Appendix D – Specialist reports

- Site Verification Report
- Visual Impact Specialist Report
- Archaeological & Palaeontological Compliance Statement
- Terrestrial Biodiversity and Plant Species Specialist Report
- Aquatic Biodiversity Compliance Statement
- Avifaunal Species Compliance Statement
- Faunal Species Compliance Statement
- Socio-economic Specialist Assessment

DEDEAT Reference: ECm1/C/LN1/M/03-2024

Site Sensitivity Verification Report

Proposed new housing development along Heatherbank Road in Theesecombe, Port Elizabeth, Eastern Cape Province

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1. INTRODUCTION

The Lovemore family Trust wishes to develop a new housing development called “The Heath”, on 2 hectares (ha) of Erf 4087 along Heatherbank Road in Theescombe, Port Elizabeth in the Eastern Cape Province. The land is currently utilized as part of an equestrian ranch (Figure 1.1).

Figure 1.1: Location of the proposed site along Heatherbank road in Port Elizabeth

Table 1.1: Coordinate point for the site location

#	Latitude	Longitude
1.	33° 59.170'S	25° 31.255'E

1.2 Project description

The proposed new development will consist of 29 units of upmarket, free-standing homes in a secure estate located along Heatherbank Road. Plot sizes will range between 300-700 square meter in size (Figure 1.2). The houses will not be developed as part of the project site construction phase but sold off as plots. The purchaser will then build their dwelling according to specific specifications. Only a road, fence surrounding the development and an access gate will be constructed. The entire erf will be developed.

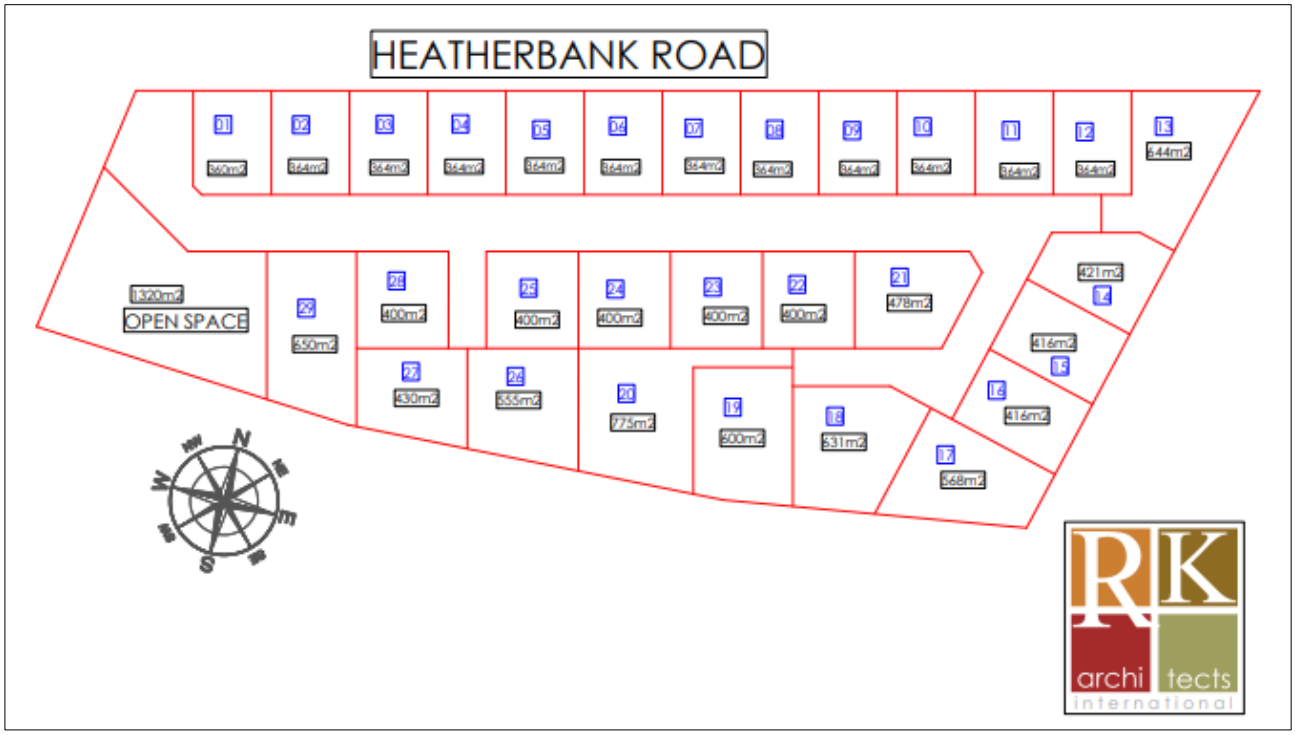

Figure 1.2: Layout of the proposed new "The Heath" housing development along Heatherbank road.

1.3 Purpose of this report

A Screening Tool Report was generated as part of the EIA application process. According to the Screening Tool Report, the following specialist assessments were identified and recommended to be undertaken as part of the environmental process:

1. Landscape/Visual Impact Assessment.
2. Archaeological and Cultural Heritage Impact Assessment.
3. Palaeontology Impact Assessment.
4. Terrestrial Biodiversity Impact Assessment.
5. Aquatic Biodiversity Impact Assessment.
6. Socio-economic Impact Assessment.
7. Plant Species Impact Assessment.
8. Animal Species Impact Assessment.

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, this Site Sensitivity Verification Report has been compiled to provide a rationale for the specialist studies undertaken as part of the environmental process.

2. DESKTOP ANALYSIS

2.1 Current land use

Current land use has been determined and the map in Figure 2.1 shows that the project area and surrounding landscapes is mostly surrounded by agricultural land with some scattered housing infrastructure. Most land is cleared of endemic vegetation and used for pastures and housing. The project site is also cleared and currently used as a paddock for horses. The site boundary is designated by an existing fence surrounding the site.

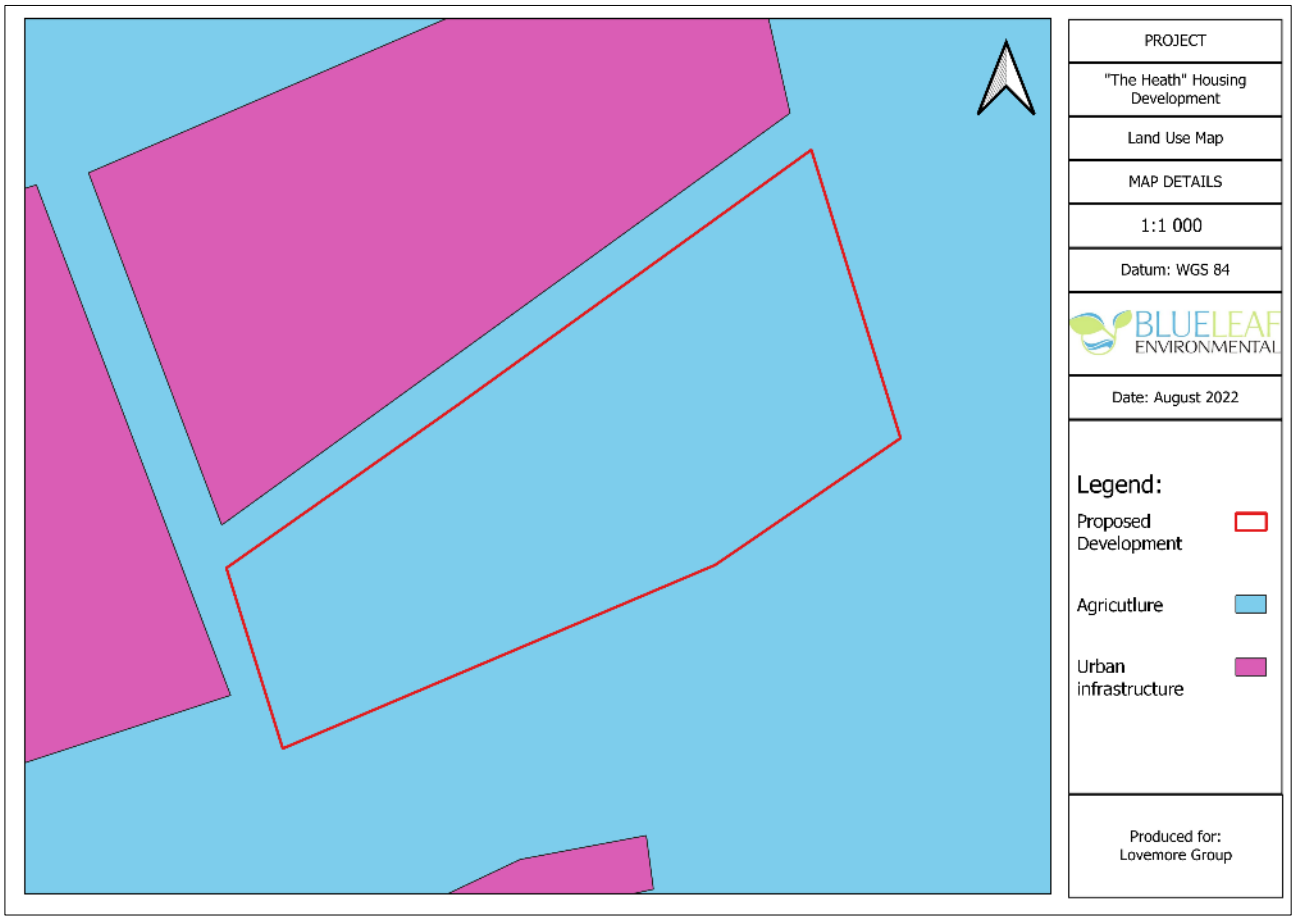

Figure 2.1: Land use of the project site and surrounding areas

2.2 Surface water

No wetlands occur on site or within 500 m of the expansion site boundary. No rivers occur on site or within 100 m of the site boundary. According to the NMBM BP (2014) the project site is not located within any Ecological Process area or CBA.

2.3 Vegetation

The national vegetation classification system called the SANBI VegMap (2018) identifies a single vegetation type within the project site namely Algoa Sandstone Fynbos (Figure 2.2).

Algoa Sandstone Fynbos occurs on coastal flats in the port Elizabeth area. Vegetation supports grassy shrubland (mainly graminoid fynbos) with grasses dominating in wet habitats. SANBI classifies this vegetation as **critically endangered** with about only 2% conserved in the Van Stadens Wild Flower Reserve and some other private nature reserves.

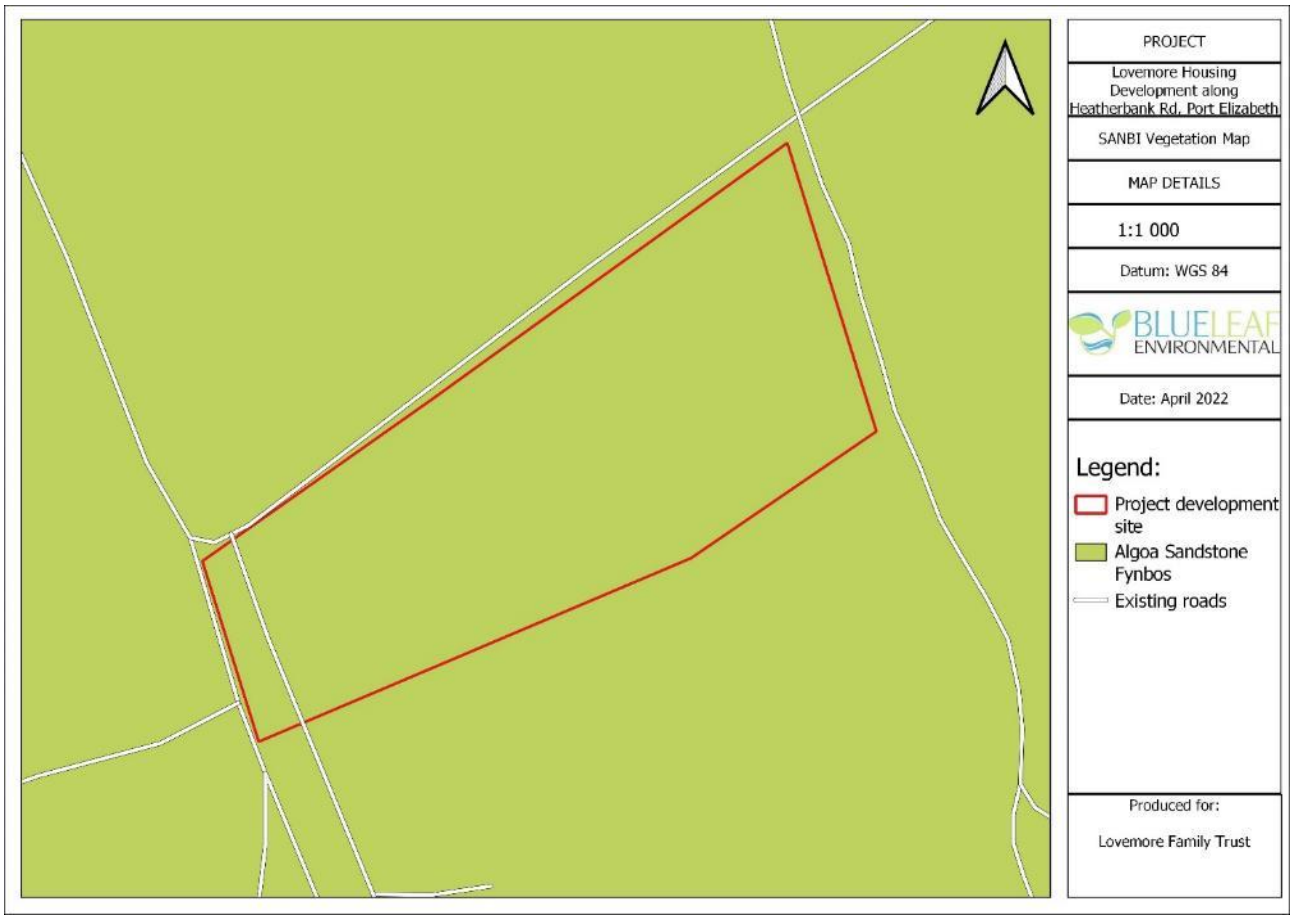

Figure 2.3: SANBI vegetation types listed in and near the proposed expansion area.

A site visit confirmed that the entire site has been transforMed through agriculture. The site is currently used as an equestrian for horse training and the site is covered entirely by short grasses. No endemic plant species were observed within the study site.

2.4 Animals

No animal species were observed within the study site upon site visit, but the Screening Report lists various animal SCC that may occur in the area. The chances of any of these animals occurring on site is very low. The site is completely transformed to pasture with no natural habitats present.

2.5 Biodiversity

The project area and immediate surroundings does not fall into a critical biodiversity area according to the Nelson Mandela Bay Metropolitan (NMBM) Critical Biodiversity Areas (CBA). The site does however fall into a critically endangered ecosystem namely Algoa Sandstone Fynbos which has almost entirely been lost due to urban development in the Port Elizabeth Area.

As the site is currently completely transformed, with the currently land-use (namely equestrian) not contributing to the conservation of biodiversity, the proposed new development will not have a significant impact on the existing biodiversity of the local area.

3. SITE ASSESSMENT

A site visit was conducted on the 5th of August 2023. The following was observed:

1. No remains of the original vegetation type were found The site is completely transformed.
2. No plant SCC were observed. There is a low risk of any non-identified plant SCC found on site during construction.
3. The site is dominated by unlisted plant AIS and pasture (grasses).

Below is a photo sequence of the study site and surroundings:

Vegetation is denser along fence-line and in areas between pastures found within the site

Some trees are found outside of the boundary of the site and grazing limits most plant growth except along the fence-line.

The site is located along Heatherbank road and completely fenced:

Some hexisting housing developments surround the project site:

4. RATIONALE FOR REQUIRED SPECIALIST STUDIES

Below is rationale for each of the specialist assessments listed in the Screening Report:

4.1 Landscape/Visual Impact Assessment

A landscape/visual specialist assessment will be undertaken in line with the recommended protocol and will inform the BAR.

4.2 Archaeological and Cultural Heritage Impact Assessment

Archaeology has been ranked as low sensitivity in the study area by the screening report. It is therefore the opinion of the consultant that an Archaeological Specialist Impact Assessment is not required. A specialist was still approached to draft a compliance statement. His recommendations will be included in the BAR/EMPr. Comments will be obtained from the relevant heritage resource authorities (SAHRA and ECPHRA).

4.3 Palaeontology Impact Assessment

A Specialist has been approached who will be drafting a compliance statement. His recommendations will be included in the BAR/EMPr. Comments will be obtained from the relevant heritage resource authorities (SAHRA and ECPHRA)**.**

4.4 Terrestrial Biodiversity Impact Assessment

The site is NOT located in either a CBA1 and ESA1. Even though the site is mostly transformed and degraded, the sensitivity of critically endangered Algo Sandstone Fynbos cannot be ignored and therefore the very high sensitivity listed in the screening report is confirmed. A Terrestrial Biodiversity Specialist Assessment was commissioned. His recommendations will be included in the BAR/EMPr.

4.5 Aquatic Biodiversity Impact Assessment

The aquatic environment has been listed as low sensitivity in the study area by the screening report. A site visit confirmed that no water bodies will be impacted by the proposed expansion. It is therefore the opinion of the consultant that an Aquatic Biodiversity Specialist Assessment is not required. A specialist was still approached to draft a compliance statement. His recommendations will be included in the BAR/EMPr.

4.6 Socio-economic Impact Assessment

A Specialist has been approached who will be drafting a Socio-economic Specialist Assessment. Her recommendations will be included in the BAR/EMPr.

4.7 Plant Species Assessment

Plant species has been listed as high sensitive in the study area by the screening report. A botanist was approached and confirmed that the sensitivity allocation is low. There are no endemic plant species left on site. There are no plant SCC observed on site. Despite this a full Plant Species Specialist Assessment was still commissioned. His recommendations will be included in the BAR/EMPr.

4.8 Animal Species Assessment

Animal species has been listed as medium sensitive in the study area by the screening report. A faunal specialist was approached and after the site visit the site sensitivity remains medium sensitive. An Animal Species Compliance Statement was commissioned. His recommendations will be included in the BAR/EMPr.

5. Conclusion

The Christopher Lovemore Family Trust is proposing the development of a new housing development along Heatherbank Road in Theescombe, Port Elizabeth. BlueLeaf Environmental (Pty) has been appointed to undertake the required Basic Environmental Assessment Application process in terms of the EIA Regulations, 2014 (as amended) promulgated under NEMA.

A Screening Tool Report was generated for the proposed project. According to the Screening Tool Report, eight specialist studies were identified and recommended to be undertaken as part of the environmental process. As set out above, all eight specialist studies recommended by the Screening Tool Report are deemed necessary to be undertaken as part of the environmental process. The outcome of these studies will be incorporated into the BAR and the reports attached as addendums to both the Draft and Final BAR. All other general impacts identified will be assessed as part of the BAR process and included into the EMPr.

Animal Species Compliance Statement

Proposed Development of a new housing development along Heatherbank Road in Theescombe, Port Elizabeth, Eastern Cape

Prepared for:

Christopher Lovemore Family Trust
Port Elizabeth
Eastern Cape Province

Date submitted: 19 August 2023

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1. Declaration of independence

I, Roy de Kock as duly authorised representative of Blue Leaf Environmental (Pty) Ltd, hereby confirm my independence (as well as that of BlueLeaf) as a specialist and declare that neither I nor BlueLeaf have any interest, be it business, financial, personal or other, in any proposed activity, application or appeal in respect of which JG Africa was appointed as environmental assessment practitioner in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), other than fair remuneration for worked performed, specifically in connection with the Environmental Impact Assessment for the proposed housing development in Heatherbank, Port Elizabeth. I further declare that I am confident in the results of the studies undertaken and conclusions drawn because of it – as is described in this report.

_____

Full Name: Roy de Kock

Title / Position: Ecologist
Qualification(s): BSc (Hons) Geology; MSc Botany; Candidate PhD Botany
Experience (years/ months): 14 years
Registration(s): SACNASP (400216/16)
Tel: +27 76 281 9660
Email: roy@blueleafenviro.co.za

2. Expertise of specialist

Roy has over 17 years' experience in environmental consulting and specialist services in the Eastern Cape. Various projects throughout South Africa as well as Africa at larges has also been undertaken. Projects include baseline studies, impact assessments and compliance auditing for various large-scale projects including numerous wind farms, roads (National and Provincial), and infrastructure development projects. Roy has also conducted numerous specialist studies including but not limited to Ecological and Botanical assessments, Biodiversity studies, Plant and Animal Search and Rescue, Fauna and Flora permits, Aquatic Assessments, Agricultural and Soil Assessments and Environmental and Venomous animals training workshops.

Roy holds a BSc Honours in Geology and an MSc in Botany from the Nelson Mandela University in Port Elizabeth. He is currently busy with his PhD (Doctorate degree) in Botany and Soil Science. He has over 17 years' experience in the environmental consulting focussing on Ecological and Agricultural Assessments, Geological and Geotechnical analysis, Environmental Management Plans, mining applications and various environmental impact studies.

Roy is a registered as a professional natural scientist (Pri.Sci.Nat.) with SACNASP (Registration nr: 400216/16).

This study complies with the requirements as listed in the Gazetted protocols for a faunal specialist assessment and minimum report content requirements (GN. R 320 of 2020) as well as the Guidelines for the implementation of the Fauna Species Protocols for environmental impact assessments in South Africa.

3. Introduction

BlueLeaf Environmental (Pty) Ltd has been appointed to conduct a Terrestrial Compliance Statement for the proposed new "The Heath" Estate Housing development located on Erf 4087, along Heatherbank Road in Theescombe, Port Elizabeth which is currently part of an equestrian estate (Figure 3.1).

Figure 3.1: Proposed "The Heath" Housing Estate Development in Theescombe, Port Elizabeth.

3.1 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 **terrestrial animal species**.

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

Current literature that was used to describe the site includes:

- SANBI (South African National Biodiversity Institute) Red List of South African Animals (http://www.redlist.sanbi.org/).
- Satellite imagery (Google Earth; 2021).
- SANBI National Vegetation Map (updated 2018).
- IUCN (International Union for Conservation of Nature) Red List of Threatened Species ((http://www.iucnredlist.org/).

- CITES (Convention on International Trade in Endangered Species of Wild Flora and Fauna) (http://www.cites.org/).
- NEMBA Threatened or Protected Species Regulations (ToPS) (Notice 255 of 2015 of NEMBA).
- PNCO (Nature and Environmental Conservation Ordinance (No. 19 of 1974), Schedule 1 – Endangered wild animals and Schedule 2 – Protected wild animals.
- The Department of Forestry, Fisheries, and Environment (DFFE) screening tool report for the development footprint.
- Frog Atlas of Southern Africa (https://vmus.adu.org.za/?vm=FrogMAP)
- Virtual Museum of African mammals (https://vmus.adu.org.za/?vm=MammalMAP)
- Reptile Atlas of Africa (https://vmus.adu.org.za/?vm=ReptileMAP)
- Atlas of African Scorpions (https://vmus.adu.org.za/?vm=ScorpionMAP)
- Atlas of African Spiders (https://vmus.adu.org.za/?vm=SpiderMAP)

During the site inspection, photographs of the proposed footprint and surroundings were taken for record purposes. A visual observation was made of the footprint and surrounding area, taking note of the land use, land cover, vegetation cover and specifically any traces of animals occurring within the project site.

Please note that observations of species are contingent on the season that the survey took place in. The site was surveyed during mid-winter; thus, some species may have not been observed due to their seasonal patterns or life histories.

4. Project description

The project will entail the clearance of 2 ha of transformed vegetation, mostly grassland for the establishment of up to 29 units of upmarket, free-standing homes in a secure estate. Plot sizes will range between 300-700 square meter in size (Figure 4.1). A new surfaced access road will be constructed, linking Heatherbank Road to the individual properties on site.

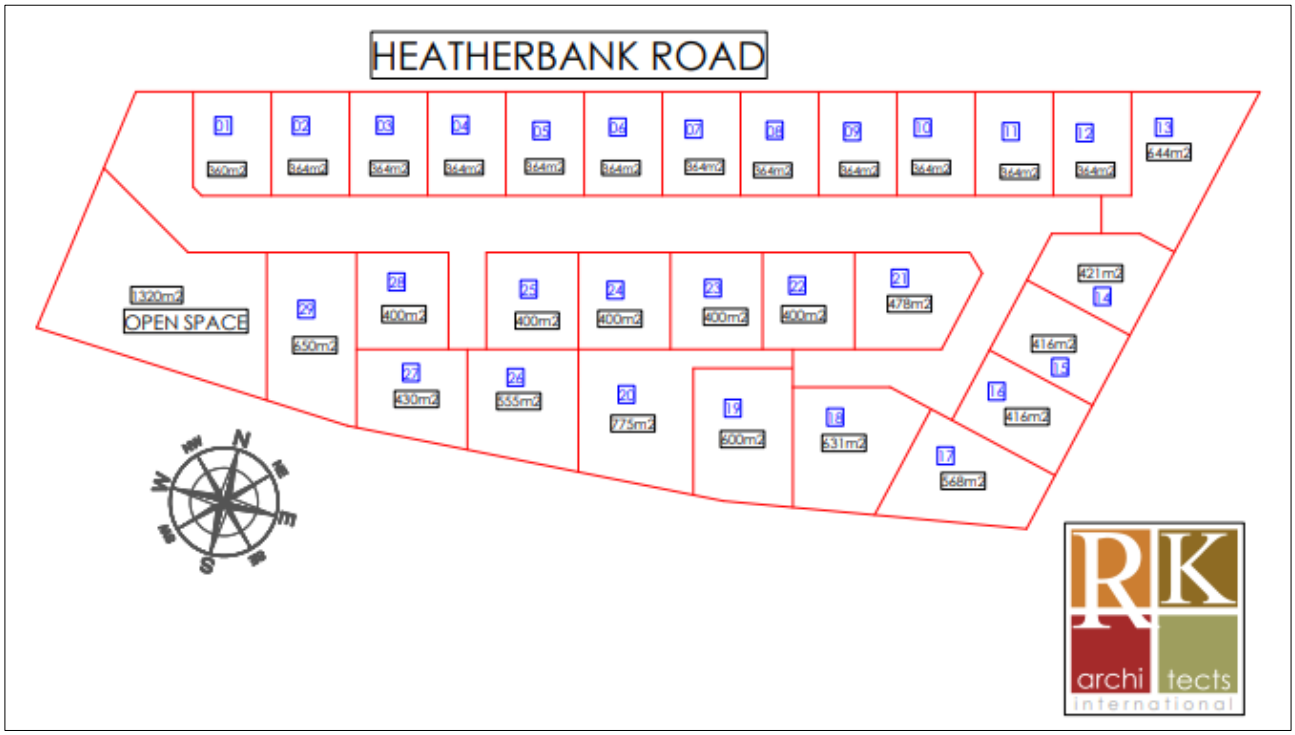

Figure 4.1: Layout of the proposed development site

Current land cover has been determined and the map in Figure 4.2 shows that the entire study area is covered by natural vegetation (grassland). The existing land use of the site is agriculture, and the property is currently used as part of an equestrian facility. No infrastructure exists on site and the site used to form part of a grazing field and training camp for horses. No water bodies exist on site or within 500 m of the proposed site. Urban development occurs to the north and west of the proposed site while the remaining areas around the site are considered as equestrian fields/camps. Heatherbank road borders the site in the north while a gravel road border the site in the west.

