/A
Probability of occurrence	Probable	N/A



Degree to which the impact can be reversed	Partly Reversible	N/A
Degree to which the impact may cause irreplaceable loss of resources	Partial loss or destruction of the resource will occur even though all management and mitigation measures are implemented.	N/A
Cumulative impact prior to mitigation	Low	N/A
Significance rating of impact prior to mitigation	Medium	N/A
Degree to which the impact can be mitigated	High	N/A
Proposed mitigation:	<p>Disturbance can be managed and mitigated at the design stage by avoiding important nesting, roosting and foraging areas of sensitive species during site selection and layout design. Landscape features within the site that are potentially frequented by sensitive species or constitute potential or confirmed breeding areas for sensitive species, such as wetlands, ridges, and drainage lines, should be avoided and demarcated as No-go areas. Due to the transformed nature of the majority of the site no high sensitivity (no-go) areas were identified within the proposed development site, and only found in the PAOI. The loss of intact and sensitive avifaunal habitat has thereby been minimised.</p> <p>The following additional mitigation measures can minimise impacts further:</p>	N/A

	<ul style="list-style-type: none"><li>• The footprint of disturbance must be kept to a minimum surrounding the development footprint, during construction and must be demarcated.</li><li>• The CBA area to the north-west of the site within the PAOI must be demarcated as a no-go area during construction and operation.</li><li>• In order to ensure no SCCs are breeding within the proposed disturbance footprint prior to the commencement of construction activities, a walkthrough of the site should be conducted by the ECO for the project within two weeks of commencement of construction activities.</li><li>• An avian species specialist must train the ECO in the identification of the SCCs (identified as potentially present in the area in this report), if required, and the presence, location and behaviour thereof during any site visits must be reported to the avian species specialist following each site visit.</li><li>• Should any SCC be found breeding within the development footprint at any point during construction, all works within 250 m of the breeding site must be halted, and the avian species specialist must be contacted for further instruction.</li><li>• Should any SCC be found breeding within the site boundary at any point during operation, the area must</li></ul>	
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	be cordoned off and the avian species specialist must be contacted for further instruction.	
Cumulative impact post mitigation	High	N/A
Significance rating of impact after mitigation	Low	N/A

#### 15.1.1.8 Loss of Avifauna Habitat Loss (Construction Phase)

	Loss of Avifauna Habitat (Construction Phase)	
	Preferred Alternative: Preferred Site Layout	NO-GO Alternative
<b>Description of Impact</b>	Any transformation of vegetation leads to habitat loss for avian species utilising that vegetation, causing displacement into areas which are potentially less suitable or already occupied by competing individuals or species. No areas of high avifaunal sensitivity were identified and development within areas of medium sensitivity should be minimised as far as possible.	No Impact
Nature of impact	Negative	N/A
Extent and duration of impact	Site, Long Term	N/A
Probability of occurrence	Probable	N/A
Degree to which the impact can be reversed	Partly Reversible	N/A
Degree to which the impact may cause irreplaceable loss of resources	Partial loss or destruction of the resource will occur even though all management and mitigation measures are implemented.	N/A

Cumulative impact prior to mitigation	Low	N/A
Significance rating of impact prior to mitigation	Medium	N/A
Degree to which the impact can be mitigated	Medium	N/A
Proposed mitigation:	<p>Disturbance can be managed and mitigated at the design stage by avoiding important nesting, roosting and foraging areas of sensitive species during site selection and layout design. Landscape features within the site that are potentially frequented by sensitive species or constitute potential or confirmed breeding areas for sensitive species, such as wetlands, ridges, and drainage lines, should be avoided and demarcated as No-go areas. Due to the transformed nature of the majority of the site no high sensitivity (no-go) areas were identified within the proposed development site, and only found in the PAOI. The loss of intact and sensitive avifaunal habitat has thereby been minimised.</p> <p>The following additional mitigation measures can minimise impacts further:</p> <ul style="list-style-type: none"> <li>• The footprint of disturbance must be kept to a minimum surrounding the development footprint, during construction and must be demarcated.</li> </ul>	N/A

	<ul style="list-style-type: none"><li>• The CBA area to the north-west of the site within the PAOI must be demarcated as a no-go area during construction and operation.</li><li>• In order to ensure no SCCs are breeding within the proposed disturbance footprint prior to the commencement of construction activities, a walkthrough of the site should be conducted by the ECO for the project within two weeks of commencement of construction activities.</li><li>• An avian species specialist must train the ECO in the identification of the SCCs (identified as potentially present in the area in this report), if required, and the presence, location and behaviour thereof during any site visits must be reported to the avian species specialist following each site visit.</li><li>• Should any SCC be found breeding within the development footprint at any point during construction, all works within 250 m of the breeding site must be halted, and the avian species specialist must be contacted for further instruction.</li><li>• Should any SCC be found breeding within the site boundary at any point during operation, the area must be cordoned off and the avian species specialist must be contacted for further instruction.</li></ul>	
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Cumulative impact post mitigation	Low	N/A
Significance rating of impact after mitigation	Low	N/A

#### 15.1.1.9 Operational Phase Impact: Disturbance to Avifauna

	Disturbance to Avifauna	
	Preferred Alternative: Preferred Site Layout	NO-GO Alternative
<b>Description of Impact</b>	Disturbance during the operational phases can negatively affect all avifauna on an individual or population level by increasing stress, decreasing food and habitat availability, causing displacement into potentially less suitable neighbouring environments, and ultimately potentially decreasing reproductive success.	No Impact
Nature of impact	Negative	N/A
Extent and duration of impact	Local; Long Term	N/A
Probability of occurrence	Probable	N/A
Degree to which the impact can be reversed	Low	N/A
Degree to which the impact may cause irreplaceable loss of resources	Partial loss or destruction of the resource will occur even though all management and mitigation measures are implemented.	N/A
Cumulative impact prior to mitigation	Low	N/A
Significance rating of impact prior to mitigation	Low	N/A

Degree to which the impact can be mitigated	Low	N/A
Proposed mitigation:	<p>Disturbance can be managed and mitigated at the design stage by avoiding important nesting, roosting and foraging areas of sensitive species during site selection and layout design. Landscape features within the site that are potentially frequented by sensitive species or constitute potential or confirmed breeding areas for sensitive species, such as wetlands, ridges, and drainage lines, should be avoided and demarcated as No-go areas. Due to the transformed nature of the majority of the site no high sensitivity (no-go) areas were identified within the proposed development site, and only found in the PAOI. The loss of intact and sensitive avifaunal habitat has thereby been minimised.</p> <p>The following additional mitigation measures can minimise impacts further:</p> <ul style="list-style-type: none"> <li>• The footprint of disturbance must be kept to a minimum surrounding the development footprint, during construction and must be demarcated.</li> <li>• The CBA area to the north-west of the site within the PAOI must be demarcated as a no-go area during construction and operation.</li> <li>• In order to ensure no SCCs are breeding within the proposed disturbance footprint prior to the</li> </ul>	N/A

	<p>commencement of construction activities, a walkthrough of the site should be conducted by the ECO for the project within two weeks of commencement of construction activities.</p> <ul style="list-style-type: none"> <li>• An avian species specialist must train the ECO in the identification of the SCCs (identified as potentially present in the area in this report), if required, and the presence, location and behaviour thereof during any site visits must be reported to the avian species specialist following each site visit.</li> <li>• Should any SCC be found breeding within the development footprint at any point during construction, all works within 250 m of the breeding site must be halted, and the avian species specialist must be contacted for further instruction.</li> <li>• Should any SCC be found breeding within the site boundary at any point during operation, the area must be cordoned off and the avian species specialist must be contacted for further instruction.</li> </ul>	
Cumulative impact post mitigation	Low	N/A
Significance rating of impact after mitigation	Low	N/A



### 15.1.1.10 Contamination of the area by petrochemical spillages

	Contamination of the area by petrochemical spillages	
	Preferred Alternative: Preferred Site Layout	NO-GO Alternative
<b>Description of Impact</b>	The presence of plant and equipment as well as possible petrochemical stores on the construction site that make use of petrochemical substances a risk of contamination to the possible groundwater that may occur under the site.	No Impact
Nature of impact	Negative	N/A
Extent and duration of impact	Site, Short Term	N/A
Probability of occurrence	Highly Probable	N/A
Degree to which the impact can be reversed	Partly Reversible	N/A
Degree to which the impact may cause irreplaceable loss of resources	Partial loss or destruction of the resource will occur even though all management and mitigation measures are implemented	N/A
Cumulative impact prior to mitigation	Medium	N/A
Significance rating of impact prior to mitigation	Medium	N/A
Degree to which the impact can be mitigated	Can be mitigated	N/A
Proposed mitigation:	<ul style="list-style-type: none"> <li>All plant and equipment that make use of petrochemical substances must be checked leakages on a daily basis before operations commence.</li> </ul>	N/A

	<ul style="list-style-type: none"> <li>• All plant and equipment that are found to be leaking must be removed from the site and only returned once the leakages have been addressed.</li> <li>• If any petrochemical substances are stored on the site, this storage must be done on an impermeable surface in a bunded area that makes provision for 110% of volume of the substances that are stored.</li> <li>• All refuelling of plant and equipment must be conducted over a drip-tray.</li> <li>• If any plant or equipment is to be parked on the site, these must be parked within the demarcated construction footprint that has been cleared.</li> <li>• If any spillages from plant or equipment occur, the spill must be contained immediately, the contaminated soils must be collected and bagged in impermeable bags and stored on site to be removed and disposed of by a registered service provider.</li> <li>• The domestic waste from these waste bins must be removed off site and disposed of at a municipal landfill site on a weekly basis or more regularly if the bins fill up quicker</li> </ul>	
Significance rating of impact after mitigation	Low	N/A

### 15.1.1.11 Loss of Heritage Resources

	Loss of Heritage Resources	
	Preferred Alternative: Preferred Site Layout	NO-GO Alternative
<b>Description of Impact</b>	The loss of Heritage Resources, including Archaeological and Paleontological Resources, due to land clearing and excavations on the site	No Impact
Nature of impact	Negative	N/A
Extent and duration of impact	Site Specific; Permanent	N/A
Probability of occurrence	Highly Probable	N/A
Degree to which the impact can be reversed	Partly Reversible	N/A
Degree to which the impact may cause irreplaceable loss of resources	Partial loss or destruction of the resource will occur even though all management and mitigation measures are implemented	N/A
Cumulative impact prior to mitigation	Medium	N/A
Significance rating of impact prior to mitigation	Medium	N/A
Degree to which the impact can be mitigated	Management of this impact requires a higher level of expertise and resources to maintain impacts within acceptable levels. Such mitigation can be tied up in the design of the Project. The significance of the impacts after mitigation is likely to be low to moderate. May not be possible to mitigate the impact entirely, with a residual impact(s) resulting	N/A

