ENVIRONMENTAL IMPACT ASSESSMENT (EIA)
FOR
RESIDENTIAL DEVELOPMENT ON STAND 65, 45TH AVENUE, SHERWOOD, DURBAN

ETHEKWINI MUNICIPALITY, KWAZULU-NATAL

DM/0038/2021 KZN/EIA/0001681/2021

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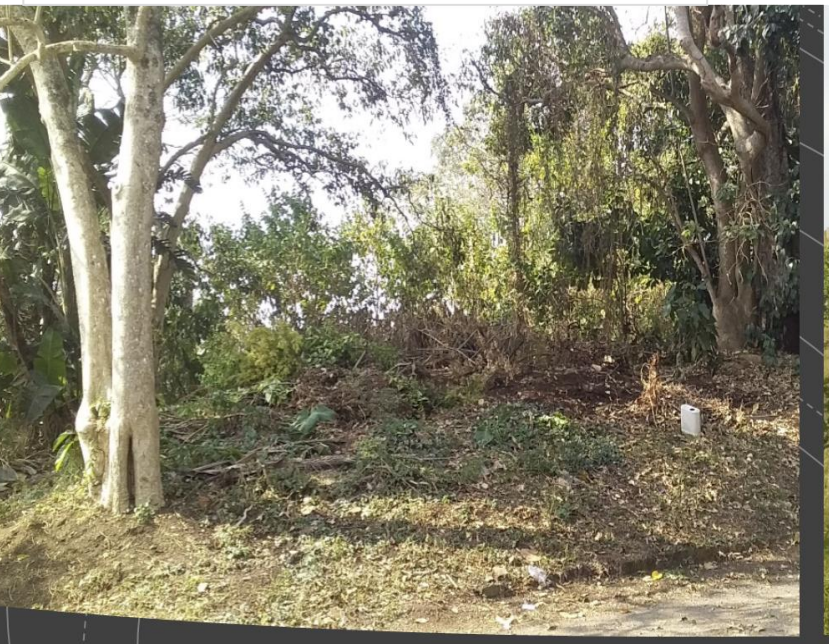

BASIC ASSESSMENT REPORT

- **For Public Participation**

EDTEA REF:

DM /

KZN /EIA/

REPORT CONTTROL				
Project Tittle	**RESIDENTIAL DEVELOPMENT ON STAND 65, 45TH AVENUE, SHERWOOD, DURBAN**			
Date	**December 2021**	**Report Status**	**Draft BAR**	
Quality Control Aspects	**Name**		**Capacity /Designation**	**Signature**
Authors	**Mr MacCarthy Honu-Siabi**		**Environmental Assessment**	
	Mr Fhumulani Mudau		**Environmental scientist**	

EXECUTIVE SUMMARY

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I. ECLARATION BY THE ENVIRONMENTAL ASSESSMENT PRACTITIONER

I, **HONU-SIABI, MACCARTHY (MR)** declare that I –

(a) act as the independent environmental practitioner in this application;
(b) do not have and will not have any financial interest in the undertaking of the activity, other than remuneration for work performed in terms of the Environmental Impact Assessment Regulations, 2014;
(c) do not have and will not have a vested interest in the proposed activity proceeding;
(d) have no, and will not engage in, conflicting interests in the undertaking of the activity;
(e) undertake to disclose, to the competent authority, any material information that has or may have the potential to influence the decision of the competent authority or the objectivity of any report, plan or document required in terms of the Environmental Impact Assessment Regulations, 2006;
(f) will ensure that information containing all relevant facts in respect of the application is distributed or made available to interested and affected parties and the public and that participation by interested and affected parties is facilitated in such a manner that all interested and affected parties will be provided with a reasonable opportunity to participate and to provide comments on documents that are produced to support the application;
(g) will ensure that the comments of all interested and affected parties are considered and recorded in reports that are submitted to the Department in respect of the application, provided that comments that are made by interested and affected parties in respect of a final report that will be submitted to the Department may be attached to the report without further amendment to the report;
(h) will keep a register of all interested and affected parties that participated in a public participation process; and
(i) will provide the Department with access to all information at my disposal regarding the application, whether such information is favourable to the applicant or not.

Signature of the Environmental Assessment Practitioner:

Name of company: Bizycon Pty Ltd

Date

II. DETAILS OF THE EAP (QUALIFICATIONS) -

Details of EAPs Qualifications and Experience (Refer to detailed CV in appendix 5)

Name of representative of the EAP	Education qualifications	Professional affiliations	Experience at environmental assessments (yrs)
MacCarthy K Honu-Siabi	MSSC Development Studies (UKZN) Certs Environmental Impact Assessments (NWU) Cert: Post Decision Environmental Control and Enforcement (Environmental Monitoring / Auditing) (NWU)	IAIASA (5219) SAMEA EAPSA (registration pending)	13 years in the field of Environmental management and Impact assessment
Fhumulani Mudau	BSc Environmental Science (UV)		4yrs in Environmental management

McCarthy Honu-Siabi

MSSc Development Studies: University of KwaZulu-Natal
Bachelor of Management Studies: University of Cape Coast
Cert: Environmental Impact Assessment & Management: North West University:
Certs: Environmental Control and Monitoring: North West University
Certs; Project Management: University of KwaZulu-Natal

McCarthy Honu-Siabi has worked on several projects requiring environmental impact assessment, social impact assessment and socio-economic planning, community developments, delivery of sanitation facilities, housing, planning; strategic and general service delivery. For the past five years he has been a project manager in teams of development professionals in the delivery and administration of several Housing Projects in both rural and urban areas of South Africa. He has worked on more than 65 Development projects, relating to environmental impact assessments, and strategic impact assessments. He possesses vast experience which has assisted in the compilation of this report. MacCarthy currently work with Bizycon Pty Ltd, as a Senior EIA Consultant, working with many Government Agencies, and Municipalities and private sector developers and planners, on EIA related assessments, Strategic Development Planning, Environmental Management Frameworks and Strategic Development Frameworks (SDF) among others

III. NAMES AND EXPERTISE OF SPECIALISTS

Names and details of the expertise of each specialist that has contributed to this report:

Name of specialist	Education qualifications	Field of expertise	Title of specialist report/ s as attached in Appendix D
Sundras Partha	Pr *Sci.Nat*	Geotechnical Engineering	Geotechnical Investigation: Proposed Residential Development at 65 45th Avenue. Sherwood
Bryan Walter Paul	B. Sc Hons SACNASP *Cand.Sci.Nat*.	Ecological Impact Assessment	Terrestrial Ecological Impact Assessment for the 45th Avenue Housing Development, Sherwood, KwaZulu-Natal, South Africa
Brian Mafela	BSc (Hon) Forest Resource and Wildlife Management SACNASP *Cand.Sci.Nat*. (Ecological Science: 100214/15)	Ecological and Aquatic Habitat Assessment	Wetland & Riparian Habitat Impact Assessment
Gavin Anderson	MSC	Heritage Impact Assessment	

IV. SPECIALISTS STUDIES (AS PER SCREENING REPORT)

Specialist Studies Suggested in National Screening Tool, and Inclusion Status

No	Specialist Studies Suggested	Inclusion Status in this report (Yes/No)	Comments/Motivation
1	Landscape/Visual Impact Assessment	**YES**	*No Dedicated specialist studies conducted. However, Landscape and visual Impact assessment is included in the Biophysical Environmental Description Section 7.1 and also in the Issues Assessment section of this report Section 7.9 -7.12*
2	Archaeological and Cultural Heritage Impact Assessment	**YES**	*Specialist Studies Report Attached in **Appendix 4***
3	Palaeontology Impact Assessment		*Included as part of the Heritage Impact Studies report **Appendix 4***
4	Terrestrial Biodiversity Impact Assessment	**Yes**	*Assessment undertaken in Section 7.2*
5	Aquatic Biodiversity Impact Assessment	**YES**	*Assessment undertaken in Section 7.3* *Specialist Studies also included in **Appendix 3***
6	Hydrology Assessment		
7	Socio-Economic Assessment	**YES**	*Assessment undertaken in Section 7.6-7.7*
8	Plant Species Assessment	**YES**	*No Specialist Studies needed since the site is settled community (See section 7.2)*
9	Animal Species Assessment		

Summary of where requirements of Section 22 of the 2014 NEMA EIA Regulations (GN R 983, as amended) are provided in this Basic Assessment Report

Section Requirements	YES/NO	SECTION IN BAR
Objective of the basic assessment process 1) The objective of the basic assessment process is to scope the issues in the environment through a consultative process- (a) Determine the policy and legislative context within which the proposed activity is located and how the activity complies with and responds to the policy and legislative context; (b) Identify the alternatives considered, including the activity, location, and technology alternatives; (c) Describe the need and desirability of the proposed alternatives, (d) Through the undertaking of an impact and risk assessment process inclusive of cumulative impacts which focused on determining the geographical, physical, biological, social, economic , heritage and cultural sensitivity of the sites and locations within sites and the risk impact of the proposed activity and technology alternatives on the these aspects to determine- (i) The nature, significance, consequence, extent, duration, and probability of the impacts occurring to; and (ii) The degree to which these impacts- (aa) Can be reversed (bb) May cause irreplaceable loss of resources; and (cc) Can be avoided, managed or mitigated; (e) Through a ranking of the site sensitivities and possible impacts the activity and technology alternatives will impose on the sites and location identified through the life of the activity to- i. Identify and motivate a preferred site, activity and technology alternatives; ii. Identify suitable measures to avoid, manage or mitigate identified impacts; and	YES	

Section Requirements	YES/NO	SECTION IN BAR
iii. Identify residual risks that need to be managed and monitored.		
Scope of assessment and content of basic assessment reports 2) (1) A basic assessment report must contain the information that is necessary for the competent authority to consider and come to a decision on the application , and must include : (a) Details of: i. The EAP who prepared the report ii. The expertise of the EAP, including a curriculum vitae:	YES	i
(b) The location of the activity , including: i. The 21 digit surveyor general code of ach cadastral land parcel; ii. Where available, the physical address and farm name; iii. Where the required information items i and ii is not available , the coordinates of the boundary of the property or properties;	YES	
(c) A plan which locates the proposed activity or activities applied for as well as associated structures and infrastructure at an appropriate scale; or if it is- i. A linear activity, a description and coordinates of the corridor in which the proposed activity or activities is to be undertaken; or on land where the property has not been defined , the coordinates within which the activity is to be undertaken;	YES	
(d) A description of the scope of the proposed activity, including all listed and specified activities triggered and being applied for; and a description of the activities to be undertaken associated structures and infrastructure;	YES	
(e) A description of the policy and legislative context within which the development is proposed including- I. An identification of all legislation, policies, plans,	YES	

Section Requirements	YES/NO	SECTION IN BAR
guidelines, spatial tools, municipal development planning frameworks, and instruments that are applicable to this activity and have been considered in the preparation of the report ; and II. How the proposed activity complies with and responds to the legislation and policy context, plans, guidelines, tools frameworks, and instruments;		
(f) A motivation for the need and desirability for the proposed development including the need and desirability of the activity in the context of the preferred location;	YES	
(g) A motivation for the preferred site, activity and technology alternative;	YES	
(h) A full description of the process followed to reach the proposed preferred alternative within the site, including: i. Details of all the alternatives considered;	YES	
ii. Details of the public participation process undertaken in terms of regulation 41 of the regulations, including copies of the supporting documents and inputs	YES	
iii. A summary of the issues raised by interested and affected parties, and an indication of the manner in which the issues were incorporated, or the reasons for not including them;	YES	
iv. The environmental attributes associated with the alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects;	YES	
v. The impacts and risks identified for each alternative, including the nature, significance, consequence, extent, duration and probability of the impacts, including the degree to which these impacts (aa) and (bb) may cause irreplaceable loss of resources; and (cc) can be avoided, managed or mitigated	YES	

Section Requirements	YES/NO	SECTION IN BAR
vi. The methodology used in determining and ranking the nature, significance, consequences, extent, duration, and probability of potential environmental impacts and risks associated with the alternatives;	YES	
vii. Positive and negative impacts that the proposed activity and alternatives will have on the environment and on the community that may be affected focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects;	YES	
viii. The possible mitigation measures that could be applied and level of residual risk	YES	
ix. The outcomes of the site selection matrix;	YES	
x. If no alternatives, including alternative locations for the activity were investigated, the motivation for not considering such; and	YES	
xi. A concluding statement indicating the preferred alternatives, including preferred location of the activity.	YES	
(i) A full description of the process undertaken to identify, assess and rank the impacts the activity will impose on the preferred location through the life of the activity, including- i. A description of all environmental issues and risks that were identified during the environmental impacts assessment process; and ii. An assessment of the significance of each issue and risk and an indication of the extent to which the issue and risk could be avoided or addressed by the adoption of mitigation measures;	YES	

Section Requirements	YES/NO	SECTION IN BAR
(J) An assessment of each identified potentially significant impact and risk, including- (i) Cumulative impacts; (ii) The nature, significance and consequences of the impact and risk; (iii) The extent and duration of the impact and risk; (iv) The probability of the impact and risk occurring; (v) The degree to which the impact and risk can be reversed; (vi) The degree to which impact and risk may cause irreplaceable loss of resources; and (vii) The degree to which the impact and risk can be avoided, managed or mitigated;	YES	
(k) Where applicable, a summary of the findings and impacts managements measures identified in any specialist report complying with Appendix 6 to these Regulations and an indication as to how these findings and recommendations have been included in the final report;	YES	
(l) An environmental impact statement which contains- (i) A summary of the key findings of the environmental impact assessment; (ii) A map at an appropriate scale which superimpose the proposed activity and its associated structures and infrastructure on the environmental sensitivities of the preferred site indicating any areas that should be avoided, including buffers; and (iii) A summary of the positive and negative impacts and risks of the proposed activity and identified alternatives;	YES	
(m) based on the assessment, and where applicable, impact management measures from specialist reports, the recording of the proposed impact management objectives, and the impact management outcomes for the development for inclusion in the EMPr;	YES	
(n) any aspects which were conditional to the findings of the		

Section Requirements	YES/NO	SECTION IN BAR
assessment either by the EAP or specialist which are to be included as conditions of authorisation;	YES	
(o) a description of any assumptions, uncertainties, and gaps in knowledge which relate to the assessment and mitigation measures proposed;	YES	
(p) a reasoned opinion as to whether the proposed activity should or should not be authorised, and if the opinion is that it should be authorised, any conditions that should be made in respect of that authorisation;	YES	
(q) where the proposed activity does not include operational aspects, the period for which the environmental authorisation is required, the date on which the activity will be concluded, and the post construction monitoring requirements finalised;	**N/A**	
(r) an undertaking under oath or affirmation by the EAP in relation to: (i) the correctness of the information provided in the reports; (ii) the inclusion of comments and inputs from stakeholders and I&APs; (iii) the inclusion of inputs and recommendations from the specialist reports where relevant; and (iv) any information provided by the EAP to interested and affected parties any responses by the EAP to comments or inputs made by interested and affected parties; and	YES	
(s) where applicable, details of any financial provisions for the rehabilitation, closure, and ongoing post decommissioning management of negative environmental impacts	×	**NA**
(t) any specific information that may be required by the competent authority; and	×	-
(u) any other matters required in terms of section 24(4)(a) and (b) of the act.	×	-

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1. BACKGROUND

1.1 INTRODUCTION

MIFKM INVESTMENTS (Pty) Ltd, represented by Ms Mariam Sheik, intents to undertake a housing development on stand 65 on 45th Avenue in Sherwood. As part of the feasibility process and to satisfy the necessary legal requirements, an environmental impact assessment process was commissioned, beginning with a feasibility study. Bizycon Pty Ltd has been appointed to undertake the necessary environmental studies, and to facilitate the required environmental approval processes from the relevant or competent authorities.

The preliminary planning envisaged that the development will be segmented into three phases. Phase one will be the current footprint on plot 65, 68 2-bed duplex units, with 90 car-bays. Which will be clustered into about 7 blocks. The second and third phases to be on the adjacent pieces of land on the west and eastern boundaries respectively which will take the total to about 120 units, clustered into about 9 blocks.

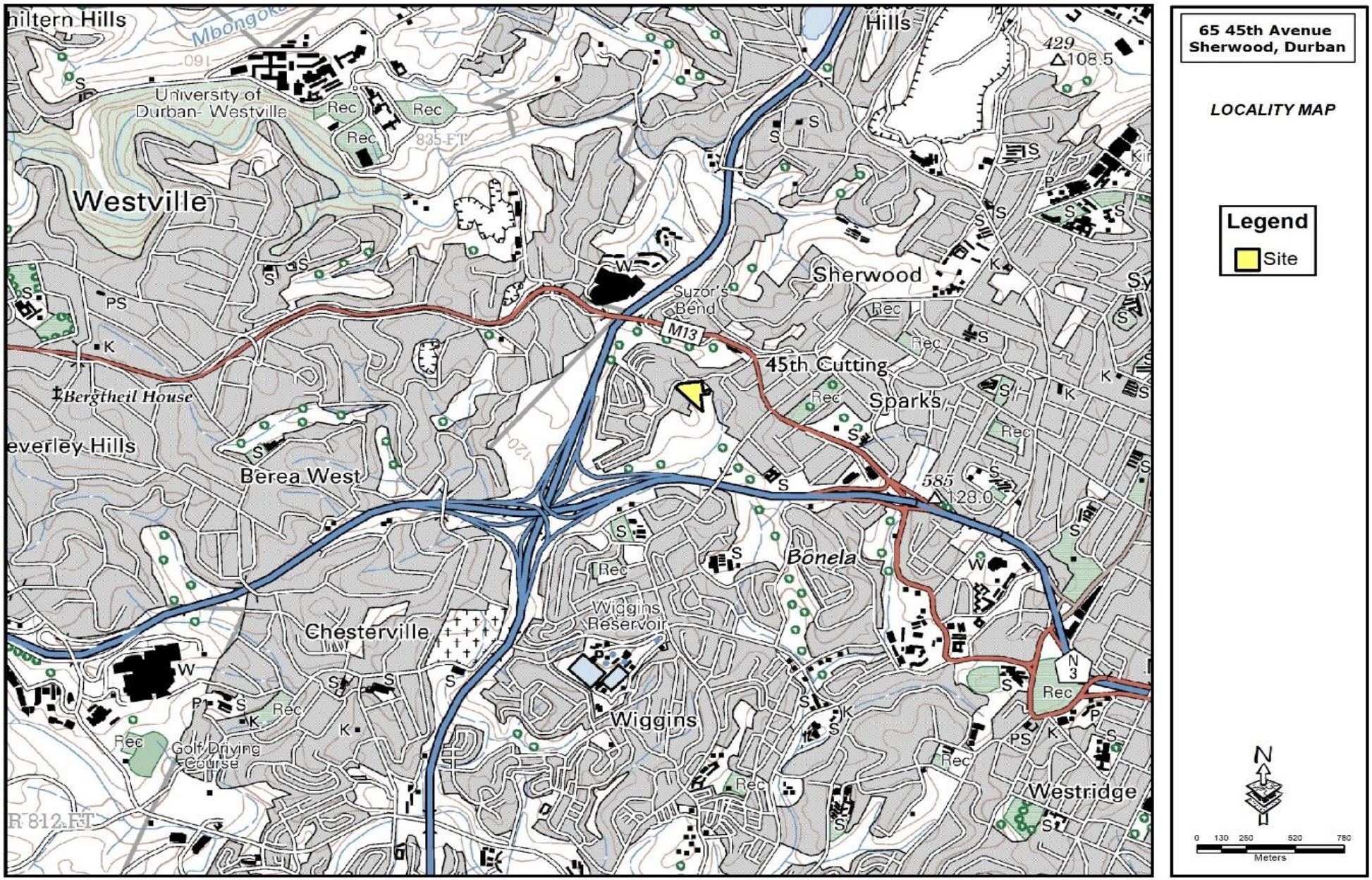
A proposed conceptual layout is presented in Figure 1. A critical component of the EIA to determine the suitability of the environment for the proposed development and identification of any associated biophysical, social, and legal impacts and mitigation measures. This involves critical assessment to see if there are any fatal flaws that may impede the planning implementation and operation of the proposed development.

The key objective of this study is to gather information on the existing conditions of the site that may influence the proposed development. Information on the site was gathered through the various biodiversity databases on the biodiversity characteristics of the site, and as also supported by the various specialists' studies carried out. This report entails the analysis of the information obtained and implications thereof for the proposed housing development, in adjudging the feasibility as part of the funding application processes. This EIA is to identify the potential impacts of proposed activities on the biophysical and social environment (and *vice versa*) and to facilitate any necessary authorisation for such activity which may be triggered in terms of the regulations by providing appropriate mitigation measures.

1.2 PROJECT LOCATION

The site is a currently vacant piece of land on stand 65 on 45th Avenue in Sherwood Suburb of Durban. It is currently undeveloped and occupied by forest vegetation on a gentle sloping side of the hill. The location of the site in relation to the locality is presented in Figures 2 and 3. Figure 2 is a 1:50000 locality Mapping of the site while Figure 3 is the Aerial photograph of the location of the site within settlement of Sherwood. The GPS Mapping of the site is 29°50'3.52"S 0°57'57.85"E.

Site Location



Aerial photograph

2. PROJECT & ACTIVITY DESCRIPTION

The proposed development is intended to be an Estate Housing with 2–3-bedroom blocks of flats or residential unit with associated residential infrastructure such as internal road, parking and recreational centre.

According to the concept plan, the following are envisaged.

Housing Units

1. Layout 1: The new layout or Concept Plan consist of the following:
   The site yield is 68 2-bed duplex units, with 90 car-bays.
   This layout complies with the TP Scheme regulations, with 2-storey blocks of duplexes clustered around vehicle courts instead of long lines of parking along internal roadways.

Services:

- Electricity connection is to be from the existing lines within the surrounding of the site as supplied by the municipality.
- Water and sanitation are also to be connected to the existing municipal reticulation system that passes through the site.

