ETHEKWINI LOCAL MUNICICIPALITY

KwaZulu-Natal

Environmental Impact Assessment for Walk-Up Units) Housing Project on Erf 3213, Reservoir Hills – Durban

BASIC ASSESSMENT REPORT

Prepared for:

isibuko DEVELOPMENT PLANNERS CC

77 Hawick Road
Pietermaritzburg

Prepared by:

BIZYCON PTY LTD

KWAZULU-NATAL: 15 Eugene Murrais Road ♦ P O Box 1978 Pietermaritzburg 3200

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

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June 2022

DRAFT BASIC ASSESSMENT REPORT

RESERVOIR HILLS WALK-UP UNITS HOUSING PROJECT

ETHEKWINI LOCAL MUNICIPALITY

KWAZULU-NATAL

EDTEA REF:

Name of representative of the EAP	Education qualifications	Professional affiliations	Experience at environmental assessments (yrs)
Brenda Makanza	***PGC Professional Diploma in Geo-Informatics, UNIGIS, 2016 Environmental Sciences and Health (with Honours) , NUST, Zim, 2004***	**EPASA (2019) 1542**	**More than 10 years' experience (Please See Attached CV)**
Mr MacCarthy Honu-Siabi	**MSSc (Policy & Development Studies) Certs. Environmental Impact Assessments Management & Environmental Management & Envl. Control (Enforcement and Audit)**	**IAIAsa SAMEA**	**12 years (in the field of Environmental Impact Assessment) and Environmental management in General**
Ms Nwabisa Mkhize	Bsc Environmental Science	EAPSA (Candidate)	3 Years of work in the Environmental Field and impact assessments
Sedzani Nemulodi	Bsc Environmental Science		2 Years of work in the Environmental Field and impact assessments

DECLARATION 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

DETAILS OF THE EAP

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 (Auditing)(NWU)	IAIASA, SAMEA EAPSA (registration in progress)	12 years in the field of Environmental management and Impact assessment
Fhumulani Mudau	BSc Environmental Science (UV)	(Registration in progress)	4yrs in Environmental management

McCarthy Honu-Siabi

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

McCarthy Honu-Siabi has been involved in projects relating to 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 therefore 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 and Environmental Management Frameworks and Strategic Development Frameworks among others.

SECTION G: DECLARATION BY THE ENVIRONMENTAL ASSESSMENT PRACTITIONER

I, Brenda Makanza declare that I –

(j) act as the independent environmental practitioner in this application;

(k) 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;

(l) do not have and will not have a vested interest in the proposed activity proceeding.

(m) have no, and will not engage in, conflicting interests in the undertaking of the activity,

(n) 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;

(o) 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;

(p) 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;

(q) will keep a register of all interested and affected parties that participated in a public participation process; and

(r) 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:

Bizycon PTY LTD

Name of company:

Date

Environmental Assessment Practitioners Association of South Africa

Registration No. 2019/1542

Herewith certifies that

Shorai Brenda Makanza

is registered as an

Environmental Assessment Practitioner

Registered in accordance with the prescribed criteria of Regulation 15. (1) of the Section 24H Registration Authority Regulations (Regulation No. 849, Gazette No. 40154 of 22 July 2016, of the National Environmental Management Act (NEMA), Act No. 107 of 1998, as amended).

Effective: 01 March 2023

Expires: 29 February 2024

Chairperson

Registrar

SAQA

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	Section/ s contributed to in this EIA assessment report
1.				**Wetland Assessment and Delineation**
2.				**Ecological Studies**
3.				**Heritage Studies**
4.				**Geotechnical Studies**
5.				**Bolk Services Engineering Services**

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 iii. Identify residual risks that need to be managed and monitored.	YES	

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	
(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, 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;	YES	
(f) A motivation for the need and desirability for the proposed development including the need and desirability of the activity in the	YES	

context of the preferred location;		
(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	
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	
(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	
(I) 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	YES	

avoided, including buffers; and (iii) A summary of the positive and negative impacts and risks of the proposed activity and identified alternatives;		
(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 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;	×	
(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	×	
(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

eThekwini Municipality in collaboration with the Department of Human Settlement (funder), intend to undertake a housing development Erf 3213, Reservoir Hills, as part the emergency housing intervention for flood victims within the area. The housing typology proposed is changed from three-storey walk-ups to row housing (two-storey semi-detached) which is similar to the Cornubia housing typology. This will include construction of about 86 units (6 x 14) with associated settlements infrastructure such as internal street and open spaces as playground for beneficiaries.

As part of the feasibility assessment and planning of the proposed development, Bizycon Ltd has been engaged through Isibuko Development planners to conduct an environmental assessment for the proposed development.

As per the provisions of the Environmental Impact Assessment (EIA) Regulations, December 2014, as amended, under the National Environmental Management Act- NEMA (Act 107 of 1998) an environmental impact assessment is required for the proposed developments prior to commencing any physical activities that fall within any of the listings within the notices. The site is bordered by watercourses which may be impacted on by the proposed development. This report is intended to determine whether the proposed activities will trigger any listing notices of the environmental regulations as described above.