<p>Proposed mitigation:</p>	<ul style="list-style-type: none"> <li>• A built environment specialist or an historical architect be approached to conduct a built environment heritage assessment and advise on the permit application process for the demolition of the remaining buildings.</li> <li>• A professional archaeologist must be appointed, at the expense of the developer to monitor all excavations for the proposed development. The archaeologist must mitigate in the instance of sites being uncovered during the course of the excavations. Phase 2 mitigation in the form of test-pitting/sampling or systematic excavations and collections of the findings will then be conducted to establish the contextual status of the sites and remove the archaeological deposit before development activities continue.</li> <li>• Construction managers/foremen and/or the Environmental Control Officer (ECO) should be informed before construction starts on the possible types of heritage sites and cultural material they may encounter and the procedures to follow when they find sites.</li> <li>• If concentrations of pre-colonial archaeological heritage material, historical archaeological material, and/or human remains (including graves and burials) are uncovered during construction of the proposed development and / or future excavations for individual graves, all work must cease immediately and be reported to the Albany Museum (046 622 2312) and/or</li> </ul>	<p>N/A</p>
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	the Eastern Cape Provincial Heritage Resources Agency (ECPHRA) (043 745 0888) so that systematic and professional investigation/excavation can be undertaken. Phase 2 mitigation in the form of test-pitting/sampling or systematic excavations and collections of the findings will then be conducted to establish the contextual status of the sites and remove the archaeological deposit before development activities continue.	
Cumulative impact post mitigation:	Medium	N/A
Significance rating of impact after mitigation	Medium	N/A

#### 15.1.1.12 Socio-Economic Impact – Demographic Changes (Influx of Jobseekers)

	Socio-Economic Impact – Demographic Changes (Influx of Jobseekers)	
	Preferred Alternative: Preferred Site Layout	NO-GO Alternative
<b>Description of Impact</b>	The development may attract the influx of skilled and semi-skilled jobseekers into the local area. this may result in the following: <ul style="list-style-type: none"> <li>• Conflict between locals and outsiders, especially when the outsider labour force receives preferential treatment.</li> <li>• Cultural diversity conflicts</li> </ul>	No Impact
Nature of impact	Negative	N/A
Extent and duration of impact	Local, Long Term	N/A

Probability of occurrence	Highly Probable	N/A
Degree to which the impact can be reversed	Partially Reversible	N/A
Degree to which the impact may cause irreplaceable loss of resources	Resource will not be lost.	N/A
Cumulative impact prior to mitigation	High	N/A
Significance rating of impact prior to mitigation	High	N/A
Degree to which the impact can be mitigated	Can be mitigated	N/A
Proposed mitigation:	<p>The developer must ensure the establishment of a Project Steering Committee (PSC) to facilitate the following:</p> <ul style="list-style-type: none"> <li>• Conduct an audit of the affected communities in terms of employment capacity.</li> <li>• Identify potential workers from the affected and surrounding communities.</li> <li>• Identify possible conflicts in and between communities.</li> <li>• Set up a central labour desk where all workers register and only workers registered on the database should be considered for employment.</li> <li>• Recommend support programmes that would assist with conflict minimisation and resolution.</li> <li>• Contractually oblige sub-contractors to only employ workers through the labour force desk.</li> </ul>	N/A

Cumulative impact post mitigation:	Medium	N/A
Significance rating of impact after mitigation	Medium	N/A

### 15.1.1.13 Institutional Changes – Pressure on Existing Public Services

	Institutional Changes Impact – Pressure on Existing Public Services	
	Preferred Alternative: Preferred Site Layout	NO-GO Alternative
<b>Description of Impact</b>	<p>The development employees and jobseekers temporarily residing in the project area may place pressure on the existing public services. This is most likely to result in the following:</p> <ul style="list-style-type: none"> <li>Increased number of informal settlements and pressure on the metro for housing and related public services.</li> <li>The potential increase in the spread of communicable diseases may place pressure on public healthcare facilities.</li> <li>An increase in social ills such as substance abuse resulting in increased crime rate, may place pressure on public safety and security.</li> <li>Increased unemployment rate within jobseekers and a growing crime rate for survival.</li> </ul>	No Impact
Nature of impact	Negative	N/A
Extent and duration of impact	Local, Permanent	N/A
Probability of occurrence	Highly Probable	N/A
Degree to which the impact can be reversed	Partly Reversible	N/A

Degree to which the impact may cause irreplaceable loss of resources	Resource will not be lost	N/A
Cumulative impact prior to mitigation	High	N/A
Significance rating of impact prior to mitigation	High	N/A
Degree to which the impact can be mitigated	Can be mitigated	N/A
Proposed mitigation:	<ul style="list-style-type: none"> <li>Health and safety campaigns must be held in collaboration with public health servants, to educate construction workers on the spread of communicable diseases.</li> <li>The contractor must collaborate with the local SAPS to regulate the behaviour of construction workers, and the regulation of site access by the public and jobseekers.</li> </ul>	N/A
Cumulative impact post mitigation:	Medium	N/A
Significance rating of impact after mitigation	Medium	N/A



**15.1.1.14 Economic Changes – Local Economical Spin Offs**

	Economic Impact – Local Economical Spin Offs	
	Preferred Alternative: Preferred Site Layout	NO-GO Alternative
<b>Description of Impact</b>	<p>The development may result in local and regional economic spin-offs owing to construction expenditure on local suppliers, and the increased buying power of the development employees. The positive impacts can be as follows:</p> <ul style="list-style-type: none"> <li>• The injection of income into the area, in the form of wages and business sales, will contribute to local economic growth.</li> <li>• General construction material and equipment sourcing could benefit the local businesses, and this will have an indirectly positive impact on the local economy.</li> <li>• Off-site accommodation would also be required for those construction staff not residing in the area, with potential contribution to localised accommodation facilities.</li> <li>• Transport services to and from site will also be required, and this indirect spend boosts the local economy.</li> <li>• Supporting industries and/or small businesses, such as for catering, accommodation, suppliers of construction material and equipment, transport, etc., may benefit from the construction phase of the development.</li> </ul>	No Impact
Nature of impact	Positive (+)	N/A
Extent and duration of impact	Regional, Permanent	N/A
Probability of occurrence	Definite	N/A

Degree to which the impact can be reversed	Completely Reversible	N/A
Degree to which the impact may cause irreplaceable loss of resources	Resource will not be lost.	N/A
Cumulative impact prior to mitigation	Medium	N/A
Significance rating of impact prior to mitigation	Medium	N/A
Degree to which the impact can be mitigated	Can be Mitigated	N/A
Proposed mitigation:	<ul style="list-style-type: none"> <li>The developer must ensure that the principle of utilising local business resources is in accordance with government policies relating to local procurement.</li> <li>The developer must establish a database of local companies which qualify as potential service providers, prior commencement of the tendering process.</li> <li>The use of local contractors especially SMMEs from communities around the project area where ever possible should be promoted.</li> </ul>	N/A
Cumulative impact post mitigation:	Low	N/A
Significance rating of impact after mitigation	Low	N/A

### 15.1.1.15 Socio-cultural Changes – Employment Opportunities

	Socio-cultural Changes Impact – Employment Opportunities	
	Preferred Alternative: Preferred Site Layout	NO-GO Alternative
<b>Description of Impact</b>	The construction phase will result in the availability of temporary employment opportunities for skilled, semi-skilled and unskilled labour force.	No Impact
Nature of impact	Positive	N/A
Extent and duration of impact	Regional, Medium Term	N/A
Probability of occurrence	Definite	N/A
Degree to which the impact can be reversed	The impact can be partly reversed providing mitigation measures are implemented and undertaken.	N/A
Degree to which the impact may cause irreplaceable loss of resources	Resource will not be lost or destroyed provided mitigation and rehabilitation measures are implemented.	N/A
Cumulative impact prior to mitigation	Medium	N/A
Significance rating of impact prior to mitigation	Medium	N/A
Degree to which the impact can be mitigated	Can be mitigated	N/A
Proposed mitigation:	<ul style="list-style-type: none"> <li>Where reasonable and practical, preference must be given to local SMMEs, especially for the low skills levels.</li> <li>Equal job opportunities for women and men must be promoted.</li> </ul>	N/A

	<ul style="list-style-type: none"> <li>Culture and tradition must be considered when planning the division of labour for construction.</li> <li>Employment must be managed by the PSC that uses a selection system a fair recruitment of semi and unskilled workers from all local impacted communities in accordance with government policies related to local procurement. This must ensure a fair and equitable recruitment process.</li> </ul>	
Cumulative impact post mitigation:	Low	N/A
Significance rating of impact after mitigation	Low	N/A

#### 15.1.1.16 Skills development and capacity building of workers and local SMMEs

	Skills development and Capacity building of workers and local SMMEs	
	Preferred Alternative: Preferred Site Layout	NO-GO Alternative
<b>Description of Impact</b>	The construction phase of the development may be an opportunity for skills transfer and capacity building by skilled and experienced workers for the unskilled and upcoming workers	No Impact
Nature of impact	Positive	N/A
Extent and duration of impact	Regional, Medium Term	N/A
Probability of occurrence	Probable	N/A
Degree to which the impact can be reversed	Completely Reversible	N/A
Degree to which the impact may cause irreplaceable loss of resources	Resource will not be lost	N/A

Cumulative impact prior to mitigation	Medium	N/A
Significance rating of impact prior to mitigation	Medium	N/A
Degree to which the impact can be mitigated	Can be mitigated	N/A
Proposed mitigation:	<ul style="list-style-type: none"> <li>The developer must include a contractual obligation for larger contractors to work with small SMMEs to train and transfer skills.</li> <li>The developer must implement on-the-job training for unskilled labourers.</li> <li>The developer should look into developing a skills development programme, which may include training in business, management, monitoring and evaluation.</li> </ul>	N/A
Cumulative impact post mitigation:	Low	N/A
Significance rating of impact after mitigation	Low	N/A

**15.1.1.17**     *Disruption in daily living and movement patterns*

	Disruption in daily living and movement patterns	
	Preferred Alternative: Preferred Site Layout	NO-GO Alternative
<b>Description of Impact</b>	The construction phase of the development may result in the disruption of the daily living and movement patterns of surrounding communities, due to traffic and other intrusions caused by construction activities.	No Impact
Nature of impact	Negative	N/A
Extent and duration of impact	Local, Short Term	N/A
Probability of occurrence	Highly Probable	N/A
Degree to which the impact can be reversed	Partly Reversible	N/A
Degree to which the impact may cause irreplaceable loss of resources	Resource will not be lost provided mitigation and rehabilitation measures are implemented.	N/A
Cumulative impact prior to mitigation	Medium	N/A
Significance rating of impact prior to mitigation	Medium	N/A
Degree to which the impact can be mitigated	Can be mitigated	N/A
Proposed mitigation:	<ul style="list-style-type: none"> <li>Construction activities must be limited to the construction site only.</li> </ul>	N/A