2. **Alternative Layout** 2. Concept Plan for Sherwood with a layout for **three-storey walk-ups**.

- DU yield for site 1 only is **102 units** (2-beds), with 142 car bays. In this layout the cross-site gradient is also indicated with a max. rise of 14m rise from blocks R and S up to blocks D and F. Second and third phase additional yield becomes 120 two-bed units with 165 cars detail floor plans.

Layout 1. 65 45th Avenue – Sherwood. 2-bedroom 3 storey Flats in Blocks of flats.

65 45th avenue, sherwood
2-bedroom duplex sectional title scheme.

ERF 3562.

key

dwelling units
2-bedroom duplexes

permeable paving +
vehicle courts

north

Dwelling Unit Yield		
site 1 block	A	5 units
	B	7
	C	8
	D	8
	E	8
	F	11
	G	13
	H	8
total		68 units
site 2	J	7 units
sites 3+4	K	12 units
all sites		87 units

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SACAP reg. #5687

2.1 LISTED ACTIVITIES IN TERMS OF NEMA REGULATIONS DEC 2014 AS AMENDED

As per Chapter 3 and 4 of the Environmental Impact Assessment Regulations 2017, as promulgated under the National Environmental Management Act (NEMA), Act 107 of 1998, a developer, upon crossing specified thresholds, must conduct environmental impacts assessment processes to obtain authorisation from a competent authority prior to the commencement of such activities triggered. It is the duty of the EAP to determine if proposed activities fall within such schedule. Depending on the magnitude of the proposed activities, a Basic Assessment Process (under regulations 983) or a full scoping and EIA (under regulations 984) may be undertaken in terms of Section 24D .

From the screening of the activities proposed by the developer as detailed in the attached preliminary report and specialists' studies undertaken, and in agreement with the Pre-Application meeting held with the competent authority, the following listed activities are identified for which this Basic Assessment Process for authorisation is being undertaken. (Table 2).

Table 1 Listed Activities)

Indicate the Activity Number:	Provide the relevant **Activity (ies)** as set out in **Listing Notice 1, 2 & 3** (GN R327, GNR325 & GNR324)	**Describe each listed activity as per the project description (and not as per wording of the relevant Government Notice)[1]:**
NEMA (Act 107 of 1998)		
GNR 327, (8 April 2017 as amended)	27	The clearance of more than 1ha of indigenous vegetation is a listed activity. The site currently has indigenous vegetation of about 1.4935ha of which less or about 1ha will be removed for the proposed development.

[1]Please note that this description should not be a repetition of the listed activity as contained in the relevant Government Notice, but should be a brief description of activities to be undertaken as per the project description, i.e. describe the components of the desired development.

3. THE BASIC ASSESSMENT PROCESS

The environmental impact assessment process as a whole is intended to provide information on the affected project area, to determine whether there are any fatal flaws that may militate against proposed development, to access any positive factors that the development may take advantage of, identify alternatives at an early stage, facilitate consultation with all Interested and Affected Parties (I&APs) and key stakeholders, including specialists and to address the concerns of I&APs that may arise regarding the proposed development, thereby ensuring full public participation. This is to ensure a holistic planning approach that promotes full community engagement. A schematic representation of the basic Assessment (EIA) process is depicted in Figure 2.

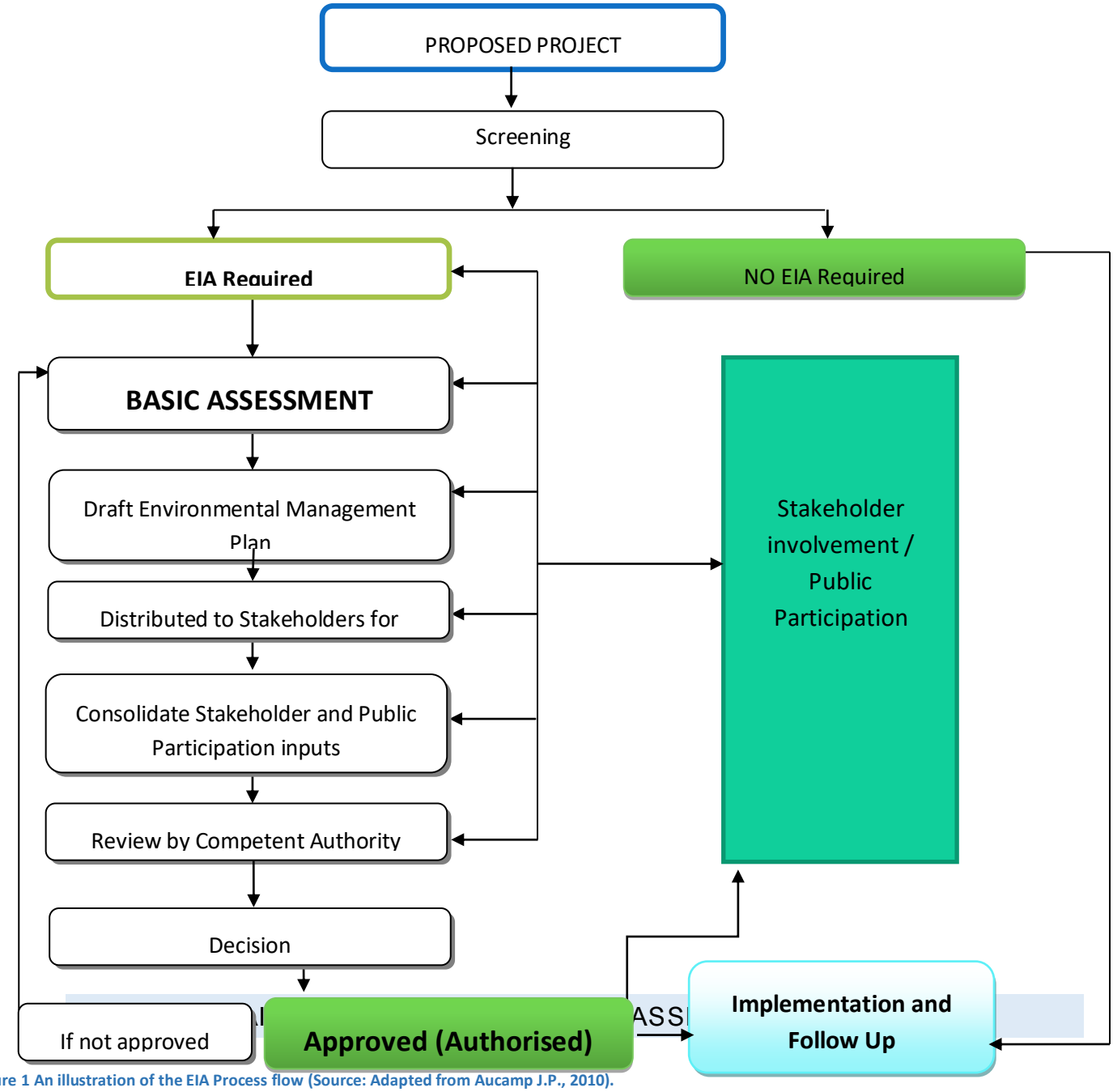

Figure 1 An illustration of the EIA Process flow (Source: Adapted from Aucamp J.P., 2010).

The project is currently at the environmental scoping or issue identification and assessment phase of the environmental assessment process. Public participation is fundamental at this stage phase because it assists the Environmental Assessment Practitioner (EAP) to identify, categorize, and recommend issues that are significant and what impacts they may have on the proposed development and Vise-versa in accordance with the guidelines contained in Regulation 982 and 984 of the National Environmental Management Act 107 of 1998.

3.2 FIELD VISITS AND DATA COLLECTION

Field visits were conducted for two broad purposes namely collection of data for public participation and environmental assessment. Issues were identified using professional judgment, experience of similar projects, and previous knowledge of the study area, a review of available literature, public consultation, specialist input and consultation with relevant decision making authorities. Additionally, specialist duties were conducted to identify and confirm the significance of some of the issues identified. Ecological, assessment, Wetland and heritage studies were undertaken. Reports on these are attached in appendix to this report.

3.3 PUBLIC PARTICIPATION REQUIREMENTS

The public participation process involved consultations with stakeholders, and the general public, neighbouring businesses, and stakeholders such as, South African National Biodiversity Institute (SANBI), The South African Heritage Resources Agency (SAHRA), and AMAFA Kwazulu-Natal, Department of Water and Sanitation (DWS) and all regional and local stakeholders. This draft report will be circulated for further comments, and these will be attached and integrated when received. Public Participation report is attached in the Appendixes to this report.

4. CONSIDERATION OF LEGAL AND REGULATORY REQUIREMENTS

The following are some of the key legislations relevant to this development:

4.1 NATIONAL ENVIRONMENTAL MANAGEMENT ACT (NEMA) ACT 107 OF 1998

The National Environmental Management Act 107 of 1998 has in terms of section 24 and 24D of the Act established regulations regarding the conduct of EIA processes made under section 24 (5) of the Act and published in Government Gazette 38282 of December 2014, as amended. These regulations published lists of activities (982, 983, 984 and 985) that require various levels of applications of EIA process. The section of the regulation that bears relevance to this project is R982, R983 and 984.

Under this regulation an environmental impact assessment, in this case, a basic assessment process is required, the elements of which are stipulated in relevant sections of the National Environmental Management Act 107 of 1998.

4.2 OCCUPATIONAL HEALTH AND SAFETY ACT (ACT 85 OF 1993)

The specific requirements under this Act that are relevant to the proposed project are the regulations on Major Hazardous Installations (MHI) and their potential health and safety impacts. Section 9 of the MHI regulation, which came into force in 1999, requires that where practicable the developer shall prevent the establishment of developments adjacent to sites or areas that the MHI would potentially pose a hazard.

This Act also bears relevance to the National Environmental Management Act, which requires proponents of development to ensure a 'risk averse' approach where there is adequate information that a given development is associated with potential for health and safety risks to beneficiary and neighbouring communities. Where a given development affects settlements, the requirement of this Act needs to be carefully and adequately integrated in the planning process.

4.3 DEVELOPMENT FACILITATION ACT (ACT 67 OF 1995)

The Development Facilitation Act was established to facilitate the speedy delivery of services and facilities to previously disadvantaged groups. However, enshrined in this Act is the provision that developers are to ensure that adequate provision is made for the assessment of the potential impacts that the development project is likely to have on the receiving environment, and provision made for the management of these impacts. The EIA process is therefore being undertaken in fulfillment of the requirements of this Act.

4.4 CONSERVATION OF AGRICULTURAL RESOURCES ACT (ACT 43 OF 1983)

The objective of this Act is to provide for the conservation of natural resources by maintaining the production potential of land, combating and preventing erosion, preventing the weakening or destruction of water resources, protecting natural vegetation, and preventing and/or combating invader plants and weeds. The planning and implementation processes of the proposed project therefore will take cognizance of relevant provisions of this Act.

4.5 NATIONAL WATER ACT (ACT 36 OF 1998)

Current regulations regarding discharge of surface water requires that surface water is handled with care both in terms of quality and quantity before being discharged into any natural water course, so that the quality and flow rate of natural systems are not significantly disrupted.

The development under investigation is expected to generate large quantities of stormwater, consequently an accelerated run off at the discharge points. This Act requires that stormwater control measures are satisfactorily addressed, and a maintenance programme developed to ensure that stormwater discharge points and downstream impacts are effectively mitigated.

In addition, Section 21 the act National Water Act (Act 36 of 1998) also requires that a water-use license be obtained from the competent authority prior to undertaking certain activities for developments that are within 500m of a watercourse. In this case

the project site accommodates a wetland and hence a Water Use License Application may need to be made with the Department of Water and Sanitation.

4.6 NATIONAL FOREST ACT (ACT 84 OF 1998)

The National Forest Act dictates the procedures and processes required for the protection of natural forests and forest trees. The relevance of this Act to the development under investigation is that the impact of the development on trees in the riparian vegetation on the site should be minimized as much as possible. Any removal of indigenous trees has to be authorized by the Department of Forestry.

4.7 NATIONAL HERITAGE RESOURCES ACT (ACT 25 OF 1999)

The National Heritage Resources Act (NHRA), Act No. 25 of 1999) defines a heritage resource as any place or object of cultural significance i.e. of aesthetic, architectural, historical, scientific, social, spiritual, linguistic or technological value or significance.

Reports in fulfilment of Section 38(3) of the NHRA must include the following information:

- the identification and mapping of all heritage resources in the area affected.
- an assessment of the significance of such resources in terms of the heritage assessment criteria set out in regulations.
- an assessment of the impact of the development on such heritage resources.
- an evaluation of the impact of the development on heritage resources relative to the sustainable social and economic benefits to be derived from the development.
- the results of consultation with communities affected by the proposed development and other interested parties regarding the impact of the development on heritage resources.
- if heritage resources will be adversely affected by the proposed development, the consideration of alternatives; and
- plans for mitigation of any adverse effects during and after completion of the proposed development.

The Heritage Impact Assessment (HIA) is limited to the actions described above, i.e. identification of heritage resources and recommendations for their management, and does not include mitigation costs. The final report will be submitted to the relevant authorities responsible for heritage for assessment and approval.

5. NEED AND DESIRABILITY

The provision of housing infrastructure for localized markets is considered a necessary aspect of economic development. Whiles this enables people to own affordable housing it is also a form of contribution of the private sector to the infrastructure needs of the local economy.

The developers envision the development of an estate houses targeted at middle aged and retired workers looking for quite homes to reside. This is also to bridge the gap in the market with high quality but affordable housing. The target market is chosen to be commensurate to the location and housing demands in the area. Accordingly the housing typology is chosen and so is the layout design.

6. MOTIVATION FOR THE PROPOSED SITE, ACTIVITY AND TECHNOLOGICAL ALTERNATIVES

The EIA Regulations in the specification of the EIA process requires suitable and feasible alternatives to be provided if possible, to the proposed activity as part of holistic planning. Chapter 1 of NGR 9825 defines alternatives to the proposed activity to mean a different means of meeting the general purpose of the requirements of the activity. These include alternatives in terms of:

a) Property or location at which the proposed development is to occur,
b) Type of activity to be undertaken
c) Design or layout of the activity
d) Technology to be used in the activity or
e) Operational aspects of the activity

The alternatives are also to include the option of not carrying out the proposed activity, which is popularly referred to as the “no-go alternative”. The impact assessment then is to include not only the desired alternative but also impacts of the identified alternatives. A summary is then provided of these alternatives to have an idea which will yield the most benefits with less undesirable impacts. It is also acknowledged that in some cases, where not suitable alternatives are feasible, then the proposed activity becomes the only alternative to the no-go alternative.

SITE ALTERNATIVE

The site alternative is the current preferred site. No other site alternative is considered other than the current location, given that it is the site that is for the applicant and is the only site to be developed. That is it is either the site is developed or not developed. Those are the only alternatives regarding site. This site is currently a greenfield occupied by grassland and forest of mixed species of trees, both indigenous and alien species. The site is noted to fall within the eThekwini Municipality Durban Metro Open Space System (DMOSS). Discussions are ongoing with the Municipality to relax the DMOSS boundary, based on the initial indication to do so and as buttressed by the specialist studies.

ACTIVITY ALTERNATIVE

The purpose of the development is contributing to residential infrastructure within the commercial housing space in the area. The site is covered by green forest, hence is not developed then it could be used for conservation, which is the no-go alternative. In view of this,

these two activities are considered the alternatives for this developed and are assessed further in this report.

DESIGN/LAYOUT ALTERNATIVE

So far two alternative layouts are considered, which in a way is the alternative housing typologies being considered.

A. **2-Bedroom duplex two-bedroom houses in blocks of units**.

B. **two to three-bedroom houses also in blocks of 3-threy flats**

The proposed development is intended to be an Estate Housing with 2–3-bedroom blocks of flats or residential unit with associated residential infrastructure such as internal road, parking, and recreational centre.

Two alternative concept plans or housing typologies being considered, and to be decided on after other factors are concluded by the applicant. However, the EIA is needed to conclude the funding application and the affirm the feasibility of the project from legislative point of view. Also These layouts yield different number of units.

3. The first layout of the Sherwood Concept Plan v01.
   The site yield is **68 2-bed duplex units, with 90 car-bays**.
   - this layout complies with the TP Scheme regulations, with 2-storey blocks of duplexes clustered around vehicle courts instead of long lines of parking along internal roadways.
   - the development steps down-contour, instead of along contour, - to minimise site excavations and retaining walls.
   - the grassed, triangular open space marked 'absorption' is for surface water retention, 2

4. the second layout is two-storey 2-bed flat layout, with similar site footprint and a comparable site yield.

   Concept Plan for Sherwood with a layout for **three-storey walk-ups**.

   This will need a Special Consent application to eThekwini TP. DU yield for site 1 only is **102 units** (2-beds), with 142 car bays. This omitted the open space of my previous scheme. In this layout the cross-site gradient is also indicated with a max. rise of 14m rise from blocks R and S up to blocks D and F

DU yield becomes 120 two-bed units with 165 cars detail floor plans of both the duplexes and of the flats are almost drawn up. An informed market-price comparison between flats and duplexes would be helpful when choosing.

65 45th avenue, sherwood
2-bedroom duplex sectional title scheme.

ERF 3562.

key

dwelling units
2-bedroom duplexes

permeable paving +
vehicle courts

north

Dwelling Unit Yield

site 1 block	A	5 units
	B	7
	C	8
	D	8
	E	8
	F	11
	G	13
	H	8
total		68 units
site 2	J	7 units
sites 3+4	K	12 units
all sites		87 units

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65 45th avenue, sherwood
2-bed walk-up flats, 3-storey sectional title scheme.

ERF 3562.

key

dwelling units (DUs)

2-bed walk-up flats

permeable paving + vehicle courts

for 165 cars

north

Dwelling Unit Yield

site 1	block A	6 units
	B+C	12
	D+E	12
	F+G	12
	H+J	12
	K	6
	L+M	12
	N+P+Q	18
	R+S	12
total		102 units
site 2	T+U	9 units
site 3	V+W	9 units
total		18 units
total sites 1 to 3		120 units

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SACAP reg. #5687

the two layout alternatives cbeing condidered are both on the same footprint , but with variations in terms of the housing types . These includes the blocks of two and three bedroom flats, vurses the two bedroom duplexses also in blocks of units. Each block may have different numer of units depening on the layout design and alignments.

#	DESCRIPTION	PHOTOGRAPH	Description	STATUS	
C					
D					

TECHNOLOGICAL ALTERNATIVE

Technological alternatives include the current ways of constructing houses by manually laying of bricks and using human labour in digging trenches laying pipes and covering them up. Roads construction will also be according to the current technological standards as per the housing and construction sector regulations and budget parameters. No special technologies have been considered other than the current accepted technological ways of doing things as per the accepted standards. It is noted however that details of each technology employed will be approved by the project engineer prior to use.

NO-GO ALTERNATIVE

The no-go alternative to this development implies that the development site remains the same. No vegetation removal will be undertaken, and the environmental issues identified to occur due to the proposed development will not. A no go alternative on the other hand also implies that the proposed benefits envisaged by the developers, both economic and social will not be gained. This may result also in future loss of profit and other benefits that would have been gained from the proposed development. The owner of the property would then lose the value of the property and all future income to be generated or find a means to recover the value (say by selling it to government or any other interested buyer).

7. DESCRIPTION OF THE RECEIVING ENVIRONMENT

7.1 PHYSICAL CHARACTERISTICS

7.1.1 TOPOGRAPHY

The site is located on the sloping sides of a hill. As shown by the contours in Figure 4, and the photograms on Figure 3, slope on the site is generally gentle from the top parts of the hill sloping southerly towards the valley bottom. Slope is not likely to be an issue for the infrastructural development, given that the site is not likely to slope more than 1:3 . Figure 3 is a photograph depicting the topographical character of the site.

8 Figure 2 Hydrological characteristics

Implications for the proposed development

The general topography appears to be conducive for infrastructure development as the site is not likely to fall within the development thresholds of more than 1:3 slope. Generally, slopes that are steeper than 1:3 are not suitable for residential developments.

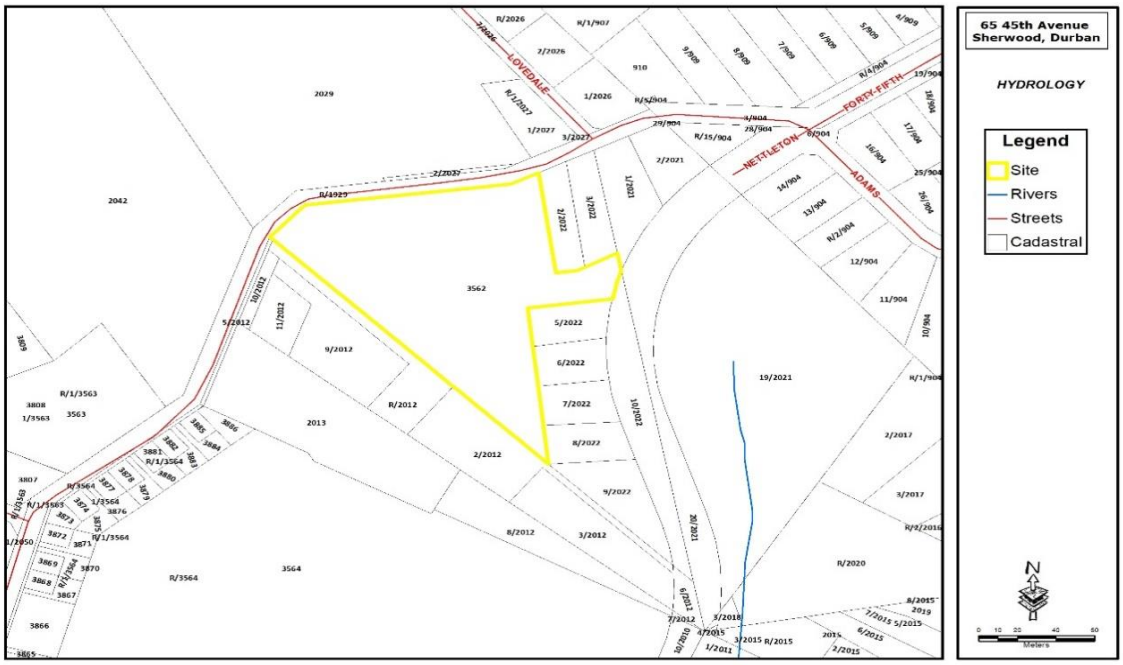
A suitable stormwater management strategy may need to be put in place, to mitigate localised flooding or ponding at the bottom of the hill and nearby drainage lines, due to accelerated surface runoff, after vegetation removal.