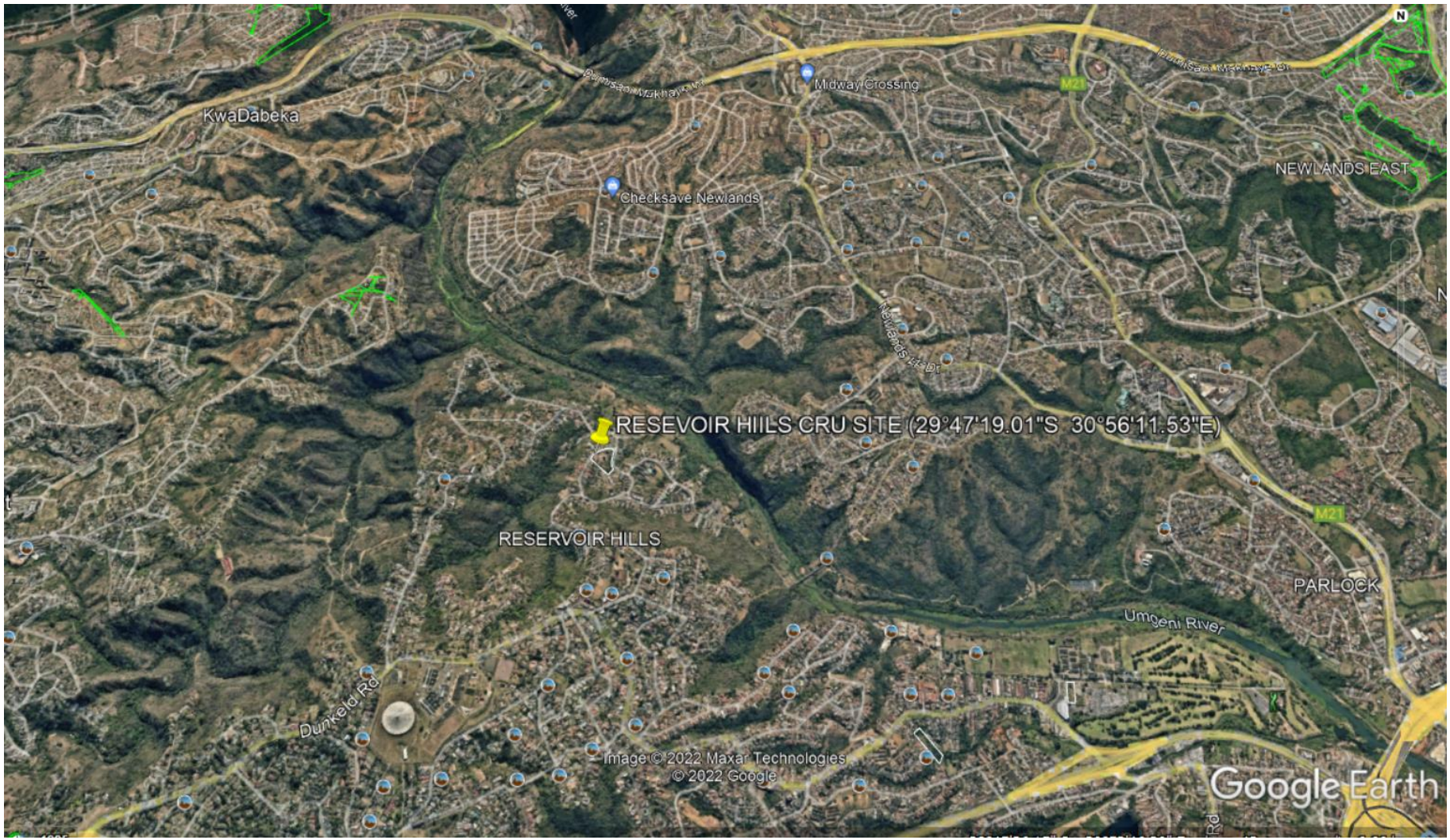
The duty of the EAP is to utilise information provided and to assess the site in conjunction of the proposed development to determine applicability of the EIA regulations and need for EIA in terms of Chapter 4 of 2014/2017 EIA Regulation (GNR 982) as amended 2017, Basic Assessment (BA) process is required to be followed towards environmental authorisation for the proposed development, given that the site boarders a watercourse. 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. This having provided adequate measures to address such impacts.

1.2 PROJECT SITE LOCATION

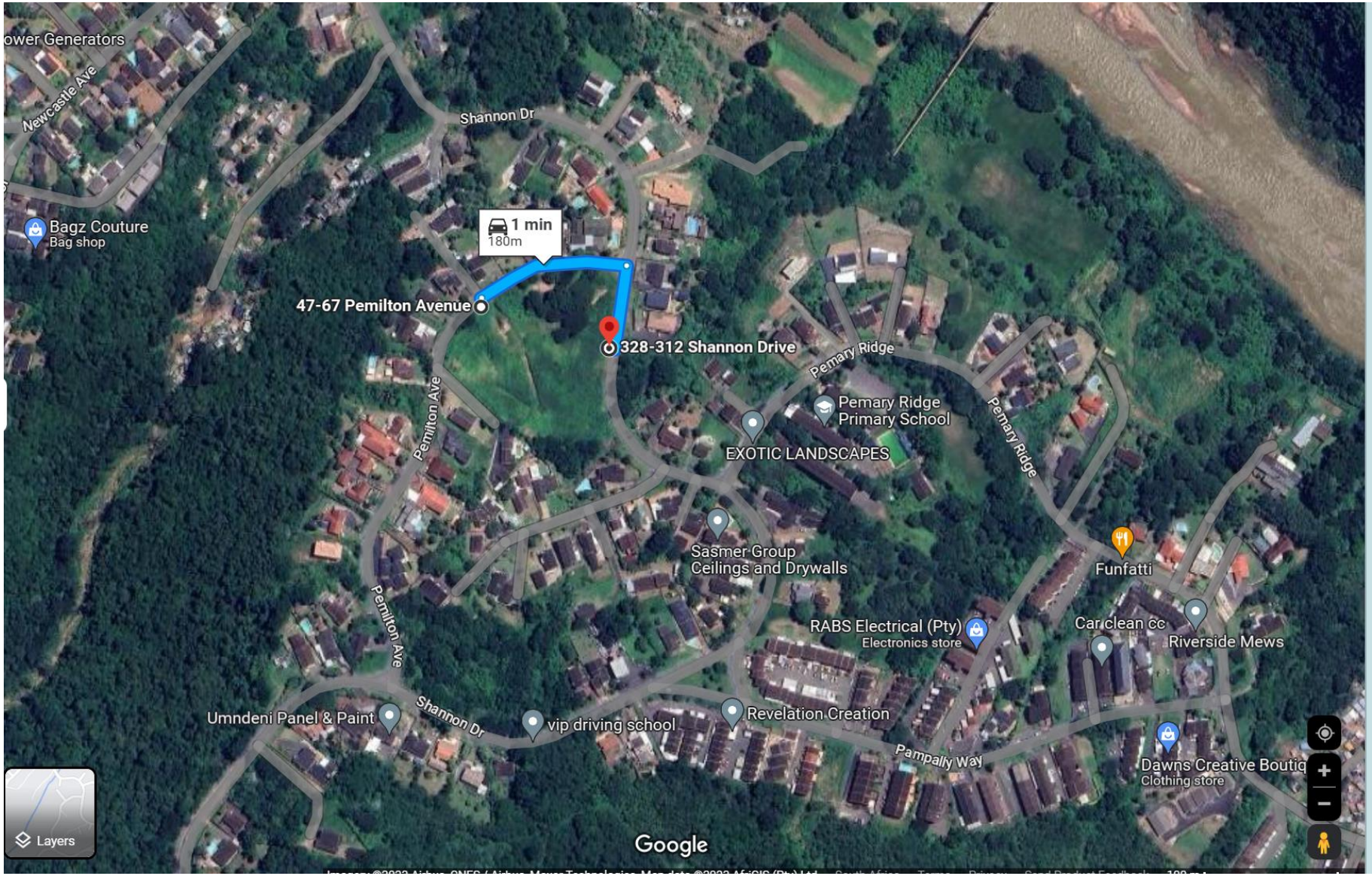
The site is currently vacant piece of open space within the settlement. It is situated along a gentle sloping portion of a hill. At the bottom of the site is a valley head that drains into the Inanda River about 500-700m north of the site. The GPS Coordinates of the site are 29°47'19.01"S 30°56'11.53"E . Location of the proposed site is also depicted in Figure 1.