	<ul style="list-style-type: none"> <li>• Proper and timeous notification must be given to residents when an activity will affect their movement (such as road closure).</li> <li>• Surrounding communities must have access to a grievance reporting mechanism, e.g. through a project steering committee.</li> <li>• The developer should at all times avoid using busy roads and roads within densely populated areas.</li> </ul>	
Cumulative impact post mitigation:	Low	N/A
Significance rating of impact after mitigation	Low	N/A

#### 15.1.1.18 Health and Safety Risks for Workers and Surrounding Community

	Health and Safety Risks for Workers and Surrounding Community	
	Preferred Alternative: Preferred Site Layout	NO-GO Alternative
<b>Description of Impact</b>	<p>Inadequate management of general construction activities could result in health and safety risks, such as construction related accidents, respiratory infections from dust generation and air pollution, unsafe potable water, increased prevalence of communicable diseases, etc. This is associated with the following:</p> <ul style="list-style-type: none"> <li>• Uncontrolled access into the construction site resulting in theft, safety and security issues and vandalism.</li> <li>• Threat to surrounding properties due to uncontrolled fires.</li> </ul>	No Impact

	<ul style="list-style-type: none"> <li>Threat to surrounding properties owing to potential pollution causing flies, rodents and pests, and the contamination of surrounding water resources.</li> </ul>	
Nature of impact	Negative	N/A
Extent and duration of impact	Local, Short Term	N/A
Probability of occurrence	Highly Probable	N/A
Degree to which the impact can be reversed	Partly Reversible	N/A
Degree to which the impact may cause irreplaceable loss of resources	Partial loss or destruction of the resource will occur even though all mitigation measures are implemented	N/A
Cumulative impact prior to mitigation	High	N/A
Significance rating of impact prior to mitigation	High	N/A
Degree to which the impact can be mitigated	Can be mitigated	N/A
Proposed mitigation:	<ul style="list-style-type: none"> <li>Measures to suppress dust must be implemented at all times.</li> <li>Construction workers must wear all relevant protective clothing.</li> <li>Dangerous equipment must be used under strict supervision.</li> <li>Waste must be safely disposed at the nearest licensed waste disposal facility.</li> <li>Provide safe and clean drinking water on site.</li> </ul>	N/A



	<ul style="list-style-type: none"> <li>Provide sufficient ablution facilities for the site staff</li> </ul>	
Cumulative impact post mitigation:	Low	N/A
Significance rating of impact after mitigation	Low	N/A

#### 15.1.1.19 Safety and Security Risk

	Safety and Security Risk	
	Preferred Alternative: Preferred Site Layout	NO-GO Alternative
<b>Description of Impact</b>	<p>Safety and security issues for the surrounding communities may be introduced due to an influx of jobseekers.</p> <p>Valuable construction equipment and material could also attract criminals.</p>	No Impact
Nature of impact	Negative	N/A
Extent and duration of impact	Site, Short Term	N/A
Probability of occurrence	Highly Probable	N/A
Degree to which the impact can be reversed	Partly Reversible	N/A
Degree to which the impact may cause irreplaceable loss of resources	Partial loss or destruction of the resource will occur even though all mitigation measures are implemented	N/A
Cumulative impact prior to mitigation	High	N/A
Significance rating of impact prior to mitigation	High	N/A

Degree to which the impact can be mitigated	Management of this impact requires a higher level of expertise and resources to maintain impacts within acceptable levels. Such mitigation can be tied up in the design of the Project. The significance of the impacts after mitigation is likely to be low to moderate.	N/A
Proposed mitigation:	<ul style="list-style-type: none"> <li>The construction site must be fenced off and safe guarded at all times, to prevent trespassing.</li> <li>Construction workers must be provided with identity tags and access to site by unauthorised people must be prohibited.</li> <li>Jobseekers should not be allowed to gather around the construction site.</li> <li>The local SAPS must be allowed entry to site anytime, to monitor security and safety.</li> </ul>	N/A
Cumulative impact post mitigation:	Low	N/A
Significance rating of impact after mitigation	Low	N/A

### 15.1.1.20 *Disruption and changes to the quality of living environment*

	Disruption and changes to the quality of living environment	
	Preferred Alternative: Preferred Site Layout	NO-GO Alternative
<b>Description of Impact</b>	Intrusion impacts such as noise and visual intrusion, and aesthetic impacts, resulting from emissions, movement of construction vehicles, earthworks, etc.; may cause a decrease in the quality of the physical environment for the surrounding residents, businesses, schools and other social facilities.	No Impact
Nature of impact	Negative	N/A
Extent and duration of impact	Local, Short Term	N/A
Probability of occurrence	Highly Probable	N/A
Degree to which the impact can be reversed	Partly Reversible	N/A
Degree to which the impact may cause irreplaceable loss of resources	The resource will not be lost or destroyed provided mitigation and rehabilitation measures are implemented.	N/A
Cumulative impact prior to mitigation	Medium	N/A
Significance rating of impact prior to mitigation	Medium	N/A
Degree to which the impact can be mitigated	Management of this impact requires a higher level of expertise and resources to maintain impacts within acceptable levels. Such mitigation can be tied up in the design of the Project. The significance of the impacts after mitigation is likely to be low to moderate	N/A

Proposed mitigation:	<ul style="list-style-type: none"> <li>The surrounding residents must be advised at construction commencement, and guided on how they could lodge complaints when necessary.</li> <li>All dust suppressing techniques must be applied.</li> <li>All construction vehicles and equipment must be regularly serviced, to prevent the emission of air pollutants.</li> </ul>	N/A
Cumulative impact post mitigation:	Low	N/A
Significance rating of impact after mitigation	Low	N/A

#### 15.1.1.21 Movement of Construction Vehicles

	Movement of Construction Vehicles	
	Preferred Alternative: Preferred Site Layout	NO-GO Alternative
<b>Description of Impact</b>	The <u>movement of construction vehicles</u> , machinery and personnel on site shall result in a visual impact on surrounding users.	No Impact
Nature of impact	Negative	N/A
Extent and duration of impact	Site Specific, Short Term (Construction Period)	N/A
Probability of occurrence	Highly Probable	N/A
Degree to which the impact can be reversed	Reversible	N/A
Degree to which the impact may cause irreplaceable loss of resources	The movement of construction vehicles, machinery and personnel on site shall result in a visual impact on surrounding users.	N/A

Cumulative impact prior to mitigation	High	N/A
Significance rating of impact prior to mitigation	High	N/A
Degree to which the impact can be mitigated	Management of this impact requires a higher level of expertise and resources to maintain impacts within acceptable levels. Such mitigation can be tied up in the design of the Project. The significance of the impacts after mitigation is likely to be low to moderate	N/A
Proposed mitigation:	<ul style="list-style-type: none"> <li>Schedule the movement of construction vehicles and machinery so that they do not interfere with the normal working operations of the town.</li> <li>Only work during daylight time (06h00 to 17h00, Monday to Friday).</li> <li>Schedule deliveries so that delivery vehicles do not cause an unnecessary nuisance and so that the number of delivery vehicles is limited as far as possible.</li> </ul>	N/A
Cumulative impact post mitigation:	Medium	N/A
Significance rating of impact after mitigation	Medium	N/A

### 15.1.1.22 Excavation and Construction of Infrastructure

	Excavation and Construction of Infrastructure	
	Preferred Alternative: Preferred Site Layout	NO-GO Alternative
<b>Description of Impact</b>	The <u>excavation and construction of infrastructure</u> shall result in disturbance and an unsightly character.	No Impact
Nature of impact	Negative	N/A
Extent and duration of impact	Site Specific, Short Term (Construction Period)	N/A
Probability of occurrence	Highly Probable	N/A
Degree to which the impact can be reversed	Reversible	N/A
Degree to which the impact may cause irreplaceable loss of resources	The excavation and construction of infrastructure shall result in disturbance and an unsightly character.	N/A
Cumulative impact prior to mitigation	High	N/A
Significance rating of impact prior to mitigation	High	N/A
Degree to which the impact can be mitigated	Management of this impact requires a higher level of expertise and resources to maintain impacts within acceptable levels. Such mitigation can be tied up in the design of the Project. The significance of the impacts after mitigation is likely to be low to moderate.	N/A
Proposed mitigation:	<ul style="list-style-type: none"> <li>Prohibit excessive signage outside the construction area.</li> <li>Keep construction camp lighting to a minimum and prevent the use of flood type lighting as far as possible.</li> </ul>	N/A

	<ul style="list-style-type: none"> <li>• Ensure that the site is kept neat and clean. Collect and dispose of litter appropriately to prevent any potential wind-blown litter on or off the site.</li> <li>• Limit site clearing to within the minimum footprint required for construction.</li> <li>• Retain existing trees along the boundaries of the property where possible.</li> <li>• Rehabilitate areas as soon as possible following construction.</li> <li>• Ensure working occur during daylight hours (08h00-17h00) and on weekdays only.</li> </ul>	
Cumulative impact post mitigation:	Medium	N/A
Significance rating of impact after mitigation	Medium	N/A

## 15.1.2 Operational Phase Impacts

### 15.1.2.1 Demographic Changes – Employment Opportunities

	Demographic Changes – Employment Opportunities
	Preferred Alternative: Preferred Site Layout
<b>Description of Impact</b>	The development is typically mixed use and includes facilities for businesses. This will result in employment opportunities, albeit fewer than the construction phase
Nature of impact	Positive
Extent and duration of impact	Regional, Permanent
Probability of occurrence	Definite

Degree to which the impact can be reversed	The impact can be completely reversed with the implementation of correct mitigation and rehabilitation measures
Degree to which the impact may cause irreplaceable loss of resources	Resource will not be lost.
Cumulative impact prior to mitigation	Low
Significance rating of impact prior to mitigation	Low
Degree to which the impact can be mitigated	The nature of the impact is understood and may be mitigated through the implementation of a management plan.
Proposed mitigation:	Local labour force must receive primary priority.
Cumulative impact post mitigation	Medium
Significance rating of impact after mitigation	Medium

#### 15.1.2.2 Impacts on the Local Economy

	Impacts on the Local Economy
	Preferred Alternative: Preferred Site Layout
<b>Description of Impact</b>	<p>During the operation phase, the development may result in local economic opportunities for surrounding businesses. there will also be an opportunity for the establishment of new or expansion of existing businesses due to increased population in the area.</p> <p>The local municipality will benefit with the income from rates and taxes that will be collected from the developers.</p> <p>Though at a very low level, local businesses may benefit from the supply of maintenance equipment.</p>
Nature of impact	Positive