9 HYDROLOGICAL CHARACTERISTICS

9.1 RIVERS

Given that the site is located on the sloping side of the hill, there are no significant hydrological features within the footprint of the development. However, a seepage area located within the valley along the southern boundary of the site is the only hydrological feature within 100m of the site. According to the wetland studies undertaken, only a stormwater discharge area at the bottom of the valley next to the end of Nettleton Road. This was confirmed to not be a wetland, after ground truthing undertaken during the wetland studies. Further details can be found in the attached wetland studies report.

Within the broader 500m catchment, two riparian areas were confirmed by the wetland



studies. These are however deemed to be not close enough to be impacted on directly

Figure 3 Topographical Character of the site

Figure 4 Hydrological Features within the catchment

by the development, especially the one north of the site. The riparian area along a seasonal stream located south of the hill as depicted on figure 6 may be impacted on the grounds of storm water discharge into the catchment.

Implications for the proposed development

There are no watercourses in the form of streams and wetlands within the development boundary. The riparian areas found are within 500m which applies to the Department of Water and Sanitation, WULAnprocesses in terms of the National Water Act, (Act 36 of 1998. Additionally, wetlands are important ecological habitats for many aquatic organisms. The wetlands in particular are also important in reducing the velocity of stormwater flow which otherwise would result in exacerbation of erosion and flooding in the area. It is important to conserve the integrity of all hydrological areas within the catchment so that erosion and in some cases, flooding can be controlled in the area. Thus, development planning for the area needs to ensure that wetlands areas on the site are excluded from all developments, and stormwater impacts are well mitigated. All the mitigation measures stated in the wetland report (attached) must be integrated into the planning of the proposed development.

The Ezemvelo KZN Wildlife's guidelines (2017), on freshwater spatial planning implications laid down the following useful principles to be followed:

- There should be no clearance of indigenous riparian vegetation. These should be maintained as erosion and sedimentation control mechanisms which will also provide river movement corridor for wild species.
- A minimum of 20m buffer of undisturbed vegetation soil should be maintained between hard surfaces and the riverine system or at the bank of the watercourse.
- Stormwater management should not be discharged directly into the river system without setting and polishing of the runoff water occurring either through soft or engineering structures.
- Alien invasive vegetation should be removed or cleared from the riparian zones, preferably by chemical means, or if chemical are used, such chemicals must have been determined to be non- toxic to aquatic species.

9.2 FLORA & FAUNA AND GENERAL BIODIVERSITY

In terms of the South African Biodiversity Institute's (SANBI) classification, the site is covered by vegetation type classified as the Kwazulu-Natal Coastal Belt Grassland as indicated on Map in Figure 7. This falls within the savanna vegetation biome (Mucina, L. & Rutherford, M. C., 2006; SANBI, 2016).

According to the vegetation analysis and the information from the KZN Wildlife Biodiversity database, the site falls within a Critical biodiversity zoning. A large part of the site also falls within the Durban Metropolitan Open Space System (D'MOSS). Is noted that an earlier engagement with the Biodiversity Unit of eThekwini Municipality indicated the willingness to relax the DMOSS boundary for about 1ha (10000m^2) of areas considered less sensitive. In view of these identified sensitivities, a vegetation studies were carried out. This also confirms that the vegetation is rather more exotic in species hence may be of less conservation importance.

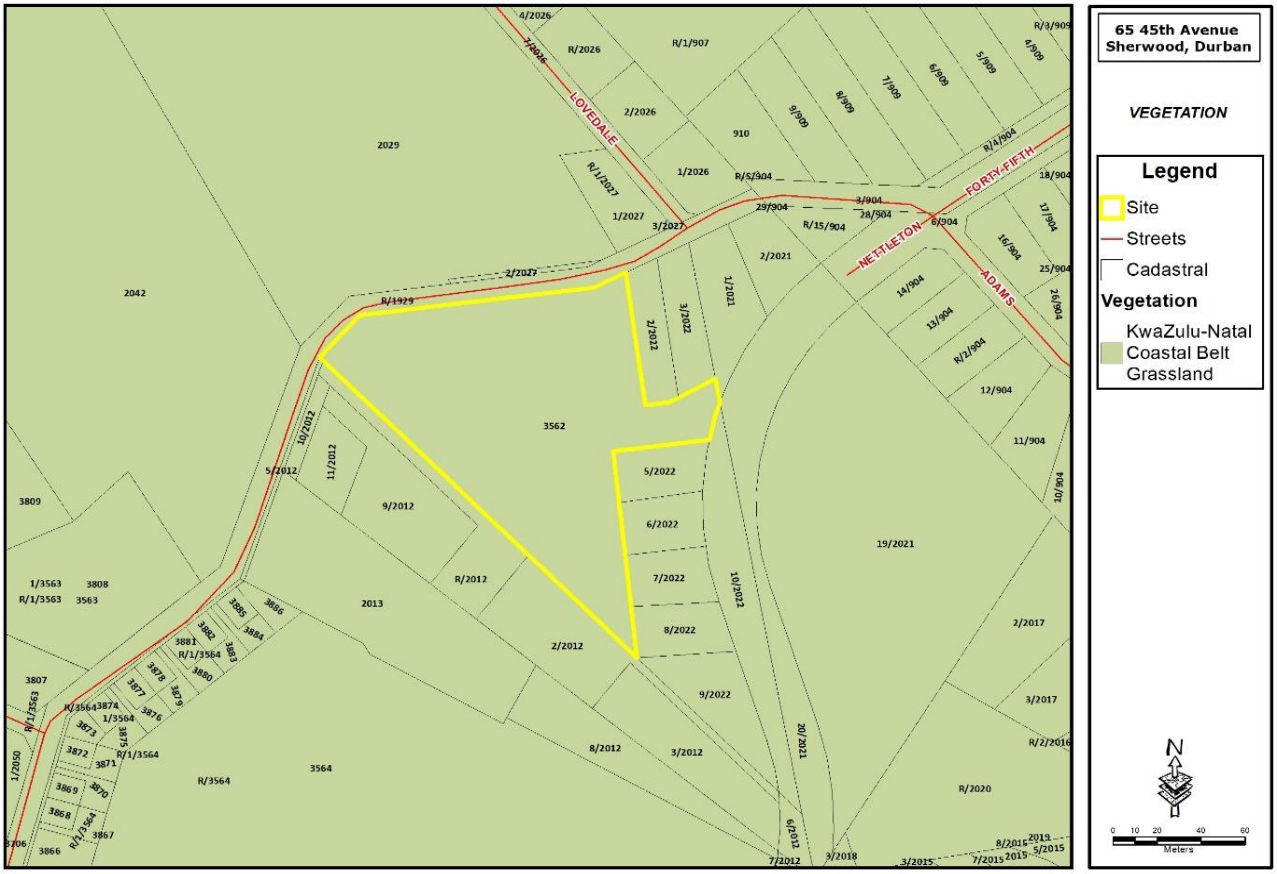


Figure 5 Vegetation Classification /types

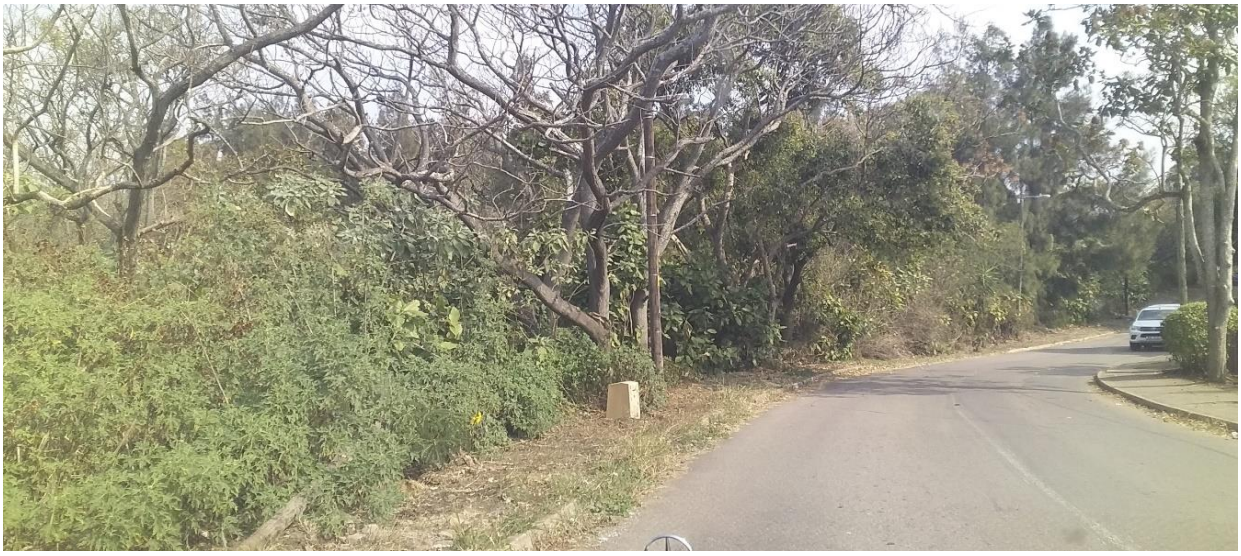


Figure 6 Vegetation character of the site

A few, about 4, (to be precise) protected species were observed in the area, but not within the development footprint, as stipulated by the vegetation studies. The nature of the vegetation on the site consist mainly grassland on the western half and forest of missed trees of mostly exotic species. The grassland, however, remains indigenous and hence removal of it may require environmental approval if it crosses the legal threshold of 1ha.

Implication for the proposed development

The proposed development will entail removal of the vegetation within the development boundary of about 1ha – 1.4 ha. This may have legal implications in terms of the environmental regulations. In terms of GNR 983 of NEMA, as published in December 2014, activity 27 requires an environmental authorisation is required for the clearance

of more than 1 ha of indigenous vegetation for the purposes of commercial or residential development. This implies that an environmental authorisation may be required for the proposed development through an Environmental Impact Assessment process in terms of Section 24 of NEMA (Act 107 of 1998).

12.1.1 FAUNA

Attempts were made during this assessment to identify animal species in the project area, especially within the vicinity of the site. Identification methods such as animal droppings, footprints, nesting areas, sound, and trails were employed. The presence of birdlife however could not be ruled out within the trees on isolates portions on the outskirts of the site. Few birds and other small animals may dwell within the forest habitat.

13 CURRENT ZONING AND COMPETING LAND USES

Currently, the piece of land is vacant. Most part of it is within the Durban Metro Open Space (DMOSS) conservation. This forms the main land use of the site. The intended land use for residential development constitutes the potential land use of the site.

Implications for the proposed Development

Given that the site is confirmed by the vegetation analysis as not falling within any national conservation areas, the potential transformation of the site into residential development may be possible, if the DMOSS boundary is released. The other competing land use is the status quo, which will mean the land remains within the cities, open space system.

MAJOR HAZARDOUS INSTALLATIONS (MHI)

This preliminary investigation did not reveal the presence of any MHI within the proposed area or within the immediate surroundings of the site.

Implications for the proposed development

No issues are expected in terms of such installations.

CULTURAL/ HERITAGE

An initial scan of the site did not reveal any sites or standing structures of historical importance. Given the growth of vegetation on the site, it will be impossible to conduct a full archaeological survey until site clearance. A preliminary study undertaken revel the presence of two old houses that were in the area in 1937 and 1940. These will need to properly survey after site clearance. However, the heritage studies identified Even

though the proposed site does not appear to have any significant heritage, or cultural issues, Amafa KwaZulu-Natali should be made a stakeholder any further EIA process.

Implications for the proposed development

As per the EIA Regulations, a Heritage Impact Assessment (HIA) should be conducted for the transformation of undeveloped sites that are more than 500m^2 in extent. This is to ensure that a complete profiling of heritage resources be undertaken, and necessary development related recommendations and mitigations put forth where necessary. For this development, a clearance from Amafa KwaZulu-Natali may be required should the development proceed. The site walk through will also need to be undertaken after site clearance, which will be after environmental approval. This will need to be done prior to commencement of construction work, to confirm the presence of any archaeological materials in the place of the old houses identified.

13.1 EXISTING INFRASTRUCTURE AND SERVICES

The proposed site is located within the urban metro area where there are already existing services. The site is currently vacant which means all associated settlement infrastructure need to be provided as part of the development. This includes, electricity, which is to be provided from the existing network provided by the municipality. Water and sanitation reticulation is located within the project area, and it is anticipated that the proposed development will be connected to these existing services. The Map in Figure 9 shows the infrastructure mains within the project site.

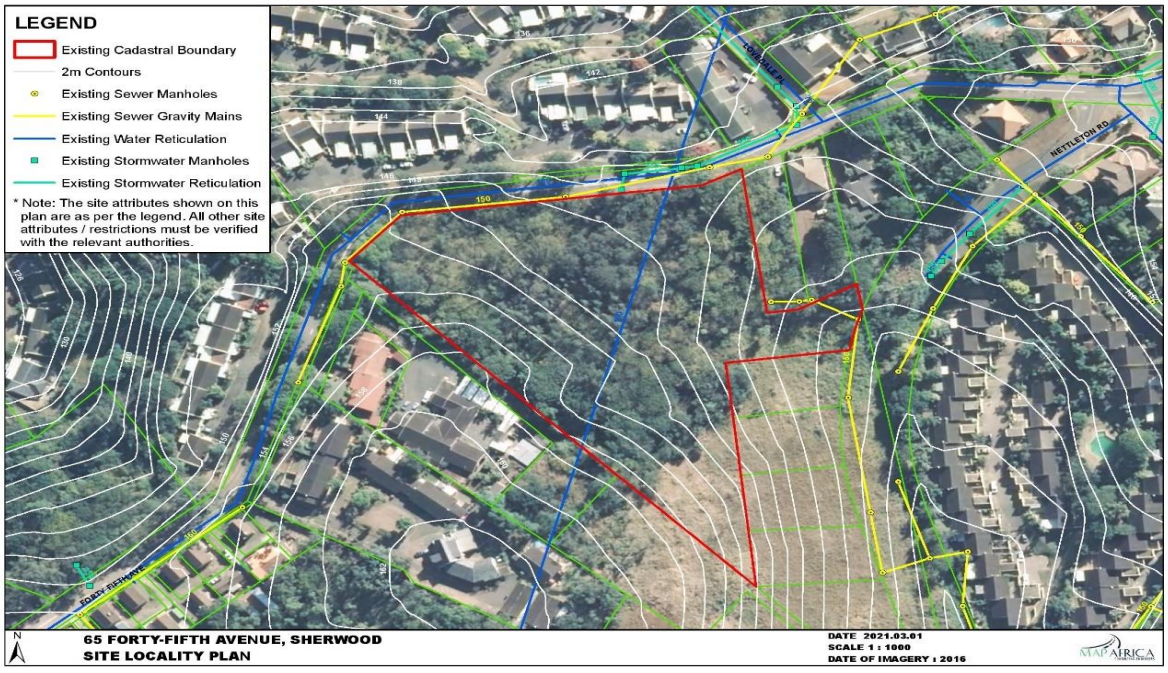


Figure 7 Bulk Infrastructure availability

As confirmed by the infrastructure Map, bulk infrastructure exists in terms of potable water and sewer mains, water mains, storms water manholes and reticulations. This will make it easier for the proposed development to be connected.

IMPACT IDENTIFICATION AND ASSESSMENT

13.2 IMPACT ASSESSMENT AND RATING CRITERIA /FRAMEWORK

The impacts identified have been assessed and rated based on the rating criteria outlined by the Department of Environmental Affairs, as per the guideline documents to the EIA regulations (1998) as amended. This took into consideration the extent, duration, Significance magnitude and probability of the impact occurring, in arriving at the overall significance of the identified impact. Below is a description the methodology utilized in ranking the identified impacts**.**

ASPECT	SCORE/DESCRIPTION	IMPLICATION
(a) Status		Negative impact i.e. at cost to the environment)
		Positive impact i.e. at benefit to the environment
		Neutral effect
(b) Extent	1 Site	Within the boundaries of the site
	2 Local area	Within 10km of the site
	3 Municipal Area	Within the District Municipality and areas less than 100km
	4 Regional	Within the Province (or neighbouring Provinces)
	5 National	South Africa
	6 international	Southern Africa
(c) Duration	1 Immediate / temporal	- < 1 year
	2 Short Term	1 – 5 years
	3 Medium term	6 -15 years

	4 Long term	The impact will cease when the operation stops
	5 Permanent	No mitigation measure will reduce the impact after construction
(d) Magnitude	0 None	Where the aspect will have no impact on the environment
	2 Minor	Where the effects of the environment is in such a way that natural, cultural and social functions or processes are not affected
	4 Low	Where the effects of the environment in such a way that natural, cultural and social functions or processes are slightly affected
	6 Moderate	Where the effects of the environment in such a way that natural, cultural and social functions or processes continue but in a modified way
	8 High	natural, cultural and social functions or processes are altered in such a way that they will temporarily cease or operate in a different ways from usual for the duration of the activity
	10 Very high	natural, cultural and social functions or processes will cease or be altered permanently
(e) Possibility of resulting in Irreplaceable loss of resources	0 Very Low	Will not result in any irreversible or irreplaceable loss in resources
	1 Low	Likely to result is preventable and localized loss to resources
	2 Moderate	Most likely to cause loss if the project is implemented but can be moderately mitigated or avoided.
	3 High	Highly likely to cause long term loss as long as the project remains but can be reverted after decommissioning
	4 Very High	Will result in Permanent loss to resources
	6 Extremely High	Southern Africa and beyond (international)

(f) Probability of occurrence	0 None	Impact will not occur
	0.1 Improbable	Possibility of the impact materializing is very low as a result of design, historic experience or by virtue of implementation of adequate mitigation measures.
	0.25 Possible but unlikely	The is moderate chance that the impact will occur
	0.5 Probable	Impact may occur
	0.75 Highly probable	Occurrence is most likely
	1 Definite / unknown	The impact will occur regardless of the implementation of preventive or corrective actions, or where the probability that the impact will occur is unknown due to lack of information

(g) Significance weighting of the impact (S)

From the above descriptions, the potential impacts are assigned a significance weighting (S). This weighting is arrived at by adding the assigned scores of the extent (E), duration (D), possibility to cause Irreplaceable Loss of Resources (I) and magnitude (M) and multiplying the sum by the probability score (P).

Thus: S = (E+D+M+I) x P

The overall significance weightings scores are categorized below:

SCORE	**Description**	**Interpretation**	**Colour Code**
≤ 2	Very Low		
2-5	Low		
5-10	Medium / Moderate		
11 - ≤16	High		
	Positive		

	Negative		
	Positively High		

DESCRIPTION OF IMPACTS IDENTIFIED

IMPACTS THAT MAY RESULT FROM THE PLANNING AND DESIGN, CONSTRUCTION, OPERATIONAL, DECOMMISSIONING AND CLOSURE PHASES AS WELL AS PROPOSED MANAGEMENT OF IDENTIFIED IMPACTS AND PROPOSED MITIGATION MEASURES

In terms of the criteria for identifying potential project impacts, it is important to list the potential direct, indirect and cumulative property/activity/design/technology/operational alternative related impacts (as appropriate) that are likely to occur as a result of the planning and design, construction, operational phase, decommissioning/closure phase, including impacts relating to the choice of site/activity/technology alternatives as well as the mitigation measures that may eliminate or reduce the potential impacts listed as stipulated in the EIA Regulations 2014/2017 As amended under NEMA (Act 107 of 1998).

For this proposed residential development, the anticipated impacts associated with the proposed development have been identified and analysed using the mixed method approach. This includes site visits, consultation or interaction with key stakeholders, consultation of secondary information or literature, and independent assessment by the project environmental personnel and project officials. Direct impacts that may result from the proposed development include impacts on the biophysical environment, from construction activities such as site clearing, digging, building and installations of pipe infrastructure.

Social impacts include employment and business opportunities that may open for local community to work in the area. Other impacts may result from the operational stages of the development. The list below includes the potential identified impacts of the proposed development. these are rated as per the Impact Assessment Methodology iterated above.