PROPERTY DESCRIPTION	ERF 3213 Reservoir Hills	
SG 21-DIGIT NO		
ZONING	Residential 1	
GPS POINTS		
	29°47'19.01"S	30°56'11.53"E

Figure 2 Reservoir Hills Locality




PG-13 Plumbing & Hardware Supplies
Buhle
Bagz Couture
RESEVOIR HIILS CRU SITE (29°47'19.01"S 30°56'11.53"E)
Y N J Importers
Pemary Ridge Primary School
Sasmer Group
vip driving school
Shannon Dr
Pampally Way
AFRICAN PRIDE PROJE
© 2022 Google
Google Earth


ower Generators
Newcastle Ave
Shannon Dr
Bagz Couture
Bag shop
1 min
180m
47-67 Pemilton Avenue
328-312 Shannon Drive
Pemary Ridge
Pemilton Ave
Pemary Ridge
Primary School
EXOTIC LANDSCAPES
Pemary Ridge
Sasmer Group
Ceilings and Drywalls
Funfatti
Pemilton Ave
RABS Electrical (Pty)
Electronics store
Car clean cc
Riverside Mews
Umndeni Panel & Paint
Shannon Dr
vip driving school
Revelation Creation
Pampally Way
Dawns Creative Boutiq
Clothing store
Layers
Google

2. PROJECT & ACTIVITY DESCRIPTION

This project intends to undertake an urgent housing development to accommodate stranded food victims that are being housed in churches and community halls when their houses were swept away. A key part of government's theory of change on human settlement programme is to use housing as a vehicle to drive social and integrated settlement developments which allow for the provision of major services and access to urban amenities to communities in which such developments are implemented.

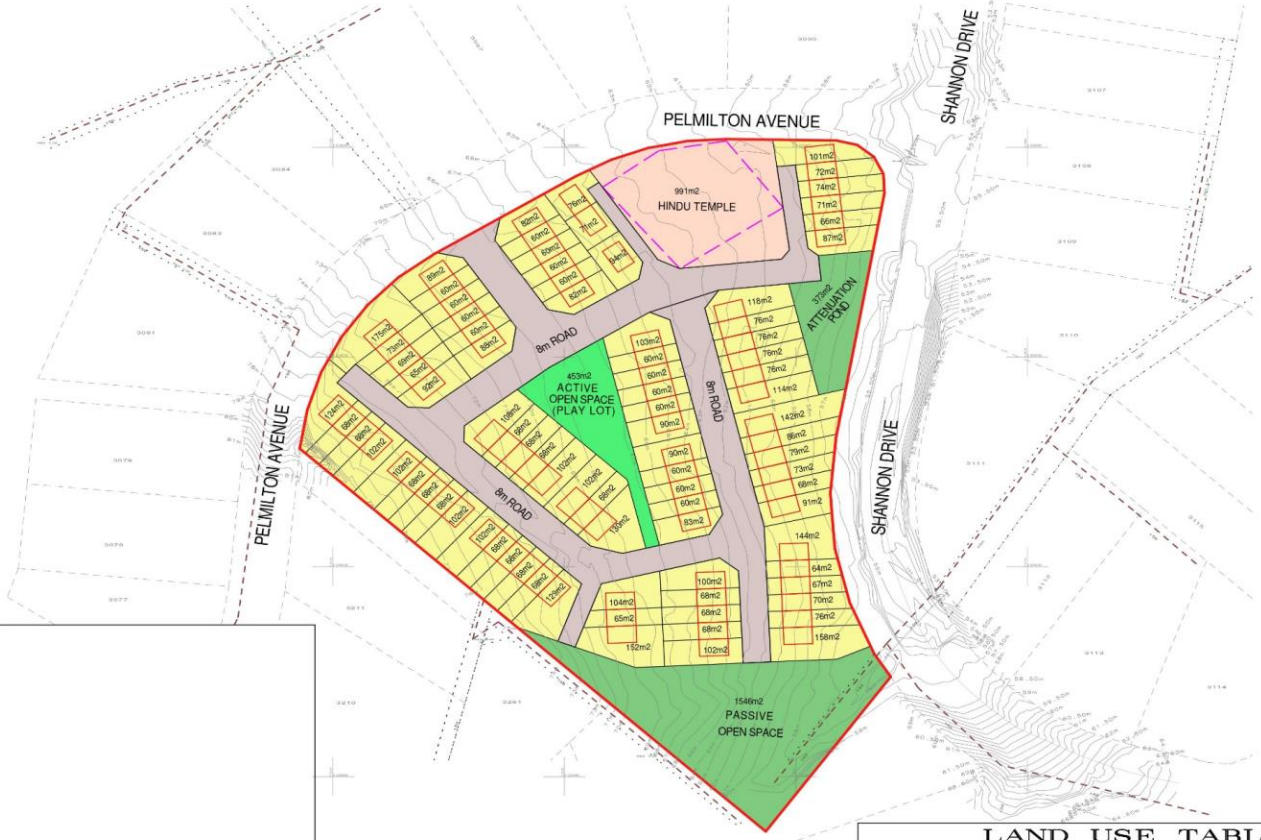
The proposed development entails establishment of the low-income housing units to accommodate as many families that the piece of land can handle.