Extent and duration of impact	Regional, Permanent
Probability of occurrence	Definite
Degree to which the impact can be reversed	Can not be reversed, local business may benefit
Degree to which the impact may cause irreplaceable loss of resources	Resource will not be lost
Cumulative impact prior to mitigation	Low
Significance rating of impact prior to mitigation	Low
Degree to which the impact can be mitigated	The impact is understood and may be mitigated through the implementation of a management plan
Proposed mitigation:	Local businesses must receive primary priority, with fair opportunity for various business levels.
Cumulative impact post mitigation	Medium
Significance rating of impact after mitigation	Medium

### 15.1.2.3 Visual Intrusion to Observers within a 1 km radius

	Visual Intrusion to Observers within a 1 km radius
	Preferred Alternative: Preferred Site Layout
<b>Description of Impact</b>	The development of the proposed development will cause a <u>visual intrusion to observers within a 1 km radius</u> from the proposed development.
Nature of impact	Positive
Extent and duration of impact	Site Specific, Permanent
Probability of occurrence	Definite
Degree to which the impact can be reversed	Irreversible
Degree to which the impact may cause irreplaceable loss of resources	Visual intrusion to observers within a 1 km radius

Cumulative impact prior to mitigation	High
Significance rating of impact prior to mitigation	High
Degree to which the impact can be mitigated	The impact is understood and may be mitigated through the implementation of a management plan
Proposed mitigation:	<ul style="list-style-type: none"> <li>Shielding the sources of light by physical barriers (walls, vegetation, or structures itself).</li> <li>Limit mounting heights of lighting fixtures, or alternatively using footlights or bollard level lights.</li> <li>Make use of downward directional lighting fixtures.</li> <li>Make use of minimum lumen or wattage in lights, and</li> </ul> Use motion sensors to activate lighting ensuring light is available when needed
Cumulative impact post mitigation	Medium
Significance rating of impact after mitigation	Medium

#### 15.1.2.4 Visual Intrusion to Observers within a 2 km Radius

	Visual Intrusion to Observers within a 2 km radius
	Preferred Alternative: Preferred Site Layout
<b>Description of Impact</b>	The development of the proposed development will cause a <u>visual intrusion to observers within a 2 km radius</u> from the proposed development.
Nature of impact	Positive
Extent and duration of impact	Site Specific, Permanent
Probability of occurrence	Definite
Degree to which the impact can be reversed	Irreversible
Degree to which the impact may cause irreplaceable loss of resources	Visual intrusion to observers within a 1 km radius
Cumulative impact prior to mitigation	High

Significance rating of impact prior to mitigation	High
Degree to which the impact can be mitigated	The impact is understood and may be mitigated through the implementation of a management plan
Proposed mitigation:	<ul style="list-style-type: none"> <li>Shielding the sources of light by physical barriers (walls, vegetation, or structures itself).</li> <li>Limit mounting heights of lighting fixtures, or alternatively using footlights or bollard level lights.</li> <li>Make use of downward directional lighting fixtures.</li> <li>Make use of minimum lumen or wattage in lights, and</li> <li>Use motion sensors to activate lighting ensuring light is available when needed</li> </ul>
Cumulative impact post mitigation	Medium
Significance rating of impact after mitigation	Medium

### 15.1.3 Decommissioning Phase Impacts

#### 15.1.3.1 Socio Cultural Changes – Disruption in Daily Living and Movement Patterns

	Socio Cultural Changes – Disruption in Daily Living and Movement Patterns
	Preferred Alternative: Preferred Site Layout
<b>Description of Impact</b>	The decommissioning of the development will result in the disruption of daily living and movement patterns.
Nature of impact	Negative
Extent and duration of impact	Local, Short Term
Probability of occurrence	Probable
Degree to which the impact can be reversed	Impact can be completely reversed with the implementation of correct mitigation and rehabilitation measures

Degree to which the impact may cause irreplaceable loss of resources	Partial loss or destruction of the resource will occur even though all management and mitigation measures are implemented
Cumulative impact prior to mitigation	Medium
Significance rating of impact prior to mitigation	Medium
Degree to which the impact can be mitigated	Can be mitigated – low and cause a slight impact on processes
Proposed mitigation:	<ul style="list-style-type: none"> <li>The surrounding residents must be advised at commencement of decommissioning activities, and guided on how they could lodge complaints when necessary.</li> <li>All dust suppressing techniques must be applied.</li> <li>All construction vehicles and equipment must be regularly serviced, to prevent the emission of air pollutants.</li> <li>The developer should ensure that the decommissioning activities should cause minimum disruption to local communities. For example, traffic control measures must be put in place to reduce traffic impacts. If traffic uses dust roads, dust suppression measures must be implemented.</li> </ul>
Cumulative impact post mitigation	Negligible
Significance rating of impact after mitigation	Negligible

### 15.1.3.2 Displacement of Families

	Displacement of Families
	Preferred Alternative: Preferred Site Layout
<b>Description of Impact</b>	The decommissioning of the development will result in the displacement of families who occupied the residential area of the development
Nature of impact	Negative
Extent and duration of impact	Local, Permanent
Probability of occurrence	Unlikely

Degree to which the impact can be reversed	N/A
Degree to which the impact may cause irreplaceable loss of resources	N/A
Cumulative impact prior to mitigation	Low
Significance rating of impact prior to mitigation	Low
Degree to which the impact can be mitigated	Can be mitigated - the significance of the impacts after mitigation is likely to be low to moderate
Proposed mitigation:	No Mitigation Measures
Cumulative impact post mitigation	Negligible
Significance rating of impact after mitigation	Negligible

#### 15.1.3.3 Economic Changes – Employment Opportunities

	Economic Changes – Employment Opportunities Preferred Alternative: Preferred Site Layout
<b>Description of Impact</b>	The decommissioning phase of the development will result in employment opportunities typical of those required in the construction phase.
Nature of impact	Positive
Extent and duration of impact	Local, Short Term
Probability of occurrence	High Probability
Degree to which the impact can be reversed	The impact can be completely reversed with the implementation of correct mitigation and rehabilitation measures
Degree to which the impact may cause irreplaceable loss of resources	Partial loss or destruction of the resource will occur even though all management and mitigation measures are implemented
Cumulative impact prior to mitigation	Low
Significance rating of impact prior to mitigation	Low

Degree to which the impact can be mitigated	Can be mitigated - the significance of the impacts after mitigation is likely to be low to moderate
Proposed mitigation:	Local labour must be considered for semi and unskilled labourers.
Cumulative impact post mitigation	Negligible
Significance rating of impact after mitigation	Negligible

#### 15.1.3.4 Loss of Employment Opportunities

	Loss of Employment Opportunities
	Preferred Alternative: Preferred Site Layout
<b>Description of Impact</b>	The decommissioning phase will also result in the loss of jobs from the businesses within the multiple-use development.
Extent and duration of impact	Local, Permanent
Probability of occurrence	Probable
Degree to which the impact can be reversed	The impact cannot be reversed, regardless of the mitigation or rehabilitation measures
Degree to which the impact may cause irreplaceable loss of resources	The resource cannot be replaced no matter which management or mitigation measures are implemented
Cumulative impact prior to mitigation	Medium
Significance rating of impact prior to mitigation	Medium
Degree to which the impact can be mitigated	Management of this impact requires a higher level of expertise and resources to maintain impacts within acceptable levels. May not be possible to mitigate the impact entirely, with a residual impact(s) resulting.
Proposed mitigation:	No Mitigation Measures
Cumulative impact post mitigation	Medium
Significance rating of impact after mitigation	Medium

## 16 ENVIRONMENTAL IMPACT STATEMENT

### 16.1 Summary of Construction, Operational and Decommissioning Phase Impacts (*before and after mitigation*)

The table below is a summary of the projected impacts that could take place during the construction phase of the development and the associated significance of the impact, post mitigation. These results have been informed by the specialist impact assessment reports undertaken to support this EIA.

*Table 40: Summary of Projected Construction, Operational and Decommissioning Phase Impacts (before and after mitigation)*

Construction Phase Impacts			
Impact	Preferred Alternative: Preferred Site Layout		No-Go Alternative
	Impact Significance (before mitigation)	Impact Significance (after mitigation)	
Permanent Loss of Indigenous Vegetation	Medium	Low	N/A
Spreading of Alien Invasive Plant Species.	High	Medium	N/A
Erosion as a result of construction related disturbances	Medium	Low	N/A
Contamination & Pollution Impact (associated with construction activities)	Medium	Medium	N/A
Dust and Noise Impact (associated with construction activities)	Medium	Negligible	N/A
Faunal Impact – Loss of Habitat	High	High	N/A
Avifauna Impact – Disturbance	Medium	Low	N/A
Avifauna Impact – Habitat Loss	Medium	Medium	N/A
Contamination of the area by petrochemical spillages.	Medium	Low	N/A
Heritage Impact	Medium	Medium	N/A
Socio Economic Impact – Demographic Changes (Influx of Jobseekers)	High	Medium	N/A
Institutional Changes Impact – Pressure on Existing Public Services	High	Medium	N/A
Economic Changes – Local Economical Spin Offs	Medium	Low	N/A
Social Cultural Changes – Employment Opportunities	Medium	Low	N/A
Skills development and Capacity Building of workers and local SMMEs	Medium	Low	N/A

Disruption in daily living and movement patterns	Medium	Low	N/A
Health and Safety Risks for Workers and Surrounding Community	High	Low	N/A
Safety and Security Risk	High	Low	N/A
Disruption and changes to the quality of the living environment	Medium	Low	N/A
Movement of Construction Vehicles	High	Medium	N/A
Excavation and Construction of Infrastructure	High	Medium	N/A
<b>Operational Phase</b>			
Demographic Changes – Employment Opportunities	Low	Medium	
Impacts on Local Economy	Low	Medium	
Avifauna – Habitat Loss	Medium	Medium	
Avifauna - Disturbance	Low	Low	
Visual Intrusion to Observers within a 1 km radius	High	Medium	
Visual Intrusion to Observers within a 2 km radius	High	Medium	
<b>Decommissioning Phase Impacts</b>			
Social Cultural Changed – Disruption in Daily Living and Movement Patterns	Medium	Negligible	
Displacement of Families	Low	Negligible	
Economic Changes – Employment Opportunities	Low	Negligible	
Loss of Employment Opportunities	Medium	Medium	

The following conclusions can be drawn from the impact assessment findings as shown in the impact tables above for the **operational phase**.