CONSTRUCTION STAGE IMPACTS

Direct impacts

1. Potential Loss of Critical Biodiversity
2. Loss of indigenous vegetation (Flora Impacts)
3. Impact on fauna
4. Impact on Hydrological Resources
5. Noise Impacts
6. Dust / Air Pollution
7. Water Pollution/Surface runoff/Stormwater pollution
8. Soil disturbances and possible degradation
9. Cultural or historical surface sites
10. Visual / Aesthetic impact
11. Hydrocarbon Spills
12. Traffic
13. Health & Safety issues
14. Job Creation
15. Improvement in livelihood of local community
16. Impact on Local services
17. Benefits to local economy - Infrastructure addition

18. Potential contamination from improper waste management

Indirect / cumulative Impacts

1) Potential impacts on local services
2) Assistance in the stimulation of local economy
3) Potential contamination from improper waste management

OPERATIONAL STAGE IMPACTS

1) Noise
2) Forest degradation oil disturbance and erosion activities
3) Dust and air pollution issues
4) Stormwater Management
5) Job creation
6) Visual and aesthetic impacts
7) Traffic issues
8) Health & Safety Issues
9) Impacts on local services
10) Benefits to the community

13.3 CONSTRUCTIONAL STAGE

13.3.1 SUMMARY RATING OF POTENTIAL IMPACTS AND THEIR RATINGS: ALTERNATIVE A (PREFERRED ALTERNATIVE)

	Impact description	Mitigation Required	Nature of Impact	Extent	Duration	Magnitude	Irreplaceable Loss of resources	Probability	Significance Score	Rating
	CONSTRUCTION STAGE									
1	Potential Loss of Critical Biodiversity	Yes		1	5	4	4	0,5	**7**	Moderate
2	Loss of indigenous vegetation (Flora Impacts)	Yes		1	5	5	4	1	**15**	Very high
3	Impact on fauna	Yes		2	5	2	0	0,25	**2,25**	Very Low
4	Impact on Hydrological Resources	Yes		2	4	4	0	0,25	**2,5**	Very Low
5	Noise Impacts	Yes		2	1	6	0	0,75	**6,75**	Moderate
6	Dust / Air Pollution	Yes		3	2	4	0	0,75	**6,75**	Moderate
7	Water Pollution/Surface runoff/Stormwater pollution	Yes		1	2	8	4	0,5	**7,5**	Moderate
8	Soil disturbances and possible degradation	None Required		3	2	6	0	1	**11**	High
9	Cultural or historical surface sites	Yes		1	4	5	0	0,5	**5**	Moderate
10	Visual / Aesthetic impact	Yes		1	2	2	2	0,5	**3,5**	Low
11	Hydrocarbon Spills	Yes		1	1	4	2	0,5	**4**	Low
12	Traffic	Yes		2	2	4	0	0,5	**4**	Low
1	Health & Safety issues	Yes		2	2	6	0	0,5	**5**	Moderate

3										
14	Job Creation	None required		2	2	5	0	0,75	**6,75**	Moderate
15	Improvement in livelihood of local community	None required		3	2	6	0	0,5	**5,5**	Moderate
16	Impact on Local services	Yes		3	2	4	0	0,5	**4,5**	Low
17	Benefits to local economy - Infrastructure addition	None required		2	2	6	0	0,5	**5**	Low
17	Potential contamination from improper waste management	None required		1	5	4	4	0,25	**3,5**	Low
									93,5	Moderate
	Mean Significance Rating								**5,84375**	Moderate

13.3.2 DETAIL SIGNIFICANCE RATING OF IDENTIFIED IMPACTS

	POTENTIAL IMPACTS	SIGNIFICANCE RATING OF IMPACTS (POSITIVE OR NEGATIVE)	PROPOSED MITIGATION:	SIGNIFICANCE RATING OF IMPACTS AFTER MITIGATION:	RISK OF THE IMPACT MITIGATION NOT BEING IMPLEMENTED
1	**Loss of indigenous vegetation/ biodiversity/habitat** From the ecological studies undertaken,	**7 = medium**	Mitigation according to the mitigation hierarchy includes avoidance, reduction/mitigation and restoration. This is applied to the potential	**Moderate**	Vegetation removal on the site may largely not be avoided, but vegetation removal

	some part of the site fall within the KZN Wildlife Critical biodiversity priority areas which is also part of eThekwini DMOSS Zone. The development of the site may result in the removal of the vegetation forest which means a reduction in the DMOSS area. Engagements with eThekwini Municipality biodiversity unit are towards relaxation of the DMOSS Area, as previously discussed with the applicant		impacts as: • The first mitigation is avoidance of the impact. Avoidance is not entirely possible on the site, especially where the development is to take place. However, avoidance is occurring on the remaining portions of the site to be left undeveloped. Here vegetation removal will be avoided 100% and those little portions included in the development servitude or as part of the eThekwini conservation. It could be • Another Mitigation is fencing off the remaining area during construction, to avoid any degradation. • Vegetation removal should be restricted to only what is necessary to accommodate the proposed development. The remaining DMOSS Area should be maintained as per the layout.		needs to be restricted only to the development footprint. The site is still bordered by the eThekwini Conservation site which could be disturbed if surrounding environment are not taken care of.

2	**Impact on fauna** The site currently is occupied by forest in some portions joined to the conservation area. Though the presence of significant fauna pieces were not identified, the presence of some bird pieces habitatting the forest areas cannot be ruled out. The impact on fauna is expected to be very minimal. Limited impacts may occur in the form of noise from machinery, but this is not expected to significantly disturb any fauna in the area.	**2.75 = Low**	It is important to keep the surrounding portions of the site still intact, so that the fauna species on the area to be developed may migrate to those sides. Any fauna caught or spotted during site clearance should be safely released into the surrounding conservation areas. It is advised that low noise machines should be used in the construction stage to avoid excessive distractions.	**Low**	This impact is expected to be limited, the area is close to an already settled community and that there is an alternative habitat for the animals to migrate easily. Should the mitigation measures not be implemented, there may be disturbance during the construction period to any small animal species that may be residing within the forest area.
3	**Possible disturbance to hydrological resources:** The side is largely devoid of rivers and major wetlands. The wetland study scanned the area for any hydrological resources but none within the immediate surroundings were discovered, other than a seepage area or stormwater discharge point along the valley at the bottom side of the site. Also the two wetland areas	**5**	• It is critical that the vegetation cover surrounding the site be maintained, as this will serve as an attenuation mechanism for any stormwater issues. • Also, stormwater attenuation mechanisms must be put in place during construction to prevent any surface water pollution on rainy days.	**Low to moderate**	As it is, there is enough vegetation cover between the site and the said wetland riparian areas (about 400m). If this was not the case, polluted surface runoff from the construction site may

	located within 500m of the site are unlikely to be affected significantly, but the one on the southern side may end up with accelerated or polluted stormwater during construction.				end up in the in the valleys nearby leading to possible downstream pollution.
5	**Noise** Construction stage noise will consist of noise and vibrations by vehicles moving materials and also construction workers. This is likely to cause some irritation to nearby households. This is likely to last during the construction stage and day time if all activities are restricted to day working hours	**6,75 = Medium**	Machinery must be kept in good working order to reduce noise emission. Noise reduction mechanisms must be equipped if necessary. The construction activities must be restricted to normal working hours and during the day, between 8 to 5pm.	**Low**	Should the mitigation not be implemented, for instance where work is carried out into the night, then the nearby households may get irritated. This may be a source of nuisance to the community surrounding the site..
6	**Dust / Air pollution** Air pollution during the construction stage is likely to stem from dust and perhaps fumes and noise from vehicles. The air pollution will affect the employees and surrounding community. However, this can be controlled or mitigated	**6.75 = medium**	Clearance of the site vegetation should be kept to a minimum, and bare soil areas must be kept moist to avoid dust generation. Construction vehicles and machinery utilised on site should be maintained and always be kept in good working order. Protective construction gears should be worn by workers on dusty days, and watering should be applied where necessary keep the ground moist.	**Low**	Polluted air, from dust and fumes or other sources is likely to be a nuisance to the community members. This may also pose a health risk if not mitigated.

			The sideways should be erect at appropriate time, if possible, early to contain the work being done within the premisses.		
7	**Underground water** There is also the Possibility of contamination of underground water as a results of soil pollution if there is any usage of hazardous substance on the site. Mixing of cement and striped soils may pave the ways for siltation into underground water, especially on rainy days during the construction phase. Improper sanitation systems may also lead to underground water pollution. **Surface runoff pollution** Impact on surface water may also be as a result of uncontrolled waste handling, including stockpiles. **Erosion from improper Stormwater management** Given the proposed development regards the removal of land cover in some cases, the potential to create more hardened surfaces is	**7.5 = Moderate**	Equipment or tools with oil or grease is not allowed to be placed on bare ground. These must always be placed on a lined surface. Cement mixing will take place on a lined surface. No Cement should be mixed on a bare surface.	**Low**	Inappropriate handling of waste and hazardous substance on the site can reduce the quality of underground water
			Stockpiles of rubble and topsoil should not be left piled for more than a reasonable time, as may be stipulated in the EMP, but generally not more than 14 days on site. These should be recycled where possible.	**Low**	Should there be no mitigation measures, possibility of storm water pollution during constructionism likely to result. This however, is likely to be localized.
			A storm water management system, in terms of the National Building regulations needs to be implemented by the contractor in the building of the structures. Onsite, drainage systems to be provided. In addition, a stormwater management plan be designed and approved by the engineer prior to the	**Very Low**	Should no mitigation be implemented, this may constitute poor stormwater management which may result in Issues such as localized ponding, sedimentation,

	eminent. Storm water acceleration and localised ponding/flooding is likely to occur. In addition, spillage and waste could be other sources of pollution of storm water. This may lead to contamination of water bodies and underground water.		commencement of construction works on the site.		erosion and pollution among other things.
8	**Soil disturbance/erosion** The proposed activity will result in the vegetation clearance, soil removal, which decreases soil stability and lead to loss of soil resources by erosion, contamination and Soil degradation will also cause an indirect impact on the loss of micro habitats. Soils that are left bare and rehabilitated, may become susceptible to erosion activities. It is noted that some areas within the drainage already shows signs of severe erosion occurring. Further removal of land cover without any	**11=High**	Cleared areas will be mostly occupied by residential units. In the case of areas cleared for pipes and other reticulation work, these need to be revegetated with indigenous vegetation following construction activities, and all excavations will be backfilled with sub soil and topsoil in the reverse order to which the soil profiles were removed. All visible weeds should be removed from topsoil and placement area before replacing topsoil. Contaminated soil by spills should be removed and disposed of as hazardous waste at a licensed hazardous landfill facility.	**medium**	Should the mitigation measures not be implemented, and then there is possibility of the impacts discussed occurring. There will also be additional impacts including air pollution by dust as results of diggings and topsoil removal, and soil erosion will be high given the fact that soil will be left bare exposed to wind and rain.
9	**Cultural and Historical surface sites**	**2.5 =Low**	For now, desktop search on the site, did	**Very low**	N0 issues have been

	The site is currently occupied with thick forest vegetation which makes it difficult to carry out any detailed archaeological processes, without disturbing the vegetation. A quick walkthrough the site did not readily reveal any issues of archaeological concern. A preliminary study undertaken revel the presence of two old houses that were in the area in 1937 and 1940. These will need to properly survey after site clearance. However, the heritage studies identified		not reveal any issues. However, the Heritage specialist should be invited during site clearance so that once the top cover is cleared (after approval), to do inspection of any archaeological features especially on the two previously occupied sites. Any suspicious materials should call the attention of the Heritage specialist (on standby). If any cultural or historical features discovered during the construction, the construction must stop immediately, and the remaining must be reported to the AMAFA KwaZulu-Natali		discovered yet, but the specialist should be on site during site clearance to ensure not such issues are missed.
10	**Visual / Aesthetic Impacts** Visual impacts are likely to emanate from construction activities such as storage of materials, and neglected excavations. **Dumping** of waste is currently happening on some portions of the site along 45th Avenue. This according to some residents is a nuisance because it makes the area looks filthy, so developing the area will help improve the aesthetic view in the long run.	**3.5=Medium**	Material storage during operations should be done at designated areas, in order not to constitute any aesthetic nuisance. Soil stockpiling and excavations should be worked on and the areas restored within reasonable timeframes, to reduce the length of visual impacts. If possible, the fence wall should be erected on the first stages, to keep the construction work within the premises.	**low**	Visual Impacts is most likely to occur if mitigations are not considered which will disturb the eyes and mind of the community. This may cause nuisance also to road users etc.

11	**Hydrocarbon spill/fuel** Oil and fuel leaks and spills from construction vehicles is highly possible during construction phase. This is likely to contaminate storm water and also source possible contamination or pollution of the soil, if not properly managed or prevented.	**6.5 = medium**	Mitigation measures for this kind of risk includes prevention and management. Ideally, the spillage of such oils and fuels should be prevented at all cost. But where any of such incidents occur, prompt remedial actions should be taken. Examples of which include cutting the site and disposing appropriately, say in a registered landfill. Where necessary all vehicles suspected with leakages should be immediately fixed. Fuels and petroleum product storage should be undertaken on sealed hard surfaces, which are possibly lined, to prevent any dripping into the soil and grass. All foremen of operators of such vehicles should be educated on this, and the vehicles should be well maintained and checked regularly for any such leakages. The health and safety rules as stipulated by the department of health should be well enforced during the construction	**low**	If all the mitigation measures are implemented, the impact should remain low. However, should this not be the case the risk of potential contamination is high. This may lead to contamination of underground water, soil pollution and disturbance of the bio-equilibrium among other negative effects

			and operational faces.		
12	**Traffic** Traffic during construction stage is likely to stem from the construction vehicles moving materials to and from the site, via the existing road networks. This may cause some inconvenience to local residents especially on 45 avenues, if not properly mitigated. The first layout proposes 140 units, which may lead to little more traffic compared to layout 2 with 87 units.	**4=Low**	Traffic control measures should be put in place during the construction to avoid unnecessary congestion. Proper signage should company any planned roadworks, and disruption of traffic. Traffic must be spread on the two access roads. Vis. Nettleton close where possible.to avoid any connection.	**Very low**	If the mitigation measures are not implemented, there will be a high chance of unnecessary traffic disruption.
13	**Health & Safety** The movement of machinery, storage of materials, and excavations are possible sources of safety issues during construction stage. Neglect to any health and safety measures may result in injury to both workers and any other persons who may find themselves on this site. This requires a strict enforcement of the national health and safety regulations pertaining to construction sites.	**5 =Low**	The risks of accidents and injury can be minimized by the implementation of safety procedures. Proper health and safety measures should be put in place during the implementation of the proposed development. Health and safety plan should be prepared and approved by the engineer prior to construction. The Occupational health and safety procedures as outlined by the department of Health should be put in place prior to the commencement of work. Safety equipment such as fire	**Very low**	Should these mitigation measures not put in place, these may constitute violation of the health and safety regulations. This may also leave workers exposed to all kinds of risks. Should any incident occur, this may leady to prolonged waiting for help, which may lead to loss of property for, instance in

			extinguishers, First Aid boxes, and other safety appliances should be readily available and administered by a trained safety officer. Proper safety measures also need to be implemented with areas of dug trenches barricaded off.		the case of fire.
14	**Job creation** The construction phase of the proposed development is likely to create temporary additional jobs for the local area. Jobs will be created during construction as labours, masons and other workers may be required. This is likely to impact positively on the local economy as more people getting employment may spiral some level of livelihood improvement	**7.5 = medium**	No mitigation is required	**High**	N/A
15	**Impact on Local services** The proposed development is within a an existing residential area. Also some services such as road usage and water connections may be disrupted temporarily during construction. Electricity is within the area and	**4.5 = Low**	Given the proposed technology that involve mostly manual or human labour and auto-powered machines and construction vehicles, the impact is expected to be low. Any disruption in services, should be	**Low**	Disruption in services without adequate notification may be a source of irritation for affected community. However, with proper mitigation measures,

	will service the proposed development. The impact on roads, may mean little more traffic during construction. The capacity of Sanitation infrastructure for the additional people within the estate need proper consideration.		preceded with ample and adequate notifications of the affected areas. Services should be restored within the shortest possible time. There is municipal sanitation bulk lines through the site to which the proposed development will be connected.		these should be mitigated.
16	**Benefits to local Economy** The spill over of the construction stage employment and sourcing of materials from local suppliers will go a long way in providing socio-economic benefit to the community as a whole. More income in the pocket of community members means, more purchasing power, leading to the stirring of economic acidity in the local economy.	**5=Medium**	None required	**Medium**	N/A

13.4 OPERATIONAL STAGE

13.4.1 SUMMARY OF POTENTIAL IMPACTS AND THEIR RATINGS

	Impact	Mitigation Required	Nature of Impact	Extent	Duration	Magnitude	Irreplaceable Loss of resources	Probability	Significance Score	
	Operational Phase									
1	Potential Loss of Critical Biodiversity	Yes		1	5	4	4	0,25	**5**	Low
2	Possibility of degradation of indigenous vegetation	Yes		1	3	5	4	0,25	**3,25**	Low
3	Impact on fauna	Yes		2	5	4	0	0,25	**2,75**	Low
4	Impact on Hydrological Resources	Yes		2	4	4	0	0,25	**2,5**	Low
5	Noise Impacts	Yes		2	1	6	0	0,5	**4,5**	Low
6	Water Pollution/Surface runoff/Stormwater pollution	Yes		1	2	6	2	0,5	**5,5**	Moderate
7	Risk of injury /damage from storm and strong winds	Yes		1	4	5	3	0.5	**6,5**	moderate
8	Visual / Aesthetic impact	Yes		1	2	2	2	0,5	**3,5**	
9	Traffic	Yes		2	2	4	0	0,5	**4**	Low
10	Job Creation	None required		3	2	5	0	0,25	**2,5**	Low
11	Improvement in livelihood of local community	None required		3	2	6	0	0,5	**5,5**	Moderate
12	Impact on Local services	Yes		3	2	4	0	0,5	**4,5**	Low
13	Benefits to local economy - Infrastructure addition	None required		2	2	6	0	0,5	**5**	Moderate
14	Potential contamination from improper waste management	None required		1	5	4	4	0,25	**3,5**	Low
	Mean Significance Rating								**3,75**	0

13.4.2 DETAILS OF IMPACT ASSESSMENTS AT OPERATIONAL PHASE PROPOSAL (PREFFERED ALTERNATIVE)

	POTENTIAL IMPACTS:	SIGNIFICANCE RATING OF IMPACTS (POSITIVE OR NEGATIVE):	PROPOSED MITIGATION:	SIGNIFICANCE RATING OF IMPACTS AFTER MITIGATION:	RISK OF THE IMPACT AND MITIGATION NOT BEING IMPLEMENTED
1.	**Potential Loss of Critical biodiversity** The site will still be next to the conservation area hence the potential of people wandering into these areas is possible if no mitigation is put in place.	**3 – Very low**	It is important to maintain the integrity of the remaining conservation areas. Site should be fenced off from the residential part, to avoid people indiscriminately cutting down the forest or degrading the surrounding areas.	**Low**	If fencing is not done, and site not monitored, possibility of people venturing into the neighbouring area where degrading may occur.
2.	Possibility of degradation of indigenous vegetation	**3.25 Low**	It is important to maintain the integrity of the remaining piece of land and the surrounding areas. Site must be fenced off to avoid people indiscriminately wandering the conservation areas.	**Low**	If fencing is not done, and site not monitored, possibility of people venturing into the neighbouring areas may occur.”

3.	**Impact on Fauna** The newly established estate may take away pat of the forest. Also, additional number of residents, may also increase human activity within the area, more than it is now. This may affect the lifestyles of birds in the area, though this is likely to be minimal.	**2.75Low**	It is likely that all life within the area will adjust to the "new normal". However, unnecessarily disturbance of wildlife within the forest should be avoided.		No major issues are expected, as most of the remaining conservation areas fenced off anyway.
4.	**Noise** Noise levels are likely to be back to normal during the operational stage. However, being an estate of many people, noise level may slightly be higher, than it is now, though may be within residential levels. Noise from parties, and other activities may contribute to this.	**4..5 Low**	It is important to include within the occupancy agreements, clauses that reminds residents to respect the rights of others, neighbours and to act within the normal residential laws. Security should be provided at the gates, to monitor such situations.	**Low**	Noise if not checked, may be nuisance to other neighbours. However, being a matured or middle income market target, it is likely this may not arise at all. Also, the forest and windy nature of the are may help absorb most of the noise.
5.	**Water pollution (water courses)** During operational stage, the handling of waste and other chemicals such as disinfectants could be possible sources of surface water pollutions. Improper stormwater management may result in contamination of surface water	**5.5 Moderate**	• Waste management should be included in the responsibilities of the local authority and carried out regularly to avoid any contamination of the environment. • Stormwater management should be catered for and monitored regularly. • Waste collection and management should also be monitored to	Low	Should there be no mitigation measures; possibility of stormwater pollution during the operation is likely to result. This is likely to be localized. Local water systems and drainage systems may be contaminated if not properly managed.

			ensure no spillage and contamination		
6.	**Soil disturbance /Erosion** At operational stages, potential disturbances to the soil are likely to stem from the areas left bare from construction stage, not rehabilitated. These if not properly monitored and attended to may be prone to erosion activities. Soil erosion activities may cause degradation in the land if not checked in time.	**Low 3.5**	Striped surfaces should be utilized immediately. Stormwater management mechanisms need to be put in place to reduce or attenuate the possible effects of surface runoff. Residents should be advice not to indulge un unnecessary removal of surface cover.	Low	Should the mitigation measures not be implemented, and then there is possibility of the impacts discussed occurring.
7.	**Storm water management** Given the proposed development regards the removal of land cover, the potential to create more hardened surfaces is eminent. Stormwater acceleration and localised ponding is likely to occur. In addition, spillage and waste could be other sources of pollution of storm water. This may lead to contamination of water surface bodies and underground water.	**4.5**	• A stormwater management system, in terms of the National Building regulations needs to be implemented. Onsite, drainage systems should be provided. • In addition, a stormwater management plan should be designed and approved by the engineer prior to the commencement of construction works on the site. • Proper stormwater discharge points should be identified and implemented as part of the stormwater channelling	**Low**	• Should no mitigation be implemented, this may constitute poor stormwater management which may result in Issus such as localized ponding, sedimentation, erosion and pollution among other things.

			mechanism.		
8.	**Job Creation** Operational phase of the development may however see fewer jobs. Potential jobs may include maintenance staff and skilled labour work such as engineers overseeing and monitoring operation of services by the estate management. Waste collection is also likely to generate some form of job avenues for some local community members.	**4.5**	**N/A**		Should the development no be implemented, then the iterated or envisaged positive impacts are not likely to occur.
9.	**Visual impact** At operational stage, visual impacts are expected to normalise. The new structures should have interested into the new view of the area and become the new reality. Aesthetic view or the new view of the community is rather expected to improve, as new residential structures are put in, and roads are well structured and well formalised. After the development is completed, the aesthetics will also change. The areas currently being used for illegal dumping will now be cleared and replaced by fenced residency. On the other hand, the improper handling of waste, especially on the public waste collection	**2.5 = Low**	Any materials left during construction should be cleared, as part of site closure, before contractors leave site. Waste should be organised in such a way to reduce any aesthetic nuisance. Waste storage sites should be properly designated during operation to ensure minimal aesthetic discomfort to community members. The design of the estate is such that, it is mostly hidden within the height of the forest canopy. Also it is noted that a modern design type is selected so to fit in the existing houses tyes.	**Very low**	Aesthetic or visual impacts are expected to normalize drastically during operation if all care is taken during stockpiling of materials and waste.

	points may look aesthetically nuisance				
10	**Visual Aesthetic Impacts**		• No mitigation needed in this case • ,		• Should be development not be implemented, then the site may still be continued to be used for illegal waste dumping. Should the waste management not be implemented during operation, then some areas may look deplorable and unpleasant.
11	**Traffic** Traffic during operation may be from vehicles moving goods to and from the estate. Additional number of people may put some more pressure on 45th Avenue and Nettleton Close. This may result in traffic congestion at the entrance.	**3.5 = Moderate**	• The strategies suggested in the earlier layout is to consider the opening of two entranced to the development one on 45th avenue, and the other on Nettleton Close, so to spread the movement of cars rather than having them all lign-up to use that one entrance. • Proper signage and traffic control measures need to be put in place to ensure free flow of traffic during operational stage. • Also the expansion of the entrance lane to create a refuge slide lane	•	• Improper signage and traffic control measures such as speed limits may result in traffic situations, inconvenience and in some cases possible accidents. • Should the Sandy Lane not be properly configured, there may be congestion n at the gate during pick periods.

			into the property or a refuge middle lade may allow the quick flow of cars.		
12	**Impact on Local services** The area as it is seeming to be characterised by several upcoming residential developments. There is therefore services already it he area to which the development will be connected, mostly municipal services. According to the engineering services analysis, the is availability of enough services to service the proposed development. However, connection, electricity, roads and public transport require regular monitoring otherwise the pressure on services may increase without notice.	**5.5 = Medium**	Potential impacts on local services during operation are expected to be low as the specialist studies have modelled. The new population size should be incorporated into the future planning of the area, to ensure that the population does not outgrow the available service sanitation as roads, water and sanitation.		