The proposed development is being packaged in line with the Integrated Residential Development Programme.

	Housing /Evens	• 14 blocks of WALK-UP UNITS to be constructed in semi-detached housing typology. Totalling about 86 Individual units.
	Roads ad Stormwater Mgt	• Stormwater Pipes to be used will range between 160mm - 250mm internal diameter PVC pipes for water and stormwater drainage.
	Internal Roads network	• There are road networks surrounding the property, and an internal road with necessary parking will is added to the layout.
	Water reticulation	• There are bulk water pipes available in the vicinity. • The pipe diameters of the network in the vicinity range from 75mm to 250mm and this will be applied to the proposed development. • The site will be connected to eThekwini's municipal Wastewater Treatment Works, currently utilised by the Reservoir Hills residents.
	Sewer	• There are formal bulk sewer services available in the vicinity of the study area.
	Electricity	• The area is serviced with electricity to which the proposed development can and will be connected

The concept layout of the proposed development is attached in Figure 3.

PLAN SHOWING PROPOSED SUBDIVISION OF ERF 3213 RESERVOIR HILLS, ETHEKWINI MUNICIPALITY



LAND USE TABLE

LAND USE	No.of SITES	No.of RESID UNITS	AREA (ha)	%
PUBLIC HOUSING 1	86	86	0.72	–
TEMPLE/CHURCH	01	–	0.10	–
ACTIVE OPEN SPACE	01	–	0.05	–
PASSIVE OPEN SPACE	02	–	0.19	–
PROPOSED ROADS	02	–	0.26	–
TOTAL	92	86	1.32	–

STANDARD INFORMATION

Owner :

Title Deed No.:

S G Diagram No.:

SPLUMA Reference No.: .....

NOTES

CONTOUR INTERVAL = 1m

MINIMUM WIDTH OF PANHANDLE ACCESS = 3m

MINIMUM ERF SIZE =300m2

ALL AREAS AND DIMENSIONS ARE APPROXIMATE AND ARE SUBJECT TO A DETAILED FINAL SURVEY

RETAINING WALLS LESS THAN 2M IN HEIGHT MAYBE REQUIRED IN SOME AREAS, SUBJECT TO DETAILED DESIGN

LEGEND

1. DENOTES OUTSIDE FIGURE.
2. DENOTES EXISTING SEWER PIPES.
3. DENOTES SURVEYED TEMPLE AREA.

Isibuko DEVELOPMENT PLANNERS CC

Unit 2, Building 4
141 WITCH-HAZEL AVENUE, CENTURION
P.O BOX 7623,
CENTURION
0157
TEL: 012 643 1154
FAX: 086 293 2943
EMAIL: nsesis@isibukoafrica.co.za

PROJECT TITLE

ERF 3213
RESERVOIR HILLS

DRAWING TITLE

LAYOUT OF ERVEN

DESIGNED BY: Z. SODLADLA

CHECKED BY:

SCALE: 1 : 1000 (ON A3 PAPER)