- The development is typically mixed use and includes facilities for businesses. This will result in employment opportunities, albeit fewer than the construction phase.
- During the operation phase, the development may result in local economic opportunities for surrounding businesses. There will also be an opportunity for the establishment of new or expansion of existing businesses due to increased population in the area.
- The local municipality will benefit with the income from rates and taxes that will be collected from the developers.
- Though at a very low level, local businesses may benefit from the supply of maintenance equipment.
- The proposed development footprint avoids all areas identified as of high sensitivity for avian species, which are located outside of the proposed development footprint within the PAOI. The proposed development does include the loss of areas of medium avifaunal sensitivity, but as the footprint of this has been minimised, and some areas will be retained, this is considered acceptable from an avifaunal perspective.



- The loss of indigenous vegetation can be compensated for by the use of indigenous vegetation in the landscaping of the public open space areas within the development.
- All Land Scaping within the public open space areas within the development must make use of the establishment of indigenous vegetation.
- Alien invasive plant species may settle on the development site during operations.
- The conservation of the secondary Sardinia Forest Thicket fragment will result in the creation of bird habitat.
- Conservation measures to improve the vegetative biodiversity within the stand (removal of alien plant species, replacement with appropriate indigenous species, etc.). This should be informed by a qualified Botanist.
- Management measures particularly along the edges of the stand to prevent the establishment of alien invasive plant species along these edges

## 17 EAPS REASONED OPINION AND RECOMMENDATIONS

The proposed project will be located on erven 3988, 4195, 6991, which is earmarked for a Multiple-Use Development and forms part of the urban edge and links directly with established urban infrastructure.

This development will promote social, economic, and environmental sustainability, through the following mechanisms:

- The proposed development will be a mixed-use residential & social housing with up to an additional 3000 units for the area, consisting of roads and parking areas, together with green park areas within different sections.
- The project will be resource efficient through resource management ideas such as the improvement of water distribution network, rainwater management, digital smart meters, renewable energy generation, sustainable drainage, reduction of water generation, optimisation of waste management.
- The development will integrate 4IR & ICTs infrastructure and smart mobility.
- The development will include, retail, business, office and storage sites, residential units, retirement units, a “Digi 4RI” centre, solar facility, and an early childhood development centre.

The goal of the proposed development is to ameliorate the contemporary urban disconnect with nature by the holistic improvement of urban spaces, integrating aspects of nature into urban environments by considering how the built environment contributes to our health and well-being and employing practical methodologies for the effective design thereof, we not only design favourable environments, but sustainable environments as well.

Activity nodes are incorporated for residents and the extended urban environment to come together to interact. These nodes are in the built form and very often are elements of urban space which foster societal cohesion of the neighbourhood.

### **The proposed multiple-use development will create the following for the future of the area:**

- Ensure greater **social diversity** through an integrated housing development.

- Allow a broader range of housing types, such as cottage clusters, town homes, and other “missing middle” typologies.
- Facilitate the development of lower-cost housing typologies with **dignity**.
- **Prevent segregated** communities –combination of LSM housing typologies.
- Create a community where individuals regardless of their race or socioeconomic background can **live together** with a diverse housing inventory.
- Create a robust **multifamily preservation strategy**.
- **Stimulate investment** in surrounding areas through a deliberate direction for future growth.
- Creatively utilize land asset to **stimulate economic** development.
- **Promote desired change** through perceived and tangible economic perspective of surroundings.
- Promote an enhanced **community’s liveability**.
- Support needs of **existing and future** residents.
- **Strengthen the community** by fostering its racial and socioeconomic diversity.
- Desirable secure location for people to **live, work, and play** facilitating the current Covid related work from home.
- Create new opportunities for **home ownership** of the future younger generations.
- Increase housing **opportunities** for people of all ages, income levels, races, and backgrounds.
- Improve housing conditions through **quality environment and security**.

With the current economic situation in South Africa, job creation is of utmost importance. The proposed project comprises of various developments and thus many jobs could be created. The statistics indicate the Nelson Mandela Bay Municipality has an unemployment rate of 36.6 % (<http://www.statssa.gov.za>). According to these statistics new job creation is needed to stem the rising unemployment rate.

### **Feasible and Reasonable Alternatives**

#### **Development Footprint**

An alternative viable site location was not identified and evaluated for the project. The specific proposed location for the multi-use development is preferred as it is the only property of its size in the Arlington area which:

- Is currently vacant and undeveloped.
- Is located adjacent to existing developments and therefore requires minimal extension of bulk service infrastructure.
- According to the Nelson Mandela Bay Municipality’s Bioregional Plan (2015) - a CBA is located less than 65 m northwest of the proposed site footprint and there are a few ESAs surrounding the proposed development, however, none of them are within critical proximity to the proposed development.
- Is easily accessible via two (2) existing roads (Entrance Gate 1 from Glendore Road and Entrance Gate 2 will be off Victoria Drive onto the Racecourse Road).
- Is owned by a landowner willing to become involved in a development of this nature.

Type of Activity to be undertaken

This development will aim to promote social, economic, and environmental sustainability. The project will be resource efficient through resource management ideas such as the improvement of the water distribution network, rainwater management, digital smart meters, renewable energy generation, sustainable drainage, reduction of water generation, optimisation of waste management.

The two activity alternatives for the proposed development are:

- 3) The preferred option of the implementation of the proposed development; and
- 4) The no-go development option.

The preferred activity option would infer that the construction of the proposed multiple-use development be undertaken within the preferred development area to address the following:

- Ensure greater social diversity through an integrated housing development.
- Allow a broader range of housing types, such as cottage clusters, town homes, and other “missing middle” typologies.
- Facilitate the development of lower cost housing typologies with dignity.
- Prevent segregated communities’ combination of LSM housing typologies.
- Create a community where individuals regardless of their race or socio-economic background can live together with a diverse housing inventory.
- Create a robust multifamily preservation strategy.
- Stimulate investment in surrounding areas through a deliberate direction for future growth.
- Creatively utilize land asset to stimulate economic development.
- Promote desired change through perceived and tangible economic perspective of surroundings.
- Promote an enhanced community’s liveability.
- Support needs of existing and future residents.
- Strengthen the community by fostering its racial and socioeconomic diversity.
- Desirable secure location for people to live, work, and play facilitating the current Covid related work from home.
- Create new opportunities for home ownership of the future younger generations.
- Increase housing opportunities for people of all ages, income levels, races, and backgrounds.
- Improve housing conditions through quality environment and security.

The no-go development option is neither advised nor feasible for the proposed development as:

- The potential for short to medium term local job creation and skills development opportunities associated with the site establishment and construction of the proposed housing development will not be realised. Unemployment within the local municipality stands at 27.7%.
- Framework of the municipality as specified in the IDP.

In the case that the “no-go” alternative is exercised, the existing site will remain as open is and remain undeveloped.

### Design Layout

The Preferred Layout of the mixed-use development (dated 14/08/2023) includes the establishment of eight (8) land-use zones; namely: Residential 2, Residential 4, Business 2, Business 1, Community 1, Special Use High Tech Industry, Special Purposes Infrastructure, Private Open Space, comprising of differing extents.

### Technology

Preferred technologies have not yet been investigated for the project; however, best practice construction and implementation is recommended for all infrastructure associated with the project.

Potential alternatives that must be investigated for the proposed development will include:

- Environmentally friendly technology and designs regarding the construction of housing and associated infrastructure such as:
  - Solar power for geysers and general electricity.
  - Efficient rainwater harvesting.
  - Energy efficient lighting (within the houses and streets) and general appliances.
  - Water saving devices such as aerated taps and dual flush toilets.
  - A wastewater treatment works in the form of a Bio-Rotor Treatment System, or similar, is proposed for the treatment of effluent from the northern catchment.
- Waste minimisation activities during the construction and handover phases including the recycling of generated waste, where possible.

Additional feasible technology alternatives will be investigated further and refined during the EIA phase of the proposed development.

### Operation Aspects

The preferred and only operational aspects of the activity involve the maintenance of infrastructure and general service delivery to the area. No alternatives to the operation aspect of the proposed development have been considered.

### “No-Go” Alternative

The no-go alternative must be included in the assessment phase as the baseline against which the impacts of the other alternatives are assessed. The no-go alternative assumes that the proposed project will not go ahead i.e., the proposed multiple-use development will not occur and therefore the site will remain as. The no-go alternative is discussed further in of the report.

## **Summary of Specialist Studies Undertaken**

### **Visual Impact Assessment**

The proposed development will be highly visible over the first km from where the visual impact will be permanent. The immediate surrounding area consists of a residential development with retail and businesses especially to the north. The visual impact will be permanent from all identified viewpoints, especially existing roads. The proposed development will be visible along Glendore Road and Victoria Drive while it will only be partially seen further away up to 2 to 3 kms. Greater distances are screened by vegetation, topography and existing urban infrastructure and will be indistinguishable from the surrounding built environment. A low visual impact is assigned given the high VAC.

### **Terrestrial Biodiversity Assessment**

The findings of this report have indicated that the terrestrial biodiversity (fauna and flora) on the development site has been historically degraded with all the vegetative aspects on the site being secondary in nature. As such, the Animal and Plants Species Theme as well as the Terrestrial Biodiversity Theme on the site is considered to be LOW which is in contradiction with the findings of the DFFE Screening Tool.

The assessment of the potential impacts on the terrestrial biodiversity (fauna and flora) features has indicated that severity of these impacts on the ecology can all be mitigated with the implementation of the management and mitigation measures provided in this report.

As such, it is the specialist's opinion that with the implementation of the management and mitigation measures contained in this assessment, there are not fatal flaws associated with the aquatic ecological baseline that will prevent the application from being authorised.

### **Faunal Species Compliance Statement**

A site visit was conducted on the 8<sup>th</sup> of March 2022, and the entire site was assessed. The following was found:

- The site is covered by grassland, thornveld, savanna and dens thicket patches interspersed with scatters infrastructure like buildings, stands, stores, etc. from when it was used as an equestrian racetrack. No fynbos exists.
- Habitats exist for various animal species, especially the dense thicket patches and the open vegetated areas where the racetrack used to be.
- Old buildings, rubble and other infrastructure are good habitats for various reptile species, especially snakes, lizards, and geckos.
- No surface water exists on site.
- No animal species of conservation concern were found on site. The risk of finding any is considered as low.

Based on the above, it is the opinion of the specialist that the land contained within the proposed study site is considered as **low sensitivity with zones of medium sensitivity** for the animal species theme. A full Animal Species Assessment is therefore NOT required. The proposed development may therefore proceed provided that the following mitigations are included into the EMPr:

1. A site representative must be trained in handling dangerous reptiles and scorpions during site construction. This person must inspect the construction site daily before activities start and relocate any snakes, spiders and scorpions if found in holes, trenches, plant, building, or office structures.
2. Animal Search and Rescue (S&R) of the entire site must be done by a qualified faunal specialist prior to commencement of any activity on site. All old buildings must be searched, and animals found must be relocated.