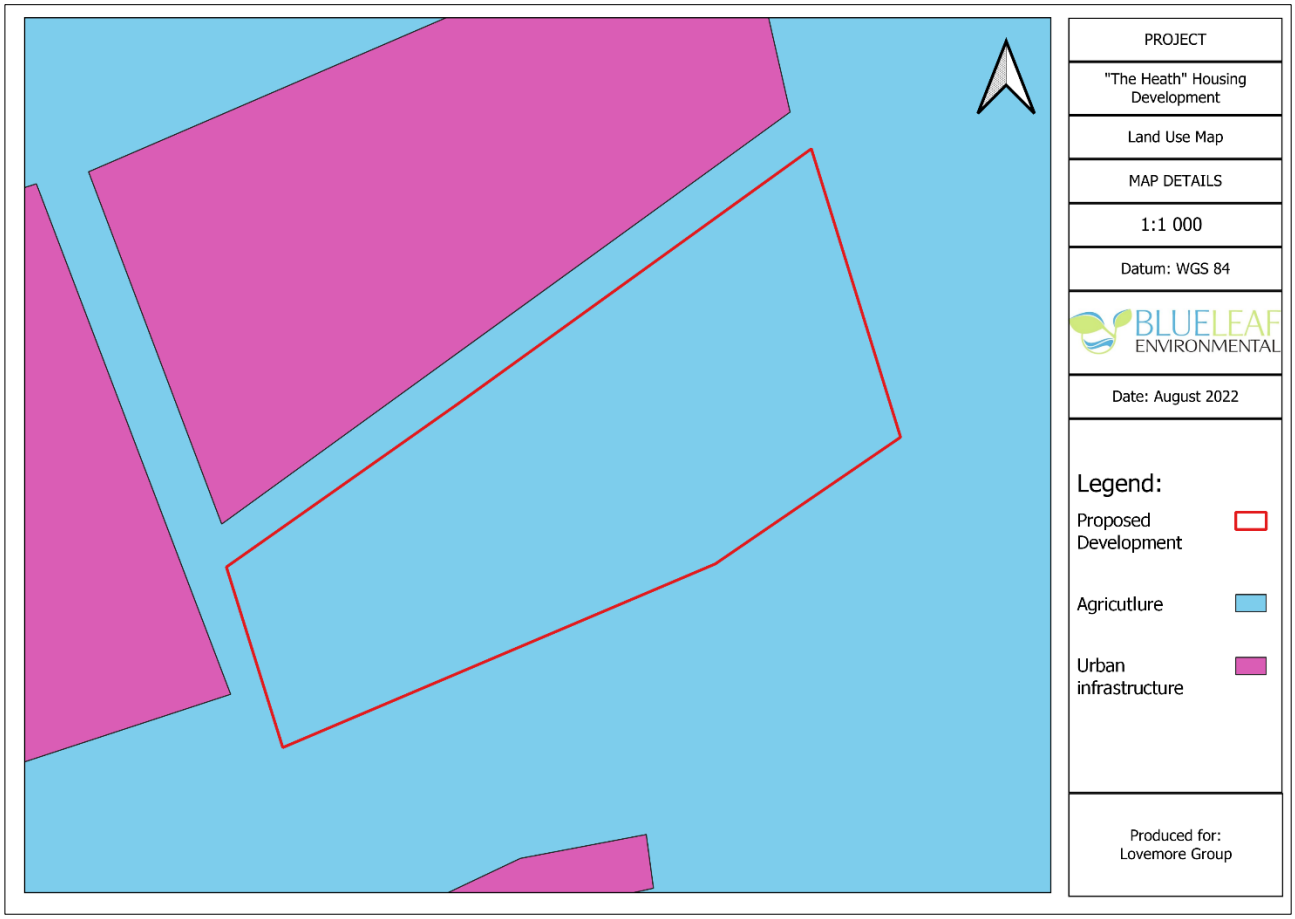

Figure 4.2: Land cover of the study site and surrounding areas

5. 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.

5.1 Topography

The topography of the project area is mostly flat, undulating slightly on a fine scale. The maximum elevation height is 10 m.a.s.l (meters above sea level).

5.2 Vegetation

Vegetation is first described based on available literature and management plans like the South African National Biodiversity Institute (SANBI) vegetation map (called the VegMap; 2018) and the Nelson Mandela Bay Municipal Biodiversity Plan (2014) followed by a more fine-scaled description based on vegetation identified during the site visit.

5.2.1. Regional-scale vegetation description

The SANBI 2018 VegMap lists the proposed activity within a single vegetation type, namely **Algoa Sandstone Fynbos** (Figure 5.1).

Sandstone fynbos is the most extensive vegetation group in the Fynbos biome (301 km^2) almost four times bigger than the next most prominent group and covering almost a third of the Fynbos biome. In the Eastern Cape it covers the coastal flats at Port Elizabeth (Gqeberha), located mostly some kilometers from the coast on flat to slightly undulating plains supporting grassy shrubland (mainly graminoid fynbos). Grasses become dominant in wet habitats and can form mosaics with surrounding vegetation types.

SANBI classifies this vegetation unit as **Endangered** with only 2% of the targeted 23% conserved in scattered protected areas and conservancies. More than 50% has already been transformed through cultivation and urban sprawl. Several invasive Acacias occur but to a limited extend.

The NMBM BP (2014) further classifies vegetation on site as **Tornhill Forest and Thornveld** and classifies it as **Critically Endangered**. Thornhill Forest and Thornveld are considered as patches of Alexandria Forest in grassland with numerous thorn trees (*Vachellia karroo*).

5.2.2. Fine-scale vegetation description

A site visit confirmed that vegetation on site was heavily degraded through grazing and other equestrian activities like trampling. A single grassveld with a mix of non-invasive and endemic grasses, together with some herbaceous species found in fynbos were identified on site. None of the natural Algoa Sandstone Fynbos vegetation (as per the VegMap2018) were found on site. No other vegetation types were found. Little habitat for faunal species were identified.

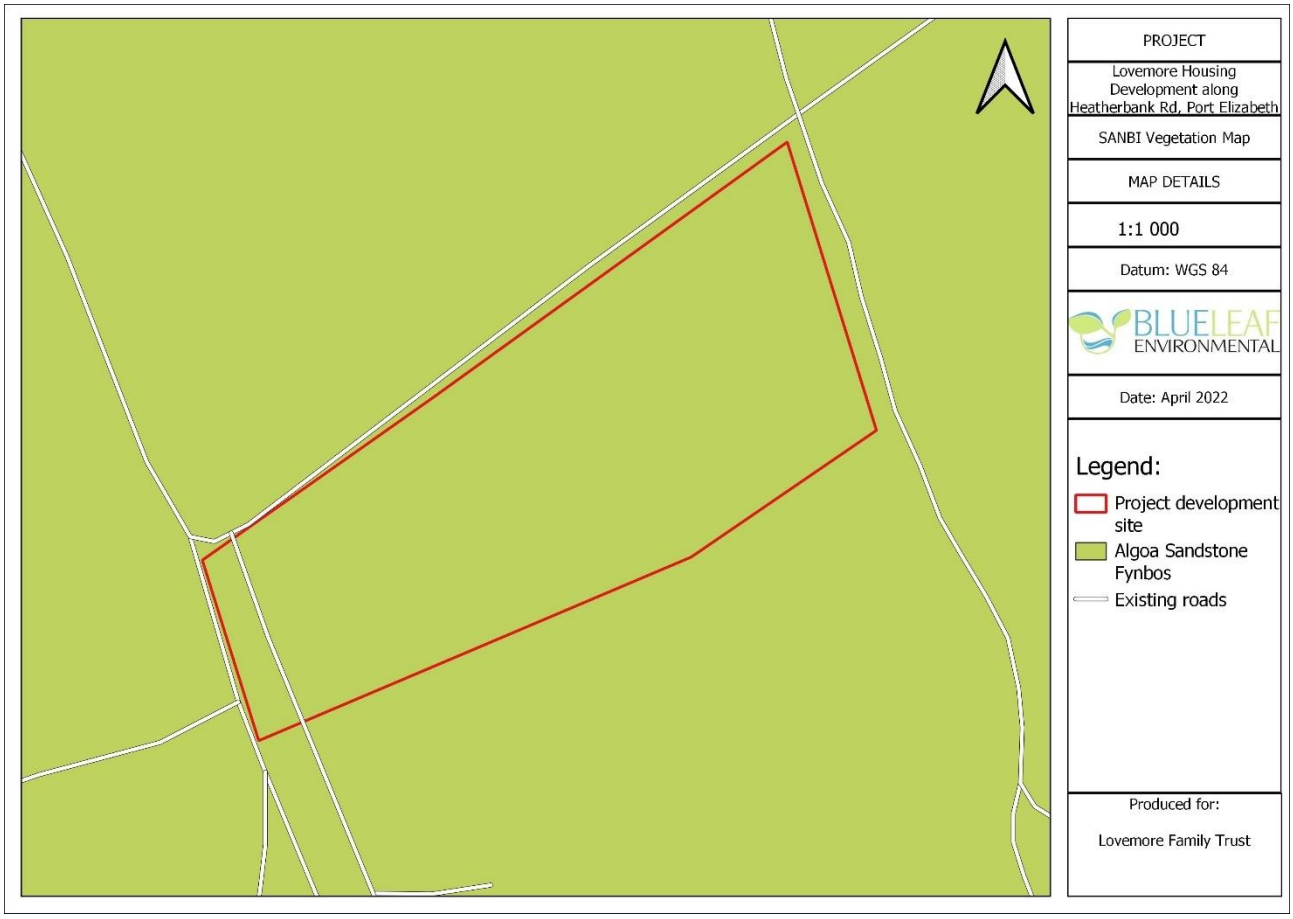

Figure 5.1: SANBI VegMap (2018) of the study site.

Vegetation on site consists of a uniform grassland type that is considered as transformed from the original fynbos that historically occurred in the area. No fynbos units were observed although common fynbos species were observed scattered in between the grass.

An existing access road is located within the stream bed with no signs of wet areas or erosion:

5.3 Biodiversity

The site is located in a threatened ecosystem. the NEMBA List of Threatened Ecosystems list Algoa Sandstone Fynbos as a VULNERABLE ecosystem and in need of protection. The site is however heavily transformed, and little ecological functions remain on site. Surface draining (stormwater

draining) is the dominant ecological function and must be properly addressed during Planning & Design as well as Construction and Operations of the proposed new "The Heath" housing development. The site is not located in or near any CBA or ESA as per the NMBM BP (2014).

5.4 Screening report

The screening report classifies the study site as medium sensitive and list the following faunal species as sensitive species which may be found on site:

Table 5.1: List of animal SCC identified from the Screening Report

Scientific name	Common name	Sensitivity allocation	Observed?
Birds			
Species number 8	-	Medium	No
Mammals			
Chlorotalpa duthieae	Duthie's golden mole	Medium	No
Invertebrate			
Aneuryphymus montanus	Yellow-winged Agile Grasshopper	Medium	No

None of the species identified in Table 5.1 were observed during the site assessment. Habitats for some of these species do occur onsite. The yellow-winged agile grasshopper is found amongst partly burnt stands of evergreen sclerophyll in rocky foothills" (Brown 1960). No such habitat exists on site and therefore it is not expected to find these species on site.

Duthie's golden mole are found in sandy loams and alluvial sands in a thin coastal strip about 275km in length west of Port Elizabeth. These is a moderate risk of finding these moles on site, especially during excavations. The site must be checked daily of any trapped moles and if any are found, they must be relocated to a site outside the development footprint.

6. Site sensitivity verification

A site visit was conducted on the 19th of August 2023 and the entire site as shown in Figure 3.1 was assessed. Although mid-winter is not the optimal time for a faunal assessment, timeframes did not allow for extended waiting periods to spring and summer.

The following was found:

- The entire site is covered by transformed vegetation that consist mostly of grasses including kikuyu missed with some (minimal) fynbos species. The site is transformed due to its current land use where it is used as an equestrian facility (camps).
- None of the sensitive fauna identified by the Screening Report were observed within the study site during the site visit. This does not mean that they do not occur but merely that they were not observed. Suitable habitats do occur for some of them.
- No other protected faunal species that may occur in the area were observed. This includes observing spoor, droppings, and burrows, etc.
- Common species like rodents and other small mammals as well as birds (either resting or feeding) may be found on site.

Based on the above, it is the opinion of the specialist that the site is confirmed as **moderate sensitive for fauna** (as per the DFFE classification). A full Faunal Assessment was therefore NOT required.

Below follows a photo sequence of the findings within the proposed "The Heath" housing development:

Western boundary of the proposed development site. The equestrian stables can be seen	A townhouse complex can be seen just north of the site.
	

Vegetation consist of mainly grasses interspersed with some fynbos species	Individual trees occur along the western boundary but all are considered as alien species.
	

7. Conclusion

The project will entail the clearance of 2 ha of transformed vegetation, mostly grassland for the establishment of up to 29 units of upmarket, free-standing homes in a secure estate on Erf 4087, Theescombe, Port Elizabeth. Plot sizes will range between 300-700 square meter in size. A new surfaced access road will be constructed, linking Heatherbank Road to the individual properties on site.

Algoa Sandstone Fynbos is the only vegetation type identified on site. It is found on flat to slightly undulating plains supporting grassy shrubland (mainly graminoid fynbos). Grasses become dominant in wet habitats and can form mosaics with surrounding vegetation types. SANBI classifies this vegetation unit as **Endangered**. The NMBM BP (2014) classifies vegetation on site as **Thornhill Forest and Thornveld** and classifies it as **Critically Endangered**. Thornhill Forest and Thornveld are considered as patches of Alexandria Forest in grassland with numerous thorn trees (*Vachellia karroo*).

A site visit confirmed that vegetation on site was transformed through grazing and other equestrian activities like trampling. A single grassveld with a mix of non-invasive and endemic grasses, together with some herbaceous species found in fynbos were identified on site. None of the natural Algoa Sandstone Fynbos vegetation (as per the VegMap2018) were found on site. No other vegetation types were found. Little habitat for faunal species were identified.

No sensitive animal species or traces of any were observed during the site visit. Sensitive species are considered as faunal species protected my international, national or provincial legislation and will require permits to relocate and handle.

Even though none of the sensitive species identified in the DFFE Screening Report were observed, there is still a risk that other more common faunal species may occur. It is therefore recommended that a faunal inspection be done by a trained staff member at the start of every day during construction to relocate any faunal species that accidentally gets trapped on site (especially in plant, trenches, ditches, and holes).

6.1. Site sensitivity

The entire site is considered as **MODERATE SENSITIVE** for the faunal species theme. A full Animal Species Impact Assessment will therefore NOT be required.

6.2. Alternatives

No site alternatives or layout alternatives are proposed. The proposed development is NOT considered as fatally flawed provided that all mitigation measures provided in this report are implemented.

6.3. Mitigations

The following mitigations must be included into the final EMPr:

Faunal Handling

- No fauna shall be injured, disturbed or killed.
- Trapping, poisoning, poaching and/or shooting of fauna is strictly forbidden.
- No domestic pets or livestock are permitted on site during construction.
- The contractor must ensure that a competent and suitably qualified staff member or service provider is appointed to handle the relocation of any animals found on site during construction.
- A faunal inspection be done by a trained staff member for the entire site at the start of every day during construction to relocate any faunal species that accidentally gets trapped on site (especially in plant, trenches, ditches, and holes).
- Any fauna found on the site must be relocated to a place of safety.
- The appointed staff/contractor must have the following minimum qualifications:
  - Have a proficiency certificate to move poisonous snakes;
  - Provide a declaration / testimonial that they have had prior experience in removing venomous snakes;
  - Have a valid Problem Animal Control Certificate;
  - Have an appointment under the Animal Protection Act to ensure compliance to animal welfare standards;
  - Have the relevant humane traps, capture and relocation equipment;
  - Outline the relocation methodology;
  - Have access to relevant veterinary expertise in the event of injured wildlife.
  - If animals must be culled or put down, the person must have:
    - Successfully completed the DEDEAT's Professional Hunting Examination;
    - Hold a Firearms Competency Certificate for handgun, shotgun and rifle;
    - Hold a license for the relevant calibres;
    - Have SAPS permission, where applicable.
  - Any persons appointed to do such work must be aware of the dangers of wildlife diseases such as bubonic plague, that can be transferred to humans.
  - Record must be kept of all animals relocated during construction as well as relocation information.

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Aquatic Biodiversity Compliance Statement

Proposed new housing development along Heatherbank Road in Theescombe, Port Elizabeth, Eastern Cape

Prepared for:

Christopher Lovemore Family Trust
Port Elizabeth, Eastern Cape Province

Date submitted: August 2022

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1. Declaration of independence

I, Roy de Kock as duly authorized representative of Blue Leaf Environmental (Pty) Ltd, hereby confirm my independence (as well as that of BlueLeaf) as a specialist and declare that neither I nor BlueLeaf have any interest, be it business, financial, personal or other, in any proposed activity, application or appeal in respect of which BlueLeaf was appointed as environmental specialist in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), other than fair remuneration for worked performed, specifically in connection with the Basic Environmental Assessment for the proposed The Heath Housing Estate Development. I further declarethat I am confident in the results of the studies undertaken and conclusions drawn because of it – as is described in this report.

Full Name: Roy de Kock

Title / Position: Ecologist
Qualification(s): BSc (Hons) Geology; MSc Botany; Candidate PhD Botany
Experience (years/ months): 17 years
Registration(s): SACNASP (400216/16)
Tel: +27 76 281 9660
Email: roy@blueleafenviro.co.za

2. Expertise of specialist

Roy has over 15 years' experience in environmental consulting and specialist services in the EasternCape. Various projects throughout South Africa as well as Africa at larges has also been undertaken.Projects include baseline studies, impact assessments and compliance auditing for various large- scale projects including numerous wind farms, roads (National and Provincial), and infrastructure development projects. Roy has also conducted numerous specialist studies including but not limitedto Ecological and Botanical assessments, Biodiversity studies, Plant and Animal Search and Rescue,Fauna and Flora permits, Aquatic Assessments, Agricultural and Soil Assessments and Environmental and Venomous animals training workshops.

Roy holds a BSc Honours in Geology and an MSc in Botany from the Nelson Mandela University in Port Elizabeth. He is currently busy with his PhD (Doctorate degree) in Botany and Soil Science. He has over 14 years' experience in the environmental consulting focusing on Ecological and Agricultural Assessments, Geological and Geotechnical analysis, Environmental Management Plans,mining applications and various environmental impact studies.

Roy is a registered as a professional natural scientist (Pr.Sci.Nat.) with SACNASP (Registration nr: 400216/16).

This study complies with the requirements as listed in the Gazetted protocols for an aquatic biodiversity assessment (GN. R 320 of 2020) and minimum report content requirements.

3. Introduction

Blue Leaf Environmental (Pty) Ltd has been appointed to conduct an Aquatic Study for the proposed new "The Heath" Estate Housing development located on Erf 4087, along Heatherbank Road in Theescombe, Port Elizabeth (Figure 3.1).

Figure 3.1: Proposed "The Heath" Housing Estate Development in Theescombe, Port Elizabeth

Current land cover has been determined and the map in Figure 3.1 shows that the entire study area is covered by natural vegetation (grassland). The existing land use of the site is agriculture, and the property currently used as part of an equestrian horse farm. No infrastructure exists on site and the site used to form part of a grazing field for the horses. No water bodies exist on site or within 500 m of the proposed site.

3.1 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) and44 of NEMA (G.NR. 1150 of 2020) – Protocol for the specialist assessment and minimum report content requirements for environmental impacts on **aquatic biodiversity**.

A site sensitivity verification has been conducted (see Chapter 6) to confirm/dispute the current useof the land and environmental sensitivity as identified by the Screening Tool. Motivation, with photographic evidence, was provided as part of the site sensitivity verification.

Current literature that was used to describe the site includes:

- Aquatic CBA classification according to the Eastern Cape Biodiversity Conservation plan (ECBCP,2007)
- Department of Water and Sanitation Desktop Present Ecological State (PES) and Ecological Importance and Sensitivity (EIS) Model (2014).
- Department of Water Affairs and Forestry: Level 2 River Ecoregional Classification System forSouth Africa, Lesotho, and Swaziland (2005).
- The National Freshwater Ecosystem Priority Areas (NFEPA) project (2011 - 2014)
- National Spatial Biodiversity Assessment (NSBA) – River Ecosystems (2004)

- SANBI National Vegetation Map (updated 2018).
- DFFE Screening Report (09 November 2021).

4. Project description

The project will entail the clearance of 2 ha of transformed vegetation, mostly grassland for the establishment of up to 29 units of upmarket, free-standing homes in a secure estate. Plot sizes will range between 300-700 square meter in size (Figure 4.1). a new surfaced access road will be constructed, linking Heatherbank Road to the individual properties on site.

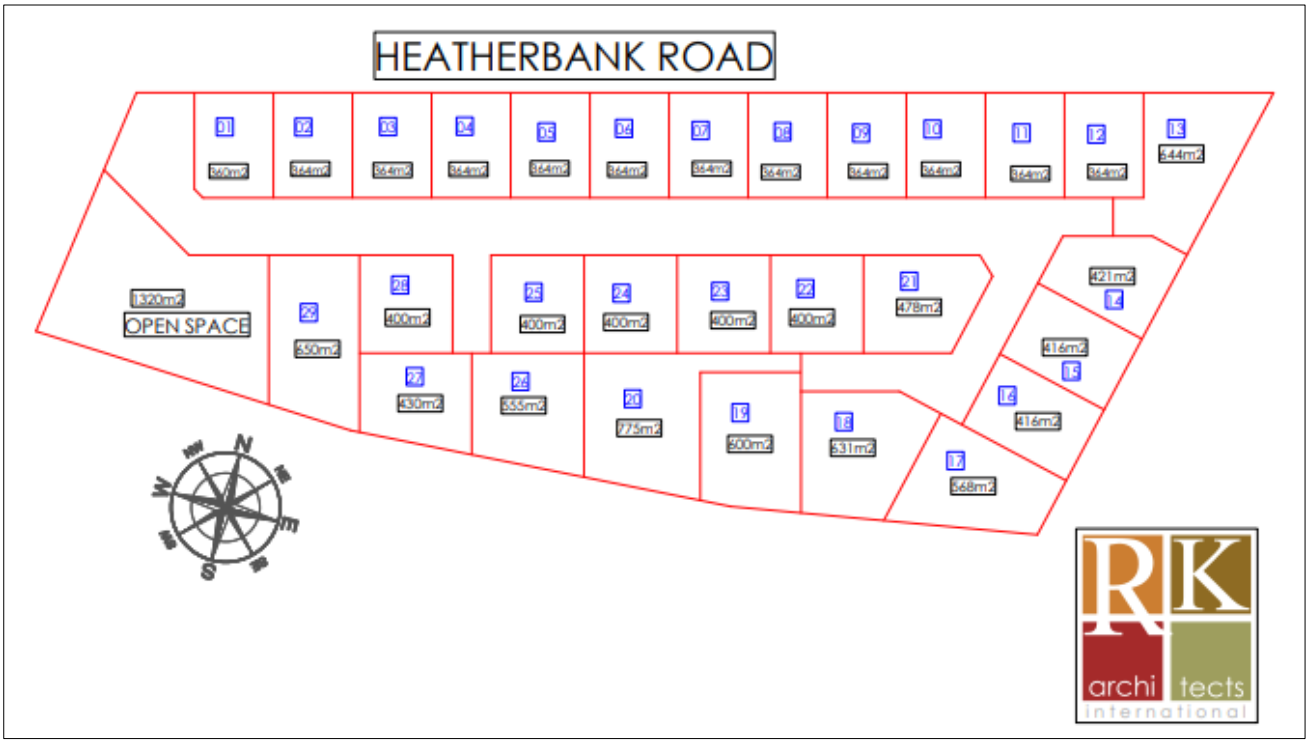

Figure 4.1: Layout of the proposed new "The Heath" housing development along Heatherbank Road in Theescombe.

5. Desktop analysis

This section consists of a desktop analysis of the site based on available literature, plans andlegislation.

5.1 Vegetation

The South African National Biodiversity Institute (SANBI) vegetation map (called the VegMap; 2018)lists the proposed activity within a single vegetation type, namely **Algoa Sandstone Fynbos**.

Sandstone fynbos is the most extensive vegetation group in the Fynbos biome (301 km^2) almost four times bigger than the next most prominent group and covering almost a third of the Fynbos biome. In the Eastern Cape it covers the coastal flats at Port Elizabeth (Gqeberha), located mostly some kilometers from the coast on flat to slightly undulating plains supporting grassy shrubland (mainly graminoid fynbos). Grasses become dominant in wet habitats and can form mosaics with surrounding vegetation types.

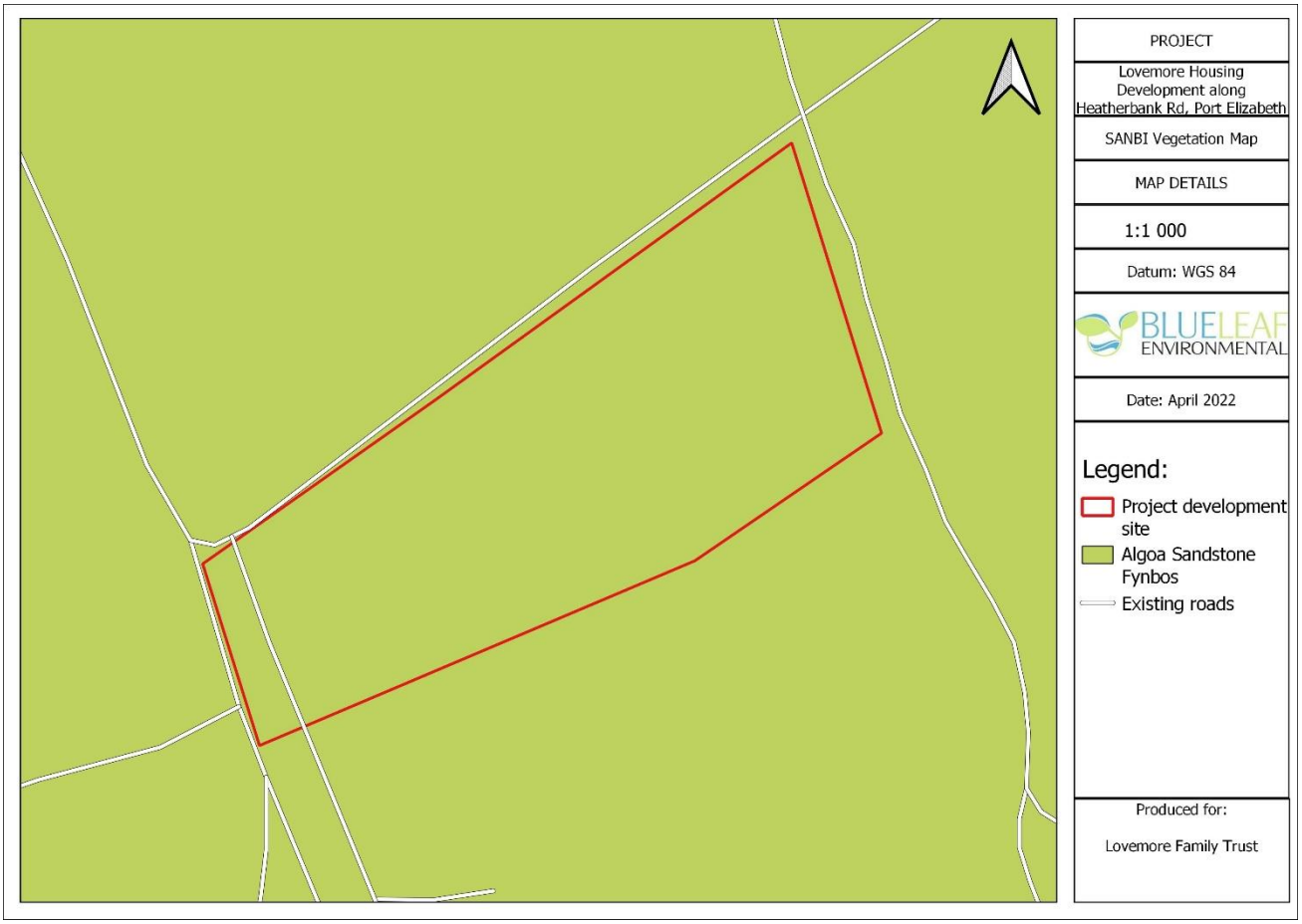

Figure 5.1: SANBI VegMap of the study site

SANBI classifies this vegetation unit as **Endangered** with only 2% of the targeted 23% conserved in scattered protected areas and conservancies. More than 50% has already been transformed through cultivation and urban sprawl. Several invasive Acacias occur but to a limited extend.

The NMBM BP (2014) classifies vegetation on site as Tornhill Forest and Thornveld and classifies it as Critically Endangered.

5.2 Topography

The landscape of the farm area is relative flat with a very low downwards slope of approx. 4% towards the east.