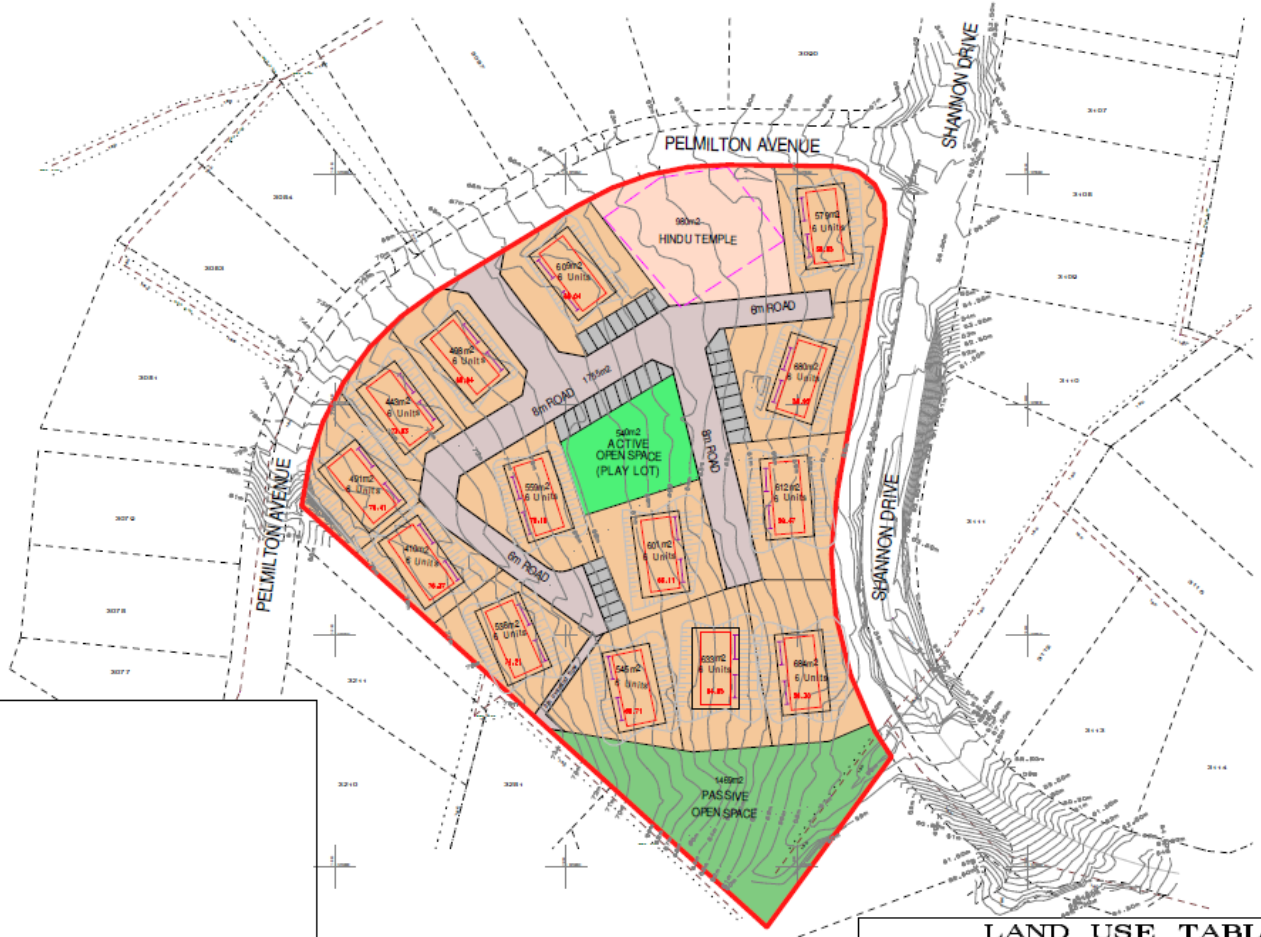
CO-ORDINATE SYSTEM: WG 31

DATE: 05 APRIL 2023

DRAWING No.: 3213/WD4

REVISION

PLAN SHOWING PROPOSED SUBDIVISION OF ERF 3213 RESERVOIR HILLS, ETHEKWINI MUNICIPALITY



LAND USE TABLE

LAND USE	No. of SITES	No. of RESID. UNITS	AREA (ha)	%
HIGH DENSITY RESIDENTIAL	14	84	0.79	60.77
PARKING AREA	05	–	0.04	3.08
TEMPLE/CHURCH	01	–	0.10	7.69
ACTIVE OPEN SPACE	01	–	0.05	3.85
PASSIVE OPEN SPACE	01	–	0.14	10.77
PROPOSED ROADS	01	–	0.18	13.85
TOTAL	23	84	1.30	100.00

STANDARD INFORMATION

Owner :
Title Deed No.:
S G Diagram No.:
SPLUMA Reference No.: .....

NOTES

CONTOUR INTERVAL = 1m
MINIMUM WIDTH OF PANHANDLE ACCESS = 3m
MINIMUM ERF SIZE =300m2
ALL AREAS AND DIMENSIONS ARE APPROXIMATE AND ARE SUBJECT TO A DETAILED FINAL SURVEY
RETAINING WALLS LESS THAN 2M IN HEIGHT MAYBE REQUIRED IN SOME AREAS, SUBJECT TO DETAILED DESIGN

LEGEND

1. DENOTES OUTSIDE FIGURE.
2. DENOTES PROPOSED PLATFORMS
   BUILDING: 8.4m x 15.8m =99.83m2
   PLATFORM: 10.4m x 17.8m =183.04m2
3. DENOTES PROPOSED WASHING LINE
4. DENOTES EXISTING SEWER PIPES.
5. DENOTES SURVEYED TEMPLE AREA.

Isibuko DEVELOPMENT PLANNERS CC
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FAX: 086 293 2943
EMAIL: nanda@isibukosolutions.co.za

PROJECT TITLE
ERF 3213 RESERVOIR HILLS

DRAWING TITLE
LAYOUT OF ERVEN

DESIGNED BY: Z. SODLADLA
CHECKED BY:
SCALE: 1 : 1000 (ON A3 PAPER)
CO-ORDINATE SYSTEM: WG 31
DATE: 05 DECEMBER 2022
DRAWING No.: 3213/WD3
REVISION

Layout 1 (CRU units)

Housing Facility Typology

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

The National Environmental Management Act 107 of 1998 is the legislative instrument that governs environmental implications in relation to development vis-à-vis sustainability and environmental management. Regulations have been developed to guide the implementation of the National Environmental Management Act, under which, are lists of activities that may require authorization from the relevant Environmental Department prior to implementation.

As per Chapter 3 and 4 of the Environmental impact Assessment Regulations 2014, 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. 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 Engineering report and layout, and as confirmed by the specialist studies undertaken, the following listed activities are noted, for which a Basic Assessment Process for authorisation is being undertaken. (Table 2).

ACTIVITIES APPLIED FOR

Table 1 Listed Activities)

a. For an application for authorization that involves more than one listed or specified activity that, together, make up one development proposal, all the listed activities pertaining to this application must be indicated.

[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.

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]:**	
Act	Regulation	Activity No	Activity Description	Applicability to this
NEMA 1998 – EIA REGs April 2017 as amended	GNR 327 Listing Notice 1	12	vi) bulk storm water outlet structures exceeding 100 square metres in size. (X) buildings exceeding 100 square metres in size. □□□□□ infrastructure or structures with a physical footprint of 100 square metres or more;] within 32 metres of a watercourse, measured from the edge of a watercourse:	Bulk pipes will be connected from the main water source to the reticulation pipes that connect the houses. The proposed development of houses, is cumulatively on a piece of land that is about 1200m^2
	19		The infilling or depositing of any material of more than **[5]** 10 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than **[5]** 10 cubic metres from **[–(i)]** a watercourse;	The proposed site is bordered by a valley head through which a seasonal stream flow. Since work is at the edge

				stream, the
				possibility of removing more than 10m3 of soils within these areas within the valley head is high.

Please note that any authorization that may result from this application will only cover activities specifically applied for.