13.5 NO GO ALTERNATIVE

Potential impacts:	Significance rating of impacts (positive or negative):	Proposed mitigation:	Significance rating of impacts after mitigation:	Risk of the impact and mitigation not being implemented
A no go alternative for this development implies that the land remains as it is currently and not developed. The envisaged job creations and economic stimulation may also not occur. A no go alternative also mean that, the owner of the property may not benefit from the envisaged revenues from the proposed development. This may lead to loss of income and cost of the value of the land.	**Moderately High**	From the assessments above, it appears that the issues identified can be adequately addressed. With the specialists' studies indicated the less significant status of the vegetation and biodiversity, which buttress the municipality's consideration to relax the DMOSS area initially. With this in mind, a No-go alternative may be unnecessary, as it may negatively impact on the owner of the property, and deny potential beneficiaries from the development, as well as the municipality from potential future revenue. Should a no-go alternative be employed, then the land should be monitored under the DMOSS	Low	Should the mitigation not be implemented, then the issues described in the impacts section will continue as they currently are, but with possible economic loses, especially to the owner of the property.

			programme to ensure the integrity of the vegetation. A no-go alternative also may mean that the municipality should find a way to compensate the owner of the land appropriately so that no income loss may occur. The no go alternative also may mean that the land be disposed off by the owner, to avoid capital cost or lost.		

14 CONCLUSIONS AND ENVIRONMENTAL IMPACT STATEMENT

The development proposed the establishment of residential units on plot 65 on 45th avenue. The most significant impact of the development is on the indigenous vegetation. The purpose of this exercise is to report on the assessment undertaken, taking the assessment of potential impacts into account, to give an environmental impact statement that summarises the impact that the proposed activities may have on the environment and what alternatives and mitigations can be applied.

In terms of the EIA Regulations 2014 and 2017 as amended, with specific reference to types of impact, duration of impacts, likelihood of potential impacts occurring and the significance of impacts.

This assessment looked at one site alternative. The variation however lies in the different layout alternatives that are being considered, and which may yield different number of units. Other market factors rather determine the viability of this units.

From environmental perspective, this variant layout will all have similar or same impact on biodiversity or vegetation removal, since they are all within the same development footprint.

The number of yields, however, will impact bulk services and infrastructure such as impact on traffic, water, and sanitation during the operational stages.

It is concluded that the changes in the impacts discussed may not be major as there different in units is not much. These number of yields however are important in considering the assessment of the bulk services needs.

Alternative A_ The Proposal

Biophysical environment

Slope and topography: The proposed site is gentle sloping as the site is located along the sloping sides of a hill. on the top parts, closer to Strathcona Drive, but slopes steeper on the bottom half towards the sea. This makes the bottom halve undevelopable and is to be excluded from the development.

Vegetation/biodiversity: The site is currently occupied with pristine vegetation currently falls within eThekwini DMOSS zones. The site does not fall within the broader critical biodiversity classifications of KZN Wildlife but rather within the terrestrial DMOSS area of eThekwini Municipality, of which the biodiversity studies concluded that there are no red-flag or protected species within the development footprint. Agrees with the initial agreement with the municipality to relax the DMOSS area on about 1ha, due to the fact that that potion is no longer of biodiversity significant. The proposed development will result in the clearing of about 1.5 to 2ha of the site vegetation. Since removal is not avoidable, it is important that only what is needed is cleared. The remaining vegetation thus will need extra care to maintain its integrity. The obligation will be on the estate management in collaboration with eThekwini Municipality to monitor the vegetation and ensure no degradation occur, especially on the remaining section of the site and the immediate neighbouring surrounds conservation areas.

The clearing of vegetation is likely to result in further exposing the land and possible surface runoff pollution during construction. This can be mitigated by implementing appropriate stormwater management strategies, including proper channelling of the stormwater during construction and operational phases.

Impact on fauna is expected to be moderate to low. This is due to the low presence of fauna. Any animal species within the development footprint may find home in the remaining forest and surrounding forests. The site is expected to be fenced, which means that small game species may not be able to move into the site easily excerpt for the birds. this seems to be normal practice as all surrounding houses and estates are fenced that way. This will largely prevent small games from crossing to the site and be killed by residents. Eg, should small snakes enter the estate, they will largely be killed out of fear. Fencing the estate therefore will prevent some of these occurrences. Also, maintaining a 2m buffer around the fence, as shown on the preferred layout is considered useful and this can be used for maintenance work without having to disturb the remaining forest.

Other impacts that were identified, for the construction phase are noted to be mitigatable.

Noise and dust, and oil spillage can be mitigated by avoiding and managing the occurrences. Impacts during the construction stage may be short term and may end when construction is completed. Other than the permanent loss of the vegetation, all other impacts are mostly not likely to result in irreplaceable loss to the environment if all recommendations given herein are adhered to.

Operational stage impacts on the natural environment can also be mitigated if proper strategies are put in place. The possibility of mitigating these impacts reduces their significant levels considerably, to low significance. The neglect of mitigation measures, such as waste management and prevention of encroachment on the remaining forest, could result in severe health hazards. This therefore infers the need to take the recommendations made herein and in all applicable regulations and guidelines seriously.

The traffic expected to be generated from the development is noted to be accommodated by the existing infrastructure.

Solid waste management is to be undertaken by the municipal waste stream, and backup by estate management. Sanitation is to utilise percolation system, and the municipal reticulation system as backup.

Socio economic impacts during the construction stage will include employment opportunities, for both labours and suppliers of construction materials. The spiral effect of these will contribute to the improvement of economic activities during this period. This is mostly

temporal.

During operational stage, few people are likely to be employed on permanent basis, like in waste collection and maintenance services of the municipality. This may reduce the unemployment in the area further and bring improvement in livelihoods of the local community.

The proposed development is targeted at people working within the Durban Metro which will add to the infrastructure of the city. This may yield extra revenue for the municipality as well as provide services such as houses for the new owners. Others may also gain business opportunities in the property business.

Both layouts may result in similar impacts as far as biophysical environment is concerned. However, the first layout may produce fewer units which means fewer people in the area, meaning less traffic compared to the three-bedroom block of flats. However, from an economic point of view, the block of flats may yield more thereby providing higher economic spinoff, but with relatively higher traffic volumes.

From this assessment it is concluded that both alternatives are technically feasible, and the authorisation may be granted on the site and vegetation removal as the activity triggered. Any of the alternatives could be implemented with associated mitigation measures, if approved.

15 RECOMMENDATIONS & CONDITIONS

From this assessment of the biophysical and socioeconomic environment, it is noted that the proposed impacts identified can be mitigated. The construction stage impacts such as noise, dust and stormwater issues, will generally last during construction stage, however vegetation removal will be permanent.

Vegetation removal will be avoided on the remaining site. Mitigation can be applied to reduce the impact, by reserving some of the trees, that are not in the way, and also fencing off the remining section not being developed.

Given the above considerations that the identified impacts can be mitigated, it is our opinion that the site be allowed to be developed with mitigation and proper care in terms of stormwater and traffic management.

Small scale employment opportunities may also be generated during construction and operations stages.

In addition, the following recommendations and conditions are provided:

- It is recommended that the mitigation measures suggested in this report herein be taken seriously and considered during the implementation of the proposed development to minimize the effects of the identified impacts.
- As concluded by the Geotechnical Studies, the development is feasible for light structures with shallow foundations. This could be considered in the execution of the development.
- From the information gathered and based on this Basic Assessment Process, given that the identified impacts can be mitigated, it is our opinion and recommendation that the development may be allowed to proceed given the socio-economic benefits it may yield as a whole.
- From the specialist studies,
    - A walkthrough of the site be conducted by the ecological specialists during site clearance on the development footprint, to ensure recommended plant species are retained, and small plan species worth conserving are also removed for temporal storage and replating into the garden arears. .
    - The heritage specialist also must be present to conduct walk though of the site once site is cleared, to be able to identify if there are any archeological features with considering further, before the development takes place. AMAFA should be contacted immediately if any issues are identified, and the necessary protocols followed.
    - As per the ecological studies recommendations, the remaining site under DOMSS should be incorporated into conservation plan or sold back to the Municipality. Conversations between eThekwini municipality, and the applicant and the development need to occur for appropriate conservation plan and strategy. KZN Wildlife can also advice as necessary.
- All additional recommendations and conditions from the specialists' studies be taken into consideration in conducting the development, should environmental authorization be given.

- It is important that an independent environmental control officer be appointed to monitor the construction activities, in terms of the EIA regulations requirements, and to ensure that the EMPr is fully implemented, and recommendations made herein are monitored.
- Project implementation monitoring and audit report should be regularly submitted to the competent authority to ensure all conditions and mitigation measures and proper due diligence is being applied.

REFERENCES

REFERENCES

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16 APPENDIXES

Appendix 1: Facility Illustration (Further details) and Maps

Appendix 2: Public Participation report

Appendix 3: Specialises studies

Ecological Habitat Assessment

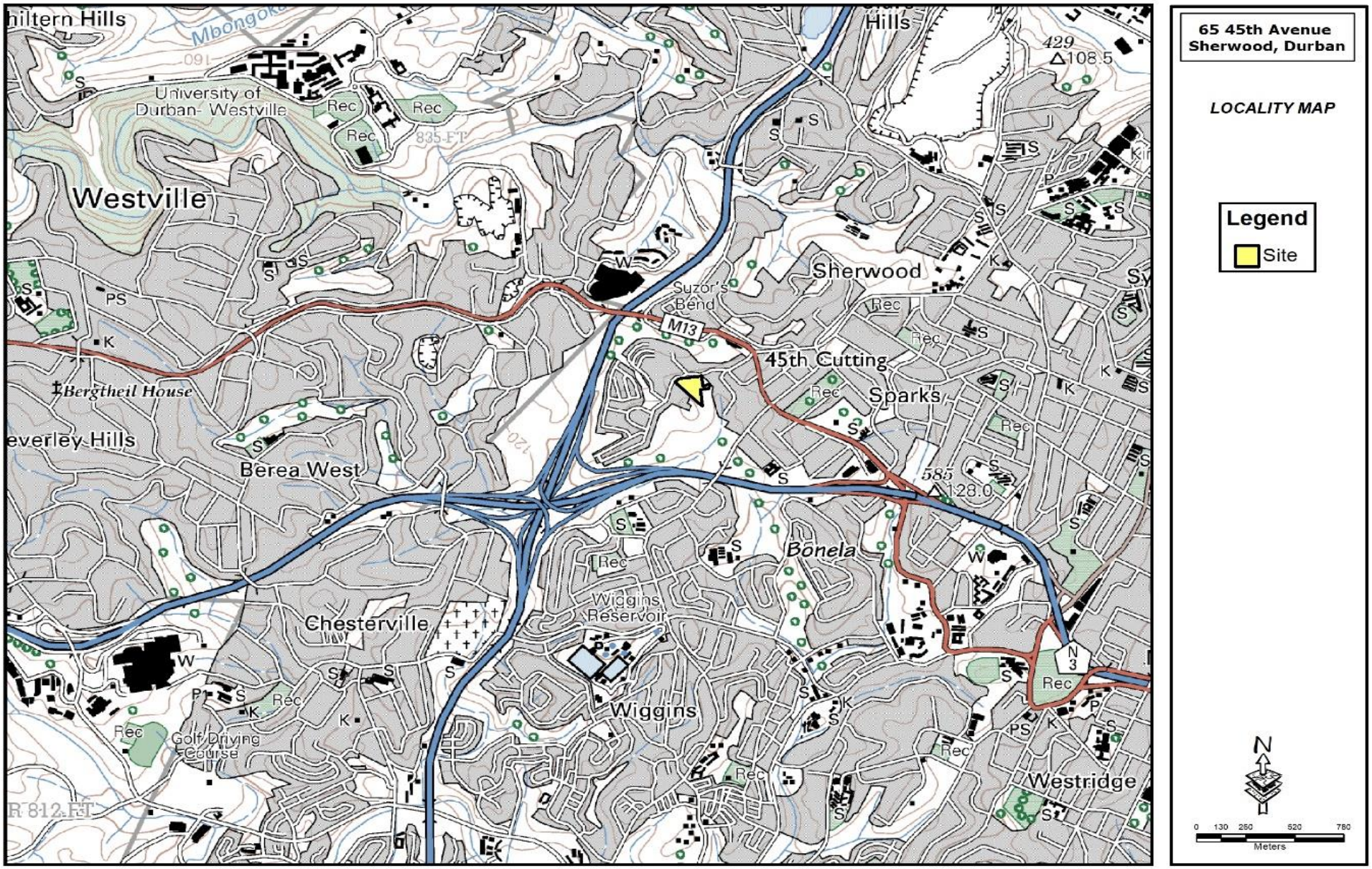
Geotechnical Studies

Heritage Impact Studies

Appendix: 4 Environmental Management Programme (EMPr)

Appendix 6: CV of EAP

APPENDIX 1 FACILITY ILLUSTRATION (PREPARED LAYOUT)




65 45th Avenue
Sherwood, Durban
AERIAL
Legend
Site
Streets
Cadastral
LOVEDALE
NETTLETON
FORTY FIFTH
ADAMS
N
0 10 20 40 60
Meters

Alternative layout (discarded)

THE PROPOSAL

65 45th avenue, sherwood
2-bed walk-up flats, 3-storey sectional title scheme.

ERF 3562.

key

dwelling units (DUs)

2-bed walk-up flats

permeable paving + vehicle courts

for 165 cars

north

Dwelling Unit Yield

site 1 block A		6 units
	B+C	12
	D+E	12
	F+G	12
	H+J	12
	K	6
	L+M	12
	N+P+Q	18
	R+S	12
total		102 units
site 2	T+U	9 units
site 3	V+W	9 units
total		18 units
total sites 1 to 3		120 units

kirk white, Architect, pr.arch., m.i.arch. saia-kzn
131 ridgecrest, 15 berriedale rd, berea, durban 4001
tel+fax: (0)31 - 207 3298, 073 - 8558 145
kirkwhite@eastcoast.co.za
SACAP reg. #5687

THE ALTERNATIVE

65 45th avenue, sherwood
2-bedroom duplex sectional title scheme.

ERF 3562.

key

dwelling units
2-bedroom duplexes

permeable paving +
vehicle courts

north

Dwelling Unit Yield

site 1 block	A	5 units
	B	7
	C	8
	D	8
	E	8
	F	11
	G	13
	H	8
total		68 units
site 2	J	7 units
sites 3+4	K	12 units
all sites		87 units

kirk white, Architect, pr.arch., m.i.arch, kz-nia
131 ridgecrest, 15 berriedale rd, berea, durban 4001
tel+fax: (0)31 - 207 3298, 073 - 8558 145
kirkwhite@eastcoast.co.za
SACAP reg. #5687

Initial Concept - Discarded


Sherwood
Conservation Area

APPENDIX 2 : PUBLIC PARTICIPATION REPORT

Public Participation Report

Basic Assessment Process for
65 45th Avenue, Sherwood, Durban)

BIZYCON PTY LTD

KZN: 15 Eugene Marais Road, Napierville, Pietermaritzburg 3200P O Box 1978 Pietermaritzburg 3200
GAUTENG: Unit 77, Block 4, Riversands Business Hub, Ext4 Fourways, Midrand
Tel +27 (0)776 ♦ Cell +27 (0) 719212618 ♦ Fax+27- 86 776 33 25 ♦
Email maccarthy@developmentimpact.co.za www.developmentimpact.co.za

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6 (i) SITE NOTICE 89

6 (ii). NEWSPAPER ADVERTISEMENT 98

6 (iii). BACKGROUND INFORMATION DOCUMENT (BID), AND DISTRIBUTION LIST ..... **Error! Bookmark not defined.**

1. INTRODUCTION

This report is a summary of the public participation process undertaken as part of the Basic Assessment process curried out for the residential development no plot 65 on 45th Avenue in Sherwood, Durban . So far, the public participation processes as agreed to at the Pre-application meeting and also in terms of the EIA Regulations, include mainly informing potential interested and affected parties. These site notice, and interacting or informing those residents close to the site, government stakeholders who may be related to any aspects of the development or EIA process and the general public of the area. The public Participation process undertaken so far include placing site notice, informing neighbours, advertising in the newspaper. This report is being distributed to stakeholders for comments. This report summarises the activities carried out and outcomes to date.

2. PUBLIC ADVERTISEMENT

2.1 Site notices

Site notices where laced within site itself. Photographs of some of the Site Notices are attached in Appendix 2 (i).

2.2 Newspaper advertisement

An advert is prepared and will be placed in the nearest newspaper that circulates in the area for public access of information. Copy of the advert will be included in this public participation report for the final submission 2(ii).

3. BACKGROUND INFORMATION DOCUMENT (BID)

Background Information was prepared and distributed within the community of Sherwood to those within at least 200m of the site. Comments received and Reponses will be attached to this report before final submission

4. PUBLIC MEETINGS

None

5. COMMENTS FROM STAKEHOLDERS

The draft basic assessment report (BAR) has been distributed to key stakeholders (relevant government departments and municipalities) for comments. Any comments received are inculcated into the final report to be competent authority. These are included below in 2 (iv).

The draft BAR distribution table summary is presented below.

Name of Stakeholder	Draft BAR Distribution status	Comments Received (Yes/No)	Comments Attached in Final BAR (Yes/No)
KZN Wildlife	Hard Copy Delivered	Yes	Yes
Amafa KwaZulu-Natal & Research Institute /SAHRA	Hard Copy Delivered	Yes	Yes
Department of Water and Sanitation	Hard Copy Delivered	Yes	Yes
Department of Economic Development Tourism and Environmental Affairs (EDTEA)	Hard Copy Delivered	Yes	Yes
eThekwini Local Municipality	Hard Copy Delivered	None Provided	Not
General Public/Community	Registered I&APs will be informed of the availability of the BAR Copies will be delivered or emailed to such parties. Assess links will be sent to those who registered to read and comment if they wish to.	None received	See attached


BIZYCON

6 (I) SITE NOTICE

PROPOSED RESIDENTIAL DEVELOPMENT ON STAND 65, 45TH AVENUE, SHERWOOD, DURBAN

BASIC ASSESSMENT PROCESS

BACKGROUND INFORMATION DOCUMENT (BID)

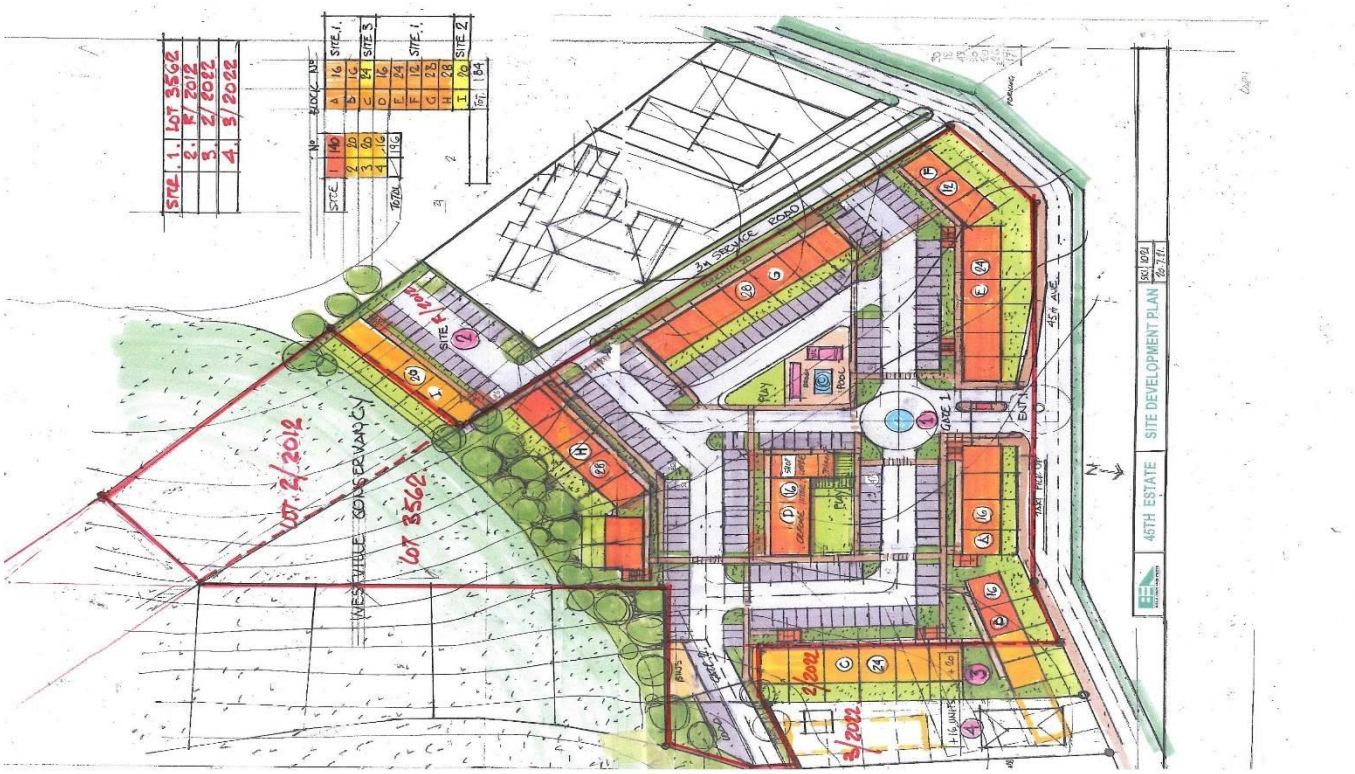
BACKGROUND

Notice is hereby given that MIFKM INVESTMENTS (Pty) Ltd, represented by Ms Mariam Sheik, intents to undertake a housing development on stand 65 on 45th Avenue in Sherwood. The proposed development is intended to accommodate about 9 blocks of flats, with various number of units per flat. This will be accompanied by the necessary settlement infrastructure including internal roads, packing and recreational unit. Portable and electricity will be connected to the available network that traverse the site.