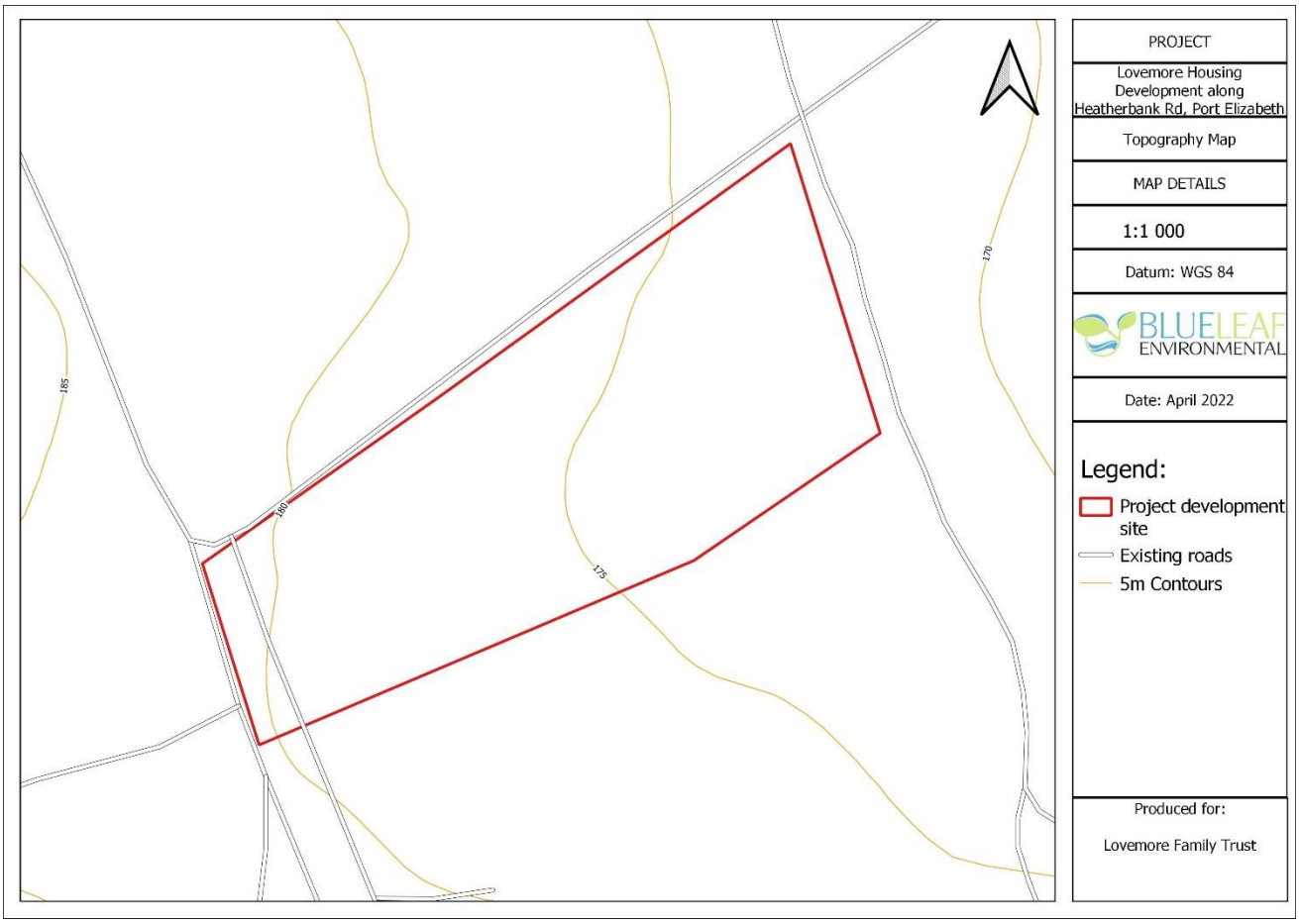

Figure 5.2: Topography of the study site and surrounding areas

Elevation ranges between 183 meters above sea level (m.a.s.l) on the western boundary to 170 m.a.s.l. on the eastern boundary.

5.3 Biodiversity

According to the NMBM BP (2014) the project site is not located within any Ecological Process area or CBA.

5.4 Quaternary catchment and Water Management Area

The study area is located within Water Management Area 16 (Fishriver to Tsitsikamma) and quaternary catchment M20A. The development falls within the Bakens River catchment.

5.5 Surface water

No wetlands occur on site. No rivers, streams or drainage systems occur on site. No riparian vegetation or freshwater/wetland plant species occur on site.

5.5 Ecoregions

South Africa is a geologically, geomorphologically, climatically and ecologically complex country, andthis has resulted in a diverse range of ecosystems, including rivers. River ecoregional classification or typing allows

the grouping of rivers according to similarities based on a top-down nested hierarchy. The principle of river typing is that rivers grouped together at a particular level of the typing hierarchy will be more like one another than rivers in other groups. Ecological regions are regions within which there is relative similarity in the mosaic of ecosystems and ecosystem components (biotic and abiotic, aquatic, and terrestrial).

According to the Department of Water and Sanitation Level 1 River Ecoregional Classification System(2005), the study area falls within Ecoregion 20.01: ***South Eastern Coastal Belt***.

This ecoregion has the following characteristics:

- Mean annual precipitation: Predominantly high.
- Coefficient of variation of annual precipitation: Low to very low.
- Drainage density: Medium to high.
- Stream frequency: Medium/high to very high.
- Slopes <5%: Predominantly <20%.
- Median annual simulated runoff: High.
- Mean annual temperature: Moderate.

5.6 Screening report

The screening report classifies the study site as **low sensitivity.** The aim of this report is to confirm, or dispute, this sensitivity allocation through a detailed desktop 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 Aquatic Biodiversity).

All desktop information gathered was confirmed through a site verification (See chapter 6 below for details on the site verification).

6. Site survey

A site survey was conducted on the 11th April 2022. The findings were compared to the desktop data collected in chapter 5 above and a site sensitivity for the aquatic biodiversity was determined. This was then compared to the sensitivity allocation in the DFFE Screening Report.

The following was found during the site visit:

6.1 Vegetation

Vegetation on site was heavily degraded through grazing and other equestrian activities like trampling. A single grassveld with a mix of non-invasive and endemic grasses, together with some herbaceous species were identified on site. None of the natural Algoa Sandstone Fynbos vegetation (as per the VegMap2018) were found on site. No other vegetation types were found.

Vegetation on site consist of a uniform grassland type that is considered as transformed from the original fynbos that historically occurred in the area. No fynbos were observed.

An existing access road is located within the stream bed with no signs of wet areas or erosion:

6.2 Surface water

The site visit confirmed that no surface water bodies occur on site or within 500 m of the site.

6.3 Biodiversity

The site is heavily transformed, and little ecological functions remain on site. Surface draining (stormwater draining) is the dominant ecological function and must be properly addressed during Planning & Design as well as Construction and Operations of the proposed new housing development. Inadequate draining systems and improper management of these systems will cause a range of environmental issues including erosion, damage to structures and potentially sedimentation of far-away water bodies.

7. Site sensitivity verification

The following was found during the site assessment:

- No surface water bodies (rivers, streams, wetlands or dams) occur on site or within 500 m of the site.
- Vegetation consists of cleared, short grazed grasslands that are considered as transformed form the original fynbos.
- No natural fynbos are found on site.

Based on the above, it is the opinion of the specialist that **the land is considered as low sensitivity for aquatic biodiversity**. A full assessment will therefore NOT be required. Refer to Chapter 8 for sitespecific management actions which must be included into the EMPr.

8. Conclusion

Based on the findings during the site verification, the following management actions are recommended during all phases of the proposed "The Heath" housing estate development and must be included into the EMPr:

7.1. Management actions

1. Proper stormwater structures must be developed to guide and dissipate stormwater to avoid soil erosion and other environmental issues.
2. A Stormwater Management Plan (SMP) must be developed and implemented during both construction and operational phases of the proposed project.

8. Reference

DRIVER, A. et al. 2011. National Biodiversity Assessment 2011: an assessment of South Africa's biodiversity and ecosystems. Synthesis Report. SANBI and DEAT, Pretoria.

MUCINA, L. & RUTHERFORD, M.C. 2012. The vegetation of South Africa, Lesotho and Swaziland. SANBI, Pretoria.

AVIFAUNA COMPLIANCE STATEMENT

DEVELOPMENT OF A NEW HOUSING PROJECT IN HEATHERBANK, NELSON MANDELA BAY MUNICIPALITY, EASTERN CAPE

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November 2023

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BACKGROUND AND TERMS OF REFERENCE

This avifauna assessment was commissioned by Blue Leaf Environmental (Pty) Ltd, on behalf of the Christopher Lovemore Family Trust, to inform the basic assessment process for a proposed housing development ('The Heath') on a 2-hectare portion of Erf 4087 in Heatherbank, Nelson Mandela Bay Municipality, Eastern Cape (Figure 1).

Although the Department of Forestry, Fisheries and the Environment's National Web-based Environmental Screening Tool identified the project area as relatively important for terrestrial animal species (Sensitivity rating: Medium), a site sensitivity verification indicated that this Sensitivity rating is not appropriate for avifauna and that Sensitivity is instead Low. This means that an avifauna compliance statement (rather than an impact assessment report) can be prepared and submitted when applying for environmental authorisation in terms of the National Environmental Management Act (1998, as amended) and the Environmental Impact Assessment Regulations (2014, as amended).

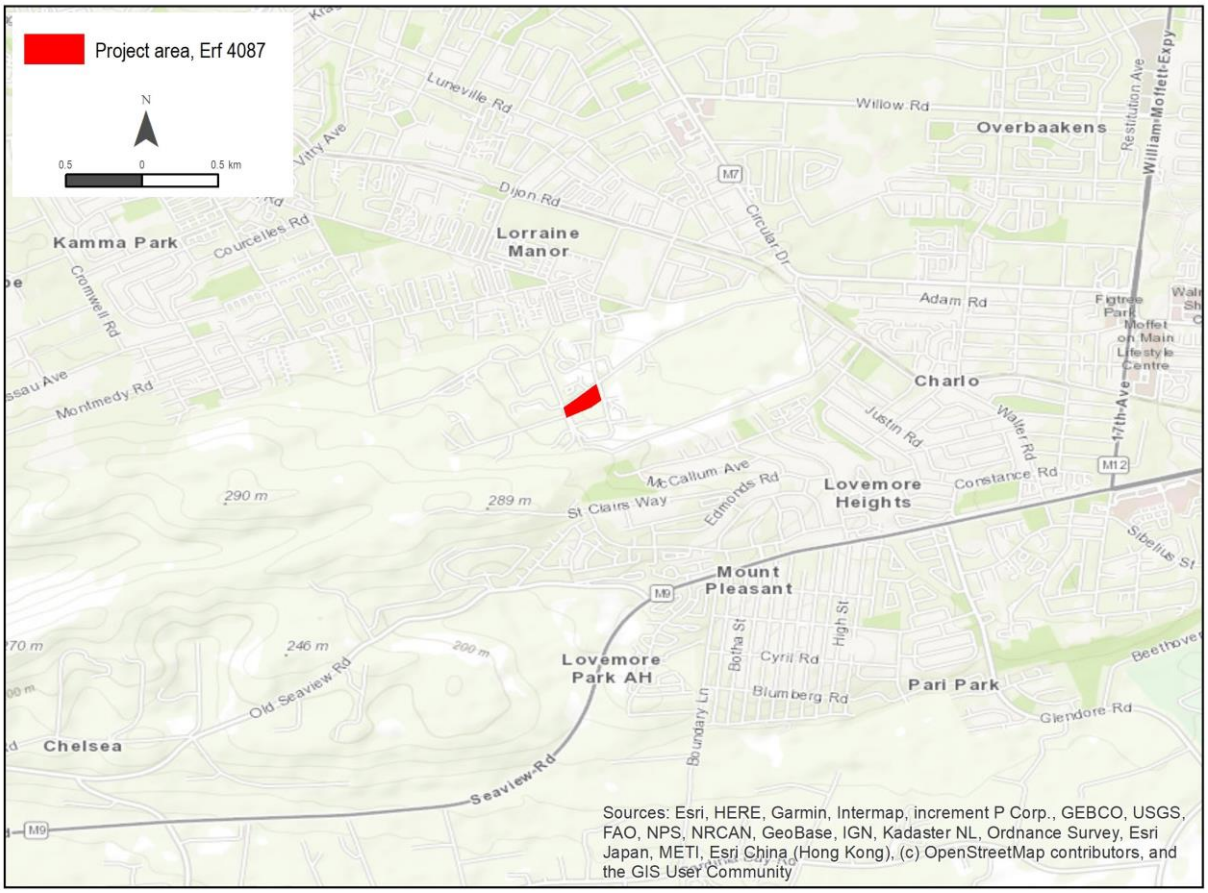

Figure 1: Location for the proposed housing development on Erf 4087 in Heatherbank, Nelson Mandela Bay Municipality, Eastern Cape.

To comply with the procedures for specialist assessments and minimum report content requirements for terrestrial animal species (inclusive of avifauna) compliance statements[1], this report covers the following:

[1] Published in Government Notice 1150 in Government Gazette 43855 of 30 October 2020.

A confirmation that the site is of "low" sensitivity for avifauna.	Sections 4 & 5
An indication of whether or not the proposed development will have an impact on bird species of conservation concern.	Section 5
A description of the duration, date and season of the site investigation, and the relevance of the season to the outcome of the assessment.	Section 3.1
A description of the methodology used to verify avifauna sensitivities on site, including the equipment and modelling used where relevant.	Section 3
A baseline description of the biodiversity and ecosystems of the site.	Section 4
A description of assumptions made and uncertainties or gaps in knowledge or data.	Section 3.1
Any proposed impact management actions and impact management outcomes for inclusion in the Environmental Management Programme.	Section 5
Any conditions to which this statement is subjected.	Section 3.1

2. PROJECT DESCRIPTION

The proposed 'The Heath' housing development is expected to consist of 29 units of upmarket, free-standing homes (Figure 2) in a secure estate on a 2-hectare portion of Erf 4087 in Heatherbank. Plot sizes will range between 300-700 square meters each.

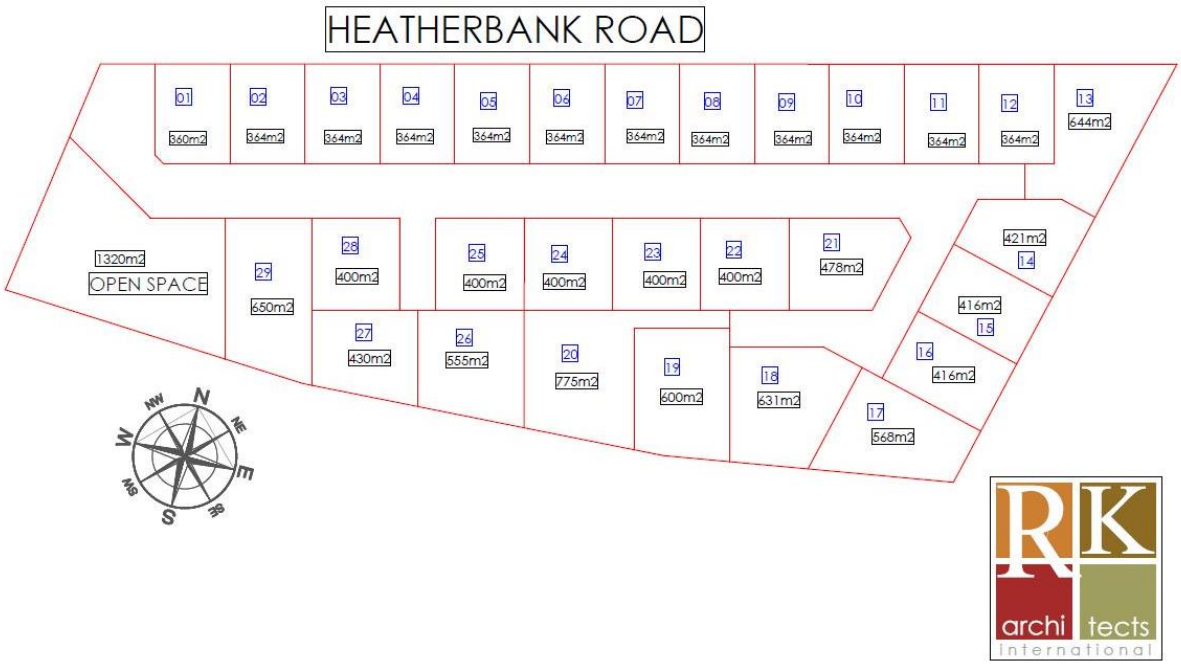

Figure 2: Layout of the proposed 'The Heath' housing development on Erf 4087 in Heatherbank, Nelson Mandela Bay Municipality, Eastern Cape.

3. APPROACH TO THE ASSESSMENT

- **Desktop analysis**

Assessment of the potential presence of bird species firstly requires knowledge of the features of the available habitat. Broad habitat types in the vicinity of the project area were initially identified using available mapped biological and physical features, including vegetation type, the degree of habitat transformation (Mucina & Rutherford 2011, South African National Biodiversity Institute 2006-2018, Stewart and Reeves 2014), and hillslope.

Records of bird species that potentially occur naturally in the vicinity of the project area were obtained from the Southern African Bird Atlas Project (SABAP2) (Harrison et al. 1997). From these records, Species of Conservation Concern (SCC) were identified to include:

- Species with their distribution ranges limited to the Eastern Cape Province.
- Red Data species identified using the IUCN Red List of Threatened Species[2].
- Red Data species identified using the Red List of South African Species (Taylor et al. 2015). Includes all species that are assessed according to the IUCN Red List Criteria as Critically Endangered, Endangered, Vulnerable, and Near Threatened.
- Species listed in terms of Section 56 of the National Environmental Management: Biodiversity Act (NEMBA) (Act 10 of 2004, as amended) and regulated by the Threatened or Protected Species (TOPS) Regulations, 2007[3]. Includes species that are Critically Endangered, Endangered, Vulnerable, and Protected.

The identified SCC were scrutinized (using published accounts of their ecology and habitat requirements) more rigorously in terms of their likely use of habitats in the project area. Because the likelihood of detecting SCC during environmental authorisation assessments is usually low (even with optimal search methods and during optimal seasonal sampling; SANBI 2020) the precautionary principle was applied when assessing habitat suitability for these species in the project area.

In addition to SCC, the assessment also identified Species protected by the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)[4]. The inclusion of bird species on CITES Appendices (I–III) are not necessarily equivalent to the species' conservation status. Many common species are pragmatically included on these lists even though their conservation status may not be of demonstrated concern. Where appropriate, a permit is required for the removal of species that occur on CITES lists.

Note that the Department of Forestry, Fisheries and the Environment's National Web-based Environmental Screening Tool did not identify any sensitive bird species for consideration in this avifaunal assessment.

[2] http://iucnredlist.org
[3] Published in Government Notice 255 of 2015 in Government Gazette 38600 of 31 March 2015.
[4] http://cites.org

- **Site assessment**

The project area was assessed on 18 June 2022 (austral winter) to determine its potential suitability for avifauna, particularly SCC. Key activities during the site assessment included:

1) Assessing the occurrence and status of broad habitat types.
2) Identifying evidence (e.g., sightings, presence of nesting material) of bird species occurrences. To avoid the influence of false negatives over the short site visit, these observations were only used to evaluate the diversity of bird species that potentially occur in the vicinity of the project area.
3) Assessing the extent of current threats (not project related) on bird communities (e.g., evidence for habitat transformation).

3.1 Assumptions and limitations of the approach

The assessment is largely based on a desktop analysis of published information on the broad habitats and bird species in the vicinity of the project area and a single site visit and did not include any detailed field surveys. Even with optimal search methods the likelihood of detecting some species during field surveys is low. Therefore, the assessment provides information on potential bird species occurrences in the vicinity of the project area, which is adequate to inform the impact assessment process.

Information on species distributions is often incomplete in terms of the species and areas covered. While the Southern African Bird Atlas Project database is continuously updated with new species distribution records, the approach of matching habitat features with the habitat requirements of SCC is a further robust way of dealing with data gaps. In the face of uncertainty, the precautionary principle is applied to allow for preventative action where necessary.

The site visit took place in winter (June 2022) during a period of elevated rainfall, which meant that habitats were in a good condition for sampling. Although multiple site visits are preferred to gain a comprehensive understanding of the opportunities (and limits) for birds, the desktop approach followed here is sufficiently robust to account for any bird opportunities that might have been missed during the site visit.

This avifaunal compliance statement was prepared in compliance with the protocols for specialist assessments and minimum report content requirements for environmental impacts on terrestrial animal species (inclusive of avifauna) in terms of the National Environmental Management Act (1998, as amended). The report is not subject to any conditions.

4. RESULTS

- **Broad habitat types**

While Mucina and Rutherford (2011, as part of the Vegetation Map of South Africa, Lesotho and Swaziland) and Stewart & Reeves (2014, as part of the Nelson Mandela Bay Municipality Bioregional Plan) mapped the occurrence of Fynbos and Forest habitat types in the project area, respectively, neither of these habitat types could be identified on site during the site assessment.

Instead, the project area is dominated by a short, secondary grassland that likely developed in response to previous agricultural activities and grazing by domestic livestock (Figure 3). The site is currently subject to the

grazing and trampling effects of horses. Because grass structure at the site is very low, bird species diversity and community structure are likely similarly low (e.g., McArthur & McArthur 1961).

Figure 3: Features of the short, secondary grassland habitats that cover the project area.

- **Bird Species of Conservation Concern**

The assessment identified 234 bird species that likely occur naturally in the vicinity of the project area (Appendix 1). Of these species, eight are SCC that could occur on site (Table 1). However, in almost all cases, probability of occurrence is expected to be low, which reduces the sensitivity of the site for SCC to low. The low probability of occurrence reflects the low suitability of the habitat (i.e., transformed grassland) at and adjacent to the site and the fact that the project area is situated in a predominantly urban area (Figure 3). SCC in Table 1 that are unlikely to occur on site either require dense woodland habitats (e.g., Half-collared kingfisher *Alcedo semitorquata*, Knysna warbler *Bradypterus sylvaticus*, and Knysna woodpecker *Campethera notata*) or permanent/semi-permanent water bodies (e.g., Cape cormorant *Phalacrocorax capensis* and Greater flamingo *Phoenicopterus roseus*), both of which are absent.

Table 1: Bird Species of Conservation Concern that potentially occur naturally in the vicinity of the project area. Included is the expected occurrence of each species on site.

Species	Common name	Conservation concern	Probability of occurring on site
Alcedo semitorquata	Half-collared kingfisher	SA Red List: Near Threatened	Unlikely
Bradypterus sylvaticus	Knysna warbler	Global Red List: Vulnerable; SA Red List: Vulnerable	Unlikely
Buteo trizonatus	Forest buzzard	Global Red List: Near Threatened	Possible
Campethera notata	Knysna woodpecker	Global Red List: Near Threatened; SA Red List: Near Threatened	Unlikely
Circus ranivorus	African marsh harrier	SA Red List: Endangered	Low
Coracias garrulus	European roller	SA Red List: Near Threatened	Low
Falco biarmicus	Lanner falcon	SA Red List: Vulnerable	Possible
Hydroprogne caspia	Caspian tern	SA Red List: Vulnerable	Low
Neotis denhami	Denham's bustard	Global Red List: N-Threatened; SA Red List: Vulnerable; TOPS: Vulnerable	Low
Phalacrocorax capensis	Cape cormorant	Global Red List: Endangered; SA Red List: Endangered; TOPS: Endangered	Unlikely
Phoenicopterus roseus	Greater flamingo	SA Red List: Near Threatened	Unlikely
Sagittarius serpentarius	Secretary bird	Global Red List: Vulnerable; SA Red List: Vulnerable	Low
Stephanoaetus coronatus	Crowned eagle	Global Red List: Near Threatened; SA Red List: Vulnerable	Low

SCC listing definitions: Endangered – Species that are facing a very high risk of extinction in the wild; Vulnerable – species that are facing a high risk of extinction in the wild; Near Threatened – species that do not qualify for the Critically Endangered, Endangered or Vulnerable categories now, but may be close to qualifying, or is likely to qualify, for a threatened category in the near future

In addition to the identified SCC, some bird species that potentially occur naturally in the project area are protected by CITES, including:

Appendix 1:	Peregrine falcon *Falco peregrinus*
Appendix 2:	Lanner falcon *Falco biarmicus*
	African wood owl *Strix woodfordii*
	Western barn owl *Tyto alba*
	Spotted Eagle-owl *Bubo africanus*

Although the status of these species is not necessarily equivalent to that of SCC, a permit is required for their removal (where relevant and appropriate). Similarly, a permit is required for activities that disturb protected bird species, particularly during the breeding season. Sites with eggs or chicks are considered to be protected sites.

The project area is not located in any of South Africa's Important Bird and Biodiversity Areas (Marnewick et al. 2015).

5. COMPLIANCE STATEMENT

Although the Department of Forestry, Fisheries and the Environment's National Web-based Environmental Screening Tool identified the project area as relatively important for terrestrial animal species (Sensitivity rating: Medium), the site sensitivity verification indicated that this Sensitivity rating is not appropriate for avifauna, and that Sensitivity is instead Low. That is, while some bird SCC could occur on site, probability of occurrence is low for almost all species. This means that (direct and indirect) impacts from the proposed project on SCC could be considered negligible.

There are no recommended management actions for inclusion in the Environmental Management Programme beyond those that are considered standard good practise.

6. LITERATURE SOURCES

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7. APPENDICES

Appendix 1. List of bird species that potentially occur naturally in the vicinity of the project area. Data from the Southern African Bird Atlas Project (SABAP2) (Harrison et al. 1997).

Species	Common name	Species	Common name	Species	Common name
Apalis thoracica	Apalis, Bar-throated	*Zapornia flavirostra*	Crake, Black	*Plectropterus gambensis*	Goose, Spur-winged
Apalis flavida	Apalis, Yellow-breasted	*Corvus capensis*	Crow, Cape	*Accipiter tachiro*	Goshawk, African
Tricholaema leucomelas	Barbet, Acacia Pied	*Corvus albus*	Crow, Pied	*Sphenoeacus afer*	Grassbird, Cape
Lybius torquatus	Barbet, Black-collared	*Chrysococcyx cupreus*	Cuckoo, African Emerald	*Tachybaptus ruficollis*	Grebe, Little
Batis capensis	Batis, Cape	*Cuculus clamosus*	Cuckoo, Black	*Andropadus importunus*	Greenbul, Sombre
Batis molitor	Batis, Chinspot	*Chrysococcyx caprius*	Cuckoo, Diederik	*Guttera pucherani*	Guineafowl, Crested
Merops apiaster	Bee-eater, European	*Chrysococcyx klaas*	Cuckoo, Klaas's	*Numida meleagris*	Guineafowl, Helmeted
Euplectes orix	Bishop, Southern Red	*Cuculus solitarius*	Cuckoo, Red-chested	*Chroicocephalus cirrocephalus*	Gull, Grey-headed
Euplectes capensis	Bishop, Yellow	*Campephaga flava*	Cuckooshrike, Black	*Chroicocephalus hartlaubii*	Gull, Hartlaub's
Ixobrychus minutus	Bittern, Little	*Anhinga rufa*	Darter, African	*Larus dominicanus*	Gull, Kelp
Telophorus zeylonus	Bokmakierie	*Streptopelia capicola*	Dove, Cape Turtle	*Scopus umbretta*	Hamerkop
Laniarius ferrugineus	Boubou, Southern	*Turtur chalcospilos*	Dove, Emerald-spotted Wood	*Circus ranivorus*	Harrier, African Marsh
Phyllastrephus terrestris	Brownbul, Terrestrial	*Spilopelia senegalensis*	Dove, Laughing	*Polyboroides typus*	Harrier-Hawk, African
Pycnonotus capensis	Bulbul, Cape	*Columba larvata*	Dove, Lemon	*Nycticorax nycticorax*	Heron, Black-crowned Night
Pycnonotus tricolor	Bulbul, Dark-capped	*Streptopelia semitorquata*	Dove, Red-eyed	*Ardea melanocephala*	Heron, Black-headed
Emberiza capensis	Bunting, Cape	*Columba livia*	Dove, Rock	*Ardea goliath*	Heron, Goliath
Emberiza tahapisi	Bunting, Cinnamon-breasted	*Turtur tympanistria*	Dove, Tambourine	*Ardea cinerea*	Heron, Grey
Chlorophoneus olivaceus	Bushshrike, Olive	*Dicrurus adsimilis*	Drongo, Fork-tailed	*Ardea purpurea*	Heron, Purple
Neotis denhami	Bustard, Denham's	*Anas sparsa*	Duck, African Black	*Butorides striata*	Heron, Striated
Buteo buteo	Buzzard, Common	*Anas undulata*	Duck, Yellow-billed	*Prodotiscus regulus*	Honeybird, Brown-backed
Buteo trizonatus	Buzzard, Forest	*Haliaeetus vocifer*	Eagle, African Fish	*Indicator indicator*	Honeyguide, Greater
Buteo rufofuscus	Buzzard, Jackal	*Hieraaetus pennatus*	Eagle, Booted	*Indicator minor*	Honeyguide, Lesser
Camaroptera brachyura	Camaroptera, Green-backed	*Stephanoaetus coronatus*	Eagle, Crowned	*Upupa africana*	Hoopoe, African
Serinus alario	Canary, Black-headed	*Lophaetus occipitalis*	Eagle, Long-crested	*Lophoceros alboterminatus*	Hornbill, Crowned
Crithagra sulphurata	Canary, Brimstone	*Bubo africanus*	Eagle-Owl, Spotted	*Anas hybrid*	Hybrid Mallard
Serinus canicollis	Canary, Cape	*Ardea alba*	Egret, Great	*Threskiornis aethiopicus*	Ibis, African Sacred
Crithagra scotops	Canary, Forest	*Egretta garzetta*	Egret, Little	*Plegadis falcinellus*	Ibis, Glossy
Crithagra flaviventris	Canary, Yellow	*Bubulcus ibis*	Egret, Western Cattle	*Bostrychia hagedash*	Ibis, Hadada
Crithagra mozambica	Canary, Yellow-fronted	*Falco biarmicus*	Falcon, Lanner	*Vidua funerea*	Indigobird, Dusky
Myrmecocichla formicivora	Chat, Ant-eating	*Falco peregrinus*	Falcon, Peregrine	*Falco rupicolus*	Kestrel, Rock
Oenanthe familiaris	Chat, Familiar	*Lagonosticta rubricata*	Firefinch, African	*Ispidina picta*	Kingfisher, African Pygmy
Cisticola subruficapilla	Cisticola, Grey-backed	*Lanius collaris*	Fiscal, Southern	*Halcyon albiventris*	Kingfisher, Brown-hooded
Cisticola aberrans	Cisticola, Lazy	*Phoenicopterus roseus*	Flamingo, Greater	*Megaceryle maxima*	Kingfisher, Giant
Cisticola tinniens	Cisticola, Levaillant's	*Sarothrura elegans*	Flufftail, Buff-spotted	*Alcedo semitorquata*	Kingfisher, Half-collared
Cisticola juncidis	Cisticola, Zitting	*Muscicapa adusta*	Flycatcher, African Dusky	*Corythornis cristatus*	Kingfisher, Malachite
Fulica cristata	Coot, Red-knobbed	*Terpsiphone viridis*	Flycatcher, African Paradise	*Ceryle rudis*	Kingfisher, Pied
Phalacrocorax capensis	Cormorant, Cape	*Trochocercus cyanomelas*	Flycatcher, Blue-mantled Crested	*Elanus caeruleus*	Kite, Black-winged
Microcarbo africanus	Cormorant, Reed	*Melaenornis silens*	Flycatcher, Fiscal	*Milvus aegyptius*	Kite, Yellow-billed
Phalacrocorax lucidus	Cormorant, White-breasted	*Scleroptila levaillantii*	Francolin, Red-winged	*Vanellus armatus*	Lapwing, Blacksmith
Centropus burchellii	Coucal, Burchell's	*Nettapus auritus*	Goose, African Pygmy	*Vanellus melanopterus*	Lapwing, Black-winged
Crecopsis egregia	Crake, African	*Anser anser*	Goose, Domestic	*Vanellus coronatus*	Lapwing, Crowned
Zapornia pusilla	Crake, Baillon's	*Alopochen aegyptiaca*	Goose, Egyptian	*Macronyx capensis*	Longclaw, Cape

Appendix 1 (continue).