3. THE EIA METHODOLOGY: 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 4.

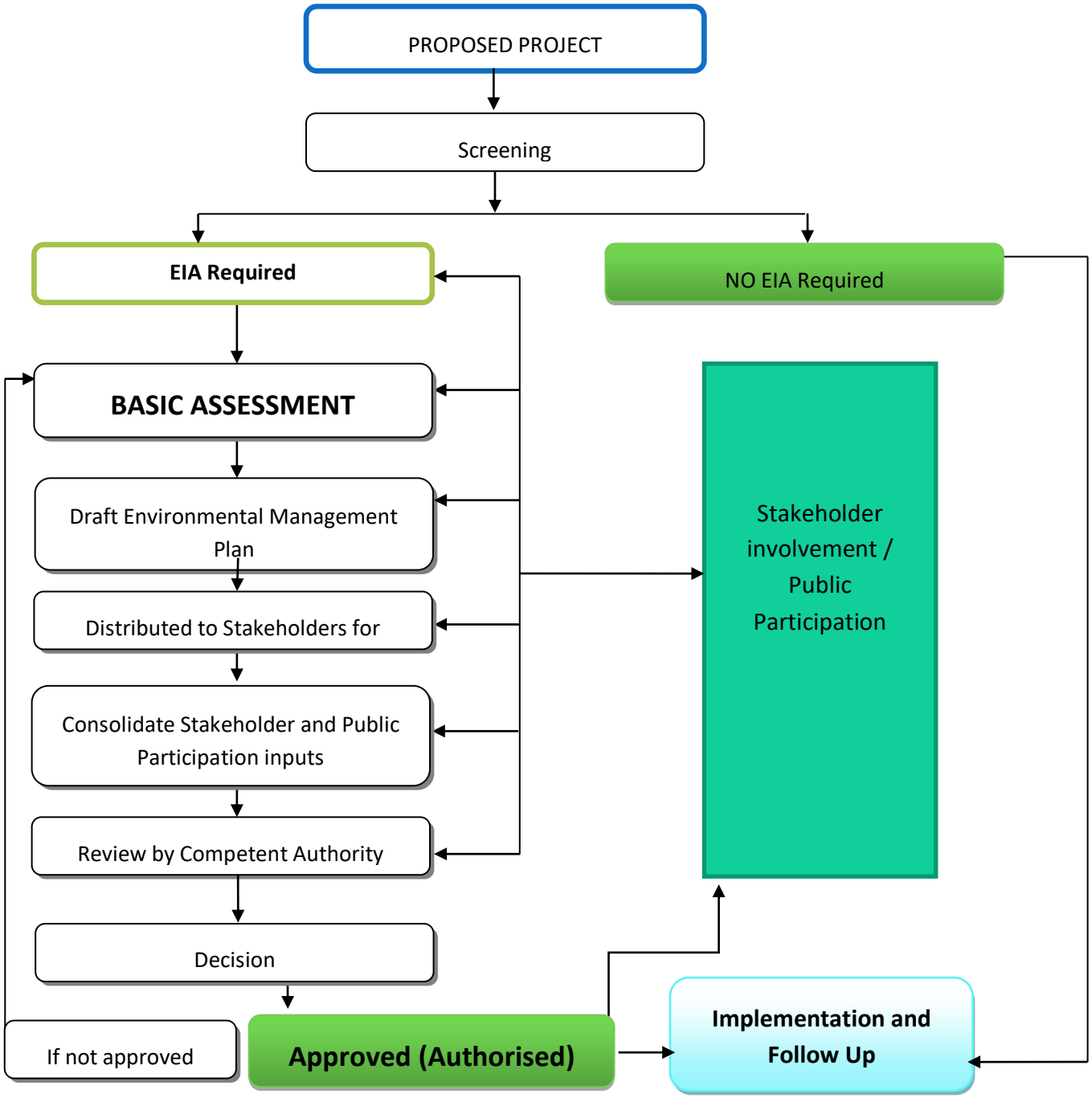

Figure 4 An illustration of the EIA Process flow (Source: Adapted from Aucamp J.P., 2010).

3.1 THE DETAIL SITE ANALSYSIS (BASIC ASSESSMENT)

The project is currently at the detail environmental analysis and issue identification and assessment phase of the 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 327 and 325 of 2017, under 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. 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 attached summarises the public participation process undertaken as part of this process.

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 R327, R325 and R324.

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 neighboring 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 services to local communities is part of government's initiative to improve service delivery and improve the livelihoods of such communities. This is being done through many means, from improving residential infrastructure, improving of roads infrastructure and extension of other vital services such as water, electricity, sanitation, and accessibility by emergency services.

Since the flooding that occurred in KwaZulu Natal in

The community has the basic services such as electricity and water in some parts. What is lacking is a harmonious formalization of the community which will include vital services such as roads. Once roads are improved and properly formalized, there will be access to various parts of the community. Other positive spillover developmental effects are expected to occur with the provision of these foundational infrastructure. In this case upgrade of roads infrastructure and provision of better housing infrastructure.

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 982 of 2014 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

Currently, the site proposed for the development is the area covered by the existing settlement. This means that the houses will be constructed on the yards of the homesteads, as per the formalization plan. The roads will also be upgraded on the existing internal roads or as per the proposed layout. Due to the complicated nature of coming out with the layout of such communities, unless any significant issues are incurred, the most conducive sites are chosen in order to have the minimum negative impacts in terms of bulk infrastructure such as roads and reticulation pipes. According to the town planner's layout, the proposed layout is the only alternative so far. So far this current layout is the only alternative considered and deemed suitable and takes into consideration the sensitive areas within the project site as identified by the wetland assessment studies undertaken.

ACTIVITY ALTERNATIVE

The purpose of the development is to formalize the community by providing internal roads and other services. Currently due to budget and time constraints and the developmental needs of the community, it is indicated that the proposed activity is the most suitable means of improving the community's current outlook. In view of this no other activity alternative is considered as this is already an integrated service delivery project.