### **Agricultural Resource Impact Assessment**

The sensitivity analysis has identified that the Arlington development area has a Medium sensitivity. The following supports the above-mentioned findings:

#### Desktop Results

- DFFE screening assessment determined the agricultural sensitivity to be dominantly High sensitivity.
- The project is not within a crop field boundary.
- The desktop soil capability rated the project area as High.
- The desktop land capability rated the project area as Moderate-High.

#### Site Assessment Results

- Land capability was determined as low arable potential with severe limitations.
- Land potential was determined to be L4 (Moderate potential); and
- Land use showed no agricultural activity with large areas being landscaped.

#### Agricultural Specialists Recommendations

The potential impacts from the Arlington development include:

- Erosion of exposed soil surfaces.
- Hydrocarbon contamination by heavy machinery.
- Contamination from human waste, both organic and inorganic.
- Proliferation of alien vegetation in disturbed areas; and
- Increased runoff and altered surface and sub-surface flow dynamics.

These aspects are to be managed to minimise any potential impacts:

- Erosion control.
- Ablution blocks.
- General waste from people moving into the area.
- Stormwater management; and
- Risks from oil/hydrocarbon spills from vehicles should be mitigated.

### Agricultural Specialists Acceptability Statement

The specialist opinion is that the proposed project be considered favourably as the DFFE screening tool value of High sensitivity was disputed to be Medium only for the Arlington development by confirming the project was not within any crop farming boundaries. This was further strengthened by the detailed in-field survey confirming the land potential to have a moderate land potential with severe limitations to agriculture.

### Avifaunal Assessment

A site inspection conducted by the avian species specialist found that the land use on the proposed site appear to be in overall line with the results of the screening tool and online resources, with some intact habitat suitable for SCC present.

Summer is considered to be an appropriate timing for the survey, and relevant to the assessment for the SCC which are at most risk from the proposed development.

### Local Context and Fieldwork Results

The proposed development site is located on a derelict former racecourse property, within the residential area of Walmer, Gqeberha. The vegetation types of the site are mapped as Algoa Sandstone Fynbos (Critically Endangered) and Sardinia Forest Thicket (Least Concern). There are no NFEPA rivers or wetlands within the proposed development site or the PAOI. The site does not contain any mapped Critical Biodiversity Areas (CBA) or Ecological Support Areas (ESA), but a CBA is mapped in the north-west of the PAOI.

### Predicated and observed species, highlighting Species of Conservation Concern (SCC)

None of the potential SCC are confirmed or highly likely to be present. However, two SCC, the Knysna Warbler (*Bradypterus sylvaticus*) and Knysna Woodpecker (*Camphethera notata*) have a likelihood of occurrence of medium, and using the pre-cautionary approach were determined as likely present within the PAOI. The remainder were determined to have a low likelihood of occurrence in the PAOI and were determined as unlikely to be present. The number of SCC recorded during the site visit was nil.

### Current Impacts

Large areas of the site have been transformed by previous activities and much of the remaining vegetation appears to be in a degraded condition invaded by alien invasive species with only patches of intact thicket remaining in the western section of the site.

### Site Ecological Importance

Two avifaunal habitat types were identified within the PAOI: Forest thickets and fynbos shrub.

- *Forest Thicket Habitat*

Forest thicket is suitable habitat for Knysna Warbler (Vulnerable) and Knysna Woodpecker (Near threatened) which potentially occur in the PAOI. An area of approximately 6.76 ha of intact and semi-intact forest thicket habitat is located within the development footprint.

The resulting Site Ecological Importance rating for forest thicket was determined as medium, which means that development activities of medium impact would be acceptable if followed by appropriate restoration activities.

- *Fynbos Shrub Habitat*

Fynbos shrub is suitable for a variety of SCC all of which have a low probability of occurrence for the PAOI. This is due to the location of the site within an urban area and the habitat within the site being largely transformed, degraded and invaded with aliens. An area of approximately 22 ha of semi-intact fynbos habitat is located outside of the proposed development footprint within the east of the PAOI and would not be lost by the proposed development proceeding.

The resulting Site Ecological Importance rating for fynbos shrub was determined as medium, which means that development activities of medium impact would be acceptable if followed by appropriate restoration activities.

#### Avifaunal Sensitivity and Constraints

Based on the potential occurrence of SCC, available avifaunal habitats and current impacts on the site, the development area is deemed to be of low and medium avifaunal sensitivity. An area of intact forest thicket in the north-west of the PAOI, mapped as a CBA1 was determined as of high avifaunal sensitivity with no development supported.

Development within the intact CBA1 is however not proposed and no areas of high sensitivity and resulting no-go areas were identified within the proposed development site itself. Development within the medium sensitivity areas should be avoided and minimised as much as possible.

The proposed layout avoids all areas of high sensitivity and the majority of areas of medium sensitivity within the PAOI. An area of up to 6.8 ha of forest thicket of medium avifaunal sensitivity within the development footprint could be lost by the proposed development layout, however it appears that the layout partially avoids this area, and parts of this area is mapped to become public open space (POS3) in the proposed development layout.

#### Site Sensitivity Verification (in terms of the National Web-based Screening Tool)

The National Web-based Screening Tool identified the PAOI as of high sensitivity for five avian Species of Conservation Concern (SCCs). The specialist site sensitivity verification confirmed the likely presence of one of these SCC (Knysna Warbler – *Bradypterus sylvaticus*) and determined the remaining four to be unlikely to occur. One further SCC, Knysna Woodpecker (Near threatened), was identified to be potentially present by the specialist site sensitivity verification.



The site sensitivity verification therefore confirms the outcome of the screening tool classification of the site as high due to the potential presence of SCC and confirms that an avian species specialist impact assessment report (this report) must be submitted with an application for environmental authorisation.

#### Description of Identified Impacts and Available Mitigation Measures

The following potential impacts on avifauna by the proposed development were identified for the construction phase:

- Disturbance.
- Habitat loss.

The following potential impacts on avifauna by the proposed development were identified for the operational phase:

- Disturbance.
- Habitat loss.

The proposed development is considered to be permanent, therefore a decommissioning phase has not been assessed.

#### Disturbance

Disturbance during the construction and operational phases can negatively affect all avifauna on an individual or population level by increasing stress, decreasing food and habitat availability, causing displacement into potentially less suitable neighbouring environments, and ultimately potentially decreasing reproductive success. This is particularly true for resident breeding species, some of which are shy, secretive and not habituated to human activities.

Disturbance can be managed and mitigated at the design stage by avoiding important nesting, roosting and foraging areas of sensitive species during site selection and layout design. Landscape features within the site that are potentially frequented by sensitive species or constitute potential or confirmed breeding areas for sensitive species, such as wetlands, ridges, and drainage lines, should be avoided and demarcated as No-go areas. Due to the transformed nature of the majority of the site no high sensitivity (no-go) areas were identified within the proposed development site, and only found in the PAOI. The loss of intact and sensitive avifaunal habitat has thereby been minimised.

The following additional mitigation measures can minimise impacts further:

- The footprint of disturbance must be kept to a minimum surrounding the development footprint, during construction and must be demarcated.
- The CBA area to the north-west of the site within the PAOI must be demarcated as a no-go area during construction and operation.

- In order to ensure no SCCs are breeding within the proposed disturbance footprint prior to the commencement of construction activities, a walkthrough of the site should be conducted by the ECO for the project within two weeks of commencement of construction activities.
- An avian species specialist must train the ECO in the identification of the SCCs (identified as potentially present in the area in this report), if required, and the presence, location and behaviour thereof during any site visits must be reported to the avian species specialist following each site visit.
- Should any SCC be found breeding within the development footprint at any point during construction, all works within 250 m of the breeding site must be halted, and the avian species specialist must be contacted for further instruction.
- Should any SCC be found breeding within the site boundary at any point during operation, the area must be cordoned off and the avian species specialist must be contacted for further instruction.

#### Habitat Loss and Displacement

Any transformation of vegetation leads to habitat loss for avian species utilising that vegetation, causing displacement into areas which are potentially less suitable or already occupied by competing individuals or species. No areas of high avifaunal sensitivity were identified and development within areas of medium sensitivity should be minimised as far as possible.

#### Discussion and Conclusion

The Site Ecological Importance rating of medium indicates that the site is potentially suitable for development if appropriate mitigation measures and rehabilitation measures are implemented.

The proposed development footprint avoids all areas identified as of high sensitivity for avian species, which are located outside of the proposed development footprint within the PAOI. The proposed development does include the loss of areas of medium avifaunal sensitivity, but as the footprint of this has been minimised, and some areas will be retained, this is considered acceptable from an avifaunal perspective.

The impact assessment has identified potential impacts to avian species, most of which can be mitigated to a low level. Due to the footprint of the proposed development, some loss of SCC habitat is however unavoidable, and even with mitigation this impact is expected to be of medium negative significance for the SCCs that potentially occur (with a medium probability of occurrence) in the habitat that will be lost and could be displaced. These are Knysna Woodpecker and Knysna Warbler. However, due to none of these species having a high probability of occurrence on the proposed development site, and existing disturbance on the site, this loss of habitat is not deemed to have unacceptably high impacts on these species.

The contribution of the proposed development on the cumulative impact of development in this urban area is considered to be low.

It is therefore the avian species specialist's reasoned opinion that the development can proceed as proposed without unacceptable impacts on avian species if all mitigation measures are implemented as recommended.

### **Phase 1 Archaeological and Cultural Impact Assessment**

No archaeological, historical or other heritage material, sites or features were identified during the survey for the proposed Arlington multiple-use development, Walmer, Gqeberha, Nelson Mandela Bay Municipality, Eastern Cape Province. This is due to dense grass / transformed vegetation and some dense thicket vegetation that covers the entire landscape of the proposed development.

However, previous surveys conducted within the surrounding area, especially, towards coastline have recorded historical material dumped within the Driftsands and shell middens extending along the coastline. The proposed development site is located within 5 km of the nearest coastline, which is generally considered an archaeologically sensitive area, up to 5 km, but can extend further inland considering varying landscapes.

An exposed dune surface area has exposed an archaeological site at the eastern end of the Walmer Heights residential area, about 300 m – 400 m of the proposed Arlington development. An archaeological human burial was found exposed during 2019 by a member of the public which was investigated and removed by the Walmer South African Police Services (SAPS) and is currently being housed at the Albany Museum, which is the provincial archaeological repository in the Eastern Cape Province.