Common name	Species	Common name	Species	Common name
Mallard	*Gymnoris superciliaris*	Sparrow, Yellow-throated Bush	*Motacilla capensis*	Wagtail, Cape
Mannikin, Bronze	*Accipiter melanoleucus*	Sparrowhawk, Black	*Acrocephalus baeticatus*	Warbler, African Reed
Martin, Brown-throated	*Accipiter minullus*	Sparrowhawk, Little	*Curruca subcoerulea*	Warbler, Chestnut-vented
Martin, Common House	*Accipiter rufiventris*	Sparrowhawk, Rufous-breasted	*Acrocephalus arundinaceus*	Warbler, Great Reed
Martin, Rock	*Platalea alba*	Spoonbill, African	*Bradypterus sylvaticus*	Warbler, Knysna
Moorhen, Common	*Pternistis afer*	Spurfowl, Red-necked	*Acrocephalus gracilirostris*	Warbler, Lesser Swamp
Mousebird, Red-faced	*Notopholia corusca*	Starling, Black-bellied	*Bradypterus baboecala*	Warbler, Little Rush
Mousebird, Speckled	*Lamprotornis nitens*	Starling, Cape	*Phylloscopus trochilus*	Warbler, Willow
Neddicky	*Sturnus vulgaris*	Starling, Common	*Estrilda astrild*	Waxbill, Common
Nightjar, Fiery-necked	*Onychognathus morio*	Starling, Red-winged	*Coccopygia melanotis*	Waxbill, Swee
Oriole, Black-headed	*Himantopus himantopus*	Stilt, Black-winged	*Ploceus capensis*	Weaver, Cape
Osprey, Western	*Saxicola torquatus*	Stonechat, African	*Ploceus bicolor*	Weaver, Dark-backed
Ostrich, Common	*Ciconia ciconia*	Stork, White	*Ploceus velatus*	Weaver, Southern Masked
Owl, African Wood	*Promerops cafer*	Sugarbird, Cape	*Ploceus ocularis*	Weaver, Spectacled
Owl, Western Barn	*Chalcomitra amethystina*	Sunbird, Amethyst	*Amblyospiza albifrons*	Weaver, Thick-billed
Peafowl, Indian	*Hedydipna collaris*	Sunbird, Collared	*Ploceus cucullatus*	Weaver, Village
Pigeon, African Green	*Cinnyris afer*	Sunbird, Greater Double-collared	*Zosterops virens*	White-eye, Cape
Pigeon, African Olive	*Cyanomitra veroxii*	Sunbird, Grey	*Vidua macroura*	Whydah, Pin-tailed
Pigeon, Speckled	*Nectarinia famosa*	Sunbird, Malachite	*Vidua regia*	Whydah, Shaft-tailed
Pipit, African	*Anthobaphes violacea*	Sunbird, Orange-breasted	*Phoeniculus purpureus*	Wood Hoopoe, Green
Pipit, Plain-backed	*Cinnyris chalybeus*	Sunbird, Southern Double-collared	*Dendropicos fuscescens*	Woodpecker, Cardinal
Plover, Kittlitz's	*Hirundo rustica*	Swallow, Barn	*Campethera notata*	Woodpecker, Knysna
Plover, Three-banded	*Cecropis cucullata*	Swallow, Greater Striped	*Dendropicos griseocephalus*	Woodpecker, Olive
Prinia, Karoo	*Cecropis abyssinica*	Swallow, Lesser Striped	*Jynx ruficollis*	Wryneck, Red-throated
Puffback, Black-backed	*Hirundo dimidiata*	Swallow, Pearl-breasted		
Quelea, Red-billed	*Hirundo albigularis*	Swallow, White-throated		
Raven, White-necked	*Apus barbatus*	Swift, African Black		
Robin, White-starred	*Cypsiurus parvus*	Swift, African Palm		
Robin-Chat, Cape	*Tachymarptis melba*	Swift, Alpine		
Roller, European	*Apus apus*	Swift, Common		
Sandpiper, Common	*Apus horus*	Swift, Horus		
Saw-wing, Black (Southern Africa)	*Apus affinis*	Swift, Little		
Scrub Robin, Brown Scrub	*Apus caffer*	Swift, White-rumped		
Scrub Robin, Karoo	*Tchagra tchagra*	Tchagra, Southern		
Scrub Robin, White-browed	*Hydroprogne caspia*	Tern, Caspian		
Secretarybird	*Sterna hirundo*	Tern, Common		
Seedeater, Streaky-headed	*Chlidonias hybrida*	Tern, Whiskered		
Shelduck, South African	*Burhinus capensis*	Thick-knee, Spotted		
Shoveler, Cape	*Turdus olivaceus*	Thrush, Olive		
Sparrow, Cape	*Pogoniulus pusillus*	Tinkerbird, Red-fronted		
Sparrow, House	*Tauraco corythaix*	Turaco, Knysna		
Sparrow, Southern Grey-headed	*Motacilla aguimp*	Wagtail, African Pied		

Appendix 2. Specialist *Curriculum Vitae*

DR MARIETJIE LANDMAN

Summerstrand • Port Elizabeth 6031
Email: marietjie.landman@mandela.ac.za

EDUCATION

PhD (Ecology) • Nelson Mandela University | 2013

EXPERIENCE

- Consulting ecologist • Freelance • 2006–present
- Research Associate | Nelson Mandela University Centre for African Conservation Ecology | 2019–present
- Senior lecturer • Sol Plaatje University Department of Biological and Agricultural Sciences • 2019–2020
- Postdoctoral research fellow • Nelson Mandela University • 2014–2018
- Vegetation scientist • South African National Parks • 2013–2014
- Lecturer • Nelson Mandela University Department of Zoology • 2009–2018
- Research scientist • Nelson Mandela University Centre for African Conservation Ecology • 2007–2013

SELECTION OF SPECIALIST ECOLOGICAL WORK

I consult widely in the conservation (both formal and private conservation) and biodiversity fields, advising on wildlife ecology, conservation, management and monitoring, and biodiversity specialist assessments across key sectors. I focus on the arid and semi-arid areas of South Africa.

Typical projects:

Wildlife conservation ecology and vegetation management –
- … wildlife conservation management plan for Kuzuko Private Game Reserve
- … introduction of mountain zebra to Pleroma Nature Reserve, Northern Cape, for Wilderness Foundation Africa
- … re-introduction of elephant to Samara Private Game Reserve
- … digital production on small carnivore-livestock conflicts for the National Wool Growers Association of South Africa
- … wildlife conservation management plan for Bucklands Private Game Reserve
- … introduction of black rhinoceros and mountain zebra to Namaqua National Park for Conservation International South Africa

Ecological monitoring –
- … monitoring and evaluation plan for the N2 Wild Coast biodiversity offset project

Various terrestrial biodiversity specialist assessments in the agricultural-, energy-, housing and infrastructure-, and mining-sectors.

SELECTED TECHNICAL REPORTS

1. Landman M 2022. Terrestrial animal species compliance statement for a mining permit application for the proposed Draaibosch quarry in the Great Kei Municipality, Eastern Cape. Report to Algoa Consulting Mining Engineers.
2. Landman M 2022. Terrestrial fauna species assessment for the proposed expansion of an existing Shoprite Checkers distribution centre on a portion of Erf 8741 at Wells Estate in the Nelson Mandela Bay Municipality. Report to PHC Consulting.

3. Landman M 2022. Terrestrial fauna assessment for the proposed application for mineral prospecting rights between Oyster Bay and St Francis Bay in the Kouga Municipality, Eastern Cape. Report to Algoa Consulting Mining Engineers.
4. Landman M 2021. Terrestrial fauna species assessment for the proposed residential development on Portion 8 of Kuyga 31 in the Nelson Mandela Bay Municipality. Report to Setplan.
5. Landman M & Cohen M 2021. Terrestrial fauna species assessment for the proposed resort development on Erf 1618 Colchester, Nelson Mandela Bay. Report to CEN Integrated Environmental Management Unit.
6. Landman M & Pote J 2021. Terrestrial fauna species assessment for the proposed extension of the electrical grid connection corridor for the Impofu wind farms, between the Chatty and Dedisa substations, Gqeberha, Eastern Cape. Report to CEN Integrated Environmental Management Unit.
7. Landman M 2021. Habitat suitability assessment for the Hartmann's Mountain zebra *Equus zebra hartmannae* at Pleroma Nature Reserve, Northern Cape. Report to Wilderness Foundation Africa.
8. Grobler BA & Landman M 2021. Botanical impact amendment report: Intsomi goat-breeding facility development, Sundays River Valley Municipality, Eastern Cape. Report to Public Process Consultants.
9. Landman M 2020. Potential secondary impacts on biodiversity of the proposed goat breeding facility on Farm 661 of Intsomi, Sundays River Valley, Eastern Cape. Report to Public Process Consultants.
10. Landman M & Barkhuyzen A 2020. Scoping and environmental impact assessment for the Eindelik citrus expansion project. Report to East Cape Diverse Consultants.
11. Sigwela A, Howarth D & Landman M 2020. Monitoring and evaluation framework for the N2 Wild Coast Biodiversity Offset Project. Sigwela and Associates Environmental Consultants Report to Eastern Cape Parks and Tourism Agency.
12. Landman M & Kerley GIH 2018. Survey of small elephant populations in South Africa. Centre for African Conservation Ecology Report to the Department of Environmental Affairs.
13. Landman M, Lochner C & Kerley GIH 2017. Outcomes of using habitat expansion to mediate the impacts of elephant in Eastern Cape succulent thicket. Centre for African Conservation Ecology Report to the Department of Environmental Affairs.
14. Greaver C, Bezuidenhout H, Swemmer T, Daemane & Landman M 2015. A review of vegetation monitoring projects in Savanna and Arid National Parks. South African National Parks: Scientific Services Report.
15. Landman M 2014. Prospects for the re-introduction of elephant to Samara Private Game Reserve. Centre for African Conservation Ecology Report to Samara Private Game Reserve.
16. Landman M 2014. Vegetation specialist study for the development of telecommunications infrastructure in the Eastern Cape. Report to East Cape Diverse Consultants.
17. Kerley GIH, Landman M, Wilson SL & Boshoff AF 2006. Mammalian herbivores as drivers of Thicket. Proceedings of the Thicket Forum, Centre for African Conservation Ecology Report, Nelson Mandela University, Port Elizabeth.
18. Landman M & Kerley GIH 2009. Elephant impacts and potential indicators of elephant-induced change to vegetation composition and structure in Addo Elephant National Park. Centre for African Conservation Ecology Report to South African National Parks.
19. Landman M & Kerley GIH 2009. Faunal specialist study for the development of the Kadouw Private Nature Reserve Leisure Estate. Centre for African Conservation Ecology Report to CEN Environmental Management Unit.
20. Landman M, Boshoff AF & Kerley GIH 2007. Faunal specialist study for the Intsomi Resort Development. Centre for African Conservation Ecology Report to Dennis Moss Partnership.
21. Kerley GIH & Landman M 2007. Assessment of the broad habitats and potential distributions and abundances of large herbivores on Bucklands Private Game Reserve. Centre for African Conservation Ecology Report to Bucklands Private Game Reserve.

22. Landman M, Boshoff AF & Kerley GIH 2007. Faunal specialist study for the development of the Gamma-Grassridge 765kV Transmission-line/substation. Centre for African Conservation Ecology Report to ACER Africa (Pty) Ltd.
23. Kerley GIH, Hallam S & Landman M 2007. A small mammal survey in the Maloti-Drakensberg Bioregion. Centre for African Conservation Ecology Report to the Maloti-Drakensberg Transfrontier Conservation and Development Project.
24. Landman M, Shrader SM & Kerley GIH 2006. Habitat assessment for the introduction of black rhinoceros and mountain zebra to Namaqua National Park. Centre for African Conservation Ecology Report to Conservation International.
25. Kerley GIH & Landman M 2005. Gardeners of the Gods: the role of elephants in the Eastern Cape Subtropical Thickets. In Elephant effects on biodiversity: an assessment of current knowledge and understanding as a basis for elephant management in SANParks. South African National Parks: Scientific Services Report.
26. Landman M, Smirnova Y, Kaynas B, Bodnar A & Shenbrot GI 2001. The influence of *Psammomys obesus* burrows on the species diversity of Tenebrionid beetles in the Negev Desert, Israel. Jacob-Blaustein Institute for Desert Research, Israel.

A LETTER OF RECOMMENDATION (WITH CONDITIONS) FOR THE EXEMPTION OF A FULL PHASE 1 ARCHAEOLOGICAL IMPACT ASSESSMENT FOR A PROPOSED HOUSING DEVELOPMENT AND ASSOCIATED INFRASTRUCTURE ON A PORTION OF ERF 4087 IN THEESCOMBE, GQEBERHA(PORT ELIZABETH), NELSON MANDELA BAY MUNICIPALITY, EASTERN CAPEPROVINCE

Prepared for: BlueLeaf Environmental Consulting (Pty) Ltd.
38 Tulip Avenue
Sunridge Park
Gqeberha (Port Elizabeth)
6001
Cell: 076 281 9660
Contact person: Mr. Roy de Kock
Email: roy@blueleafenviro.co.za

Compiled by: Mr. Kobus Reichert

On behalf of: Eastern Cape Heritage Consultants cc
Reg. no: 2006/088345/23
P.O. Box 689
Jeffreys Bay
6330
Cell: 072 800 6322
Email: kobusreichert@yahoo.com

Date: August 2023

PROJECT INFORMATION

Eastern Cape Heritage Consultants cc has been appointed by BlueLeaf Environmental Consulting (Pty) Ltd to conduct a Phase 1 Archaeological Impact Assessment (AIA) for a proposed housing development and associated infrastructure on a portion of Erf 4087 in Theescombe, Gqeberha (Port Elizabeth), Nelson Mandela Bay Municipality, Eastern Cape Province.

The proposed project will entail the development of 29 units of upmarket, free-standing homes in a secure estate located along Heatherbank Road in Theescombe, Port Elizabeth. The proposed size of the portion of the property that will be developed is approximately 2 hectares and the plot sizes will range between 300-700 square metres in size.

Applicant

Christopher Lovemore Family Trust

Consultant

BlueLeaf Environmental Consulting (Pty) Ltd.
38 Tulip Avenue
Sunridge Park
Gqeberha (Port Elizabeth)
6001
Cell: 076 281 9660
Contact person: Mr. Roy de Kock
Email: roy@blueleafenviro.co.za

Purpose of the study

The purpose of the study was to conduct a Phase 1 Archaeological Impact Assessment (AIA) for the proposed project and the associated activities, to describe and evaluate:

- the importance of possible archaeological sites, features and materials,
- the potential impact of the development on these resources and,
- to propose recommendations to minimize possible damage to these resources.

Site and Location

The proposed development area is located within the 1:50 000 topographic reference map 3325DC & DD, 3425BA Port Elizabeth (Map 1). Erf 4087 is located approximately 8 kilometres south - west (SW) of the Gqeberha (Port Elizabeth) CBD and directly south of Heatherbank Road in the suburb of Theescombe (Map 2). Existing gravel roads to the east and west of Erf 4087 connects the proposed site to Heatherbank Road. The proposed development will take place on a relatively flat area covered by dense grass and it is currently utilized as partof an equestrian ranch (Figure 1). It appears that the site has been disturbed in the past by previous activities. General GPS reading: 33.59.168S, 25. 31.251E.

Relevant Archaeological Impact Assessments

Binneman, J. 2012. A letter of recommendation (with conditions) for the exemption from a full phase 1 archaeological heritage impact assessment for a proposed residential development on Portion 62 of Farm No. 10, Little Chelsea, Nelson Mandela Bay Municipality, Eastern Cape Province. Prepared for: Public Process Consultants. Greenacres. Eastern Cape

Heritage Consultants cc. Jeffreys Bay.
Binneman, J. 2010. A phase 1 archaeological heritage impact assessment for the proposed rezoning and subdivision of Farm 36 and 37, Theescombe, Port Elizabeth, Nelson Mandela Bay Municipality, Eastern Cape, for the development of two residential nodes, lodge and nature reserve. Prepared for: CEN Integrated Environmental Management Unit. Port Elizabeth. Eastern Cape Heritage Consultants cc. Jeffreys Bay..
Binneman, J. 2009a. Proposed subdivision and rezoning of Portion 1070, 409 and the remainder of Erf 385, Theescombe, Port Elizabeth, Eastern Cape, for the establishing of a residential development. Prepared for: CEN Integrated Environmental Management Unit. Port Elizabeth. Eastern Cape Heritage Consultants cc. Jeffreys Bay.
Binneman, J. 2009b. A phase 1 archaeological heritage impact assessment for the proposed subdivision of Portion 12 of the Farm Kragga Kamma No. 23, Port Elizabeth, Nelson Mandela Bay Municipality, Eastern Cape Province, for the development of an Agri Village and the necessary infrastructure. Prepared for: CEN Integrated Environmental Management Unit. Port Elizabeth. Eastern Cape Heritage Consultants cc. Jeffreys Bay.
Binneman, J. 2008a. A phase 1 archaeological heritage impact assessment for the proposed residential development on the remainder of erf 1226, Fairview, Port Elizabeth, Nelson Mandela Bay Municipality, Eastern Cape. Prepared for: CEN Integrated Environmental Management Unit. Port Elizabeth. Eastern Cape Heritage Consultants cc. Jeffreys Bay.
Binneman, J. 2008b. A phase 1 archaeological heritage impact assessment of the proposed development of a sand quarry on Erf 429, Theescombe, Port Elizabeth, Nelson Mandela Bay Metropolitan, Eastern Cape Province. Prepared for: Mr. J. du Plessis. Sydenham. Albany Museum. Grahamstown.
Binneman, J. and Reichert, K. 2017. A phase 1 archaeological impact assessment for a proposed residential development on Portion 75 of the Farm Cragga Kamma No. 23 in the Nelson Mandela Bay Municipality, Eastern Cape. Prepared for: CEN Integrated Environmental Management Unit. Port Elizabeth. Eastern Cape Heritage Consultants cc. Jeffreys Bay.
Reichert, K. 2022a. A letter of recommendation (with conditions) for the exemption of a full phase 1 archaeological impact assessment for the proposed development of a fruit packhouse and the establishment of citrus orchards on Portion 13 of Farm No. 10 in Little Chelsea near Gqeberha, Nelson Mandela Bay Municipality, Eastern Cape Province. Prepared for: CEN Integrated Environmental Management Unit. Port Elizabeth. Eastern Cape Heritage Consultants cc. Jeffreys Bay.
Reichert, K. 2022b. A letter of recommendation (with conditions) for the exemption of a full phase 1 archaeological impact assessment for the establishment of a proposed mixed residential development and associated infrastructure on Erven 256 - 279, Fairview, Nelson Mandela Bay Municipality, Eastern Cape Province. Prepared for: JG Afrika (Pty) Ltd. Greenacres. Eastern Cape Heritage Consultants cc. Jeffreys Bay.

ARCHAEOLOGICAL INVESTIGATION

Methodology and results

Google aerial images as well as previous heritage reports related to the study area were studied prior to the investigation. The investigation was conducted on foot by an archaeologist. GPS readings were taken with a Garmin and all important features were digitally recorded. The archaeological visibility was poor due to the dense grass and other vegetation and no archaeological sites/materials were observed within the study area. In general, the area for the proposed development appears to be of **low archaeological sensitivity** and it is unlikely that any archaeological remains of any significance will be found *in situ* or exposed during the development.

Figure 1. General views of the proposed development area on a portion of Erf 4087 in Theescombe, Gqeberha (Port Elizabeth), Nelson Mandela Bay Municipality, Eastern Cape Province.

DISCUSSION AND CONDITIONS

No archaeological sites/materials were observed during the investigation of the proposed study area. Although it is unlikely that archaeological remains will be found *in situ*, there is always a possibility that human remains and/or other archaeological and historical material may be uncovered during the development.

The main impact on possible archaeological sites/remains will be the physical disturbance of the material and its context. Should such material be exposed then work must cease in the immediate area and it must be reported to the archaeologist at the Albany Museum in Makhanda (Grahamstown) (Tel: 046 622 2312) or to the Eastern Cape Provincial Heritage Resources Authority (Tel.: 043 745 0888), so that a systematic and professional investigation can be undertaken. Sufficient time should be allowed to remove/collect such material (See Appendix B for a list of possible archaeological sites that maybe found in the area). The applicant must finance the costs should additional investigations be required.

LETTER OF RECOMMENDATION

It is recommended that the proposed housing development and associated infrastructure on a portion of Erf 4087 in Theescombe, Gqeberha (Port Elizabeth), Nelson Mandela Bay Municipality, Eastern Cape Province be exempted from a full Phase 1 Archaeological Heritage Impact Assessment. The proposed development area appears to be of **low archaeological sensitivity**, and it is therefore unlikely that any significant archaeological remains will be found on the property. The proposed development may therefore proceed as planned.

Note: This letter of recommendation only exempts the proposed development from a full Phase 1 Archaeological Heritage Impact Assessment, but not for other heritage impact assessments. It must also be clear that this letter will be assessed by the relevant heritage resources authority. The final decision rests with the heritage resources authority, which should give a permit or a formal letter of permission for the destruction of any cultural sites.

Section 35 of the National Heritage Resources Act, No. 25 of 1999 (see Appendix A) requires a full Heritage Impact Assessment (HIA) in order that all heritage resources, that is, all places or objects of aesthetics, architectural, historic, scientific, social, spiritual linguistic or technological value or significance are protected. Thus, any assessment should make provision for the protection of all these heritage components, including archaeology, shipwrecks, battlefields, graves, and structures older than 60 years, living heritage, historical settlements, landscapes, geological sites, palaeontological sites and objects.

GENERAL REMARKS AND CONDITIONS

It must be emphasized that this letter of recommendation for the exemption of a full Phase 1 archaeological heritage impact assessment is based on the visibility of archaeological sites/material and may not therefore, reflect the true state of affairs. Sites and material may be covered by soil and vegetation and will only be located once this has been removed. In the unlikely event of such finds being uncovered, (during any phase of the development), it must be reported to the archaeologist at the Albany Museum in Makhanda (Grahamstown) (Tel: 046 622 2312) or to the Eastern Cape Provincial Heritage Resources Authority (Tel.: 043 745 0888) immediately. The developer must finance the costs should additional studies be required as outlined above. The consultant is responsible to forward this report to the relevant Heritage Authority for assessment, unless alternative arrangements have been made with the specialist to submit the report.

APPENDIX A: brief legislative requirements

Parts of sections 34, 35(4), 36(3) and 38(1) of the National Heritage Resources Act, No. 25 of 1999 apply:

Structures

34(1) No person may alter or demolish any structure or part of a structure which is older than 60 years without a permit issued by the relevant provincial heritage resources authority.

Archaeology, palaeontology and meteorites

35 (4) No person may, without a permit issued by the responsible heritage resources authority—

(a) destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or palaeontological site or any meteorite;
(b) destroy, damage, excavate, remove from its original position, collect or own any archaeological or palaeontological material or object or any meteorite;
(d) bring onto or use at an archaeological or palaeontological site any excavation equipment or any equipment which assist in the detection or recovery of metals or archaeologicaland palaeontological material or objects, or use such equipment for the recovery of meteorites.

Burial grounds and graves

36. (3) (a) No person may, without a permit issued by SAHRA or a provincial heritage resources authority—

(a) destroy, damage, alter, exhume or remove from its original position or otherwise disturb the grave of a victim of conflict, or any burial ground or part thereof which contains such graves;
(b) destroy, damage, alter, exhume, remove from its original position or otherwise disturb any grave or burial ground older than 60 years which is situated outside a formal cemetery administered by a local authority; or
(c) bring onto or use at a burial ground or grave referred to in paragraph (a) or (b) any excavation equipment, or any equipment which assists in the detection or recovery of metals.

Heritage resources management

38. (1) Subject to the provisions of subsections (7), (8) and (9), any person who intends to undertake a development categorized as –

(a) the construction of a road, wall, powerline, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length;
(b) the construction of a bridge or similar structure exceeding 50m in length;
(c) any development or other activity which will change the character of the site –
  (i) exceeding 5000m^2 in extent, or
  (ii) involving three or more erven or subdivisions thereof; or
  (iii) involving three or more erven or divisions thereof which have been consolidated within the past five years; or
  (iv) the costs of which will exceed a sum set in terms of regulations by SAHRA, or a provincial resources authority;

(d) the re-zoning of a site exceeding 10 000m^2 in extent; or

(e) any other category of development provided for in regulations by SAHRA or a provincial heritage resources authority, must as 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.

APPENDIX B: IDENTIFICATION OF ARCHAEOLOGICAL FEATURES AND MATERIAL FROM INLAND AREAS: guidelines and procedures for developers

Human Skeletal material

Human remains, whether the complete remains of an individual buried during the past, or scattered human remains resulting from disturbance of the grave, should be reported. In general the remains are buried in a flexed position on their sides, but are also found buried in a sitting position with a flat stone capping and developers are requested to be on the alert for this.

Fossil bone

Fossil bones or any other concentrations of bones, whether fossilized or not, should be reported.

Stone artefacts

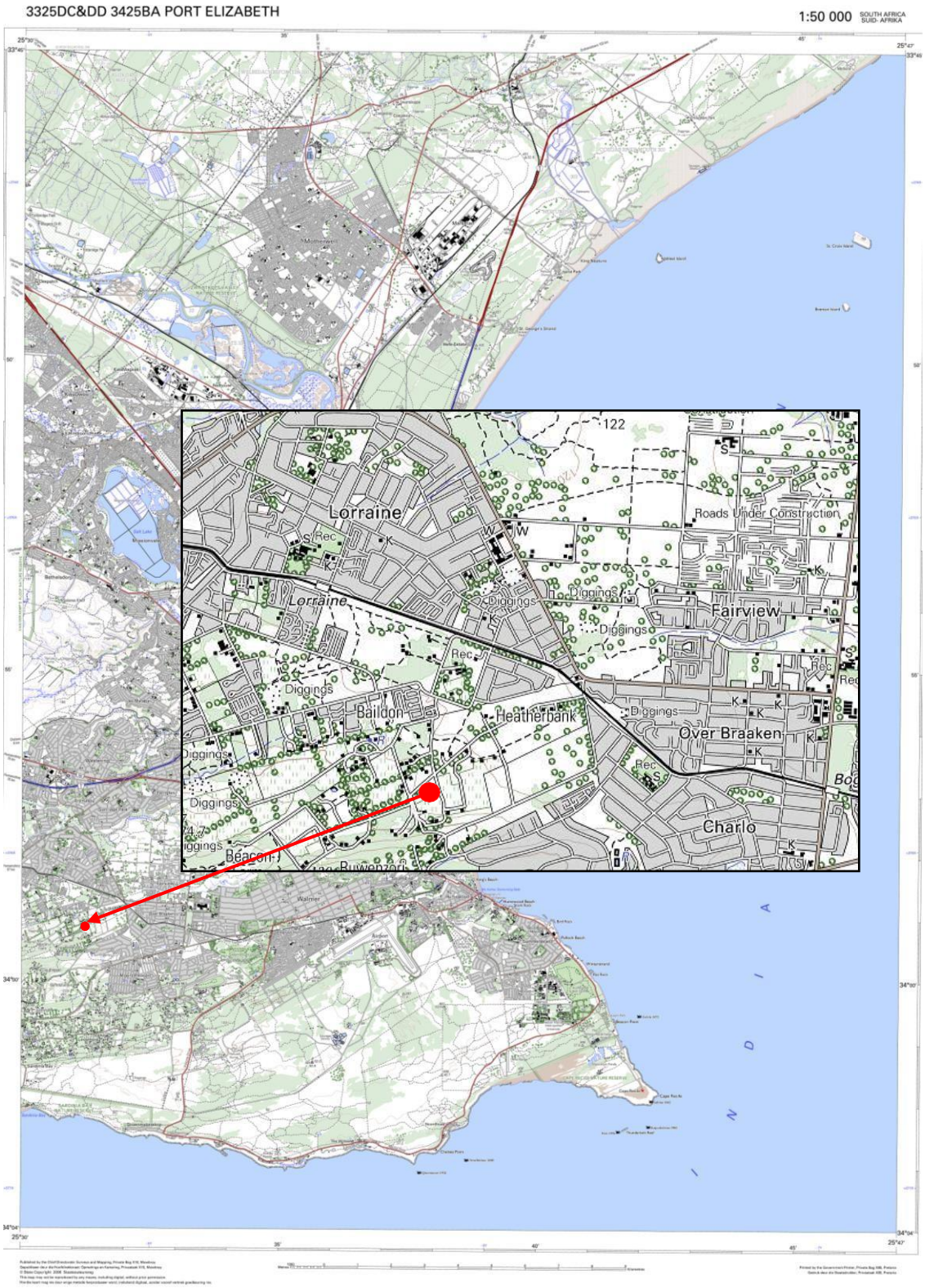
These are difficult for the layman to identify. However, large accumulations of flaked stones which do not appear to have been distributed naturally should be reported. If the stone tools are associated with bone remains, development should be halted immediately and archaeologists notified.