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 transport 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 settlement upgrade does not take place. The areas where access and internal roads are in poor condition will remain as such, if not deteriorate. No water installations or additions will be made to the households. The status quo will simply remain, coupled with current community unsatisfaction with the state of services, leading to potential social unrests and protests. That is the current nature of the no-go alternative. This also implies that potential disturbance to wetlands and drainage lines may not occur due to this project (even though they may still be degraded by other developments, natural erosion phenomena or informal encroachment).

7. DESCRIPTION OF THE RECEIVING ENVIRONMENT

7.1 PHYSICAL CHARACTERISTICS

7.1 TOPOGRAPHY AND SLOPE

The topographical character of the site consists mainly of a gentle sloping terrain, sloping eastly towards a valley on the east. The site slopes gently and does not consist of any steep slopes of beyond 1:3 within the development footprint, except a small portion within the valley head, which will anyways be excluded from the active development. In terms of the implications for the propose development, it is noted that development cannot be undertaken on slopes greater than 1:3. However, as per general residential development principles, all areas that are not steeper than 1:3 are potentially developable as far as slope is concerned. At this stage slope is not expected to be a hindrance for the proposed development.

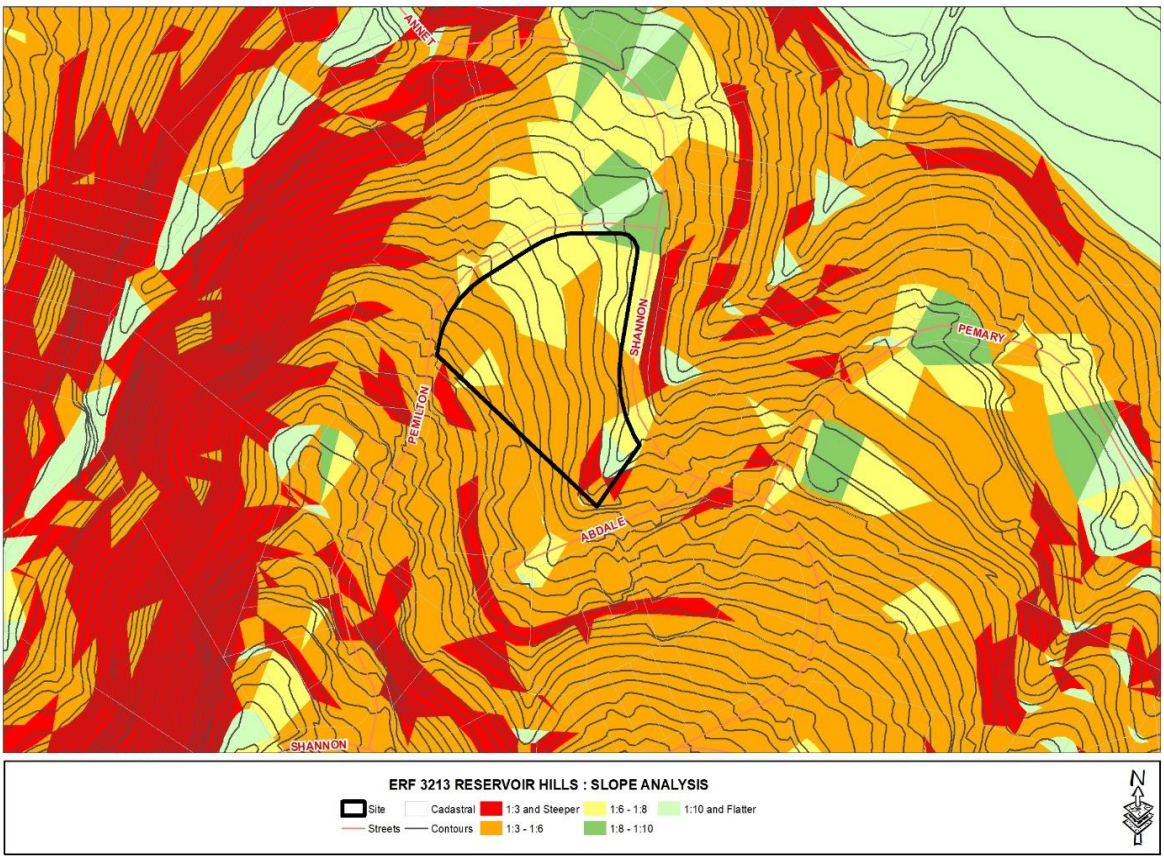

Figure 1 Slope analysis of the site


ANNET
SHANNON
PEMILTON
ABDALE
PEMARY
SHANNON
3213
ERF 3213 RESERVOIR HILLS : AERIAL
Site
Cadastral
Streets
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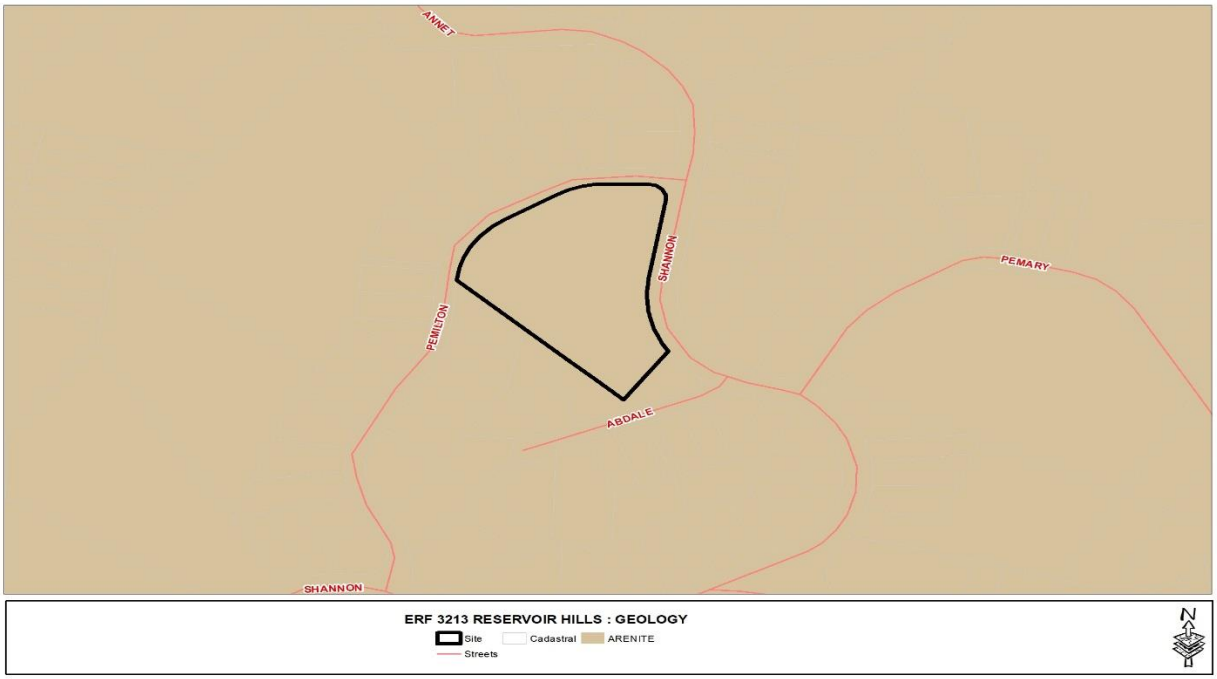
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7.2 WETLANDS AND RIVERS AND CATCHMENTS.