As per the provisions of the Environmental Impact Assessment (EIA) Regulations, GNR 327 of December 2014, under the National Environmental Management Act- NEMA (Act 107 of 1998 as amended) an environmental impact assessment is required to identify any potential impacts, be it negative or positive, that the potential development may have on the environment or vice-versa.

DESCRIPTION OF THE PROPOSED PROJECT SITE

The site is a currently vacant piece of land on stand 65 on 45th Avenue in Sherwood Suburb of Durban. It is currently undeveloped and occupied by forest vegetation on a gentle sloping side of the hill. The GPS Mapping of the site is 29°50'3.52"S 30°57'57.85"E.



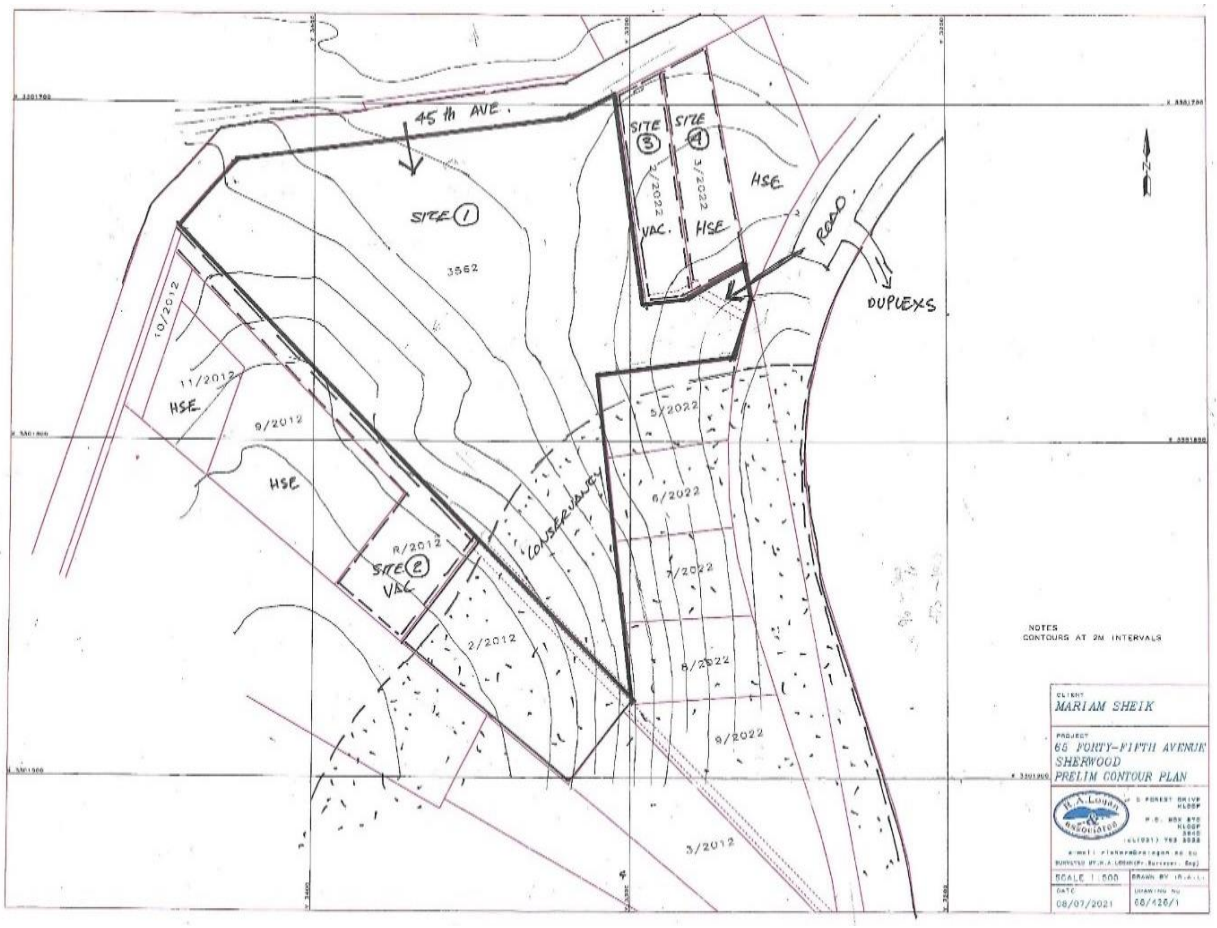
Environmental Process & Considerations

This triggers activities within Listing Notice 1 (GNR 327) of Dec 2014 as amended under the National Environmental Management Act (Act 107 of 1998). A Basic Assessment (EIA) process is being undertaken by Bizycon (PTY) LTD and an application for authorisation for this project will be submitted to the KZN Department of Economic Development, Tourism & Environmental Affairs (EDTEA).

All Interested and Affected Parties (I&APs) may submit their names, contact details and written interest or comments relating to the above development to the contact persons given below within 30 days of the date of publication of this advertisement.

Your involvement

Environmental Assessment plays a vital role to ensure that it provides the necessary and adequate information on which to base the decision of whether to grant environmental authorisation on the anticipated project. This environmental approval will also give information on whether or not and if yes under which conditions the authorisation will be granted. There are numerous stakeholders that are involved from entirely different sectors and each contributes towards a desirable conclusion. Your remarks, if any will enhance all appropriate concerns or appraisals that are assessed in the EIA. You are therefore encouraged to fill in the enclosed registration/comment form or write a letter, call, and email or send a fax the EAP on the following contacts in case you want to comment on the proposed development, within 30 days from the date of this notification process.



REGISTRATION AND COMMENT FORM

Accompanying Background Information Document

Should you have any comments regarding the proposed project, please complete and send the attached comments sheet to either of the following contact person:

Mr Maccarthy Honu-Siabi
Tel: Cell: 0724641197, Fax: 086 776 33 25
Email: bizycon@live.co.za maccarthy@developmentimpact.co.za

TITLE		**FIRST NAME**	
INITIALS		**SURNAME**	
ORGANISATION/TOWN		**E MAIL**	
POSTAL ADDRESS			
TEL NO.		**POSTAL CODE**	
CELL		**FAX NO.**	

REGISTRATION AS AN INTERESTED OR AFFECTED PARTY (I&AP) (Please circle applicable box)

Please formally register me as an interested and affected party so that I may receive further information and notifications during the EIA process	YES	NO
I would like my notification by	Letter (mail)	
	E Mail	
	Fax	
	Telephone	
In terms of the **GNR 982 (EIA process regulations)** I disclose below any direct		

business, financial, personal or other interest that I may have in the approval or refusal of the application.

COMMENTS (you may use a separate sheet if you so wish)

I have no objections to the proposed development. My reasons are

……
……
……
……
……
……
……
……

I support the proposed development. My reasons are:

……
……
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……
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……
……

I object to the proposed development. My reasons are:

……
……
……
……
……
……
……
……
……

Other I&APs to be contacted are:

……
……
……

REGISTRATION AND COMMENT FORM

Accompanying Background Information Document

Should you have any comments regarding the proposed project, please complete and send the attached comments sheet to either of the following contact person:

Mr Maccarthy Honu-Siabi

Tel: Cell: 0724641197, Fax: 086 776 33 25
Email: bizycon@live.co.za maccarthy@developmentimpact.co.za

TITLE	MISS	**FIRST NAME**	THEMBELIHLE
INITIALS	E.T	**SURNAME**	NGCOBO
ORGANISATION/TOWN	DURBAN	**E MAIL**	EdithNgcobo@durban.gov.za
POSTAL ADDRESS	HSE NO: 902, 45TH AVENUE SHERWOOD		
TEL NO. 031-3112861		**POSTAL CODE**	4091
CELL 0827023933		**FAX NO.**	—

REGISTRATION AS AN INTERESTED OR AFFECTED PARTY (I&AP) (Please circle applicable box)

Please formally register me as an interested and affected party so that I may receive further information and notifications during the EIA process	YES ✓	NO
I would like my notification by	Letter (mail)	
	E Mail ✓	
	Fax	
0827023933 / 0662956424	Telephone ✓	
EdithNgcobo@durban.gov.za		
Edithngcobo@gmail.com		

In terms of the **GNR 982 (EIA process regulations)** I disclose below any direct business, financial, personal or other interest that I may have in the approval or refusal of the application.

N/A

COMMENTS (you may use a separate sheet if you so wish)

I have no objections to the proposed development. My reasons are

AS A RESIDENT OF THIS AREA SHERWOOD. WE REALLY NEED TO IMPROVE OUR LIVING BY DEVELOPING OUR COMMUNITY. HAVE A LOT OF INFRASTRUCTURE LIKE BUILDING MORE HOUSES.

I support the proposed development. My reasons are:

I SUPPORT THE PROPOSED DEVELOPMENT. IN ORDER FOR US TO HAVE A BETTER LIFE WITH OUR CHILDREN.

I object to the proposed development. My reasons are:

I HAVE NO OBJECTION ON THIS PROPOSED DEVELOPMENT. I REALLY SUPPORT IT.

Other I&APs to be contacted are:

6 (II). NEWSPAPER ADVERTISEMENT

(to be added once published)

Preliminary Updated Comments from Ethekwini Munucipality are attached below. Comments on the draft BAR wil be attached to the Final BAR.

Other Comments from Stakeholders on te Draft BAR are expected:

Comments from AMAFA –

Comments From Water and Sanitation

Comments From EDTEA –

Final Comments From Ethekwini Municipality -

Development Planning, Environment & Management Unit
Environmental Planning & Climate Protection
166 K E Masinga Road
PO Box 680 Durban, 4000
Tel: 031 311 7875, Fax: 031 311 7134
www.durban.gov.za

ENQUIRY RESPONSE

To:	Mariam Sheik	**Enquiries:**	Greg Mullins
Tel:	071 875 2025	**Tel:**	031 322 4560
Email:	m_sheik@yahoo.com	**Email:**	greg.mullins@durban.gov.za
Your Ref:		**Our Ref:**	**C/1983**

Subject:	Possible Relaxation of D'MOSS	**Address:**	Erf 3562, Cato manor – 65 45th Avenue

Your enquiry submitted to this Department regarding the above site has reference.

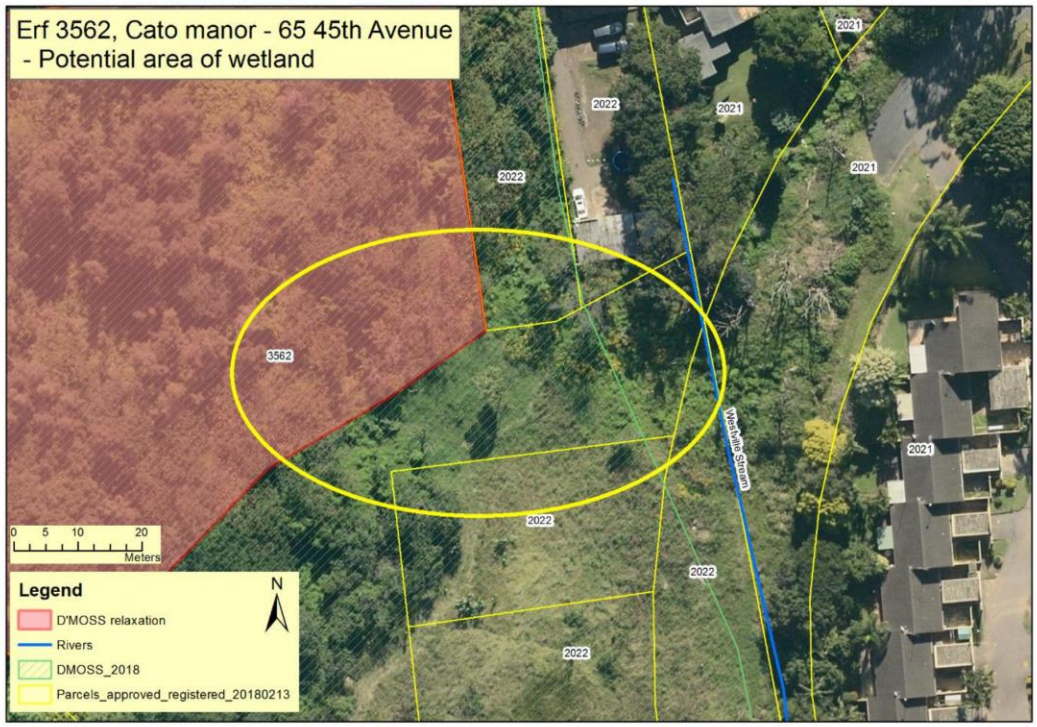
This Department has reviewed the extent of the Durban Metropolitan Open Space System (D'MOSS) on the above site and is willing to consider the relaxation of the extent of D'MOSS as indicated in the image below. The relaxation proposed is approximately 10,000m^2 in extent and includes the portion of the site with little biodiversity value.

The following conditions will apply to the remainder of the site:

- A Non-user Conservation Servitude (NUCS) must be registered on the portion of Erf 3562 that is to remain in D'MOSS.
- The portion covered by the NUCS must be excluded from any development layout and may not be utilised for any activities other than passive recreation. No structures or earthworks may be located within the NUCS.

Notwithstanding the above, *in principle*, agreement to relax D'MOSS, this Department must highlight the following:

- This agreement to relax D'MOSS does not absolve the owner, applicant or developer from obtaining all other relevant approvals prior to any commencement of development on site. No clearing of vegetation or earthworks may commence until written confirmation of the relaxation of D'MOSS is received from this Office.
- Commencement prior to authorisation may result in enforcement action being initiated.
- This Department wishes to highlight the *potential* presence of a wetland system on the eastern portion of the site – as indicated in the images below. Wetland habitat is protected in terms of national legislation and any impacts to this system will require prior authorisation.



We trust that the detail provided addresses your enquiry. This Department will continue to engage through the development planning and building plan submissions processes.

Yours Sincerely,

Ms Michelle Lotz
Pr. Sci. Nat. (Reg. No. 400 253/04)
Regional Co-ordinator: Biodiversity Impact Assessment
Environmental Planning and Climate Protection Department
Date: 01 November 2018

042_18

APPENDIX 3: SPECIALIST STUDIES

3.1 Ecological Report

3.2 APPENDIX GEOTECHNICAL REPORT

3.5 HERITAGE IMPACT STUDIES

APPENDIX 4 : ENVIRONMENTAL MANAGEMENT PROGRAMME EMPR)

RESIDENTIAL DEVELOPMENT ON 65 45th AVENUE, SHERWOOD, DBN

Construction & Operational Stage

ENVIRONMENTAL MANAGEMENT PROGRAMME

(EMPr) Draft

PREPARED BY:

BIZYCON PTY LTD

KZN: 15 Eugene Murrais Road, P O Box 1978 Pietermaritzburg 3200

GP: Unit 77, Block 4, Riversands Incubation Hub. 8 Incubation Drive, Riverside View Ext 15, Fourways, Midrand 2021

Tel: 0724641197 Fax 086 776 3325, Email: bizycon@live.co.za Contact: McCarthy Honu-Siabi

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I. Glossary of Terms and Abbreviations (See Annexure A)

II. Key to Acronyms

- EDTEA Economic Development Tourism and Environmental Affairs
- DME Department of Mineral and Energy
- ECO Environmental Control Officer
- EMPr Environmental Management Programme
- EA Environmental Authorisation
- ARC Agriculture Research Council
- BA Basic Assessment
- BAR Basic Assessment Report
- BID Background Information Document
- DEA Department of Environmental Affairs
- DWS Department of Water & Sanitation
- EIA Environmental Impact Assessment
- EIR Environmental Impact Report
- EAP Environmental Assessment Practitioner
- I&APs Interested and/or Affected Parties
- LRAD Land Reform for Agricultural Development
- NEMA National Environmental Management Act, 1998(Act 107 of 1998)
- NHRA National Heritage Resources Act
- SAHRA South African Heritage Resource Agency
- SANBI South African National Biodiversity Institute

EMP: SECTION 1: INTRODUCTION

1.1. Background

Bizycon Pty Ltd (PTY) LTD conducted a Basic Assessment for the Estate Development on 65 45th Avenue and identified potential environmental impacts that may arise and made recommendations in the report on how these impacts can be managed, especially during construction stages of the development. It also identified issues that should be considered during the operational phase of the development.

This EMP is a key environmental document, the content of which the line contractor must comply with during the construction process with the assistance of an environmental control officer and the site engineer and all relevant role players. This is to include any post construction rehabilitation work, which may be needed, and which would be carried out by the contractor or specialist subcontractor who he may appoint to do such rehabilitation when needed. This EMPr is also developed in accordance with the requirements of the National Environmental Management Act (NEMA, Act 107 of 1998).

1.2 Aims and objectives of the EMPr

1.2.1 Aim

This EMP outlines measures to be implemented to minimize the potential environmental impacts associated with construction of the proposed houses and associated infrastructure. It serves as a guide for the contractor and the construction workforce on their roles and responsibilities concerning environmental management on site, and it provides a framework for environmental monitoring throughout the construction period.

1.2.2 Objectives

The EMP becomes a legally binding document upon granting of an environmental authorisation. The objectives of this EMP include:

- Encourage good management practices through implementation of the proposed development and ensure commitment to environmental issues;
- Define how the management of the environment is reported and performance evaluated;
- To point out necessary mitigation measures to be carried out
- Develop waste management practices based on prevention, minimization, recycling, treatment or disposal of wastes;
- Follow all monitoring procedures required to identify impacts on the environment; and;

- Provide guidance to the employees and contractors regarding their environmental and legislative obligations.

SECTION 2: REGULATORY / LEGISLATIVE CONTEXT

The EPMr is prepared taking into cognisance relevant legislative instruments that relate to the proposed development. The onus lies on the applicant to ensure adherence to all necessary regulations. Contractors must be alerted of the existence of the EMPr and its legislative implications and the need to comply and **a copy of the EMPr must always be kept on site.**

DEALING WITH NON-COMPLIANCE WITH THE EMPr (Penalties/ Incentives)

The contractor shall put in place procedures to motivate his staff to comply with the EMPr and to ensure that the work force is sufficiently aware and understand all necessary legal requirements related to the construction process. It is also important for the contractor to ensure that the workforce understands the implications of acts of non-compliance, or deliberate and malicious damage to the environment by any staff member.

2.1 Key Legislation and Regulatory Requirements

The following legislations are instrument for the construction process of the poultry houses. Noncompliance will lead to the penalties as set by the relevant sections of the related legislations:

2.1.1 National Environmental Management Act No. 107 of 1998

The National Environmental Management Act of 1998, Chapter 7 Part 1 Section 28 States that:

- Every person who causes, has caused, or may cause significant pollution or degradation of the environment must take reasonable measures to prevent such pollution or degradation from occurring, continuing or recurring, and is responsible for the costs and repair of the environment.

2.1.1.1 Penalties for non-compliance

Chapter 7 of the National Environmental Management Act of 1998 indicates explicitly under subsections 8, 9, and 10 the steps that may be taken to recover environmental protection costs from any manager, agent or employee who omits or goes against this Act.

2.1.2 National Heritage Resources Act No. 25 of 1999

Chapter II Part 1 Section 27 (18) on Protection and Management of Heritage Resources provides guidelines that state that;

- No person will be allowed to destroy, damage, deface, excavate, alter, remove from its original position, subdivide or change the planning status of any heritage sites without a permit issued by the heritage resources authority responsible for the protection of such site.

2.1.2.1 Penalties for noncompliance

Section 51 of National Heritage Resources Act of 1999, set penalties to non-compliance as follows:

- A fine or imprisonment for a period not exceeding five years or to both such fine and imprisonment.
- A fine or imprisonment for a period not exceeding three years or to both such fine and imprisonment.
- A fine or imprisonment for a period not exceeding two years or to both such fine and imprisonment.