Stone features and platforms

These occur in different forms and sizes, but easily identifiable. The most common are an accumulation of roughly circular fire cracked stones tightly spaced and filled in with charcoal and marine shell. They are usually 1-2 metres in diameter and may represent cooking platforms for shell fish. Others may resemble circular single row cobble stone markers. These occur in different sizes and may be the remains of wind breaks or cooking shelters.

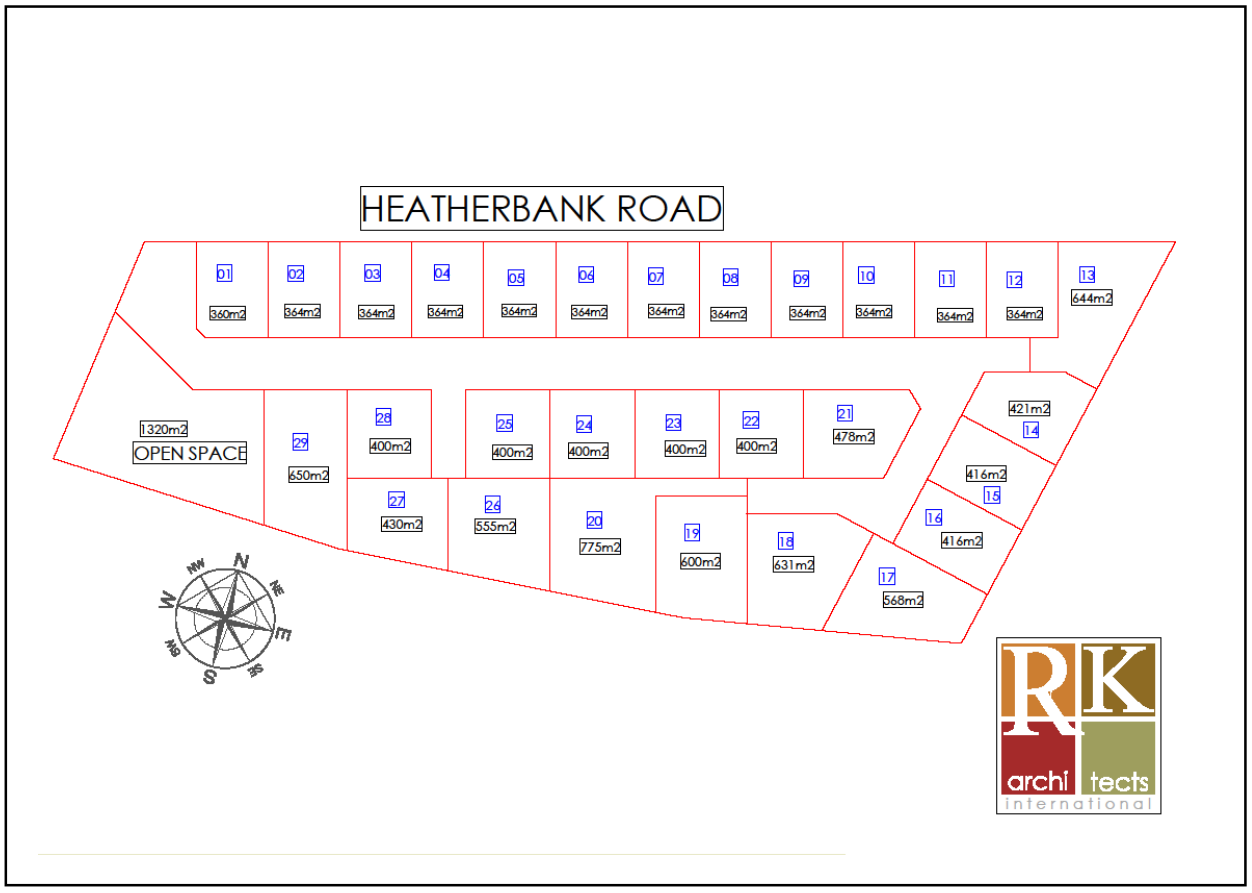
Historical artefacts or features

These are easy to identify and include foundations of buildings or other construction features and items from domestic and military activities.



Map 1. 1:50 000 Topographic maps indicating the approximate location of the proposed development area on a portion of Erf 4087 in Theescombe, Gqeberha (Port Elizabeth), Nelson Mandela Bay Municipality, Eastern Cape Province (indicated with the red arrow).

Map 2. Aerial views of the location of the proposed development area on a portion of Erf 4087 in Theescombe, Gqeberha (Port Elizabeth), Nelson Mandela Bay Municipality, Eastern Cape Province (indicated with the yellow arrow). The proposed development area is outlined in red.



Map 3. Layout for the proposed development on a portion of Erf 4087 in Theescombe, Gqeberha (Port Elizabeth), Nelson Mandela Bay Municipality, Eastern Cape Province (Map courtesy of RK Architects International).

SOCIO-ECONOMIC COMPLIANCE STATEMENT

LOVEMORE DEVELOPMENT, HEATHERBANK, PORT ELIZABETH

Report prepared by:

ENVARO
ENVIRONMENTAL MANAGEMENT & DEVELOPMENT SERVICES

Co. Reg. No. 2010/112318/23
BBBEE Level 1

125, 12th Avenue, Gonubie, East London, 5257

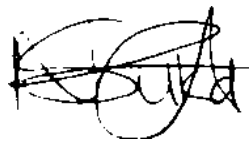
Report prepared for:

BLUELEAF ENVIRONMENTAL

CONTENTS

1. DECLARATION OF INDEPENDENCE

I, Nande Suka, declare that I am duly authorized to represent ENVARO Environmental Management and Development Services as an independent socio-economic specialist. I declare that I have no interest of any form with respect to the proposed Lovemore Development or the Environmental Assessment Practi- tioner (EAP) appointed to undertake the Environmental Impact Assessment (EIA), other than due remu- neration for specialist input in the form of a Socio-Economic Compliance Statement for the proposed de- velopment.



Specialist Declaration

Date: 11 August 2023

2. SPECIALIST'S EXPERIENCE

Ms Nande Suka (Pr.Sci.Nat.) commenced her career as an Environmental Assessment Practitioner in January 2012. To date, she has over 9 years' experience in the environmental consulting fraternity. Her wealth of experience and knowledge was acquired while employed as an environmental consultant at Coastaland Environmental Services (Pty) Ltd in East London, where she served from year 2012 to 2020 when she left the employ as a Senior Environmental Consultant and Office Manager of the company's East London Branch.

She is registered with the South African Council for Natural Scientific Professions (SACNASP) as a Professional Natural Scientist (Pr.Sci.Nat.). She obtained her highest qualification, B.Sc. Honours in Biological Science (with core coursework on Integrated Environmental Management, Environmental Management Procedures, Ecology and Conservation Biology) from the Nelson Mandela Metropolitan University in 2011. She also completed a course in Introduction to Environmental Impact Assessment Procedures conducted by Coastal & Environmental Services in conjunction with Rhodes University, and training in Integrated Waste Management and Waste Management Legislation with the Institute of Waste Management South Africa (IWMSA).

Nande has a well-rounded background and expertise in various disciplines including, but not limited to; Environmental Impact Assessments, Environmental Management Plans/Programmes, Integrated Waste Management Planning, Environmental Sensitivity and Feasibility Assessments, Water and Waste Licens- ing, Public Participation and Stakeholder Engagement, Social Facilitation and Baseline Social Impact Assessments, Environmental Compliance Monitoring and Auditing, and overall Project Management (technical and financial). She has managed small to large scale projects in various sectors such as waste, water, housing, industrial, tourism, private and public (all spheres). She has been involved in multidisciplinary developments including but not limited to structural and infrastructure (i.e. bridges, roads, pipelines, landfills, cemeteries, water and wastewater treatment plants, etc.); residential, mixed use, commercial, industrial and agricultural. She has also been involved, developed and managed numerous planning projects for local and district municipalities, such as Integrated Waste Management Plans and Environmental Management Frameworks.

Nande is also a member of the International Association for Impact Assessment South Africa (IAIAsa) and the Institute of Waste Management of Southern Africa (IWMSA). She currently serves as chairperson of the IWMSA, Eastern Cape Region.
Nande has compiled and contributed to various socio-economic impact assessments and specialist opinions, including but not limited to the following:

- Socio-economic Impact Assessment for the Upington Special Economic Zone (SEZ), Northern Cape – 2017
- Social Impact Assessment for the Great Kei Wind Farm, Great Kei Local Municipality – 2015
- Heatherbank Hill Phased Development, Theesecombe, Port Elizabeth – 2021

3. PROJECT BACKGROUND

BlueLeaf Environmental Consulting (BlueLeaf) has been appointed by the Christopher Lovemore Family Trust to undertake a Basic Assessment process as regulated by the National Environmental Management Act (No. 107 of 1998) for the proposed new housing development in Theesecombe, Port Elizabeth. ENVARO Environmental Management and Development Services (ENVARO) was appointed by BlueLeaf on behalf of the applicant, to provide socio-economic input into the proposed development.

The proposed new housing development and associated infrastructure will be located on a portion of Erf 4087 along Heatherbank Road in Theesecombe, Port Elizabeth. The land is currently utilized as part of an equestrian ranch. The proposed housing development consists of 29 units of upmarket, free standing homes in a secure estate located along the Heatherbank Road. Plot size will range between 300-700 square meters in size.

Figure 1: Location of the proposed new Lovemore Group housing development in Heatherbank, Port Elizabeth.

Figure 2: An outline of the property on which the Lovemore housing development is proposed.

4. DESKTOP ANALYSIS

The study area falls within the Nelson Mandela Bay Municipality (NMBM), which is the larger of the two "Category A" metropolitan municipalities located on the Southern Coast of the Eastern Cape. In 2001, the NMBM was formed as a single administrative area covering inter alia Port Elizabeth, Uitenhage, Despatch and a number of surrounding areas.

4.1. Population statistics

NMBM has a total population of 1 271 776, which accounts for approximately 17% of the population of the Eastern Cape. The population growth rate of NMBM is 1.36%, and is characterised by a young popula- tion. The average number of people per households declined from 4.25 in 1996 to 3.55 in 2011 (NMBM IDP, 4th Edition).

Spatially, the Metro is relatively low density with an average density of 20 residential units per hectare of developed land. The spatial pattern of the Metro is one of segregation, with lower incomes and higher densities characterising the northern parts of the Metro, and higher incomes and lower densities to the south and west (NMBM IDP, 4th Edition).

4.2. Age structure

The City is characterised by a youthful population, with an average age of 26 years old (COGTA District Development Model, NMBM Profile 2020). The life expectancy among NMBM resident is 59.3 years and 53.7 years for females and males respectively (NMBM IDP, 4th Edition).

4.3. Race and language

Altogether, approximately 57% of local residents are mother-tongue isiXhosa speakers, followed by Afri- kaans (approximately 29%) and English (approximately 12%) (NMBM IDP, 4th Edition).

4.4. Education

In 2011, 19.7% of NMBM population had attained matric, whilst 6.8% had a higher education. With non-schooling residents, 3% had no schooling, 13% had grade 7 or less, and 75% had a school education of grade 12 or less (NMBM IDP, 4th Edition).

4.5. Employment status

The unemployment rate decreased from 46.4% in 2001 to 36.6% in 2011. Pre Covid-19, the unemploy- ment rate during March 2020 in NMBM was 35% (NMBM IDP, 4th Edition). The number of unemployed people in the Metro increased from 159 000 to 202 000. The unemployment rate is despite the fact that NMBM has the largest economic sectors. The metro is characterised by a weak enabling environment in terms of availability of service delivery and infrastructure. This factor is considered critical to attract in- vestment opportunities to the area (COGTA District Development Model, NMBM Profile 2020).

4.6. Incomes

According to the figure below, 26.3% of NMBM households earn less than R9 600 per month and are therefore, potentially dependant on subsidised public sector housing. Between 2001 and 2011, the total number of people living below the poverty line decreased from 46% to 29%. Altogether, 30% of formal households in NMBM are dependent on the municipal indigent subsidy (NMBM IDP, 4th Edition).
Source: NMBM IDP, 4th Edition

4.7. Poverty

Approximately 640 000 were registered to be living in poverty in the NMBM in 2017, which is higher than the 552 00 in 2006. The highest ethnic group living in poverty is the African population, at 65.1% in 2016, followed by 40.6% of the coloured group and 8% of the Asian population group (NMBM IDP, 3rd Edition).
Households that qualify for the indigent subsidy receive financial assistance from the Metro. Over the years, the number of indigent households has grown, by 27 158 households in the first half of the 2017/18 financial year, which is equivalent to a growth of approximately 30.6% in comparison with the 2015/16 financial year (NMBM IDP, 3rd Edition).

Currently, approximately 30% of formal households in the Metro cannot afford basic services in terms of the indigent program with an average of 16.1% of households receiving no income (NMBM IDP, 3rd Edition). 21.6% of households in NMBM rely on grants as their main source of income (NMBM IDP, 5th Edition).

4.8. Economic profile

NMBM is a major economic role player in the Eastern Cape with two ports, the Port of Port Elizabeth and the Port of Ngqura, located in the Coega Special Economic Zone (CSEZ). The CSEZ is a multi-billion-dollar industrial complex that accommodates heavy, medium and light industries. NMBM has been the driver of the Eastern Cape economy, contributing 41.81% of the provincial Gross Geographic Product (GGP). The largest economic sections in NMBM have been manufacturing, finance, community services and transport and trade. These were the sectors that created most employment in the Metro. The two ports located in the boundary of the Metro further enhance its attraction for trade and industry. The Metro also offers a wealth of tourism and recreation opportunity due to its biodiversity, beaches and open spaces (NMBM IDP, 4th Edition).

4.9. Infrastructure development

The following are experienced in relation to municipal infrastructure:

- There is a backlog of tarring or gravel access roads, with a total of approximately 600km. The backlog has occurred largely due to the fact that the housing development programme funded by the gov-

ernment only includes sufficient funding for gravel roads (COGTA District Development Model, NMBM Profile 2020).

- Stormwater drainage inadequacies are mostly experienced in disadvantaged area, especially in newly developed areas, as a result of limited funding for roads and stormwater infrastructure (COGTA District Development Model, NMBM Profile 2020).
- Ageing infrastructure, especially electricity, water and sanitation infrastructure results in leakages, pipe bursts, blockages and electricity disruptions, which in turn cause service delivery disruptions.
- The completion of the Nooitgedacht Low Level Scheme remains the most significant project to ensure long-term water sustainability in the NMB. This project supports both the provision of basic water, but also water for economic development. Phase 2 is operational and Phase 3 planned for completion by Amatola Water as the implementing agent funded by the Department of Water and Sanitation (DWS) is scheduled for completion in June 2021.
- Fishwater Flats Wastewater Treatment Works (FWF WWTW) commenced with the completion of the Phase 1 (inlet works). Subsequent contracts have commenced with as part of Phase 2. This and other Wastewater Treatment Works are critical (socially & economically) for further growth and development in the metro, not to mention the support for the Bucket Eradication Programme. The total funding needed exceeds R1 billion.
- Economic infrastructure for development such as the Coega Wastewater Treatment Works and the Coega Return Effluent Scheme is needed to support the Coega SEZ. Further development of the SEZ if no funding is availed for these projects. An investment of approximately R600M is required to complete the project, but the viability of the project is also dependent on the FWF WWTW upgrades.
- Planning has commenced on a new wastewater treatment facility to support the housing developments north of Motherwell and the Coega SEZ. This plant is planned for an ultimate capacity of 120 Ml/d costing in the region of R1 500 000, 00. A start up capacity of approximately 40-50Ml/d will be required and is estimated at R750M (including a sea outfall).
- The Municipality is working on a long-term capital investment plan to support economic growth and socio-economic development (NMBM IDP, 4th Edition).

The responsible delivery of water and sanitation services is provided by way of managing the supply of water, distribution of water, wastewater collection and treatment of wastewater, which includes the following current status quo:

- The storage of water in 10 dams;
- Treatment of water at 8 water treatment works including springs;
- Bulk supply of treated water via 650km of large diameter pipelines to the metro boundaries into distribution reservoirs;
- Water distribution reticulation to all customers via 4800km water pipelines;
- Treatment of sewage at 8 wastewater treatment plants for both domestic and industrial;
- Monitoring trade effluent discharges; and
- The relevant electrical and mechanical maintenance of plant/equipment (NMBM IDP, 2nd Edition).

4.10. Access to services

4.10.1. Water and Sanitation

Approximately 97.68% of households in formal human settlements have access to a basic level of water supply (including households within a 200m radius of a standpipe and water tanks). This is with an exception of communities' illegally occupying private land. Approximately 97.29% of households in formal human settlements have access to a basic level of sanitation (NMBM IDP, 4th Edition).

4.10.2. Waste management

87.8% of households within the urban edge (excluding informal areas on privately owned erven and erven not zoned for human settlements development) receive a weekly domestic waste collection service by the Metro. The remaining 12.2% take their refuse to the nearest drop-off sites. The Metro, however, continues to face the challenge of illegal dumping and poor refuse collection in informal settlements without proper access roads (NMBM IDP, 4th Edition).

4.10.3. Electricity

90.7% of households have access to electricity and the Metro continues to address illegal connections through replacement with a cheaper alternative (e.g. off-grid photo voltage system or a basic 20-amp electrical supply) (NMBM IDP, 4th Edition).

4.10.4. Housing

The NMBM has the lowest proportion of informal households among South African Metropolitan Municipalities, having significantly reduced the numbers since 2001.
According to the Shisaka Development Management Services report on sustainable housing in 2017, the following was concluded about NMBM:

- There are high levels of households living in formal housing (85%)
- There are high levels of households living in owned formal housing (57%)
- 12% of households are living in informal housing conditions (in informal settlements and back yards).

The NMBM has delivered 21 891 serviced sites and 11 112 houses between 2011/12 and 2016/17. These figures indicate a sustained capacity within the NMBM to directly deliver in the order of 2000 houses and serviced stands per annum. Households in strained area (i.e. servitudes, floodplains and overcrowded area) remain a challenge and they are identified as priority areas to be relocated in terms of the Housing Plan (NMBM IDP, 4th Edition). The current demand for subsidised housing as captured in the Housing Needs Database is calculated at 124 342, which is higher than the StatsSA estimates (NMBM IDP, 5th Edi- tion).

4.11. Community Facilities

4.11.1. Educational facilities

The Metro has a total number of approximately 324 schools, which consists of about 269 ordinary public schools, 11 special needs schools, 25 independent schools and 19 early childhood development centres. There is also one public university, the Nelson Mandela Metropolitan University, and various private institutions and 4 FET's (COGTA District Development Model, NMBM Profile 2020).

4.11.2. Health facilities

The Metro has the following facilities serving for health service delivery:

- Two tertiary hospitals;
- One regional hospital;
- Four specialised hospitals;
- One district hospital;
- Five community healthcare centres (CHCs) with 24-hour service, and three of these functioning as day centres;
- 39 fixed clinics;
- Four satellite clinics;
- One clinic with extended 12 hours' services;

- Seven mobile clinics, and
- 4 private hospitals (COGTA District Development Model, NMBM Profile 2020).

4.12. Tourism

The NMBM is regarded as the "official" gateway to the scenic Eastern Cape Province and the world-renowned Garden Route. It is recognised as both the Mohair and Bottelnose Dolphin Capital of the world and home to the largest breeding colony of the African penguin. The metro boasts the Big 7 (Elephant, Buffalo, Rhino, Lion, Leopard, Southern Right Whale and Great White Shark) within the municipal boundaries. Port Elizabeth is known for its over 40km coastline boasting a multitude of blue flag beaches and hours of sunshine to enjoy. It is also known as the 5 biome city.

Another attraction to the metro is the architectural profile which follows a chronological historical pattern throughout the city. The biggest numbers of art deco buildings in South Africa are found in the city centre of Port Elizabeth. In Uitenhage, buildings from the 1800s are still found in their original form. The city and its immediate environs offer a wide selection of attractions; these include a rich historical heritage as well as nature based eco-offerings, activities and experiences. The area supports the most diverse array of vegetation types in South Africa, six of the country's seven terrestrial biomes are represented in the Eastern Cape.

4.13. Crime

According to the Crime Statistics Series Volume 4 (Stats SA, 2017), the Metro has 16 police stations, which must deal with the crime within the municipal jurisdiction (COGTA District Development Model, NMBM Profile 2020). NMBM is known to have a relatively slow population growth, low population density and high levels of social incoherence/family disruption and inequality. The Metro compares well to other citiesacross most social/structural risk factors, especially in respect of service deprivation and housing informal-ity levels (NMBM IDP, 3rd Edition).

The NMBM murder rate is exceed only by that of Cape Town, as it has the third highest robbery rate, and fourth highest rates of assault and sexual offences. Property related crime, is however, relatively low. Despite the relatively moderate levels of experiences of crime, NMBM residents are reported amongst the highest levels of fear of crime, after Cape Town and Buffalo City Metros (NMBM IDP, 3rd Edition). The NMBM's high rates of murder and robbery may well be associated with the youth unemployment rate, which is currently high. A study conducted in 63 countries, found that inequality, followed by youth (especially male) unemployment, had the highest correlation to murder and assaults, as reported in the State of Urban Safety in South Africa Report of 2017 (NMBM IDP, 3rd Edition).

The safety and security of local communities, residents, visitors, tourists and holiday-makers is a key focus area of the Metro. To make the Metro safer, a broad spectrum of services is provided. The emergency services that are provided to ensure the safety of all communities and visitors include disaster management, fire and emergency and security services, as well as traffic and licensing services (NMBM IDP, 3rd Edition).

Collaboration between all internal and external stakeholders, particularly law enforcement agencies, is maintained to identify potential threats and reduce or eliminate risks (NMBM IDP, 3rd Edition).

5. BASELINE SOCIO-ECONOMIC SENSITIVITY VERIFICATION

The DFFE Screening Tool has identified the impact of the development on the social fabric of the study area as low. This low impact is assumed to be associated with the nature of the proposed development, which blends with the surrounding land use of the study area. Though this may potentially be the case, it

is important to note that no development has no impact on the socio-economic status of the immediate and surrounding communities.

A socio-economic impact assessment is an interactive process by nature, therefore, input from communities is crucial in verifying the sensitivity of a particular development to the receiving communities. However, this participatory approach is not necessary when information on the social status of an area can be drawn from available data sources such as the IDP, other municipal documents, and previous studies on similar developments within the study area. Based on such information sources, the following generic socio-economic impacts are identified as relevant for the proposed development:

Project Phase	Issue	Impact
Construction	Inflow of jobseekers	The possibility of an influx of non-resident jobseekers and temporary workers may cause conflict between locals and outsiders if the outside labour force receives employment preference. Workers that remain in the area may place pressure on the local government for housing and associated infrastructure and services. There may be an increase in thespread of communicable diseases, resulting from outsiders having short term relationships with locals.
	Employment opportunities	A number of employment opportunities would become available during the short-term construction period, especially for unskilled and semi-skilled labourers.
	Skills development and capacity building of workers and local SMMEs	Skills development and capacity building for workers through training or actual experience will be a positive benefit of the construction phase. 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.
	Local economical spin-offs	General construction material and equipment sourcing could benefit the local businesses, and this will have a indirectly positive impact on the local economy.
	Disruption in daily living and movement patterns	Traffic and intrusion impacts resulting from construction activities (such as construction of access roads, temporary road closures) could cause disruptions in the daily living and movement patterns of surrounding communities.

	Health and safety risks for workers and surrounding community.	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. Health risks may result in increased pressure on existing local facilities and social services.
	Safety and security risk	Safety and security issues for the surrounding communities may be introduced due to an influx of jobless people. Valuable construction equipment and material could attract criminals with negative economic consequences for the developer.
	Intrusion impact	Intrusion impacts such as noise, visual and light pollution, and aesthetic impacts, resulting from emissions, movement of construction vehicles, earthworks, etc.; may cause nuisance to sensitive receptors such as surrounding residents, businesses, schools and other social facilities.
Operation	Job creation	Fewer employment opportunities may be available during the operation phase of the development, which will mostly benefit local people and businesses, for repair and maintenance.
	Impacts on the local economy	The local economy, especially of localised businesses such as shopping complexes; could benefit from the residents of the development. The local municipality will benefit from the municipal rates and taxes that will be collected from the development residents. Property investors could benefit from the rental income received on properties purchased within the development complex.
	Impact on land/market values of surrounding properties, including the development	The value of surrounding properties could increase considering the upmarket convenient development in the vicinity.
	Impact on infrastructure and services	Pressure on existing infrastructure and services could increase as a result of increased localised population rates and densities, due to influx of perma-

		nent residents in the area.

6. RECOMMENDATIONS AND CONCLUSION

Due to the scale of the proposed development and its uniformity with the surrounding land use, it is the opinion of the specialist that a Socio-Economic Specialist Assessment is not necessary for this development, as the social and economic impacts identified for the proposed development can be sufficiently assessed and mitigated within the EIA.

It is therefore, recommended that the mitigation and management measures provided in the EIA be incorporated into the EMPr for active application and monitoring throughout all the phases of the development.

7. REFERENCES

District Development Model: Profile and Analysis of Nelson Mandela Bay Municipality, 2020. Cooperative Governance and Traditional Affairs.

ENVARO Environmental Management and Development Services. 2021. Socio Economic Impact Assessment for the Heatherbank Hill Phased Development on Erven 385, 409 and 1070 in Theesecombe, Port Elizabeth, Eastern Cape.

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Terrestrial Biodiversity and Plant Species Assessment

Proposed new housing development along Heatherbank Road in Theescombe, Port Elizabeth, Eastern Cape

Prepared for:

Christopher Lovemore Family Trust
Port Elizabeth, Eastern Cape Province

Date submitted: August 2023

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DECLARATION OF INDEPENDENCE

I, Roy de Kock as duly authorised representative of Blue Leaf Environmental (Pty) Ltd, hereby confirm my independence (as well as that of BlueLeaf) as a specialist and declare that neither I nor BlueLeaf have any interest, be it business, financial, personal or other, in any proposed activity, application or appeal in respect of which BlueLeaf Environmental was appointed as environmental assessment practitioner in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), other than fair remuneration for worked performed, specifically in connection with the Environmental Impact Assessment for the proposed "The Heath" housing development. I further declare that I am confident in the results of the studies undertaken and conclusions drawn because of it – as is described in this report.

_____

Full Name: Roy de Kock

Title / Position: Ecologist
Qualification(s): BSc (Hons) Geology; MSc Botany; Candidate PhD Botany
Experience (years/ months): 17 years
Registration(s): SACNASP (400216/16)

EXPERTISE

Roy has over 17 years' experience in environmental consulting and specialist services in South Africa. Various projects throughout Africa have also been undertaken. Projects include baseline studies, impact assessments and compliance auditing for various large-scale projects including numerous wind farms, roads (National and Provincial), and infrastructure development projects. Blue Leaf also offers a wide range of in-house specialities including but not limited to Ecological and Botanical assessments, Biodiversity studies, Plant and Animal Search and Rescue, Fauna and Flora permits, Aquatic Assessments, Agricultural and Soil Assessments and Environmental and Venomous animals training workshops.

Roy holds a BSc Honours in Geology and an MSc in Botany from the Nelson Mandela University in Port Elizabeth. He is currently busy with his PhD (Doctorate degree) in Botany and Soil Science. He has over 17 years' experience in the environmental consulting focussing on Ecological and Agricultural Assessments, Geological and Geotechnical analysis, Environmental Management Plans, mining applications and various environmental impact studies.