Arlington itself, previously St Andrews Racing Club, was opened on Saturday 23 December 1950, by the then Mayor of PE, Mr J.C.K. 'Boet' Erasmus. In October 2007, a new stabling complex was completed at Fairview and all the trainers based at Arlington moved across ([www.sportingpost.co.za/arlington-closes-fond-farewell-to-arlington](http://www.sportingpost.co.za/arlington-closes-fond-farewell-to-arlington)). It can be assumed that most of the remaining buildings, therefore, are older than 60 years and are protected under Section 34 of the National Heritage Resources Act 25 of 1999. A demolition permit is required from the Eastern Cape Provincial Heritage Resources Authority (ECPHRA). It is suggested that a built environment specialist or an historical architect be approached to conduct a built environment heritage assessment and advise on the permit application process.

### **Recommendations and Mitigation**

The proposed development can be considered as having a *low archaeological heritage significance* from the lack of archaeological material, sites, and features identified during the survey. However, due to the proposed development site's location within an archaeologically sensitive coastal zone and a known archaeological site occurring 300m – 400 m east of the site, as well as the results of previous archaeological and cultural heritage assessments, the proposed development area within the wider cultural landscape can be considered as having a *medium – high archaeological heritage significance*.

**Development may proceed as planned however the following recommendations must be considered prior to the commencement of development:**

1. A built environment specialist or an historical architect be approached to conduct a built environment heritage assessment and advise on the permit application process for the demolition of the remaining buildings.
2. A professional archaeologist must be appointed, at the expense of the developer to monitor all excavations for the proposed development. The archaeologist must mitigate in the instance of sites

- being uncovered during the course of the excavations. Phase 2 mitigation in the form of test-pitting/sampling or systematic excavations and collections of the findings will then be conducted to establish the contextual status of the sites and remove the archaeological deposit before development activities continue.
3. Construction managers/foremen and/or the Environmental Control Officer (ECO) should be informed before construction starts on the possible types of heritage sites and cultural material they may encounter and the procedures to follow when they find sites.
  4. If concentrations of pre-colonial archaeological heritage material, historical archaeological material, and/or human remains (including graves and burials) are uncovered during construction of the proposed development and / or future excavations for individual graves, all work must cease immediately and be reported to the Albany Museum (046 622 2312) and/or the Eastern Cape Provincial Heritage Resources Agency (ECPHRA) (043 745 0888) so that systematic and professional investigation/excavation can be undertaken. Phase 2 mitigation in the form of test-pitting/sampling or systematic excavations and collections of the findings will then be conducted to establish the contextual status of the sites and remove the archaeological deposit before development activities continue.

### Conclusion

The purpose of the study was to conduct an archaeological and cultural heritage assessment for the proposed development of the Arlington multiple-use development, Walmer, Gqeberha, Nelson Mandela Bay Municipality, Eastern Cape Province.

The survey was conducted to establish the range and importance of the exposed and in situ archaeological heritage material remains, sites and features; to establish the potential impact of the development; and to make recommendations to minimize possible damage to the archaeological heritage.

The proposed development can be considered as having a low archaeological heritage significance from the lack of archaeological material, sites, and features identified during the survey. However, due to the proposed development site's location within an archaeologically sensitive coastal zone and a known archaeological site occurring 300m – 400 m east of the site, as well as the results of previous archaeological and cultural heritage assessments, the proposed development area within the wider cultural landscape can be considered as having a medium – high archaeological heritage significance.

The recommendations must be considered prior to the commencement of development and implemented during the course of development and be included as part of the environmental management plan for the project.

### **Palaeontological Impact Assessment**

The area was surveyed, and it was established that it had previously been highly disturbed, with most of the area having been artificially landscaped to produce an equine racetrack and associated spectator area. In addition, most of the area was vegetated, with the least disturbed western portion of the area being mantled by impenetrably thick vegetation. As a result, natural exposure of underlying strata was minimal.

Small amounts of outcrop in the extreme west of the area include semi consolidated aeolianites consistent with the Nanaga Formation. These aeolianites were, in places, rich in rhizocretes (calcareous root moulds), with a number of terrestrial gastropod species represented by preserved shells. These findings are, however of extremely low palaeontological significance.

There remains the possibility that construction work during development may disturb large vertebrate (eg. mammal) bones, either as isolated occurrences or accumulations made by humans or hyaenas. Should this occur, excavators should be diverted to other areas and a palaeontologist should be informed to assess the occurrence for possible sampling.

### **Aquatic and Wetland Assessment**

No NFEPA Rivers were identified in to be within the development sites.

The National Freshwater Ecosystem Priority Areas (NFEPA) project provides strategic spatial priorities for conserving South Africa's freshwater ecosystems and supports sustainable use of water resources. There priority areas are called Freshwater Ecosystem Priority Areas, or "FEPAs". No wetlands have been identified within a radius of 500m of the development sites.

A South African Inventory of Inland Aquatic Ecosystems (SAIIAE) was established during the National Biodiversity Assessment of 2018 (NBA 2018). The SAIIAE offers a collection of data layers pertaining to ecosystem types and pressures for both rivers and inland wetlands.

The SAIIAE builds on previous efforts while also introducing improvements and several new elements. An inventory of inland aquatic ecosystems responds to a multi-stakeholder need for the planning, conservation and management of these systems, as mandated by a number of Legislative Acts, including the South African National Water Act (Act No. 36 of 1998) (NWA) and the National Environmental Management: Biodiversity Act (NEMBA).

The dataset indicates the presence of four wetland features within a 500m radius of the development site. These features are identified as "Depression Wetlands".

#### *Identification, delineation and mapping of aquatic features*

The site assessment confirmed the absence of any natural wetland features within the study areas. In addition, no wetland features were identified within a 500m radius of the development properties. The wetland features included in the Wetland Map5 were visited and found to not be "Depression Wetlands" as per the dataset. These areas are areas of disturbance in the vegetation that has developed a grass covering consisting of *Stenotaphrum secundatum* (Buffalo Grass).

No watercourse features were identified within the boundaries of the development site or within a 100m radius of the development site.

As no aquatic features were identified either on the development site or within a 500m radius of the site, no further assessment in this regard was necessary.

### **Risk/ Impact Assessment**

As no aquatic features were identified either within the boundaries of the development site or within the distances specified to determine the “regulated area of a watercourse” the completion of a Risk Assessment was not necessary.

### **Compliance Statement**

As the Site Sensitivity Verification completed in the sections, above, has indicated that the Aquatic Biodiversity of the proposed development site is considered to be “LOW”.

The classification Aquatic Biodiversity Theme in the DFFE Online Screening Tool of “very high” sensitivity is related to the development site’s presence in the Tsitsikamma SWSA. The nature of the development will not impact on the SWSA’s status as it will not result in the impeding of any surface runoff into the localized groundwater regime, and it will not influence the amount of water that is currently provided by the development through runoff and seepage. As such, the “very high” sensitivity of the development site is considered to be “low”.

### **Aquatic and Wetland Specialist – Management and Mitigation Measures (Construction Phase)**

- All plant and equipment that make use of petrochemical substances must be checked for leakages on a daily basis before operations commence.
- All plant and equipment that are found to be leaking must be removed from the site and only returned once the leakages have been addressed.
- If any petrochemical substances are stored on the site, this storage must be done on an impermeable surface in a bunded area that makes provision for 110% of volume of the substances that are stored.
- All refuelling of plant and equipment must be conducted over a drip-tray.
- If any plant or equipment is to be parked on the site, these must be parked within the demarcated construction footprint that has been cleared.
- If any spillages from plant or equipment occur, the spill must be contained immediately, the contaminated soils must be collected and bagged in impermeable bags and stored on site to be removed and disposed of by a registered service provider.
- The domestic waste from these waste bins must be removed off site and disposed of at a municipal landfill site on a weekly basis or more regularly if the bins fill up quicker.
- Only portable chemical toilets with a sealed reservoir will be allowed on site.
- All portable chemical toilets must be located further than 30m away from the delineated edges of any aquatic feature.
- The capacity of the reservoirs in the portable chemical toilets must be monitored on a daily basis to ensure that they can be serviced timeously.

- All removal of the collected sewage waste from the portable chemical toilets must be conducted by a registered service provider for disposal at a municipal wastewater treatment facility.

### **Conclusion**

No part of the proposed development site is located within the “regulated area of a watercourse” as defined by the National Water Act (Act No. 36 of 1999). As such, there will be no requirement for the completion of any Water Use License Application for Section 21 (c) and (i) for the development.

Similarly, no part of the development is in any aquatic feature or within 32m of any aquatic feature, as such there will be no requirement for any Application for Environmental Authorisation in accordance with the National Environmental Management Act (Act No. 107 of 1998): Environmental Impact Assessment Regulations (2014), as amended.

The classification Aquatic Biodiversity Theme in the DFFE Online Screening Tool of “very high” sensitivity is related to the development site’s presence in the Tsitsikamma SWSA. The nature of the development will not impact on the SWSA’s status as it will not result in the impeding of any surface runoff into the localized groundwater regime, and it will not influence the amount of water that is currently provided by the development through runoff and seepage. As such, the “very high” sensitivity of the development site is considered to be “low”.

As no aquatic feature will be impacted upon, it is the recommendation of this report that there is no reason why this development cannot be authorised.

### **Socio-Economic Assessment**

Although some negative impacts have been identified in this report, they are significantly outweighed by the positive impacts associated with the proposed development. Negative impacts can be managed through the proper implementation of mitigations and the involvement of all affected parties from inception stages, prior commencement of construction.

In consideration of the fact that many of the socio-economic impacts cannot be prevented, management responses as opposed to preventative actions, are proposed to mitigate the severity of the negative impacts or to maintain and improve the positive impacts. Therefore, it is highly recommended that the management/enhancement measures provided in this report must be implemented and incorporated into the Environmental Management Programme of the EIA.

None of the impacts identified and assessed as part of this SIA are considered to be fatal flaws. The assessment revealed that all identified impacts can be mitigated, thus reducing the significance of the impacts. While the development may have short-term negative impacts, they are all outweighed by the positive long-term impacts. The development will significantly contribute to the development of the NMBM area, both socially and economically.

## Traffic

Following the investigation and analysis it is concluded that:

- i. The current operating conditions on the road network within the study area are found to be acceptable with no LOS or capacity failures, except for the Victoria Drive/Buffelsfontein Road intersection.
- ii. The posted speed limit of 60 km/h along both Victoria Drive and Glendore Road, in the vicinity of the site accesses, is appropriate for the current and expected future traffic conditions.
- iii. The existing critical peak, in terms of traffic volume, was found to be the AM peak hour while the PM peak hour tested similarly but with marginally lower demands.
- iv. Once developed and fully occupied, the proposed development may be expected to generate in the order of 1130 and 1310 new vehicle trips in AM and PM commuter peak hours respectively. This is considerably higher than the estimated 880 new trips in the SAT peak.
- v. The combined critical peak hour of existing and development trips is found to be the AM peak hour.
- vi. The network is not overloaded when development trips are assigned for any of the given tested peak hours, subject to the recommended road network improvements being undertaken.
- vii. The proposed changes to the layout and road network, adequately serve the proposed development.
- viii. The development is of a magnitude that suggests that a pavement assessment be conducted to determine the structural integrity of the existing roads.