2.1.3 Occupational Health and Safety Act No. 85 of 1993

Section 14 (a) of the Occupational Health and Safety Act of 1993 makes the contractor responsible for the health and safety of persons who may be affected by any acts of omissions and the safety of the working environment under his jurisdiction.

2.1.3.1 Penalties for noncompliance

Section 38 (1)(2) (3) and (4) of this Act explicitly explain the offence and penalties to any employer who does or omits an act thereby causing any person to be injured at workplace.

2.1.4 Other necessary legislations but not limited to:

Environmental safety requirements in other legislative instruments such as the National Veld and Forest Fire Act, (No.101 of 1998), National water Act, (No.36of 1998) and Hazardous Substances Act, 1973, the National Air Quality Act, 39 of 2004, need to be taken into consideration and conditions observed during the implementation of his development.

2.2 KEY ROLE PLAYERS AND THEIR RESPONSIBILITIES

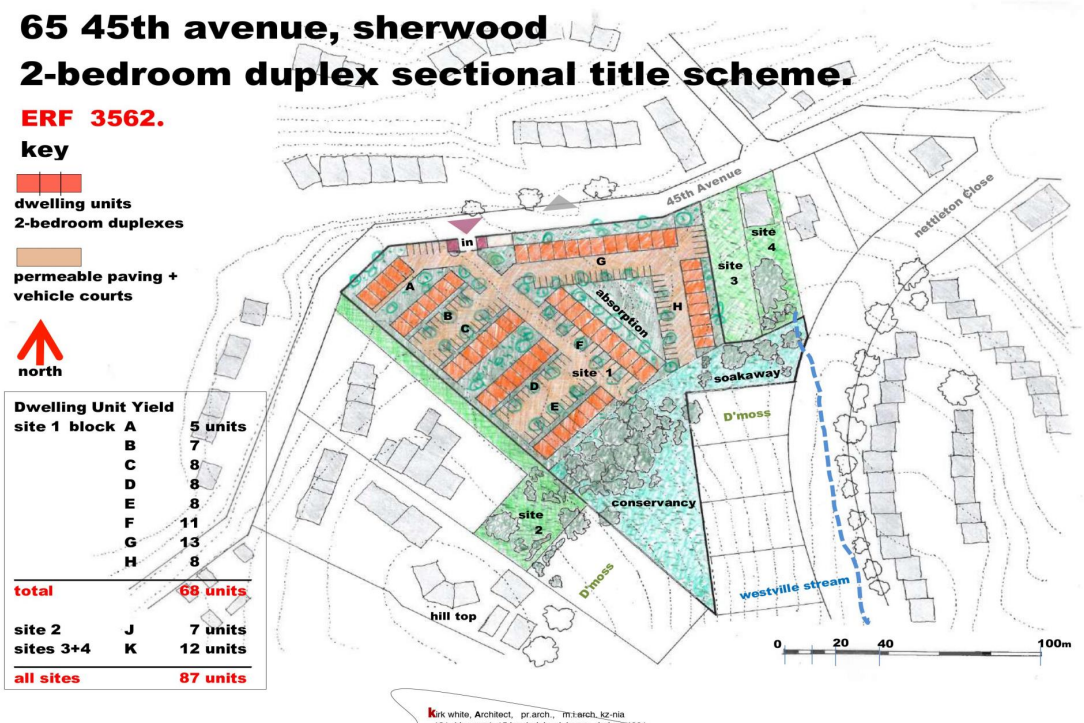
The successful implementation if the EMPr hinges heavily on the proper identification, definition, and allocation of roles to responsible persons or role players. Construction stage role players include Engineer on Site, Environmental Control Officer (ECO), Health and Safety Manager (HS-Manager), and the anyone appointed to handle environmental issues. Operational stage compliance lies with the project applicant and representatives. At all stages, the competent authority reserves the right to conduct compliance visits to the site, whether prearranged or not.

SECTION 3: SENSITIVE AREAS OF THE PROJECT AREA

Although the broad environment within and around the proposed development area is important in general consideration of construction impacts, the contractor shall ensure that the workforce are aware of the key sensitive sites within the project area and that they understand how their activities could impact directly or indirectly on environmental resources of these areas. The following descriptions need to be particularly understood and adhered to in the implementation of this EMP.

3.1 The Development site

The proposed site is currently a part of a continuous ecological corridor part of which falls within the eThekwini conservation system. The site is among the residential zones but is still invariably connected to the natural vegetation corridor. The remaining bottom part is to be still maintained as DMOSS and requires extra attention during construction work to not to gratuitously impact on the remining vegetation and the surroundings.



3.2 Protecting the Integrity of the Ecosystem of the project site

- As part of conserving biological diversity and protecting the integrity of the ecosystem within development areas, sites that are typically rich in species diversity, contain the presence of rare or endangered species, function as a unique or intriguing habitat, or are heritage sites, are often mapped as "sensitive sites". The sensitivity refers broadly to sites being sensitive to the activities of man, and therefore, qualifying for additional protection over and above that of the surrounding areas.

3.3 Potential development activities

- Potential development activities that may impact on receiving environment include:
    a. Clearing of the site unto surrounding areas
    b. Storage of equipment and material unto sensitive areas
    c. Driving and turning of construction vehicles outside the designated area of construction
    d. Indiscriminate location of construction camp
    e. Excavations for foundations for buildings
    f. Mixing of mortar and concrete
    g. Structure assembly and erecting
    h. Transport of materials /supplies
    i. Waste generation and management

As a general principles to observe in conducting these activities:

- In order to make it easier to avoid, minimize or contain, the occurrence of the above impacts, all construction activities should be restricted to within the boundary of the development footprint.
- The site should be fenced from the remaining portions
- NO dumping should be done in the remaining forest, especially non, biodegradable materials.

3.4 Ensuring Health and safety

- Although development in whatever form it takes is expected to benefit mankind, it in the process, could also cause disruptions to the established livelihood system and the general day-to-day operations of both workers and surrounding households.

- The purpose of this EMPr in this regard is to provide guidelines that would ensure that the health and safety needs of bother workers and residents are taken into consideration during the construction and operation period and neighbours lives is not disrupted significantly during the period of construction and operation but rather improved in a positive manner.

SECTION 4: IMPACTS, MITIGATION MEASURES, AND MONITORING

This section covers the core of the EMPr detailing potential environmental impacts, impacts sources and objectives are described, and environmental management mitigation measures to be implemented during construction are specified. **The contractor shall always adhere to these measures**.

The table below details the potential impacts, management objectives and proposed management actions required for mitigation.

Table 2 EMPr Impacts and Management Actions (Template adapted from CSIR, 2016).

Impact	Management Objectives	Management /Mitigation Actions	Monitoring			
			Indicator	Methodology	Frequency	Responsibility
Site Clearing and Vegetation Removal						
Clearing of the vegetation during site establishment	To ensure safety of the surrounding environment and preventing degradation	• Vegetation removal on the site should be restricted to only the development footprint and the remining site should be strictly avoided. • All areas where vegetation is tripped off, such as camp site etc, should be re-vegetated immediately after construction is complete.	• Site visit monitoring of construction period and before handover to ensure environment is properly taken care of.	Visual Observations	Continuous	Constructor, Site Engineer and ECO
Noise Impacts						
Noise is likely to be generated from the use of equipment and from construction workers on	Ensure that noise does not become nuisance to surrounding environment and neighbours	• Construction activities should be limited to daytime hours (i.e. 07:00-17:00, as defined in South African National Standards (SANS) 10103). The noise generated during construction and operational phases must adhere to the relevant SANS standards.	Construction times to be monitored and managed (as well as included in the tender contract).	Records of complaints register and visual observations	Continuous	Contractor and ECO /EHS Officer

Impact	Management Objectives	Management /Mitigation Actions	Monitoring			
			Indicator	**Methodology**	**Frequency**	**Responsibility**
site.						
Traffic Impacts						
Traffic, congestion and potential for collisions during the construction phase.	Prevent unnecessary impacts on the surroundings road network by supplying parking for construction vehicles on site. Managing the flow of traffic at critical areas where necessary.	• During the construction phase, suitable parking area should be created and designated for construction trucks and vehicles. • A construction supervisor should be appointed to coordinate construction traffic during the construction phase (by drawing up a traffic plan prior to construction). • Road barricading should be undertaken where required and road safety signs should be adequately installed at strategic points within the construction and operational vehicles site must be adhered to	Monitor, Record and report non-compliance.	Records of complaints register and visual observations	Continuous	Contractor EHS Manager / Site Engineer
Safety, Health and Environment						

Impact	Management Objectives	Management /Mitigation Actions	Monitoring			
			Indicator	Methodology	Frequency	Responsibility
Potential impact on the safety of construction workers due to construction activities (such as welding cutting, use of hot metals, working at heights, lifting of heavy items etc.).	Prevention of injuries to and fatalities of construction personnel during the construction phase.	• Ensure that skilled, licensed and competent Contractors, riggers and crane operators are appointed during the construction phase, along with the use of certified. Equipment and scaffolding. • Ensure that roads are not closed during construction, which may restrict access for emergency services. • Ensure that construction and operational staff members adhere to the relevant health and safety standards of the Occupational Health and Safety Act 181 of 1993	Monitors activities and record and report non-compliance by undertaking inspections.	Records of complaints register and visual observations	Continuous	Health and Safety Officer /contractor /ECO
Pollution caused by spillage or discharge of construction	Prevention unnecessary pollution impacts on the surrounding	• No mixing of cement directly on the ground. • All spills to be reported to the ECO. • Ensure that adequate containment	Monitor activities and record and report non-compliance by undertaking	Incident registers	Continuous	Project Developer, ECO and contractor

Impact	Management Objectives	Management /Mitigation Actions	Monitoring			
			Indicator	**Methodology**	**Frequency**	**Responsibility**
wastewater into the surrounding environment	environment	structures are provided for the storage of construction materials on site. • Ensure the adequate removal and disposal of construction waste and material. • Oil containers must be stored on lined platform covered by disposable sand.	inspections.			
Heritage Resources (Archaeology and Palaeontology)						
Impact on Archaeology and Palaeontology	Prevent damage and destruction to fossil, artefacts and material of heritage significance that may be discovered	• During Site Clearing, a heritage officer will be available to ensure the presence of any materials of heritage and archaeological materials exist, before construction begins. • Carry out general monitoring of excavations for potential fossil heritage, artefacts and material of heritage importance as per the Chance Find Protocol	Monitor excavations and construction activities for archaeological and paleontological material.	Visual observation	Daily during excavation work. As required/ necessary during construction.	Contractor and ECO.

Impact	Management Objectives	Management /Mitigation Actions	Monitoring			
			Indicator	**Methodology**	**Frequency**	**Responsibility**
	Especially identified cultural and religious sites	• All work must cease immediately, if any human remains and /or other Archaeology, Palaeontology and historical material are uncovered. Such material, if exposed, must be reported to the nearest museum, archaeologist/ palaeontologist and to the AMAFA (or the South African Police Service), so that a systematic and professional investigation can be undertaken. Enough time should be allowed to remove/collect such material before construction recommences.	Contact AMAFA/SAHRA and identified paleontological/ Archaeology if any heritage features are uncovered.			
Groundwater Management						
Contamination of soil and ground water through spillage of concrete and cement and oils from	To control concrete and cement batching activities to prevent spillages and contamination	• Concrete mixing must be carried out on an impermeable surface (such as on boards or plastic sheeting and/or within a banded (lined) area with an impermeable surface). • Concrete mixing areas must be fitted with a containment facility for the collection of cement-laden	Monitor the handling and storage of sand, stone and cement as instructed	Register of incident	Daily	Project Developer, Contractor and EHS Manager. \ECO

Impact	Management Objectives	Management /Mitigation Actions	Monitoring			
			Indicator	Methodology	Frequency	Responsibility
fuelling construction vehicles	of soil, groundwater and the marine environment. To also avoid oil and hydrocarbon contamination	water. This facility must be impervious to prevent soil groundwater contamination. • A washout facility must be provided for washing of concrete associated equipment. • Empty cement bags must be secured with adequate binding material if these will be temporarily stored on site. Sand and aggregates containing cement must be kept damp to prevent the generation of dust. • Any excess sand, stone and cement must be removed from site at the completion of the construction period and disposed at a registered disposal facility. • Fuelling should be done on bunded areas with removable sand. Contaminated sand should be removed and disposed of appropriately (nearest disposal site) • Any oil spillage should be				

Impact	Management Objectives	Management /Mitigation Actions	Monitoring			
			Indicator	**Methodology**	**Frequency**	**Responsibility**
		rehabilitated immediately to avoid washing into stormwater.				
Wastewater Management						
Pollution caused by spillage or discharge of construction wastewater into the surrounding environment	Reduce construction wastewater discharge into the environment and the resulting impact	• Implement proper construction site management actions such as the installation of containment structures, good on-site housekeeping (regular sweeping of roadway and work areas, reporting system and environmental awareness training), and spillage management	Monitor via site audits ad records non-compliance and incidents.	Register of incidents Visual observation	Monthly	EHS Manager / ECO
Storm water Management						
Pollution of the surrounding environment because of contamination	Reduce the contamination of storm water	• The appointed Contractor should compile a Method Statement for Storm Water Management during the construction phase. • Provide secure storage for oil, chemicals and other waste materials to prevent contamination	Compile Method Statement Monitor the banding and containment	Register of incidents	Once off (and thereafter updated as required).	Contractor ECO/ EHS Manager Contractor

Impact	Management Objectives	Management /Mitigation Actions	Monitoring			
			Indicator	**Methodology**	**Frequency**	**Responsibility**
of storm water. Contamination could result from chemicals, oil, fuels, sewage, solid waste, litter etc.		of storm water runoff. • Regular inspections of storm water infrastructure should be undertaken to ensure that it is kept clear of all debris and weeds. • Erosion prevention structures should be placed to reduce water velocity within the drainage system. • Only essential vegetation should be removed and no disturbance to surrounding vegetation should be permitted. • Accumulation of water on the surface must be avoided always.	structures. Monitors via site audits and record non-compliance and incidents (i.e. by implementing walk through inspections.)	Visual observation	Weekly Weekly	
Waste Management						
Pollution of the surrounding environment because of the handling, temporary	Reduce soil and groundwater and river contaminations because of incorrect	• General waste and hazardous waste should be sorted temporarily on site in suitable (and correctly labelled) waste collection bins and skips (or similar). Waste collection bins and skips should be covered with suitable material, where appropriate.	Inspection of the temporary waste storage area. Monitor waste generation and collection	Register of incidents Visual observation	Daily	ECO & EHS Manager

Impact	Management Objectives	Management /Mitigation Actions	Monitoring			
			Indicator	Methodology	Frequency	Responsibility
storage and disposal of solid waste (general and hazardous).	storage, handling and disposal of general and hazardous waste.	• Should on-site storage of general waste and hazardous waste exceed 100m^3 and 80m^3 respectively, then the National Norms and Standards for the Storage of Waste (published on 29 November 2013 under Government Notice 926) must be adhered to. • Ensure that the construction site is kept cleans always and that construction personnel are made aware of correct waste disposal methods. • No solid waste may be burned or buried on site.	throughout the construction phase			
Air Quality Management						
Increased dust level and Air Quality Impact: Emissions from	Reduce dust emissions during construction activities.	• Ensure that cleared (excavated) areas and unpaved surfaces are sprayed with water (obtained from an approved source) to minimise dust generation. • Ensure that construction vehicles travelling on unpaved roads do not	Monitor dust suppression mechanisms and record non-compliances.	Register of incidents Visual	During complaints/incidents	EHS Manager/ ECO and Contractor

Impact	Management Objectives	Management /Mitigation Actions	Monitoring			
			Indicator	**Methodology**	**Frequency**	**Responsibility**
construction vehicles and generations of dust because of earthworks, as well as the delivery and mixing of construction material.		exceed a speed limit of 40km/hour. • Limit construction activities to daytime hours.		observation		
Socio-Economic Impacts Management						
Employment creation and skills development opportunist during the construction	Maximise local employment and local business opportunities to promote and improve the local economy.	• Enhance the use of local labour and local skills as far as reasonably possible. The project will employ approximately 20 people from the area. • Where the required skills do not occur locally, and where appropriate and applicable ensure that relevant local individuals are recruited. • Ensure that goods and services are	Maximize local employment for unskilled labour and provincial/national skilled labour. Visual observation	Records of staff members Number of Local people employed	During the construction phase	Contractor and ECO.

Impact	Management Objectives	Management /Mitigation Actions	Monitoring			
			Indicator	Methodology	Frequency	Responsibility
		sources from the local and regional economy as far as reasonably possible.	Procurement source documents			

MANAGEMENT PLAN FOR OPERATIONAL PHASE

Impact	Management Objectives	Management Actions	Monitoring			
			Indicator	Methodology	Frequency	Responsibility
Alien Vegetation Management						
Potential re-establishment of alien plants on site	Ensure the removal of alien invasive vegetation from the proposed projects area and prevent	• Ensure that any alien invasive plants that become re-established on site are removed promptly. The removal of these species must have carried out in line with relevant municipal and provincial procedures, guidelines and	Monitor the removal of the alien invasive vegetation Visual observation	Incident reports Visual observation	During the removal process	EHS Manager / Municipal Environmental Officer in Charge

Impact	Management Objectives	Management Actions	Monitoring			
			Indicator	Methodology	Frequency	Responsibility
	the establishment and spread of alien invasive plants.	recommendations. • The removed species should be immediately disposed of correctly and should not be kept on site for prolonged periods of time, as this will enhance the spread of these species.				
Land rehabilitation	Ensure land (neighbouring) impacted during construction phase is sufficiently rehabilitated.	• Infilling of all excavation work. • Remove all rubble from construction site and disposal of it at a registered landfill site.	Infill of excavation ensuring sub soil is filled first. Removal rubble to a registered	Visual observation	When /If complaints are received.	Project Developer
Safety, Health and Environment						
Soil and Water pollution	Prevent unnecessary pollution impacts on the	• Storm water should not be allowed to encounter effluent. • Ensure that excrement, carcasses, feed and other operational waste and	Carry out though inspection using a checklist.	Incident reports Visual observation	Daily	Project Applicant (municipal Environmental

Impact	Management Objectives	Management Actions	Monitoring			
			Indicator	Methodology	Frequency	Responsibility
	surrounding environment	hazardous materials are appropriately and effective contained and disposed of without detriment to the environment				Officers)
Increase in vertebrate and invertebrate pests.	Highly localized pest invertebrate control that does not affect non-target populations or taxa	• Detect and control pest infestations before they become a problem though frequent and careful cleaning, monitoring and control. • Applicant to adhere to Best Practise Guild lines and Animal Disease Act (Act 35 of 1984)		Visual observation	As necessary	EHS Manager and Project Developer
Storm water Management						
Increased storm water discharge into the surrounding environment which may end	Reduce the impacts of increased storm water discharge to the	• Regular monitoring of stormwater quality and river health	Implement surface water quality monitoring programme, based on consultation with the landowner	Incident reports	As agreed during the operational phase.	Project Applicant (Municipal Environmental Officer)

Impact	Management Objectives	Management Actions	Monitoring			
			Indicator	Methodology	Frequency	Responsibility
up in the rivers	environment	• Regular inspections of storm water infrastructure should be undertaken to ensure that it is kept clear of all debris and weeds. • Accumulation of water on the surface must be avoided. • Waste traps in storm water system should be cleaned at regular intervals. • Run off to roads must avoided.	Undertake regular inspections of the storm water infrastructure (i.e. by implementation walk through inspections).		Weekly	Site Manager and EHS Manager
Socio-Economic Management						
Additional employment opportunities Include locals in owning and operating commercial activities in the commercial zone	Maximise local employment and local business opportunities to promote and improve local	• Enhance the use of local labour and local skills as far as reasonably possible. • Where the required skills do not occur locally, and where appropriate and applicable, ensure that relevant local individual are trained. • Ensure that goods and services are sourced from	Maximise local employment for unskilled labour and provincial/ national skilled labour Encourage local business ownership, including		During the operational phase	Project Developer

Impact	Management Objectives	Management Actions	Monitoring			
			Indicator	Methodology	Frequency	Responsibility
area	economy	the local and regional economy as far as reasonably possible.	cooperatives			
Boost in the economy of Region .	Maximise positive impacts through ensuring produce is sold to local markets	• Ensure that the proposed project has secured local suppliers for services, neede at operational stage, such as cleaning, gate keeping maintenance etc.	Seek out local markets and secure formal trade agreement	Monthly supplier reports	Monthly	Project developer
Safety, Health and Environment						
Pollution of the surrounding environment as a result of the handling, storage and disposal of solid waste	Prevent unnecessary pollution impacts on the surrounding environment	• General waste (i.e. building rubble, demolition waste, discarded concrete, bricks, tiles, woods, glass, plastic, metal, excavated material, packaging material, paper and domestic waste etc.) and hazardous waste (i.e. empty tins, paint and paint cleaning liquids, oils, fuel spillage and chemicals etc.) generated during the	Monitor activities and record and report non-compliance by undertaking inspections.	Compliance reports Visual observations	Throughout the life of the community existence	Project Applicant

Impact	Management Objectives	Management Actions	Monitoring			
			Indicator	Methodology	Frequency	Responsibility
		operation phase should be stored temporarily on site in suitable (and correctly labelled waste collection bins and skips (or similar). • Municipality should include waste collection in into their scheme • Ensure that enough general waste disposal bins are provided for all personnel throughout the site. These bins must be emptied on a regular basis.				
Fauna and Flora						
Introduction and proliferation of alien species	Minimize introduction and effective control of alien species including the remining DMOSS	• By law, remove and dispose of Category 1b alien species on site. All category 2 species that remain on site must require a permit. • Monitor invasive regularly during decommission and after either privately or in agreement set up with	Incident reports • Visual observations	• Mechanical removal of these species is recommended. Encourage alien plant removal programmes and employ the youth	Continuously thought-out life of project	Project applicant

Impact	Management Objectives	Management Actions	Monitoring			
			Indicator	Methodology	Frequency	Responsibility
	portions also	eThekwini Municipality, and KZN Wildlife		to participate.		