Table of Contents

Site sensitivity verification

A site visit was conducted on the 19th of August 2023 to conduct a site sensitivity verification on the following two environmental themes listed in the DFFE Screening Report:

1. Terrestrial biodiversity.
2. Plant species.

Site survey

The site survey indicated that the proposed project development will occur on an area dominated by degraded vegetation. Short grassland dominates with a few invasive tree species occurring along the western boundary. The site is currently used as an equestrian camp to graze horses.

<table>
<tr><td colspan="2">Site consist of transformed grassland in a fenced area used as an equestrian camp for grazing horses.</td></tr>
<tr><td>  </td><td>  </td></tr>
<tr><td>A gravel road borders the site on its western boundary. Few alien trees occur along this road</td><td>Heatherbank Road, a surfaced road borders the site along its northern boundary. A small townhouse complex is located across the site along this road</td></tr>
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Outcome

The following two environmental themes were investigated during the site visit:

Terrestrial biodiversity
The site visit confirmed that terrestrial biodiversity is still considered as very high, the same as listed in the DFFE Screening Report. This was mainly due to the very high sensitivity allocation for the strategic water resource area in which the development occurs and the fact that the site occur in a critically endangered ecosystem.

Plant species
The site visit confirmed that plant species diversity is considered as low rather than high as per the DFFE Screening Report. This reduction in sensitivity is motivated because of the transformed nature of vegetation on site and the complete absence of any protected plant species within or immediately surrounding the study site. Regardless of this low sensitivity allocation, this theme is assessed as part of the full assessment for terrestrial biodiversity.

Refer to section 4 of this report for the full outcomes of the desktop assessment and site inspection for each theme.

The protocols as listed in each of the legislated themes listed above were followed to ensure compliance. The following legislated protocol were used (GN R. 320 of 2020).

Protocol For the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on Terrestrial Biodiversity.

Protocol For the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on Terrestrial Plant Species.

The Ecosystem Environmental Assessment Guidelines (2021 Draft) for the implementation of the Terrestrial and Aquatic Ecosystem Protocols for environmental impact assessments in South Africa were also used in drafting the report.

1. Introduction

The proposed housing development, "The Heath", will be situated on 2 hectares (ha) of Erf 4087 along Heatherbank Road in Theescombe, Port Elizabeth in the Eastern Cape Province. The land is currently utilized as part of an equestrian ranch (Figure 1.1).

Figure 1.1 Location of the proposed housing expansion outside Port Elizabeth in the Eastern Cape Province

1.1. Project description

The site is already cleared and vacant, located among existing plots in Theescombe, Port Elizabeth (Figure 1.1).

The Client is proposing to develop a new housing development called "The Heath", consisting of 29 units of upmarket, free-standing homes in a secure estate located along Heatherbank Road. Plot sizes will range between 300-700 square meter in size (Figure 1.2). the houses will not be developed as part of the project site construction phase but sold off as plots. The purchaser will then build their dwelling according to specific specifications. Only a road, fence surrounding the development and an access gate will be constructed. The entire erf will be developed.

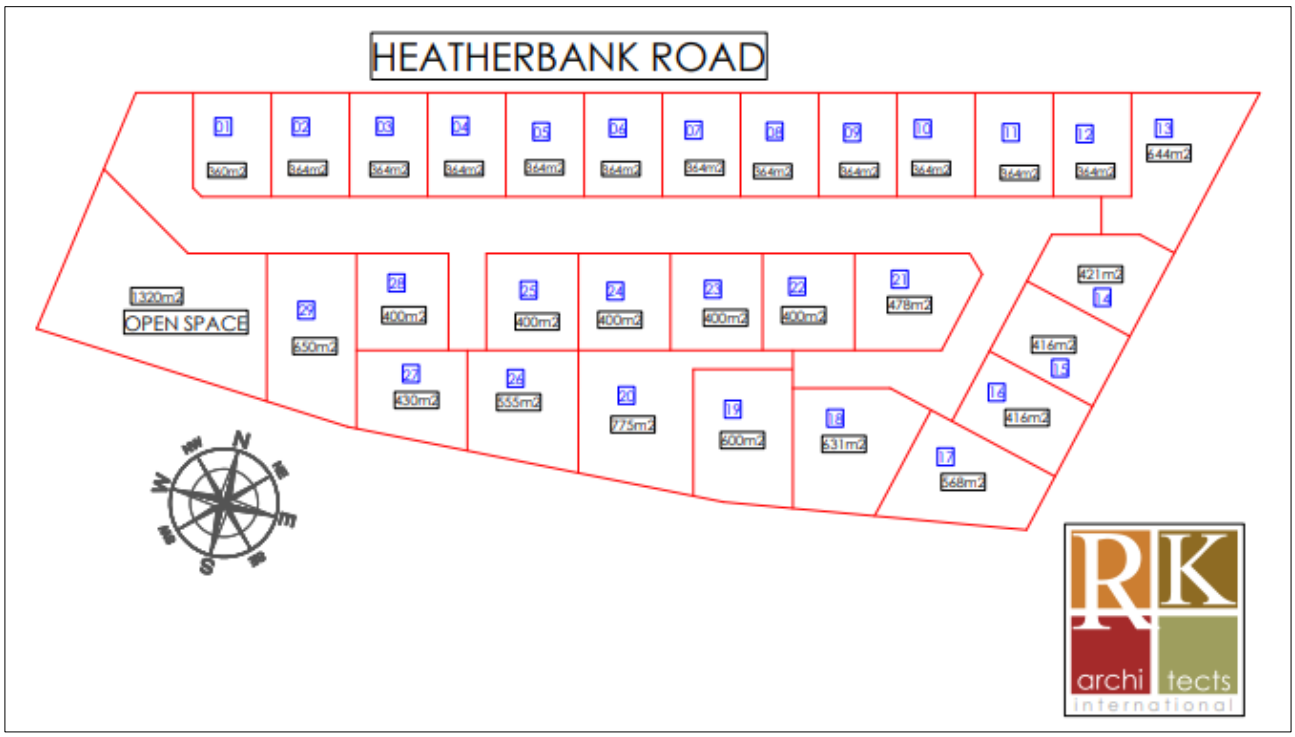

Figure 1.2: Housing development site plan for "The Heath".

1.2. Legislative context

The following legislation is directly relevant when assessing the terrestrial environment relating to the proposed housing development in the Eastern Cape Province:

National Environmental Management Act (NEMA) (107 of 1998; as amended), and the Specialist Assessment Protocols (GNR 320 of 2020):

The contents of this specialist report comply with the legislated requirements as described in the following two specialist assessment protocols as listed in the projects' Screening Report:

1. Protocol for the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on Terrestrial Biodiversity.

2. Protocol for the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on Terrestrial Plant Species.

National Environmental Management Act (NEMA) (107 of 1998; as amended), and the EIA regulations (as amended):

Although the Specialist Assessment Protocols (as listed above) supersedes this legislative requirement, the contents of this specialist report still comply with the legislated requirements as described in Appendix 6 of the National Environmental Management Act (No 107 of 1998; NEMA) Regulations of 2014 and updated in 2017 (GN R. 326 of 2017).

Other national legislation

Other national legislation relative to this project include:

Title of legislation or guideline	Administering authority	Applicability to the project
National Environmental Management Act (NEMA) Environmental Impact Assessment (EIA) Regulations 2014 as amended *(Act No. 107 of 1998)*	DEDEAT	The activity triggers activities listed in NEMA EIA Regulations GN R. 327 and GN R. 324.
National Water Act, 1998 *(Act No. 36 of 1998)*	Department of Water & Sanitation (DWS)	Infrastructure may impact on existing surface water systems. This impact is only mentioned in this report (if relevant) and NOT discussed in detail.
National Environment Management: Biodiversity Act (NEMBA) (No. 10 of 2004)	DEDEAT	The proposed development must: Conserve endangered ecosystems and protect and promote biodiversity. Assess the impacts of the proposed development on endangered ecosystems. No protected species may be removed or damaged without a permit; and The proposed site must be cleared of alien vegetation using appropriate means.
National Forest Act (84 of 1998)	Provincial Department of Forestry	Requires that a permit be obtained should any forests or protected trees be removed during the construction phase of the project.

Relevant Provincial and Metropolitan legislation include:

Title of legislation or guideline	Administering authority	Applicability to the project
Nelson Mandela Bay Municipal Biodiversity Sector Plan (NMB BSP, 2014)	DEDEAT	Listing of critical biodiversity areas and ecological support areas within the study site. The discussion in this report is based on vegetation type, connectivity, habitat condition and presence of Red List Threatened species.
Nature and Environmental Conservation Ordinance (No.19 of 1974)	DEDEAT	Listing of protected plants. Permits are required for removal and replanting any of these listed plants in the EC.

1.3. Alternative

No site alternatives or layout are proposed.

1.4. Public consultation

No consultation requirements were identified during the drafting of this specialist report. The findings of this report can be presented to stakeholders and I&APs as part of the Basic Assessment Public Participation Process (PPP).

No comments were received to date on this report.

1.5. Objectives

The objectives of the project are listed below. These objectives are based on the requirements of each specialist protocol as listed in the DFFE Screening Report:

- Describe both the existing area as well as the area prior to construction in terms of its current characteristics and the general sensitivity of these components to change.
- Confirm if there are any outright fatal flaws to the establishment of the proposal at its current location from a terrestrial and plant biodiversity perspective.
- Map all existing areas to be directly affected by the proposals in terms of its current and previous sensitivity (constraints).
- Map all 'No-Go' areas.
- Describe the likely scope, scale, and significance of impacts (positive and negative) on terrestrial and plant biodiversity components of the area associated with the construction of the proposals.
- Make recommendations on the scope of any mitigation measures that may be applied during construction to avoid/reduce the significance of the identified construction-related impacts.
- Describe the likely scope, scale, and significance of impacts (positive or negative) on the terrestrial and plant biodiversity components associated with the operation or use of the proposal.
- Make recommendations on the scope of any mitigation measures that may be applied to avoid/reduce the significance of the operations-related impacts. These mitigation measures could also be design recommendations as well as operational controls, monitoring programmes, management procedures and the like.
- It will be particularly important to identify any rehabilitation measures that can be reasonably applied on the completion of the construction works.
- Broadly comment on the cumulative impacts (positive or negative) associated with the construction and/or operation of the proposals.

It should be noted that only datasets and base data relevant to the study area and affected environmental features are discussed below.

1.6. Assumptions and limitations

- The report is based on currently available information and, as a result, limited by the information provided by the Client.
- The report is limited by seasonality as the presented data will be based on a single site survey of plant species conducted within a single season (late winter) of a single year (2021).

1.7. Project Area of Influence

The Project Area of Influence (PAOI) is defined according to important ecosystem processes and functions that may be plausibly affected by the proposed development and its associated activities. Figure 1.3 below illustrates the PAOI for the proposed new "The Heath" housing development along Heatherbank Road.

Primary PAOI: Area to be cleared of vegetation. This is the area directly impacted by the proposed development and includes the entire erf 4087.

Secondary PAOI: The secondary PAOI includes a buffer area of 50m around the boundary of the site.

Tertiary PAOI: There are no tertiary PAOI as the Terrestrial Biodiversity and Plant Species areas outside the Primary PAOI will not be affected.

Only the Primary and Secondary PAOI will be assessed in this report.

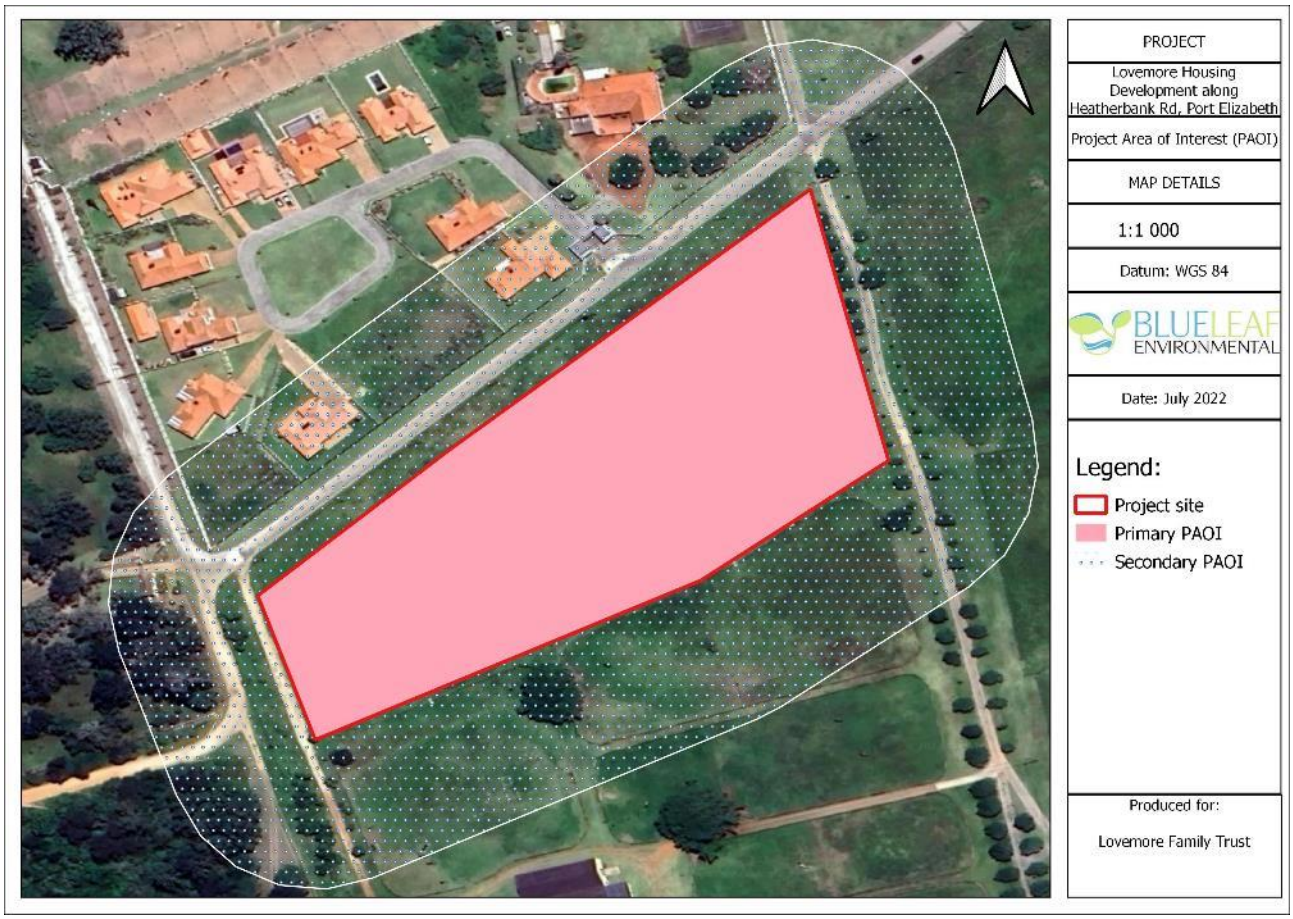

Figure 1.3: Project Area of Influence (PAOI) map

2. Approach and Methodology

The aim of this assessment is to identify areas of terrestrial and plant biodiversity importance and to evaluate these in terms of their conservation importance. To do so, the sensitivity of the area is assessed as well as an identification of potential plant Species of Conservation Concern (SCC) that may occur in habitats present in the area. The condition and sensitivity of the vegetation as well as the presence of plant SCC will determine areas with high biodiversity.

The study site was assessed using a two-phased approach. Firstly, a desktop assessment of the site was conducted in terms of current biodiversity programmes and plans. Further to the above, a site visit was conducted in 19th of August 2023. The site visit served to inform potential impacts of the proposed project and how significantly it would impact on the surrounding terrestrial environment.

2.1. Species classification

To identify plant species that potentially occur naturally in the project area firstly required an understanding of the broad botanical habitats in the area. These habitats were identified according to various ecological characteristics, including vegetation type (SANBI VegMap; 2018), the degree of transformation of the vegetation, geology and soil type, and topography.

The potential occurrence of plants that is considered as species of conservation concern within the project area was identified through a detailed assessment of the site. Published literature and online resources that are continuously updated with new species observations were consulted to compile lists of plant, including:

- The Vegetation of South Africa, Lesotho and Swaziland.
- iNaturalist.
- Plants of South Africa (new POSA).
- SANBI Red List of South African Plants.
- Screening Tool, and
- Global Biodiversity Information Facility (GBIF).

Plant Species of Conservation Concern (SCC) were limited to endemic flora, and were defined to include:

Fauna with their distribution ranges limited to the Eastern Cape Province.
Red Data species identified using the IUCN Red List of Threatened Species.
Red Data species identified using the Red List of South African Species. This includes all species that are assessed according to the IUCN Red List Criteria as Critically Endangered, Endangered, Vulnerable, Near Threatened, Rare, Extremely Rare, or Data Deficient.
Plants listed in terms of Section 56 of the National Environmental Management: Biodiversity Act, 2004 (NEMBA) (Act 10 of 2004, as amended), and regulated by the Threatened or Protected Species (TOPS) Regulations, 2007. This includes species that are Critically Endangered, Endangered, Vulnerable, and Protected.

In addition to plant SCC, the following plants were also identified:

1. Plants protected by the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).
2. Plants listed in terms of the Nature and Environmental Conservation Ordinance (NECO) (No 19 of 1974).

The inclusion of plant species on CITES Appendices (I–III) and NECO Schedules (1–2) are not necessarily equivalent to the species' conservation status. Many common species are pragmatically included on these lists even though their conservation status may not be of demonstrated concern. A permit is however required for the removal of species that occur on CITES and NECO lists.

No sensitive plant species were identified by the Department of Forestry, Fisheries, and the Environment's (DFFE) National Web-based Environmental Screening Tool.

The following criteria were evaluated during the site visit to assess habitat suitability for these species:

1. Vegetation type and cover.
2. Geology and soil type.
3. Rock cover, and
4. Topography.

Sensitive habitats were identified as those habitats that are vulnerable to disturbances and supporting SCC in the project area.

On the 14th December 2021 (early summer) a visit to the project area was conducted to:

Assess the micro-positioning for infrastructure.
Confirm the occurrence of sensitive vegetation habitats.
Note any occurrence of plant SCC and other indicator species occurrences, and
Assess the extent of current threats (not project related) on vegetation and plant SCC (e.g., evidence for direct exploitation, habitat transformation, etc.).

2.2. Vegetation mapping

Mucina and Rutherford (2010) developed the National Vegetation Map (VegMap). The latest update of the VegMap took place in 2018. This map describes each vegetation type in detail, along with the most important species including endemic species and those that are biogeographically important. This is the most comprehensive data for vegetation types in South Africa. The VegMap was used to identify vegetation types on site.

2.3. Biodiversity

Critical Biodiversity Areas (CBAs) are features critical for the conservation of biodiversity and maintenance of ecosystem functioning and should remain in a natural state as far as possible. CBAs also include freshwater components.

To assist in the development of these CBAs, each planning unit was classified by C-plan and Marxan based on a combination of factors including vegetation type, connectivity, habitat condition and presence of Red List Threatened species.

All features were grouped into the following CBA categories as listed in the Eastern Cape Biodiversity Conservation Plan (ECBCP2019) Handbook:

Critical Biodiversity Area Category	Critical Biodiversity Area Name
Protected areas (PA)	Areas that are proclaimed as protected areas under national or provincial legislation.
Critical Biodiversity Area 1 (CBA 1)	Areas in a natural condition that are required to meet biodiversity targets, for species, ecosystems or ecological processes and infrastructure.
Critical Biodiversity Area 2 (CBA 2)	Areas in a degraded or secondary condition that are required to meet biodiversity targets, for species, ecosystems, or ecological processes and infrastructure.
Ecological Support Area 1 (ESA 1)	Areas that are not essential for meeting biodiversity targets, but that play an important role in supporting the functioning of PAs or CBAs and are often vital for delivering ecosystem services.
Ecological Support Area 2 (ESA 2)	Areas that are not essential for meeting biodiversity targets, but that play an important role in supporting the functioning of PAs or CBAs and are often vital for delivering ecosystem services.
Natural to Near-Natural (ONA)	Areas that have not been identified as a priority in the current systematic biodiversity plan but retain most of their natural character and perform a range of biodiversity and ecological infrastructure functions. Although they have not been prioritised for biodiversity, they are still an important part of the natural ecosystem.
No Natural Remaining	Areas that have been modified by human activity to the extent that they are no longer natural, and do not contribute to biodiversity targets. These areas may still provide limited biodiversity and ecological infrastructure functions, even if they are never prioritized for conservation action.

2.4. Protected areas

The National Environmental Management Protected Areas Act (No 57 of 2003; NEMPAA) was developed to provide for the protection and conservation of ecologically viable areas representative of South Africa's biological diversity and its natural landscapes and seascapes. Refer to section 4.8 for more detail on this matter.

The NEMBA National List of Ecosystems that are Threatened and in need of Protection (G. NR. 1002 of 2011) contains a national list of threatened terrestrial ecosystems. Refer to section 4.8 for more detail.

2.5. Site Ecological Importance

The screening tool has identified species and ecosystem spatial triggers likely to indicate environmental sensitivity associated with a particular proposed development site, which in turn determined the necessity and requirements for conducting a Terrestrial Biodiversity and Plant Species Impact Assessment.

Section 4 of this report identified and mapped zones of Site Ecological Sensitivity (SEI) within the PAOI. These zones are based on initial sensitivity identification in the Screening Report, followed by

a site inspection of the PAOI and a detailed assessment of the area as per the Species Environmental Assessment Guidelines (SANBI 2020).

2.6. Impact assessment

The impacts that may result from the planning and design phase, construction phase, operation phase of the proposed Housing development Project was assessed according to several criteria to arrive at an overall significance rating. The criteria used were as follows (based on DEAT 2002 - Impact Significance, IEM Information Series 5; and DEAT 2006 - Assessment of Alternatives and Impacts in support of the EIA Regulations, IEM Guideline Series 5):

Table 2.1: Criteria used in determining significance ratings to potential impacts

CRITERIA	DESCRIPTION OF ELEMENTS THAT ARE CENTRAL TO EACH ISSUE	
The criteria below describe the anticipated impact on the identified environmental aspect.		
Nature and consequence of impact	This is an appraisal/evaluation of the type of effect the construction, operation and/or maintenance of a development would have on the affected environment. It should describe the impact, as well as the consequences of the impact on the specific environmental aspect. This description should include what is to be affected and how.	
Cumulative Impacts	Cumulative impacts result from the incremental impact of the proposed activity on a common resource when added to the impacts of other past, present, or reasonably foreseeable future activities. Cumulative impacts can occur from the collective impacts of individual minor actions over a period and can include both direct and indirect impacts.	
Indirect Impacts	Indirect impacts are not a direct result of the project but are often produced away from or because of a complex impact pathway related to the project.	
Residual Impacts	Any impact, or part of an impact remaining after mitigation and management measures have been applied.	
The following criteria is used to determine the significance of an impact using the following formula: ***(Extent + Duration + Intensity) x Probability = Impact Significance***		
Extent of the impact	NONE	The impact will not have an area of effect
	SITE SPECIFIC	Extends only as far as the activity; or Limited to the site and its immediate surroundings
	LOCAL	Extends beyond the site and its immediate surroundings to within 5km of the site
	REGIONAL	Will have an impact on the region/province beyond 5km of the site
	NATIONAL	Will have an impact on a national scale - particularly if an ecosystem or species of national significance is affected
	INTERNATIONAL	Will have an impact across international borders or will impact on an ecosystem or species of international significance.
Duration of impact	IMMEDIATE	The impact will not have any lasting effects
	SHORT TERM	0 – 2 years
	MEDIUM TERM	2 – 20 years
	LONG TERM	>20 years - the impact will cease after the operational or working life of the activity, either due to natural process or by human intervention
	PERMANENT	Mitigation or moderation 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 or temporary
Intensity of impact *(Positive or negative)*	ZERO	Natural, cultural, and social functions and processes are not affected
	VERY LOW	Natural, cultural, or social functions or processes would be negligibly altered
	LOW	Natural, cultural, or social functions or processes would be able to continue, although in a slightly modified way

CRITERIA	DESCRIPTION OF ELEMENTS THAT ARE CENTRAL TO EACH ISSUE	
	MEDIUM	Natural, cultural, or social functions or processes would be able to continue, although in a modified way
	HIGH	Natural, cultural, or social functions or processes would be substantially altered to the extent that they temporarily cease
	VERY HIGH	Natural, cultural, or social functions or processes are altered to the extent that they would permanently cease
Probability of impact occurring	IMPROBABLE	< 5% chance of the impact occurring
	LOW	5 – 25 % chance of the impact occurring
	MEDIUM	Probable – 25 – 75 % chance of the impact occurring
	HIGH	Highly Probable – 75 – 99 % chance of the impact occurring
	DEFINITE	Impact will occur regardless of any prevention measures
The criteria below are used in addition to the criteria used for impact significance determination to further describe the impact, however, these criteria are not used in the calculation.		
Degree of Reversibility	HIGH	Impact can be reversed with mitigation
	MEDIUM	Impact may be reversed, but residual impacts are evident
	LOW	Impact cannot be reversed despite mitigation measures
Irreplaceability of a resource	LOW	Impact will result in a partial loss of a resource; however, natural, cultural, and social functions will not be affected
	MEDIUM	Impact will result in a partial loss of a resource
	HIGH	Impact will result in the irreplaceable loss of a resource
Mitigatory potential of impacts	LOW	Little or no mechanism to mitigate negative impacts
	MEDIUM	Potential to mitigate negative impacts. Implementation of mitigation measures will reduce some negative effects
	HIGH	High potential to mitigate negative impacts. Mitigation will result in negative impacts becoming insignificant

Based on a synthesis or combination of the information contained in the above-described criteria; and drawing on legal policies and guidelines as well as the status of the impacts and potential risks, the overall significance were determined as follows:

Table 2.2: Definition of significance ratings (positive and negative)

Significance	Description
Very high (VH)	An impact of very high significance will mean that the project cannot proceed, and that impacts are irreversible, regardless of available mitigation options.
High (H)	An impact of high significance which could influence a decision about whether to proceed with the proposed project, regardless of available mitigation options.
Medium-high (MH)	If left unmanaged, an impact of medium-high significance could influence a decision about whether to proceed with a proposed project. Mitigation options should be re-evaluated at.
Medium (M)	If left unmanaged, an impact of medium significance could influence a decision about whether to proceed with a proposed project.
Low-Medium (LM)	An impact of Low-medium significance would have some effect during decision making about whether to proceed with a proposed project, however, mitigation for this type of impact would be minimal.
Low (L)	An impact of low significance would have little effect on decision making and only a small influence on project design or alternative motivation.
Very low (VL)	An impact of very low significance is likely to contribute to positive decisions about whether to proceed with the project. It will have little effect and is unlikely to have an influence on project design or alternative motivation.
Negligible / zero impact	There will be no impact, or any impact identified can be viewed as negligible. This rating will be unlikely to have an influence on project design or alternative motivation.

Significance	Description
Positive impact (+)	A positive impact is likely to result in a positive consequence/effect and is likely to contribute to positive decisions about whether to proceed with the project.

3. Site assessment

This chapter compares baseline information with field survey data collected. A site visit was conducted on the 19th of August 2023. Date collected during the site visit was then compared to existing literature on the site which included vegetation classifications and biodiversity programmes and plans.

3.1. Topography

The topography of the project area is mostly flat, sloping only gently with an altitude of 175 m above sea level within the proposed housing development (Figure 3.1).