## Recommendations

Based on the investigation and conclusions it is recommended that:

- i. This Traffic Impact Assessment (TIA) be submitted to the Nelson Mandela Bay Municipality (NMBM) and the Eastern Cape Department of Transport (ECDOT) for their perusal.
- ii. The development proposal, that is the proposed rezoning, consolidation and subdivision of the following properties: Erven 10653/4, 3988, 6991 and Remainder of Erf 4195, Gqebera, as submitted and reflected herein, being approved in principle from a traffic impact perspective by the NMBM and the ECDOT. Once the comments are received from the ECDOT, these comments will be forwarded to NMBM for consideration.
- iii. The site layout changes, being made a condition of approval. The required internal road network improvements to be made by the development are as follows:
  - a. parking layout,
  - b. disabled parking bays,
  - c. loading bays,
  - d. control strategy, and
  - e. traffic calming.
- iv. The road network improvements, as listed below to being made a condition of approval. It should however be noted that these improvements may change subject to subsequent investigations in consultation with the road authority. The required public road network improvements to be made to accommodate the development are as follows:



- a. The construction of a traffic circle at the Glendore Road/Unnamed Road/Access Road and Victoria Drive/Glendore Road intersections.
- b. Traffic signals, with additional turning auxiliary lanes, being introduced at the Genadendal Road/Buffelsfontein Road intersection.
- c. The construction of additional lanes, together with changes to the traffic signal phasing and timing, being implemented at the Victoria Drive/Buffelsfontein Road intersection.
- d. The construction of two public transport bays, one on both of the exits to the Glendore Road/Unnamed Road/Access Road intersections, as well along Victoria Drive at the Victoria Drive/Glendore Road intersection.
- e. Construction of raised pedestrian tables on all the approaches to the proposed traffic circles.
- f. An adequate pedestrian and vehicle proof fence/wall being erected along the property boundary with Glendore Road.
- g. Construction of surfaced pedestrian sidewalk along the internal roads within the development.
- h. Construction of surfaced pedestrian sidewalk along the western side of the DR01908 between end of the existing sidewalk and the southern access.
- i. Construction of strategically located raised pedestrian table along the internal road network and at the internal and external traffic circles.
- j. Parking and loading bays being provided as per Table C.1. This is subject to a successful parking departure application. Should the parking departure application not be successful, then the parking is to be provided as per Reference Eight, i.e. Port Elizabeth Zoning Scheme Regulations. This will require the SDP to be amended accordingly.
- k. The developers civil engineer responsible for the roads, undertake the necessary pavement assessment on the surrounding road network. The findings of the assessment must be forwarded to the NMBM for consideration.
- l. All costs associated with the internal roads, as indicated in Figure 5.1, being solely to the Developer's account.
- m. All costs associated with the recommendations, as listed in "iv", being solely to the Developer's account. It is however suggested that the Developer approach the NMBM to determine whether they would consider a contribution towards the cost of improvements to the Victoria Drive/Buffelsfontein Road intersection as this intersection is currently operating at a poor LOS without the development trips being taken into consideration.

It should be noted that all figures represented in the Traffic Impact Assessment are concept drawings only and are not to be used for construction purposes. These concept drawings are to be developed into engineering drawings by the Developer's appointed civil engineer. The engineering drawings are then to be approved by the relevant road authority officials prior to construction.

### **Glint and Glare Assessment**

The assessment was conducted with the objective of determining how 'glint' and 'glare' will affect aviation receptors such as pilots on final approach to the airport, as well as the Air Traffic Control Tower (ATCT). These aviation receptors operate at the Chief Dawid Stuurman International Airport (ICAO code: FAPE) in Gqeberha, Eastern Cape.

If the 'glint' and 'glare' effects are strong enough, it has the potential to cause temporary flash blindness in the receptors and hinder their abilities to conduct their operations. The glare is rated in three categories, namely as green, yellow, and red with red being the highest risk from an aviation perspective as an after image could occur.

The modelling results indicate that the FP Runway 35, FP Runway 26, and Air Traffic Control Tower will be exposed to green glare only. No receptors will be exposed to yellow or red glint and glare during the landing phase of flight. This is due to the fixed axis Solar PV arrays being positioned on the northern side of the aviation receptors and angled towards the north.

Green glare has a low potential to cause temporary flash blindness and is therefore acceptable in terms of the United States FAA Regulations. Furthermore, the model does not take into account building heights, these buildings will obstruct the line of sight from the Air Traffic Control Tower to the Solar panels and therefore further prevent glint exposure to the Tower.

It is therefore recommended that the project receive authorisation from the Civil Aviation Authority from a glint and glare perspective.

#### ICAO Annex 14 Obstacle Limitation Surfaces (OLS) Report

This report contains the details of the ICAO Annex 14 obstacle limitation surfaces with consideration for the proposed Arlington solar PV development located approximately 1.5NM (2.8km) west of Chief Dawid Stuurman International airport, Eastern Cape, South Africa.

The proposed Arlington solar PV development lies within the Inner Horizontal surface of the FAPE OLS, which is the controlling surface.

As such any structures within the proposed Arlington solar PV development should not exceed the maximum elevation of 101m AMSL in order to remain clear of the FAPE ICAO Annex 14 Obstacle Limitation Surfaces.

Given the nature of the terrain surrounding the proposed PV development, as well as the obstacles indicated in the AIP for FAPE, Annex 14 Vol 1, 4.2.20 allows for the appropriate authority to potentially apply the shielding principle to the proposed PV development.

Based on the findings of the EIA and the information presented by the specialists, the positive impacts of the preferred alternative, the development should be authorised as long as the mitigation measures listed in this Report and the Environmental Management Programme are implemented.

## **18 RECOMMENDATIONS FOR CONDITIONS OF THE ENVIRONMENTAL AUTHORISATION**

- An engineer must design a Detailed Design Stormwater Management Plan based on detailed hydrological flood modelling. This must be done before any land clearing take place. This detailed design plan must take the Conceptual Stormwater Plan included in the engineering services report findings into account. The Detailed plan must take into account avoiding contaminated runoff from

the construction phase footprint area from entering the natural environment (appropriate grease traps and spill management plan).

- A Landscaping Plan must be compiled by a professionally registered Landscape Architect.
- Once the above reports are completed, including the detailed structure of the ELC, the reports must be included in the Amended Environmental Management programme which must be approved by the Eastern Cape Department of Economic Development, Environmental Affairs and Tourism (DEDEAT): Nelson Mandela Bay Region / Sarah Baartman District prior to construction commencing.
- The Traffic Impact Assessment (TIA) completed by EMONTI Consulting Engineers cc, dated September 2022 (version2) be submitted to the Nelson Mandela Bay Municipality (NMBM) and the Eastern Cape Department of Transport (ECDOT) for their perusal.
- An ECO must be appointed in the Pre- Construction and Construction Phase to monitor that the applicant is in compliance with all of the requirements of the EMPr and the EA.
- Animal Search and Rescue (S&R) of the entire site must be done by a qualified faunal specialist prior to commencement of any activity on site. All old buildings must be searched, and animals found must be relocated.
- The footprint of disturbance must be kept to a minimum surrounding the development footprint, during construction and must be demarcated.
  - The CBA area to the north-west of the site within the PAOI must be demarcated as a no-go area during construction and operation.
  - In order to ensure no SCCs are breeding within the proposed disturbance footprint prior to the commencement of construction activities, a walkthrough of the site should be conducted by the ECO for the project within two weeks of commencement of construction activities.
  - An avian species specialist must train the ECO in the identification of the SCCs (identified as potentially present in the area in this report), if required, and the presence, location and behaviour thereof during any site visits must be reported to the avian species specialist following each site visit.
  - Should any SCC be found breeding within the development footprint at any point during construction, all works within 250 m of the breeding site must be halted, and the avian species specialist must be contacted for further instruction.
  - Should any SCC be found breeding within the site boundary at any point during operation, the area must be cordoned off and the avian species specialist must be contacted for further instruction.
  - A site representative must be trained in handling dangerous reptiles and scorpions during site construction. This person must inspect the construction site daily before activities start and relocate any snakes, spiders and scorpions if found in holes, trenches, plant, building, or office structures.
  - A built environment specialist or an historical architect be approached to conduct a built environment heritage assessment and advise on the permit application process for the demolition of the remaining buildings.
  - A professional archaeologist must be appointed, at the expense of the developer to monitor all excavations for the proposed development. The archaeologist must mitigate in the instance of sites being uncovered during the course of the excavations. Phase 2 mitigation in the form of test-pitting/sampling or systematic excavations and collections of the findings will then be conducted to

establish the contextual status of the sites and remove the archaeological deposit before development activities continue.

- Construction managers/foremen and/or the Environmental Control Officer (ECO) should be informed before construction starts on the possible types of heritage sites and cultural material they may encounter and the procedures to follow when they find sites.
- If concentrations of pre-colonial archaeological heritage material, historical archaeological material, and/or human remains (including graves and burials) are uncovered during construction of the proposed development and / or future excavations for individual graves, all work must cease immediately and be reported to the Albany Museum (046 622 2312) and/or the Eastern Cape Provincial Heritage Resources Agency (ECPHRA) (043 745 0888) so that systematic and professional investigation/excavation can be undertaken. Phase 2 mitigation in the form of test-pitting/sampling or systematic excavations and collections of the findings will then be conducted to establish the contextual status of the sites and remove the archaeological deposit before development activities continue.
- There remains the possibility that construction work during development may disturb large vertebrate (eg. mammal) bones, either as isolated occurrences or accumulations made by humans or hyaenas. Should this occur, excavators should be diverted to other areas and a palaeontologist should be informed to assess the occurrence for possible sampling.
- An Environmental Liaison Committee consisting of community representatives, local organisations, relevant authorities and municipal representatives must be established. The ELC must play an oversight role with regard to the implementation of the Environmental Authorisation.
- All of the mitigation measures listed in the EMPr, and the specialist reports must be implemented.

## *APPENDIX A: MAPS*

## ***APPENDIX B: LAYOUT PLANS***

## *APPENDIX C: SPECIALIST STUDIES*

## *APPENDIX D: PUBLIC PARTICIPATION*



## ***APPENDIX E: EAP DECLARATION***

## *APPENDIX F: EAPS CV*

## *APPENDIX G: OTHER INFORMATION*