5. EMP conclusions and recommendations

The significance of most of the issues identified may be effectively reduced after mitigation should this environmental management plan be carefully followed. The site is located within relateively sensitive terrestrial environment that require care . Following specifics should be taken note of.

- Contractors need to follow the environmental management plan;
- A copy of the EMP should always be placed on site, and the contractor and team should be workshopped on the requirements of the EMP priori to commencement of the construction work on site (early Stages, after recruitment of workers).
- The development needs to benefit the community in a tangible manner, and therefore, attempts need to be made to integrate community needs and aspirations into the implementation processes of the development.
- Where appropriate, the contractor must use local labour as much as possible;
- The contractor needs to show concerns for health in general and the health safety of the employees in particular;
- In terms of the National Environmental Management Act 107 of 1989 everybody is required to take reasonable measures to ensure that they do not pollute the environment. Reasonable measures include informing and educating employees about the environmental risks of their work and training them to operate in an environmentally acceptable manner;
- Furthermore, in terms of the National Environmental Management Act 107 of 1998 the cost of repair for any environmental damage shall be borne by the person responsible for the damage.
- Operational stage recommendations should be also implemented and the onus is on the applicant to ensure adherence to the mitigation measures proposed. Regular maintenance and monitoring is required from the municipality and to ensure smooth operations.
- The competent authority may also pay random visits to the facility to monitor compliance during construction and operation stages.

Annex A: Glossary

- **1.3.1 General**
- The contractor shall actively engage himself and workers (if necessary) on this project to knowing and understanding of relevant terms, descriptions, and abbreviations in this EMP as indicated below:
- ***Contractor (CT)***
- For the purpose of this EMP: "CT" refers to the main contractor(s) appointed for the construction activities of the project or portion of the project. The main contractor(s) are required to adhere to the EMP and are responsible for ensuring that all subcontractors, suppliers and staff appointed by them, also adhere to the EMP.
- ***All Staff***
- This is the entire workforce. Workers employed by the contractor or persons involved with activities related to the project, or persons present or visiting the construction area, including permanent, contract, or casual labour and informal traders.
- ***Environmental Control Officer (ECO)***
- An individual or representative of an organization appointed to act on matters concerning the day-to-day implementation of the EMP, and for liaison with the DAEA&RD, and the public affected by construction.
- ***EDTEA***
- Department of Economic Development, Tourism, and Environmental Affairs – who is the competent authority in the case of this application.
- ***Local Community***
- People residing in the region and near the construction activities, including the owners and/or managers of land affected by construction, small holdings, workers on the land, and the people in nearby towns and villages.
- ***Public***
- Any individual or group of individuals concerned with or affected by the project and its consequences, -including the local community, local, regional, and national authorities, investors, workforce, customers, consumers, environmental interest groups, and the general public.
- ***Relevant Authority***

- This refers to the environmental authority on national, provincial or local level with the responsibility for granting approval to a proposal or allocating resources.
- **1.3.2 About the Construction Activities**
- ***Alternatives***
- A possible course of action, in place of another, that would meet the same purpose and need (of proposal). Alternative can refer to any of the following but are not limited to hereto: alternative sites for development, alternative site layouts, alternative design, alternative process and materials.
- ***Construction Areas/Site:***
- This is land area on which the project is to be located. It includes the sites of individual stands, construction campsites, access roads and tracks, as well as any other area affected or disturbed by construction activities. The EMP (particularly) the specifications for rehabilitation) is relevant for all areas disturbed during construction.
- ***Development***
- This is the act of altering or modifying resources in order to obtain potential benefits.
- ***Access Roads and Tracks***
- Access Roads and Tracks refers exiting and newly established roads and tracks, and areas cleared or driven over to provide access to/from the construction areas, and for the transportation of the construction workforce, equipment and materials.
- **1.3.3 About the Environment**
- ***Receiving / Affected environment***
- Those parts of the socio-economic and biophysical environment impacted on by the development.
- ***Assessment***
- The process of collecting, organizing, analysing, interpreting, and communicating data that is relevant to some decision.
- ***Environment***
- The surrounding within which humans exist that are made up of: - the land, water and atmosphere, fauna and flora, including any part, combination or interrelationships among these; and all the physical, chemical, aesthetic and cultural properties and conditions of the foregoing that influence human wellbeing.
- ***Environmental Impact***

- This is the degree of change in an environment resulting from effect of an activity whether desirable or undesirable. Impacts may be direct consequences of an organization's activities or may be indirectly caused by them.
- ***Environmental Impact Report***
- A report describing the process of examining the environmental effects of a development proposal, the expected impacts and the proposed mitigation measures.
- ***Evaluation***
- The process of weighing information, the act of making value judgments or ascribing values to data in order to reach a decision.
- ***Hazards***
- Hazardous substances in this regard are anything that constitutes a source of, or exposure to danger. Some examples of hazardous sources or materials are:
- Diesel, petroleum, oil, bituminous products;
- Cement;
- Solvent based paints;
- Lubricants;
- Explosives;
- Drilling fluids;
- Pesticides, herbicides.
- ***Hydrological Features***
- Hydrological features include, but not limited to:
- Rivers and Wetlands;
- Open water;
- Vegetated drainage channels;
- Subterranean water;
- ***Life Support Systems***
- Life support systems include, but are not limited to:
- An ecological system in which its outputs are vital for sustaining specialized habitats;
- An ecological system in which its outputs are vital for sustaining human life (e.g. water purification).

- ***Mitigation***
- Measures designed to avoid, reduce or remedy adverse impacts.
- ***Monitoring***
- This is the repetitive and continued observation, measurement and evaluation of environmental data to follow changes over a period to assess the efficiency of control measures.
- ***Negative Impact***
- A change that reduces the quality of the environment (for example, by reducing species diversity and the reproductive capacity of the ecosystem, by damaging health, property or by causing nuisance.
- ***Rehabilitation***
- Measures implemented to restore a damaged Environment to an acceptable level.
- ***Significant impact***
- This is an impact that, by its magnitude, duration or intensity alters an important aspect of the environment.

APPENDIX

APPENDIX 6: CV OF EAP

Curriculum vitae of MacCarthy K HONU-SIABI

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PERSONAL INFORMATION

Surname	:	Honu-Siabi
First Names	:	MacCarthy
Current residence	:	Pietermaritzburg / English
Spoken Languages	:	English (5/5), French (2/5), IsiZulu (3/5)

EDUCATION

Name of Institution	Degree/Qualification obtained	Year Obtained
University of the Witwatersrand	**PGD in Public and Development Sector Monitoring and Evaluation**	2015
University of KwaZulu-Natal - RSA	**Master of Social Sciences (MS Sc.) –** Policy and Development Studies	2014
North West University - RSA	**Environmental Impact Assessment (Cert)**	2013
North West University - RSA	**Post Decision Environmental Monitoring and Enforcement (Cert)**	2013
University of Kwazulu-Natal GSB -RSA	**Project Management** **(Cert)**	2012

University of Cape Coast - Ghana	**Bachelor of Management Studies – (Honours)**	2007
International School Of Aviation - Ghana	**Tourism Management (Diploma)**	2001

EMPLOYMENT / WORK EXPERIENCE

1. Employer **BIZYCON / Development Impact Group**
Position Snr Consultant – Environmental Impact Assessment Practitioner (EAP)

Duties Managing projects and consulting -
Field work and data collection, public participation and reporting
Duration Current work

2. Employer **Centre for Distance & eLearning, University of the Witwatersrand, Johannesburg, South Africa**
Position: **Online Community Moderator:** Results-Based Monitoring and Evaluation Course (**MOOC Online Community Teaching),**
Duties: Assisting with student issues, monitoring and moderating online discussion forums and helping plan and review new modules and online courses.
Duration: September 2016 – December 2016

3. Employer **University of Witwatersrand: Anglophone Centre for learning on Evaluation and Results (CLEAR-AA), Wits, School of Governance, Johannesburg, South Africa**
Position: **Researcher** (Monitoring & Evaluation)

Duties Rendering support to Snr M&E technical expect
Managing projects and offering support on key projects of CLEAR-AA, assisting institutions develop M&E systems and capacity, Undertaking research, conducting surveys, collecting and analyzing data and writing reports and presenting results in meetings and workshops, representing CLEAR-AA at other international meetings, and also organizing workshops and other interactive events, for capacity building and Evaluation dialogues.
Duration: November 2015 – April 2016

4. Employer **Bizycon Pty Ltd /Development Impact Group), Pietermaritzburg, / Centurion,**

Position: Chief Executive Officer & Snr Consultant - Research and Evaluation Services
Duties: Managing projects and consulting – Since 2011

5. Employer **Nature & Development Group of Africa, Pietermaritzburg, KwaZulu-Natal, South Africa**
Position **Project Manager (consulting EAP)** – Environmental Consulting
Duration 2009 – 2012, 2012 to 2015

6. Employer **Thembaletu Community Education Centre, Pietermaritzburg, South Africa**
Position Trainer/ Facilitator
Duties Training participants in Basic Business Skills, reviewing, Training material,

7. Employer **Nisis Engineering Designs Co. Ltd, Accra, Ghana**
(Project Management/Civil Engineering/Construction)
Position held Assist. Manager (Projects and Administration)
Duties Management of Projects and Procurement (For Construction of Public Water and Sanitation Facilities), managing personnel and preparing of quarterly reports, and general administration
Duration Feb, 2006—November, 2007

DEVELOPMENTAL WORK EXPERIENCE /PROJECTS

Environmental Impact Assessment Projects:

Projects worked on in this regard include:

Environmental Impact Assessment for the Rehabilitation of Storm-Damaged Roads in Hibiscus Coast Municipality

Project manager	:	Liquid Platinum
Project Leader	:	Patrick Addo
Project Manager (Environmental)	:	MacCarthy Honu-Siabi
Project status	:	Completed 2009

Environmental Impact Assessment for Kenville Housing Project (Durban)

Project manager	:	Project Preparation Trust of KZN
Project leader	:	Patrick Addo
Project Manager (Environmental)	:	MacCarthy Honu-Siabi
My duties	:	Field work, data collection and report preparation
Project status	:	Successfully 2009

Environmental Impact Assessment for the Vulamehlo Ward 5 Housing Project

Project manager	:	TMS Properties
Project leader	:	Patrick Addo
Project Manager (Environmental)	:	MacCarthy Honu-Siabi
My duties	:	Field work, data collection and report preparation
Project status	:	Successfully completed 2010

Environmental Scoping for the Emapeleni Housing Project (Emapeleni)

Project manager	:	eThekwini Municipality
Project Leader	:	Patrick Addo
Project Manager (Environmental)	:	MacCarthy Honu-Siabi
My duties	:	Field work, data collection and report preparation
Project status	:	In progress

Environmental Scoping for the Kwadinabakubo Housing Project

Project manager	:	eThekwini Municipality
Project Leader	:	Patrick Addo
Project Manager (Environmental)	:	MacCarthy Honu-Siabi
My duties	:	Field work, data collection and report preparation
Project status	:	Completed 2008

Environmental Scoping for the Cottonlands Housing Project (Cottonlands, Ndwedwe)

Project manager	:	eThekwini Municipality
Project Leader	:	Patrick Addo
Project Manager (Environmental)	:	MacCarthy Honu-Siabi
My duties	:	Field work, public participation and report preparation
Project status	:	In progress

Wetland Assessment for the Copesville Housing Project (Copesville, Pietermaritzburg)

Project manager	:	Mr. M. Marareni (Umpheme Development Services)
Project leader	:	Dr. Nelson Mwanyama/Patric Addo
Project Manager (Environmental)	:	MacCarthy Honu-Siabi
My Duties	:	Wetland Delineation and Report preparation
Project status	:	Successfully completed 2009

Environmental Impact Assessment for the Umlasi AA and Chicago Housing Project (Umlaasi, Durban)

Project manager	:	Chris Calitz (Terraplan Associates)
Project Leader	:	Patrick Addo
Project Manager (Environmental)	:	MacCarthy Honu-Siabi
My duties	:	Field work, data collection and report preparation
Project status	:	Successfully completed 2009

Environmental Impact Assessment for the Umlasi - Isimbini Housing Project (Umlasi, Durban)

Project manager	:	Chris Calitz (Terraplan Associates)
Project Leader	:	Patrick Addo
Project Manager (Environmental)	:	MacCarthy Honu-Siabi
My duties	:	Field work, data collection and report preparation
Project status	:	Successfully completed 2009

Environmental Impact Assessment for the Zanzibari Housing Project (Bluff, Durban)

Project manager	:	Project Preparation Trust of KZN
Project Leader	:	Patrick Addo
Project Manager (Environmental)	:	MacCarthy Honu-Siabi

My duties	:	Field work, data collection and report preparation
Project status	:	Completed

Environmental Screening/Assessment for the Chartsworth Bulk and Infill Housing Project

Project manager	:	Nelson Allopi and Associates
Project Leader	:	Patrick Addo
Project Manager (Environmental)	:	Dr. Nelson Mwanyama MacCarthy Honu-Siabi
My duties	:	Field work, data collection and report preparation
Project status	:	Successfully completed 2009

Environmental Impact Assessment for the Valley View Special Residential Housing Project (Valley-View Road, Marrianhill)

Project manager	:	eThekwini Housing
Project Leader	:	Patrick Addo
Project Manager (Environmental)	:	MacCarthy Honu-Siabi
My duties	:	Field work, data collection and report preparation
Project status	:	Successfully completed 2010

Environmental Impact Assessment for the Rehabilitation and Upgrade of Roads in Inanda Project (Inanda, Durban)

Project manager	:	Sigh Govender and Associates
Project Leader	:	Patrick Addo
Project Manager (Environmental)	:	MacCarthy Honu-Siabi
My duties	:	Field work, data collection and report preparation
Project status	:	Completed 2010

Environmental Impact Assessment for the Sandton Phase 2 Housing Project (Kwandengezi, Pine Town)

Project manager	:	Sakum Housing Cc
Project Leader	:	Patrick Addo
Project Manager (Environmental)	:	MacCarthy Honu-Siabi
My duties	:	Field work, data collection and report preparation
Project status	:	Successfully completed

Environmental Impact Assessment for a Helicopter Landing Facility in Darnell

Project manager	:	Silvermoon Investment 364 Cc
Project Leader	:	Patrick Addo
Project Manager	:	MacCarthy Honu-Siabi
My duties	:	Field work, data collection and report preparation

Environmental Impact Assessment for the Frediville Phase 2 Housing Project (Fredville, Hamasdale)

Project manager	:	Chris Calitz (Terraplan Associates)
Project Leader	:	Patrick Addo
Project Manager (Environmental)	:	MacCarthy Honu-Siabi
My duties	:	Field work, data collection and report preparation
Project status	:	Successfully completed

Environmental Impact Assessment for the Bhubhubhu Housing Project (Mfolozi Municipality)
Project manager : Chris Calitz (Terraplan Associates)
Project Leader : Patrick Addo
Project Manager (Environmental) : MacCarthy Honu-Siabi
My duties : Field work, data collection and report preparation
Project status : Successfully completed

Environmental Impact Assessment for the Iutval Rural Housing Project (Indaka Local Municipality)
Project manager : Mr. Graham (Siyamthanda Development)
Project Leader : Patrick Addo
Project Manager (Environmental) : MacCarthy Honu-Siabi
My duties : Field work, data collection and report preparation
Project status : Successfully completed

Environmental Impact Assessment for the Cato Crest Housing Project
Project manager : Bernd Rothaug (RCR Collaborative)
Project Leader : Patrick Addo
Project Manager (Environmental) : MacCarthy Honu-Siabi
My duties : Field work, data collection and report preparation
Project status : In Progress.

Environmental Impact Assessment for the Waterfall Ext. 4 Housing Development
Project Leader : Patrick Addo
Project Manager (Environmental) : MacCarthy Honu-Siabi
My duties : Field work, data collection and report preparation
Project status : In Progress

Housing Development Projects:
Projects worked on in this regard include:

Environmental Impact Assessment for the Zidweni Rural Housing Project (Zedweni, Ingwe Municipality)
Project manager : Mr. M. Marareni (Umpheme Developments)
Project Leader : Patrick Addo
Project Manager (Environmental) : MacCarthy Honu-Siabi
My duties : Field work, data collection and report preparation
Project status : Successfully completed

Environmental Impact Assessment for the Manzamnyama Rural Housing Project (Centocow, Ingwe Municipality)
Project manager : Mr. Ray Doherty
Project Leader : Patrick Addo
Project Manager (Environmental) : MacCarthy Honu-Siabi
My duties : Field work, data collection and report preparation
Project status : Successfully completed

Environmental Impact Assessment for the Qiniselani-Manyuswa Rural Housing Project (Qiniselani near Hillcrest)
Project manager : Chris Calitz (Terraplan Associates)

Project Leader	:	Patrick Addo
Project Manager (Environmental)	:	MacCarthy Honu-Siabi
My duties	:	Field work, data collection and report preparation
Project status	:	Successfully completed

Environmental Impact Assessment for the Vukuzithathe Rural Housing Project (Ezinqoleni)

Project manager	:	Mr. M. Marareni (Umpheme Developments)
Project Leader	:	Patrick Addo
Project Manager (Environmental)	:	MacCarthy Honu-Siabi
My duties	:	Field work, data collection and report preparation
Project status	:	Successfully completed

Environmental Impact Assessment for the Zidweni Rural Housing Project (Zidweni, Creighton)

Project manager	:	Mr. M. Marareni (Umpheme Developments)
Project Leader	:	Patrick Addo
Project Manager (Environmental)	:	MacCarthy Honu-Siabi
My duties	:	Field work, data collection and report preparation
Project status	:	Successfully completed

Environmental Impact Assessment for the KwaMashabane Rural Housing Project (Mbazwana)

Project manager	:	Mr. M. Marareni (Umpheme Developments)
Project Leader	:	Patrick Addo
Project Manager (Environmental)	:	MacCarthy Honu-Siabi
My duties	:	Field work, data collection and report preparation
Project status	:	Successfully completed

Environmental Impact Assessment for the KwaMashabane Rural Housing Project (Mbazwana)

Project manager	:	Mr. M. Marareni (Umpheme Developments)
Project Leader	:	Patrick Addo
Project Manager (Environmental)	:	MacCarthy Honu-Siabi
My duties	:	Field work, data collection and report preparation
Project status	:	Successfully completed

Strategic Planning and Environmental Assessment (SEA) Developments

Projects worked on in this regard include:

Strategic Environmental Impact Assessment for the Groutville, Adinville, Melville and Dube Village Township
Regeneration Strategy (Groutville)

Project manager	:	S'bongiseni Maseko (Isibuko se Africa)
Project Leader	:	Patrick Addo
Project Manager (Environmental)	:	MacCarthy Honu-Siabi
My duties	:	Field work, data collection and report preparation
Project status	:	Successfully completed

Strategic Environmental Impact Assessment for the Shakaskraal, Woodmead, Shayamoya and Nkobongo Township Regeneration Strategy (Shakaskraal)

Project manager	:	S'bongiseni Maseko (Isibuko se Africa)
Project leader	:	Patrick Addo
Project Manager (Environmental)	:	MacCarthy Honu-Siabi
My duties	:	Field work, data collection and report preparation
Project status	:	Successfully completed

Strategic Environmental Assessment for preparation of a Strategic Development Framework for Phelandaba Township

Project manager	:	S'bongiseni Maseko (Isibuko se Africa)
Project Leader	:	Patrick Addo
Project Manager (Environmental)	:	MacCarthy Honu-Siabi
My duties	:	Field work, data collection and report preparation
Project status	:	Successfully completed

Strategic Environmental Assessment for preparation of a Strategic Development Framework for Ndumo Township

Project manager	:	S'bongiseni Maseko (Isibuko se Africa)
Project Leader	:	Patrick Addo
Project Manager (Environmental)	:	MacCarthy Honu-Siabi
My duties	:	Field work, data collection and report preparation
Project status	:	Successfully completed

Strategic Environmental Assessment for the preparation of a Strategic Development Framework for Bhambanana Township (Jozini)

Project manager	:	S'bongiseni Maseko (Isibuko se Africa)
Project Leader	:	Patrick Addo
Project Manager (Environmental)	:	MacCarthy Honu-Siabi
My duties	:	Field work, data collection and report preparation
Project status	:	Successfully completed

Other Work

Rehabilitation of Storm-Damaged Roads in Hibiscus Coast Municipality

Project manager	:	Liquid Platinum
Project Leader	:	Patrick Addo
Project Manager (Environmental)	:	MacCarthy Honu-Siabi
Duties	:	ECO (Monitoring and preparation of monthly reports)
Project status		Completed

Kwaxolo Low Cost Housing Project, Kwaxolo, Bushy Vales, Marburg

Project manager	:	Malusi Zwane Dept. Of Human Settlement
Project Leader	:	Patrick Addo
Project Manager (Environmental)	:	MacCarthy Honu-Siabi
Duties	:	Sales Administration
Project status	:	Completed

Environmental Scoping for Ekwandeni Housing Project

Project manager	:	eThekwini Housing
Project Leader	:	Patrick Addo
My duties	:	Public Participation – Information Distribution
Project status	:	Completed

Preparation of Business Plan for the Commercialisation of the Goat Industry in Kwazulu-Natal

Prepared for	:	Department of Economic development
Project manager	:	Patrick Addo
Project Manager (Environmental)	:	MacCarthy Honu-Siabi
My duties	:	Market research - data collection and analysis report preparation
Project status	:	Completed

Empangweni Housing Development

Project manager	:	Patrick Addo
Project Manager (Environmental)	:	MacCarthy Honu-Siabi
My duties	:	Beneficiary Data Collection and processing