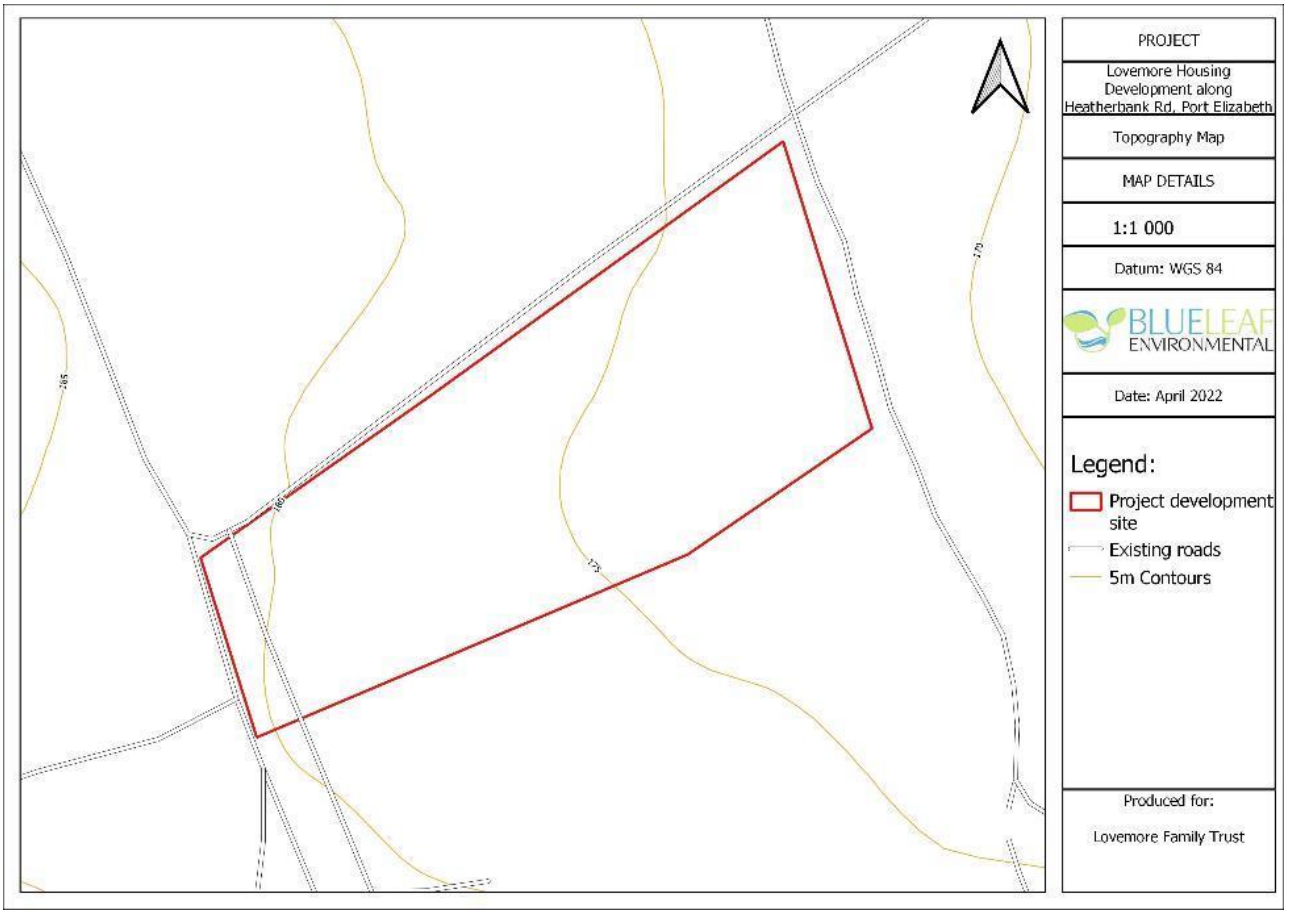

Figure 3.1: Topography of the proposed housing development and surrounding areas.

3.2. Local climate

The climate in Port Elizabeth, the nearest town with climate data, is considered as subtropical oceanic with mild winters, warm summers, and occasional wind. Port Elizabeth receives mostly winter rainfall (August). Rain is infrequent but averages around 625 mm annually. Temperatures average at 15°C. February is the hottest month of the year with average temperatures of 22°C, and July the coldest at 14.6°C.

3.3. Geology and Soils

Geology is Ordovician sandstone from from the Table Mountain Group. Soil is acidic lithosol.

3.4. Land use

The project area is surrounded by agricultural land and some scattered infrastructure, most land is cleared, used for pastures and housing. The project site is already cleared and designated by a fence bordering the site.

Below is a photo sequence of the site illustrating land cover and land uses for the study site and surrounding areas:

Photos of the site	Description
	The proposed site is adjacent to existing farmland and other agricultural development. The site is adjacent to the main road, Heatherbank.
	Vegetation is cleared on the site proposed for housing, with gravel road perpendicular to the main road. Land is used for grazing by horses.
	There is some urban housing on the opposite side of the main road.

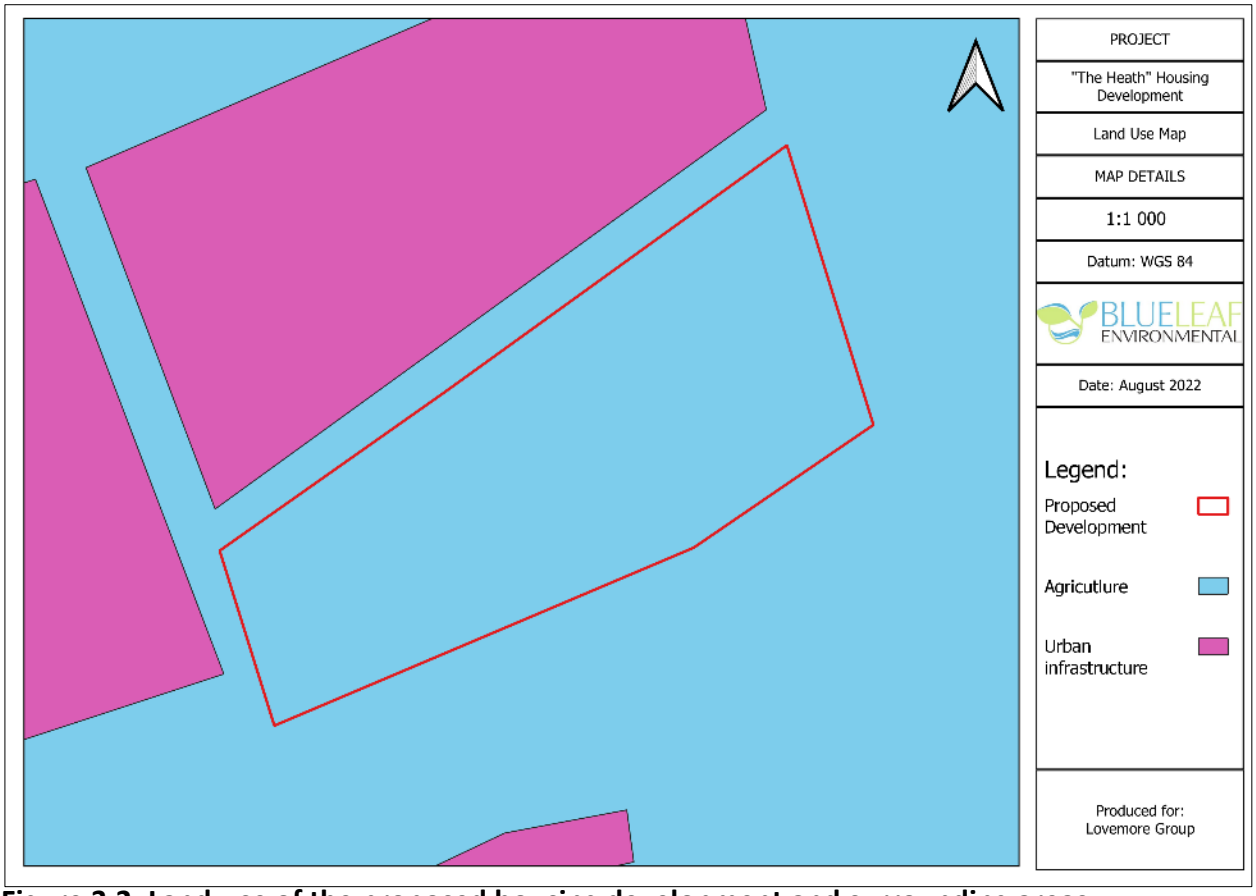

Figure 3.2: Land-use of the proposed housing development and surrounding areas.

3.5. Vegetation

Regional-scale vegetation mapping

The South African National Biodiversity Institute (SANBI) vegetation map (called the VegMap; 2018) lists the proposed activity within a single vegetation type, namely **Algoa Sandstone Fynbos** (Figure 4.5).

Algoa Sandstone Fynbos vegetation consist of grassy shrubland (mainly graminoid fynbos shrubs) on flat to gently undulating plains. Closer to the coast, the shrubland of fynbos may form mosaic vegetation with Algoa Dune Strandveld and Albany Coastal Belt. The SANBI VegMap (2018) classified South Eastern Coastal Thornveld as '**Endangered'**.

The Nelson Mandela Bay Biodiversity Sector Plan classifies vegetation on site as Thornhill Forest and Thornveld.

Fine-scale vegetation mapping

The site visit confirmed that the site is mostly cleared with very little natural vegetation on the proposed site of the housing development. Grassveld interspersed with short grazed or mowed fynbos species are found on site. A lane of trees is found along the boundary of the site on both the

eastern and western sides. These trees are all alien trees. The closest resemblance of fynbos is along the boundary of the site along Heatherbank Road on the northern boundary of the site. See Appendix A for a full list of plant species.

Below is a photo sequence describing local vegetation found on site:

Vegetation is denser along fence-line and in areas between pastures found within the site

Some trees are found outside of the boundary of the site and grazing limits most plant growth except along the fence-line.

3.6. Plant species

A list including all potential plant species that may occur on site (as per literature) are included in Appendix A. No plant SCC that was observed on site.

Below is a photo sequence of some of the plants observed on site. Photos of all plant SCC are also included even though most of them were not observed in the study site:

3.7. Terrestrial Biodiversity

The project area and immediate surroundings does not fall into a critical biodiversity area according to the Nelson Mandela Bay Metropolitan (NMBM) Critical Biodiversity Areas (CBA). The site does however fall into a critically endangered ecosystem namely Algoa Sandstone Fynbps which has almost entirely been lost due to urban development in the Port Elizabeth Area.

As the site is currently completely transformed, with the currently land-use (namely equestrian) not contributing to the conservation of biodiversity, the proposed new development will not have a significant impact on the existing biodiversity of the local area.

3.8. Protected areas

No official protected areas were identified within the or near the project site. The NMBM Critical Ecological Processes Map however does identify a riverine corridor for the Baakens River within 257 m of the site for development (Figure 3.3). this area will however not be impacted by the proposed development.

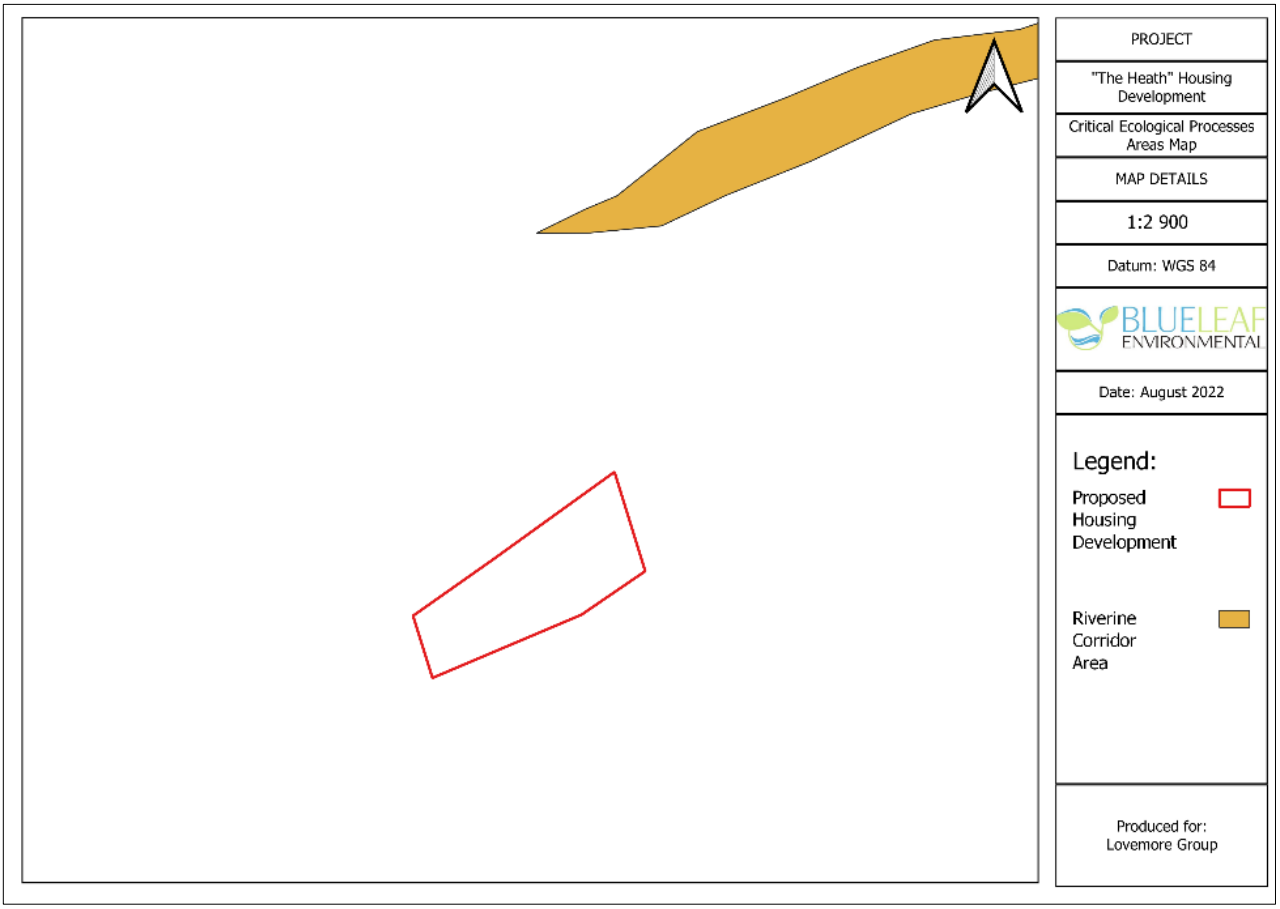

Figure 3.3: Location of the riverine corridor area relative to the project.

3.9. Alien and Invasive species

It should be noted that the CARA regulations for the legal obligations regarding alien invasive plants in South Africa have been superseded by the National Environmental Management: Biodiversity Act, 2004 (Act no. 10 of 2004) – Alien and Invasive Species (AIS) Regulations which was promulgated on 1 October 2014. However, CARA has not been repealed and is still included as a reference point to use in terms of the management of Alien and Invasive Species (AIS) within agricultural land.

The National Environmental Management: Biodiversity Act, (Act No. 10 OF 2004; NEM:BA) provide a list of Alien and Invasive Species (AIS) for management (GN. R. 898 of 2014 as amended in 2016). AIS are classified into the following categories:

- **Category 1a** - species which must be combatted or eradicated.
- **Category 1b** - species which must be controlled.
- **Category 2** - species which require a permit to carry out a restricted activity within an area specified in the Notice or an area specified in the permit.
- **Category 3** - as species which are subject to exemptions.

Uncategorized plants

There is no categorized AIS identified within the project site. However, an uncategorized alien plant has been identified within the study site (Figure 4.4).

FAMILY	SCIENTIFIC NAME		COMMON NAME	NEMBA AIS Category	OBSERVED ON SITE
Poaceae	*Pennisetum*	*clandestinum*	Kikuyu grass	n/a	Yes

Figure 3.4: Kikuyu grass located within the proposed development site.

4. Ecological Site Importance

4.1. DFFE Screening Report Sensitivity

The DFFE Screening Report has listed the terrestrial biodiversity theme for the site as very high. Based on the site visit and assessment, is it confirmed that the site theme sensitivity must be changes to medium. Even though the site is located in a Strategic Water Resource Area, impact on surface water movement can be kept at a minimum. This and the fact that the entire critivally endangered Algoa Sandstone Fynbos ecosystem has been completely transformed by the current land-use, the site is no longer considered as sensitive. Ecological functions like water movement can be mitigated through a Stormwater Management Plan resulting in a medium sensitive terrestrial biodiversity theme.

The DFFE Screening Report further listed the terrestrial plant species theme for the site as high. Based on the site visit and assessment, is it confirmed that the site theme sensitivity is reclassified as medium. No plant SCC were observed on site and the site vegetation is considered as completely transformed through equestrian grazing and mowing.

4.2. Site Ecological Importance

Site Ecological Importance (SEI) was determined for the proposed housing development site along Heatherbank road in Port Elizabeth. Environmental constraints were identified and aligned with specific characteristics of the site. The following site characteristics contributed to determining an overall sensitivity:

Site characteristic	Description of characteristic	Sensitivity allocation	Mitigatory requirements
Vegetation	Number of plant SCC found on site	Moderate	None
	Transformed vegetation	Moderate	
Biodiversity	No intact endangered Algoa Sandstone Fynbos found on site	Moderate	

A detailed sensitivity map for the study area and immediate surroundings were developed based on the identified environmental characteristics found within the site (Figure 4.1).

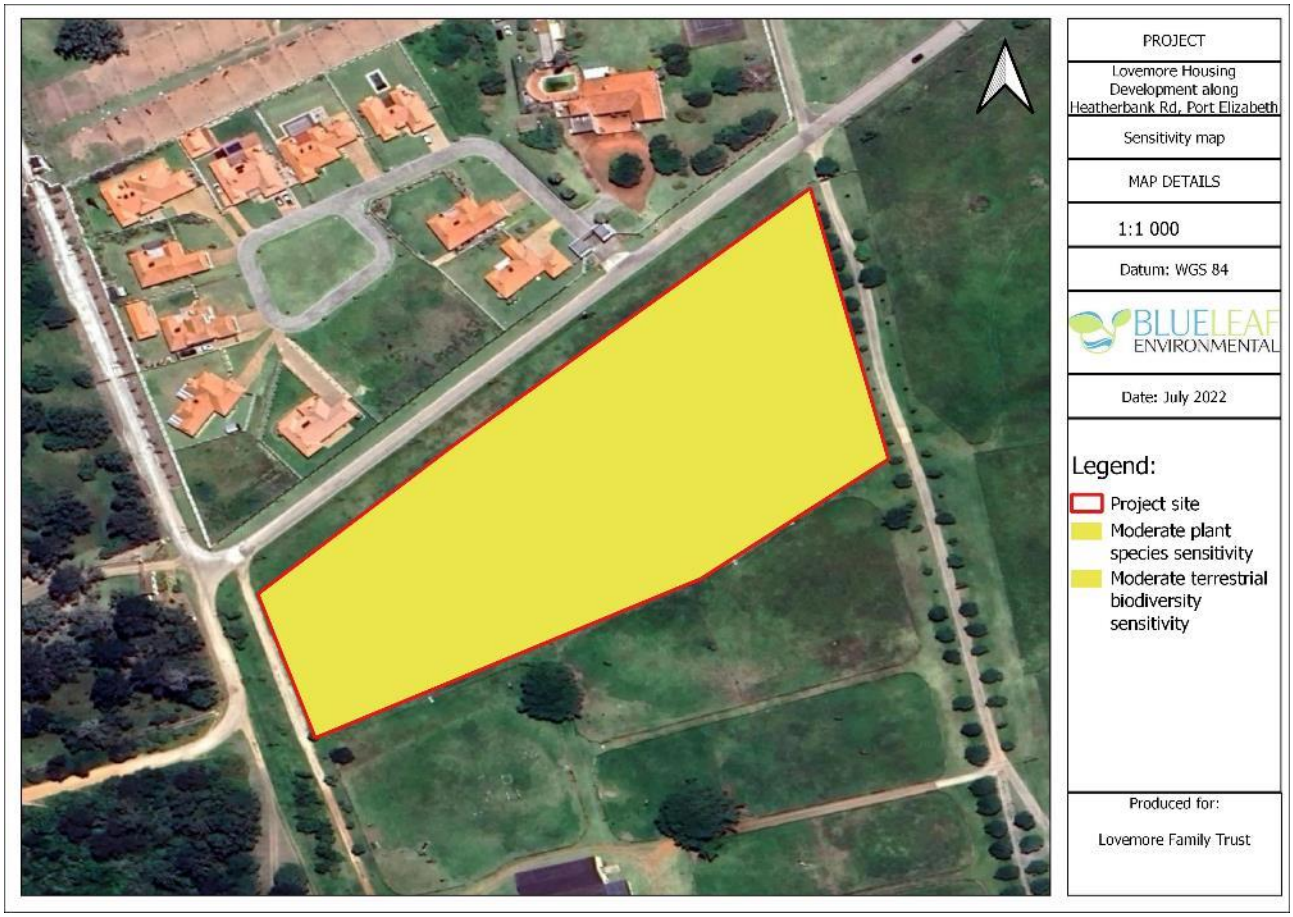

Figure 5.1: Sensitivity map for the proposed Housing development area

All areas is in a moderate sensitive terrestrial biodiversity as well as a plant species area. These areas contain transformed vegetation with no plant SCC. The proposed mitigation measures below were designed to mitigate the project site area in an acceptable manner to ensure minimal negative impacts on the environment.

5. Impact assessment

The following issues were identified during the assessment of the Housing development area.

5.1 Identified impacts

The following ecological issues were identified during the assessment of the Housing development area:

#	Activity causing impact (Issue)	Description of impact
1	Non-compliance to existing legislation	***1.1. Legal compliance*** Non-compliance with ecological laws and policies of South Africa could lead to unnecessary delays in establishment activities, and potentially criminal cases, based on the severity of the non-compliance, being brought against the proponent and his/her contractors.
2	Vegetation clearing for construction	***2.1. Loss of natural vegetation*** Clearing will result in the loss of natural vegetation.
		2.2. Loss of plant SCC Clearing may result in the loss of non-identified plant SCC.
		2.3. Spread of alien and invasive plant species Removal of natural vegetation will increase the risk of alien plant species invasion.
3.	Inappropriate infrastructure designs	***3.1. Stormwater management*** Increased risk of erosion from surface stormwater.

All impacts identified above were assessed as per the assessment methodology described in Chapter 2.8 of this report. Each impact was described on how it will impact within a specific phase of the project, namely Planning and Design, Construction and Operations.

Issue 1:	Non-compliance to existing legislation
Consequence of Issue	Non-compliance with ecological laws and policies of South Africa could lead to unnecessary delays in establishment activities, and potentially criminal cases, based on the severity of the non-compliance, being brought against the proponent and his/her contractors. Permits will be required for the removal of any protected plant species.
Number of impacts identified associated with this issue	Only 1 (Impact 1.1)

Impact 1.1: Legal compliance
Phase of development: Planning and Design Phase

Nature of impact	Non-compliance with ecological laws and policies of South Africa could lead to unnecessary delays in establishment activities, and potentially criminal cases, based on the severity of the non-compliance, being brought against the proponent and his/her contractors.	
Cumulative impact	None	
Indirect impacts	None	
Residual impacts	None	
Classification of impact		Consequence of Impact
Duration of impact	Short term	Only during construction phase.
Extent of impact	National	Provincial approval will be required.
Probability of impact occurring	Medium	Impact will occur on commencement of construction.
Intensity of impact	Very low	Legislated approval is required to impact on any protected plants, animals, or environments.
Degree of reversibility	High	Permits and authorisations may be required.
Irreplaceability	Low	No resource will be lost.
Mitigations	Mitigatory potential	Recommended mitigations
	High	If any plant SCC are ever found on site, the relevant plant removal/relocation permits must be obtained from the competent authorities to remove any protected plant species.
Significance of impact	Pre-mitigation significance	Post-mitigation significance
	Low negative	Low negative

Issue 2:	Vegetation clearing for construction
Consequence of issue	Clearing of natural vegetation will result in a range of issues including increasing the risk of erosion, reducing natural vegetation, loss of non-identified plant SCC, and increasing the risk of alien vegetation spreading.
Number of impacts	3 (Impacts 2.1 to 2.3)

Impact 2.1: Loss of natural vegetation	
Phase of development: Construction Phase	
Nature of impact	Clearing will result in the loss of natural vegetation.
Cumulative impact	Reduction of trandformed grassland cover in the Nelson Mandela Metro
Indirect impacts	Loss of natural habitat for some animal species.
Residual impacts	Permanent loss of natural vegetation. Up to 2ha will be permanently lost.

Classification of impact		Consequence of Impact
Duration of impact	Permanent	Clearing will result in the permanent loss of 2 ha of natural vegetation.
Extent of impact	Site specific	All the vegetation within the construction footprint will be removed.
Probability of impact occurring	Definite	Impact will occur on commencement of construction.
Intensity of impact	Very high negative	Ecological processes will be permanently altered.
Degree of reversibility	Moderate negative	Impact cannot be reversed despite mitigation measures.
Irreplaceability	High	Vegetation will be permanently lost.
Mitigations	Mitigatory potential	Recommended mitigations
	Medium	- The construction footprint must be surveyed and demarcated prior to construction commencing. All contractors must be made aware of this demarcation. - All areas outside the demarcated footprint will be considered as No-Go areas. - No construction activities (temporary or permanent) will be allowed in these No-Go areas. - Temporary infrastructure such as the site camp, laydown areas and storage areas must be placed in areas already transformed and within the construction footprint. - No on-site fires will be permitted.
Significance of impact	Pre-mitigation significance	Post-mitigation significance
	High negative	Moderate negative

Impact 2.2: Loss of non-identified plant SCC	
Phase of development: Construction Phase	
Nature of impact	Clearing may result in the loss of non-identified plant SCC.
Cumulative impact	Reduction in individual protected plant species numbers.
Indirect impacts	Loss in genetic variability within a specific protected plant species.
Residual impacts	Reduction in individual protected plant species numbers.

Classification of impact		Consequence of Impact
Duration of impact	Short term	Removal of SCC will only occur during the initial stages of clearing.
Extent of impact	Site specific	Only SCC on site will be removed.
Probability of impact occurring	Definite	Impact will occur on commencement of construction.
Intensity of impact	Very high negative	Genetic viability will be permanently lost.
Degree of reversibility	Low negative	Impact can be reversed through mitigation.
Irreplaceability	High	Plant species will be permanently lost.
Mitigations	Mitigatory potential	Recommended mitigations
	Medium	- Permits must be obtained to remove any plant SCC identified during the construction process. If none are identified, no permits will be required. - Relocate or replant as many SCC as possible into the surrounding areas. - No plant harvesting by construction staff will be allowed.
Significance of impact	Pre-mitigation significance	Post-mitigation significance
	Moderate negative	Low negative

Impact 2.3: Spread of alien and invasive plant species	
Phase of development: Construction Phase	
Nature of impact	Loss of natural vegetation will increase the risk of alien plant species invasion.
Cumulative impact	Increase in regional spread of alien plants.
Indirect impacts	Spread of alien vegetation to surrounding areas.
Residual impacts	Decreased risk of alien vegetation occurrence.

Classification of impact		Consequence of Impact
Duration of impact	Medium term	Clearing will mostly occur in the first few months of construction.
Extent of impact	Site specific	Only the construction footprint will be impacted.
Probability of impact occurring	Medium	Impact will occur throughout construction phase.
Intensity of impact	Low negative	Areas will be cleared of vegetation.
Degree of reversibility	Moderate negative	Impact can be managed throughout all phases.
Irreplaceability	Low	Partial loss of resource. Natural functions are not affected.
Mitigations	Mitigatory potential	Recommended mitigations
	Medium	Develop and implement an Alien Vegetation Management Plan to mitigate the establishment and spread of undesirable alien plant species during construction. All visible alien plants must be removed prior to top- and subsoil removal. Removal must occur through appropriate methods such as hand pulling, application of chemicals, cutting, etc. as in accordance with the NEMBA: Alien Invasive Species Regulations.
Significance of impact	Pre-mitigation significance	Post-mitigation significance
	Moderate negative	Low negative

Issue 3:	Inappropriate infrastructure design
Consequence of issue	The inappropriate design of the new infrastructure will result in an increased stormwater (surface water) flow which may cause surface erosion of the site and surrounding areas.
Number of impacts	1 (Impacts 3.1)

Impact 3.1: Stormwater management	
Phase of development: Planning phase & Construction Phase	
Nature of impact	Increased hardstands and infrastructure will result in surface erosion.
Cumulative impact	Loss of fertile topsoil.
Indirect impacts	Erosion and sedimentation of the drainage system.
Residual impacts	Ecological damage to the soil dynamics of the area.

		Consequence of Impact
Duration of impact	Medium term	Hardstands and infrastructure increase in the area will result in an increase in local erosion potential.
Extent of impact	Site specific	Site and surrounding areas will be impacted.
Probability of impact occurring	Probable	Impact will occur on commencement of construction
Intensity of impact	High negative	Soil (erosion and sedimentation) processes will be altered.
Degree of reversibility	High	Impact can be avoided by implementing the proposed mitigation measures.
Irreplaceability	Moderate	Resource (soils) will not be lost.
Mitigations	Mitigatory potential	Recommended mitigations
	Medium	During the Planning phase, appropriate stormwater structures must be designed to minimise erosion.
Significance of impact	Pre-mitigation significance	Post-mitigation significance
	Moderate negative	Low negative

6. Conclusion

The Lovemore Family Trust is proposing the development of a new housing development along Heatherbank Road in Theescombe, Port Elizabeth.

BlueLeaf Environmental (Pty) Ltd (BlueLeaf) was appointed to conduct a full Terrestrial and Plant Biodiversity Assessment as part of the EIA for the proposed new housing development. This report will inform the application for the BA for the proposed new housing development.

The site visit confirmed that the site is transformed with little natural vegetation remaining. Both terrestrial biodiversity and plant species and vegetation is considered as moderate. This is because of the following:

1. Little remains of the original vegetation type. The site is highly transformed.
2. No plant SCC were observed. There is also a low risk of any non-identified plant SCC found on site during construction.
3. The site is dominated by unlisted plant AIS.
4. Ecological functions is mostly intact with no remnants of the original endangered Algo Sandstone Fynbos on site. The current land-use will result in a continual degradation of the terrestrial biodiversity environment.

6.1. Site sensitivity

The entire site is in a moderate sensitive vegetation and terrestrial biodiversity area. These areas contain transformed vegetation with no plant SCC. The proposed mitigation measures below were designed to mitigate the project site area in an acceptable manner to ensure minimal negative impacts on the environment.

6.2. Alternatives

No site alternatives or layout alternatives are proposed. The proposed development is NOT considered as fatally flawed provided that all mitigation measures provided in this report are implemented.

6.3. Cumulative impacts

In terms of Environmental Impact Assessment, Cumulative Impact is defined as:

"*Means the past, current and reasonably foreseeable future impact of an activity, considered together with the impact of activities associated with that activity, that in itself may not be significant, but may become significant when added to the existing and reasonably foreseeable impacts eventuating from similar or diverse activities*".

The following cumulative impacts were identified:
`

Loss of natural vegetation and plant species. This will result in the loss of ecological support areas which allows for movement of biota. This impact is mitigated by classifying all areas outside the construction footprint as No-Go areas. No construction, temporary or permanent, must occur in the No-Go area.

Increased risk of alien vegetation spreading to surrounding areas because of vegetation clearing. This impact can be easily managed through the development and implementation of an Alien and Invasive Species Management Plan. It is important to note that this plan must be implemented in both construction and operational phases of the proposed new development.

6.4. Levels of acceptable change

The proposed development is considered as an acceptable change to the environment provided all proposed mitigations are implemented.

6.5. Levels to be avoided

The proposed development may result in the negative impact on soil dynamics through surface erosion because of an increased erosion potential. Provided that all mitigation measures proposed in this report are implemented, including the classification of the No-Go area where no construction activities or vegetation clearing may occur, and the development and implementation of a Stormwater Management plan, these risks are considered as an acceptable change to the local environment.

6.6. Current impacts

The following impacts are currently occurring on site and will be reduced/altered through the proposed development:

- The current vegetation conditions in the project area are relatively degraded and transformed with some alien vegetation accruing. Left unmitigated, it is likely that alien vegetation will continue to spread and displace indigenous vegetation.
- Degradation within the vegetated area is evident and probably because of horses grazing, and moving of vegetation.

6.7. Mitigations

The following mitigations must be included into the final EMPr:

Legal compliance:

- If any plant SCC are ever found on site, the relevant plant removal/relocation permits must be obtained from the competent authorities to remove any protected plant species.

Vegetation clearing for construction:

- The construction footprint must be surveyed and demarcated prior to construction commencing. All contractors must be made aware of this demarcation.
- All areas outside the demarcated footprint will be considered as No-Go areas.

- No construction activities (temporary or permanent) will be allowed in these No-Go areas.
- Temporary infrastructure such as the site camp, laydown areas and storage areas must be placed in areas already transformed and within the construction footprint.
- No on-site fires will be permitted.

Loss of non-identified plant SCC:

- Permits must be obtained to remove any plant SCC identified during the construction process. If none are identified, no permits will be required.
- Relocate or replant as many SCC as possible into the surrounding areas.
- No plant harvesting by construction staff will be allowed.

Spread of alien and invasive plant species:

- Develop and implement an Alien Vegetation Management Plan to mitigate the establishment and spread of undesirable alien plant species during construction.
- All visible alien plants must be removed prior to top-and subsoil removal. Removal must occur through appropriate methods such as hand pulling, application of chemicals, cutting, etc. as in accordance with the NEMBA: Alien Invasive Species Regulations.

Stormwater management

- During the Planning phase, appropriate stormwater structures must be designed to minimise erosion.

6.8. General rehabilitation measures

The following general rehabilitation measures are recommended for inclusion into the EMPr:

Alien Vegetation Management

- Institute an eradication/control programme for early intervention if invasive species are detected, so that their spread to surrounding natural ecosystems can be prevented.
- Rehabilitate disturbed areas as quickly as possible to reduce the area where invasive species would be at a strong advantage and most easily able to establish.
- Institute a monitoring programme to detect alien invasive species early, before they become established and, in the case of weeds, before the release of seeds.

6.9. Specialist opinion

The proposed development is NOT considered to be Fatally Flawed and no components of the proposed project have been identified as flawed.

No site or layout alternatives are proposed.

The ecological impacts of all aspects for the proposed new Housing development were assessed and considered to be acceptable, provided that all mitigation measures provided in this report are implemented.

7. References

Berliner D and Desmet P. Eastern Cape Biodiversity Conservation Plan, (2007). Department of Water Affairs and Forestry Project No. 2005-012.

Mucina, L. & Rutherford, M.C. (eds) 2006. The vegetation of South Africa, Lesotho, and Swaziland. Strelitzia 19. South African National Biodiversity Institute, Pretoria.

National Environmental Management Act (No 107 of 1998) as amended.

National Environmental Management: Biodiversity Act (No 10 of 2004).

National Spatial Biodiversity Assessment (2004).

National Water Act (No 36 of 1998) as amended.

SANBI (bgis.sanbi.org).

Appendix A – List of floral species

FAMILY	SCIENTIFIC NAME		COMMON NAME	PROTECTION STATUS	OBSERVED ON SITE
Acanthaceae	*Metarungia*	*galpinii*	Albany Red-lips	Endangered	No
Apocynaceae	*Riocreuxia*	*flanagania*	Candle-wine	Rare/PNCO	No
Asteraceae	*Helichrysum*	*nudifolium*	Hottentot's tea	LC	Yes
Casuarinaceae	*Casuarina*	*equisetifolia*	Casuarina	Invasive	Yes
Ebenaceae	*Diospyros*	*dichrophylla*	Poison Star-apple	LC	Yes
Fabaceae	*Tephrosia*	*grandiflora*	Pink Bush-pea	LC	Yes
	Vachellia	*karroo*	Sweet thorn	LC	Yes
	Acacia	*mearnsii*	black wattle	Invasive	Yes
Malvaceae	*Hermannia*	*flammea*	Poprosie	LC	Yes
	Melhania	*didyma*	Melhania	LC	Yes
Ochnaceae	*Ochna*	*serrulata*	Carnival bush	LC	No
Oleaceae	*Jasminum*	*angulare*	Wild jasmine	LC	No
Poaceae	*Brachiaria*	*serrata*	Velvet signal grass	LC	Yes
	Cynodon	*dactylon*	Couch grass/Kweek	LC	Yes
	Digitaria	*natalensis*	Finger grass	LC	Yes
	Eragrostis	*capensis*	Cape Love grass	LC	Yes
	Panicum	*deustum*	Guinea grass	LC	Yes
	Sporobulus	*africanus*	Dropseed grass	LC	Yes
Rubiaceae	*Vangueria*	*macrocalyx*	Rock Crowned-medlar	LC	Yes
Scrophulariaceae	*Chaenostoma*	*roseoflavum*	Skunkbush	LC	Yes
Solanaceae	*Solanum*	*mauritianum*	Nightshade	Invasive	Yes
Verbenaceae	*Lantana*	*camara*	Lantana	Invasive	Yes

Visual Assessment Study

PROPOSED NEW HOUSING DEVELOPMENT ON HEATHERBANK ROAD IN THEESCOMBE, PORT ELIZABETH, EASTERN CAPE

Prepared for:

Christopher Lovemore Family Trust
Port Elizabeth, Eastern Cape Province

Date submitted: 24 August 2023

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1. Declaration of independence

I, Roy de Kock as duly authorised representative of Blue Leaf Environmental (Pty) Ltd, hereby confirm my independence (as well as that of BlueLeaf) as a specialist and declare that neither I nor BlueLeaf have any interest, be it business, financial, personal or other, in any proposed activity, application or appeal in respect of which BlueLeaf was appointed as environmental specialist in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), other than fair remuneration for worked performed, specifically in connection with the Basic Environmental Assessment for the proposed The Heath Housing Estate Development. I further declarethat I am confident in the results of the studies undertaken and conclusions drawn because of it – as is described in this report.

Full Name: Roy de Kock

Title / Position: Visual specialist
Qualification(s): BSc (Hons) Geology; MSc Botany; Candidate PhD Botany
Experience (years/ months): 16 years
Registration(s): SACNASP (400216/16)
Tel: +27 76 281 9660
Email: roy@blueleafenviro.co.za

2. Expertise of specialist

Roy has over 16 years' experience in environmental consulting and specialist services in the EasternCape. Various projects throughout South Africa as well as Africa at larges has also been undertaken.Projects include baseline studies, impact assessments and compliance auditing for various large- scale projects including numerous wind farms, roads (National and Provincial), and infrastructure development projects. Roy has also conducted numerous specialist studies including but not limitedto Ecological and Botanical assessments, Biodiversity studies, Plant and Animal Search and Rescue,Fauna and Flora permits, Aquatic Assessments, Agricultural and Soil Assessments and Environmental and Venomous animals training workshops.

Roy holds a BSc Honours in Geology and an MSc in Botany from the Nelson Mandela University in Port Elizabeth. He is currently busy with his PhD (Doctorate degree) in Botany and Soil Science. He has over 14 years' experience in the environmental consulting focusing on Ecological and Agricultural Assessments, Geological and Geotechnical analysis, Environmental Management Plans,mining applications and various environmental impact studies.

Roy is a registered as a professional natural scientist (Pri.Sci.Nat.) with SACNASP (Registration nr: 400216/16).

This study complies with the requirements as listed in the Gazetted protocols for a general specialist assessment (GN. R 320 of 2020) and minimum report content requirements.

3. Introduction

Blue Leaf Environmental (Pty) Ltd has been appointed to conduct a Visual Impact Study for the proposed new "The Heath" Estate Housing development located on Erf 4087, along Heatherbank Road in Theescombe, Port Elizabeth which is currently part of an equestrian estate (Figure 3.1).

Figure 3.1: Proposed "The Heath" Housing Estate Development in Theescombe, Port Elizabeth

3.1 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) and44 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

A site sensitivity verification has been conducted (see Chapter 6) to confirm/dispute the current useof the land and environmental sensitivity as identified by the Screening Tool. Motivation, with photographic evidence, was provided as part of the site sensitivity verification.

The visual assessment was done as per the DEA&DP Guideline for Involving Visual and Aesthetic Specialists in EIA processes (Oberholzer; 2005).

Current literature that was used to describe the site includes:

- The Eastern Cape Provincial Spatial Development Framework (PSDF) 2020
- The Nelson Mandela Bay Municipal Spatial Development Framework (SDF) 2021

Criteria evaluated include:

- Density of development.
- Aesthetics (design, scale, layout)
- Location
- Value in terms of 'sense of place'

- Character and nature of adjacent land use
- Character of the general area, and
- Cumulative environmental impacts.

4. Project description and Scenic Resources

The project will entail the clearance of 2 ha of transformed vegetation, mostly grassland for the establishment of up to 29 units of upmarket, free-standing homes in a secure estate. Plot sizes will range between 300-700 square meter in size (Figure 4.1). a new surfaced access road will be constructed, linking Heatherbank Road to the individual properties on site.

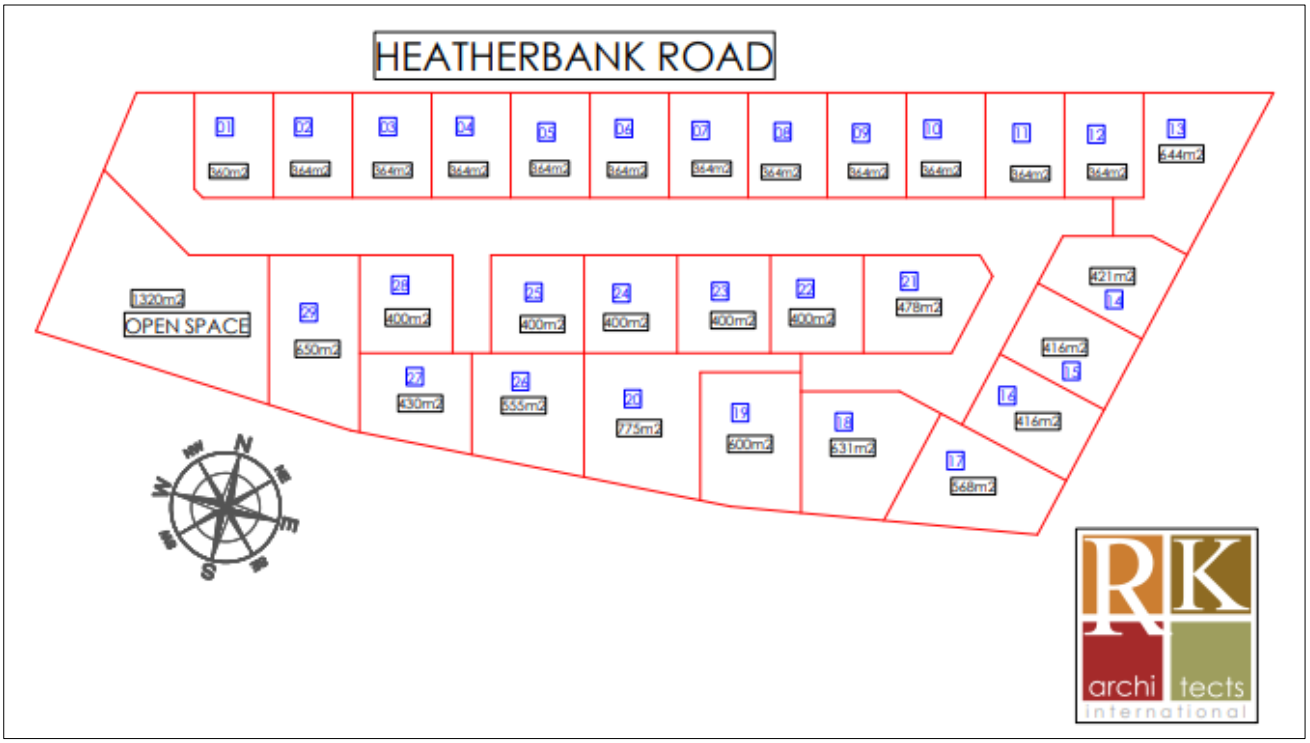

Figure 4.1: Layout of the proposed new "The Heath" housing development along Heatherbank Road in Theescombe.

This section consists of a desktop analysis of the site based on available literature, plans andlegislation.

4.1 Scenic resources

Factors contributing to the scenic resource of the environment include:

- Rural/agriculture
- Natural/wilderness
- Urban development

Based on the above, scenic resources are rated as HIGH (Oberholzer; 2005)

5. Visual Assessment of the Site

The DEA&DP Guideline for involving visual & aesthetic specialists in EIA processes Document provides several criteria that relate specifically to Visual Impact Assessments namely:

- Visibility of the project;
- Visual exposure;
- Visual sensitivity of the area;
- Visual sensitivity of receptors;
- Visual Absorption Capacity; and
- Visual Intrusion.

The proposed project was assessed against these criteria to determine a sensitivity to the visual environment. Each criteria are discussed below:

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 throughout the Baakens River Catchment area. This is clearly seen in the Viewshed developed for this project (Figure 5.1).

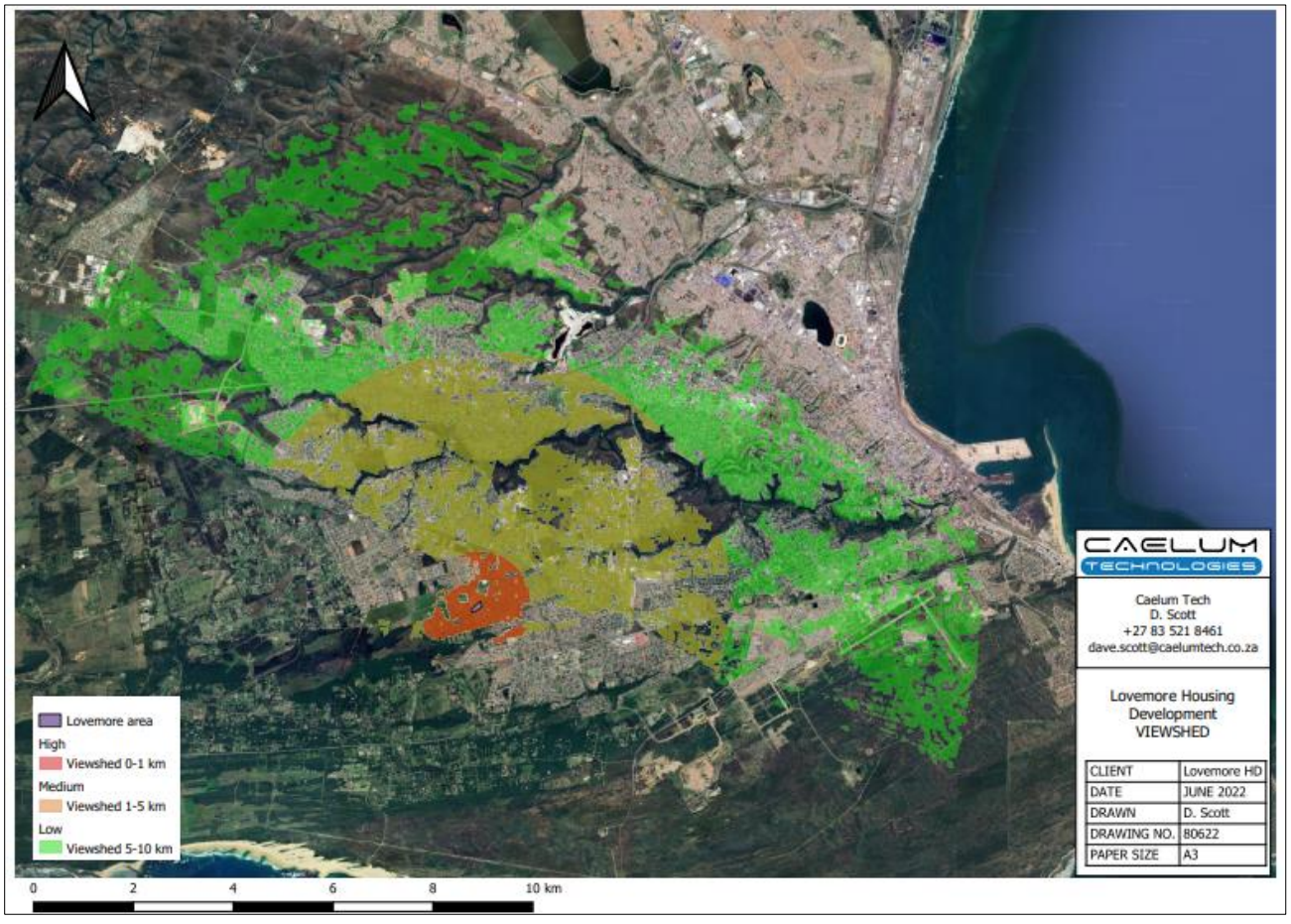

Figure 5.1: Viewshed of the proposed development

However, distance, development, 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 the southern boundary of the Bakens River Catchment with little visibility from the south. This is due to the paleo-sand dunes and dense shrublike vegetation in these areas. The highest visibility will be within the first 5 km of the site. Here the proposed development can be seen partially provided there are no screens like trees and buildings. After that the visibility declines and cannot be seen.

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.

High sensitive receptors of the site include residentials areas to the north as well as the west. The Applicants residence is located to the south is also considered a high sensitive receptor. The remainder of the surrounding areas are considered as moderate sensitivity as they are considered as recreational areas and places of work. No industrial of degraded areas exist.

Visual receptors to the south include only the Applicants residence (High sensitive):	Moderate sensitive receptors to the east include farmland (equestrian):
	
The north contains highly sensitive residential receptors	The west also contains highly sensitive residential receptors
	

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 development. 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.

5.4 View corridors

The only view corridor is Heatherbank Road which is also the access route to the site. This road is only used by surrounding residences and farmers and ends shortly after the proposed development site. The road passes the site along its northern boundary. A gravel road runs southward to the Applicants residence.

Heatherbank Road looking eastwards:	Heatherbank Road looking westwards:
	
Gravel road next to site looking northwards:	Gravel road next to site looking southwards:
	

5.5 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 in 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.

Vegetation

The South African National Biodiversity Institute (SANBI) vegetation map (called the VegMap; 2018)lists the proposed activity within a single vegetation type, namely **Algoa Sandstone Fynbos**.

Sandstone fynbos is the most extensive vegetation group in the Fynbos biome (301 km^2) almost four times bigger than the next most prominent group and covering almost a third of the Fynbos biome. In the Eastern Cape it covers the coastal flats at Port Elizabeth (Gqeberha), located mostly some kilometers from the coast on flat to slightly undulating plains supporting grassy shrubland (mainly graminoid fynbos). Grasses become dominant in wet habitats and can form mosaics with surrounding vegetation types.

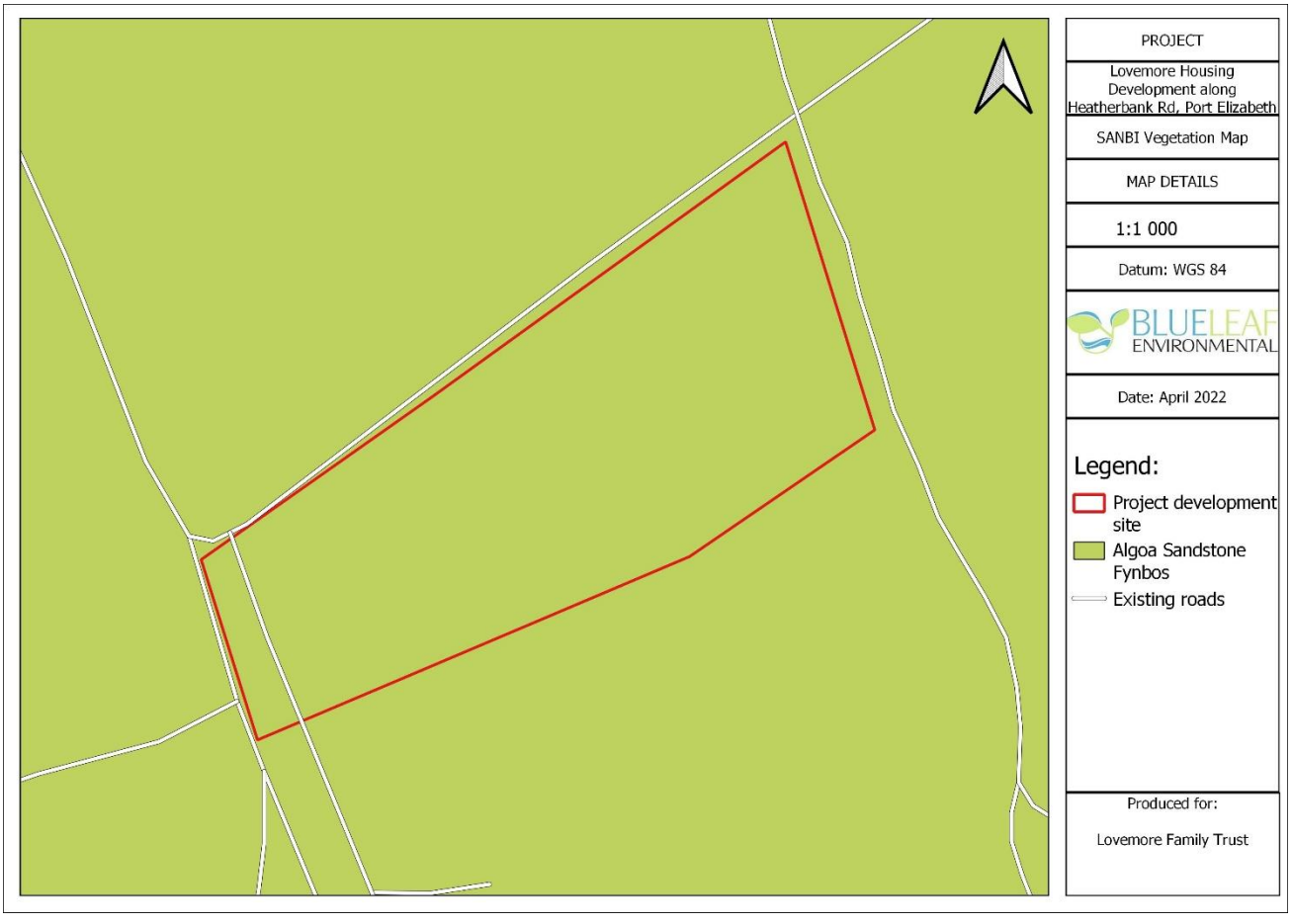

Figure 5.1: SANBI VegMap of the study site

SANBI classifies this vegetation unit as **Endangered** with only 2% of the targeted 23% conserved in scattered protected areas and conservancies. More than 50% has already been transformed through cultivation and urban sprawl. Several invasive Acacias occur but to a limited extend.

The NMBM BP (2014) classifies vegetation on site as Tornhill Forest and Thornveld and classifies it as Critically Endangered.

A site visit confirmed that no natural vegetation occurred on site. No large trees exist, and the site is not

screened from the surrounding environmental by natural vegetation.

Topography

The landscape of the farm area is relative flat with a very low downwards slope of approx. 4% towards the east. Elevation ranges between 183 meters above sea level (m.a.s.l) on the western boundary to 170 m.a.s.l. on the eastern boundary. The entire site can be seen from immediate surroundings and visibility is considered as high.

The topography of Port Elizabeth is regionally mostly flat with some undulating areas. Even though the topography will allow the site to be visible from large distances in sone directions, urban built-up (houses and businesses) acts as screens and the site visibility from surrounding areas is low. This will be discussed in more detail later in this report.

Land cover

Current land cover has been determined and the map in Figure 3.1 shows that the entire study area is covered by natural vegetation (grassland). The existing land use of the site is agriculture, and the property currently used as part of an equestrian horse farm. No infrastructure exists on site and the site used to form part of a grazing field for the horses. Existing estate developments exist to the north and west of the proposed development site, while the south and east consist of farmland.

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 allocation through a detailed desktop 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 Low sensitivity**. This is because the site is located in a flat, elongated valley surrounded by either ridgelines or an undulating landscape.

5.6 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.

Visual Absorption Capacity (VAC) is the capacity for the landscape to conceal the proposed development. 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.

The potential of the landscape of the sites and the surrounding areas to conceal the development, varies from low to high. Being situated on a flat, elongated plain results in the site being visually exposed to the immediate surrounding area and therefore has a low VAC.

However, the surrounding landscape provides ridges to the south, trees as screens to the southwest and an

undulating landscape to the north combined with dense residential developments that provide some screening to the development, resulting in a moderate VAC in these areas.

The VAC of the site to the proposed development is therefore low to moderate (low due to topography and high due to vegetation and urban screens).

The site is mainly visible to immediate surrounding areas. Areas further away is screened by a combination of topography, vegetation and urban residences.

Residential houses to the north can be clearly seen from the development site:	A ridge to the south blocks the development site from developed areas further south. The Applicants house can be seen screened by trees:
	
Development in the west is mostly screened by natural vegetation:	To the east the landscape is flat and open with little development:
	

5.7 Visual Intrusion

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

High visual intrusion – results in a noticeable change or is discordant with the surroundings.

Moderate visual intrusion – partially fits into the surroundings, but clearly noticeable.

Low visual intrusion – minimal change or blends in well with the surroundings.

The proposed development will take place immediately adjacent to urban developments to the north and

west and will do little in changing the visual qualities in those areas. When viewed from the south or east, a noticeable change to the view can be seen.

The visual intrusion will be moderate; the proposed development will partially fit into its surroundings but will be clearly noticeable.

Residential houses to the north can be clearly seen from the development site:	
	
The remainder of the landscape is open farmland:	
	

6. Potential Impacts

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.

6.2 Nature of impacts

The following impacts have been identified:

1. Pre-construction phase:

1.1: Removal of grassland vegetation will be required for earthworks. No tall trees exist on site and therefore vegetation removal will have no impact on the visual resource.

2. Construction phase:

2.1: During construction, earthworks would create soil stockpiles and would result in temporary visual blocking of the landscape.

3. Operational Phase:

3.1: The site is currently undeveloped and covered in grassland vegetation. Development would result in a change in visual character from a 'grassland' unbuilt landscape to a built landscape.

3.2: The proposed development would be visible from scenic routes – The proposed site of development will be visible from Heatherbank Road which is the only access to the site and passes the site on its northern border.

3.3: The proposed development would be visible from sensitive receptors such as the residential areas to the north and west of the site.

3.4: The proposed development will require lighting which will have a visual impact at night. This will be visible to the surrounding areas and sensitive receptors in these areas.

6.3 Summary of impacts

The following table summarizes each visual impact identified and its respective ratings for each criteria:

Criteria	Impacts identified				
	Soil stockpiles	Change in character	Visibility from Heatherbank Road	Visible from residential areas	Night lighting
Extent of impact	Site only	Local area	Local area	Local area	Local area
Duration of impact	Short term (less than 12 months)	Permanent	Permanent	Permanent	Permanent
Intensity	Low	Moderate	High	High	Moderate
Probability	Possible	Definite	Definite	Definite	Probable
Reversibility	Reversible	Reversible	Reversible	Reversible	Reversible
Irreplaceable	Marginal	Significant	Significant	Significant	Marginal

Criteria	Impacts identified				
	Soil stockpiles	Change in character	Visibility from Heatherbank Road	Visible from residential areas	Night lighting
loss of resource					
Cumulative effect	Low	High	High	High	Moderate
Significance	Low	High	High	High	Moderate

7. Mitigations

The following mitigation measures are proposed:

- Remove stockpiles before completing construction.
- Providing development and architectural guidelines for all units to "blend in" to the surrounding environment.
- Proposed external lighting restrictions and guidelines.

8. References

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