The proposed site falls within the immediate catchment of the Inanda River and its tributaries. One of such tributaries flows through the valley which extents along the south-eastern boundary of the site. The river is associated with a broad basin with functional wetlands (Map 2) and riparian zones. This valley head is located within 32m of the site, and hence requires care and protection from degradation during the development. It is observed that the site was already cleared, to the edge of the valley.

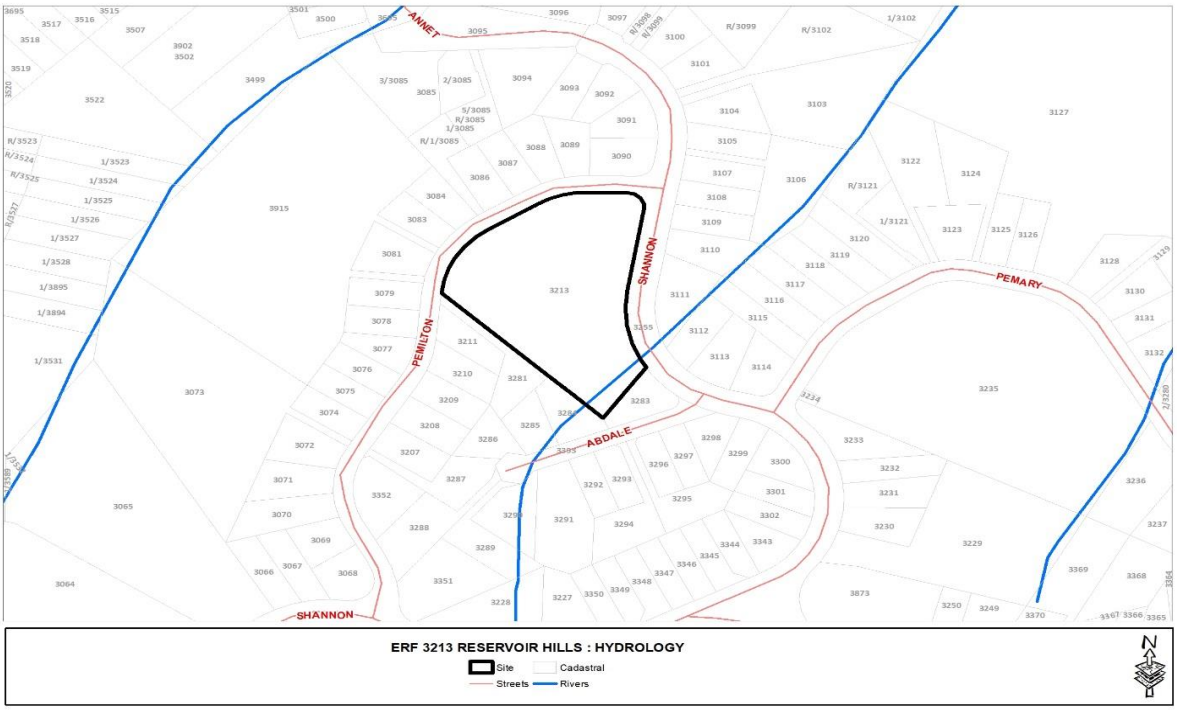


Fig figure 2. Map of the site and proximity to hydrological features

Implications for this development

The proposed site is outside wetland areas of the river but is traversed by a valley line with a seasonal stream and therefore require some care be provided to the valley and the seasonal stream that flows within. At least a minimum buffer of 15m need to be accorded the valley head. The vegetation within the valley line needs to be maintained to protect the water quality and integrity, as well as serve as a stormwater attenuation mechanism.

The principles of catchment system management require that all flood lines (1:100-year flood lines) and wetlands within the catchment need to be protected from possible degradation. In view of this, the following principles apply:

- 1:50 years, and 1:100 years flood line of all major rivers within the catchment should be established.

- No development is to occur within the 1:100 years flood line, (bearing in mind the 1:50 year floodline is a component of the 1:100 year floodline)
- No development is to occur within any wetland area or within the recommend buffers.

Given the proximity of the site to the watercourses (within 500m), there may be the need to apply for a Water use licence (WULA) in terms of Section 21 of the National Water Resources Act (Act 36 of 1998).

Due to the stream within the valley, a wetland delineation may be required, to properly assess and delineate the extent of the wet areas associated with the stream, and to recommend the appropriate buffers and mitigation.

7.3 VEGETATION

The site is covered by vegetation type classified as the KwaZulu-Natal Coastal Belt Thornveld (Figure 3). The site was already cleared of vegetation for an earlier development of temporary shelter for the June Flood victims, but which was later abandoned. The site is now being considered for a Hence no vegetation was observed on the site excepted within the valley head, and also a few trees that were reserved along the Hindu temple on the corner of the stie. A view of the site is shown in the photographs in Figure 4.

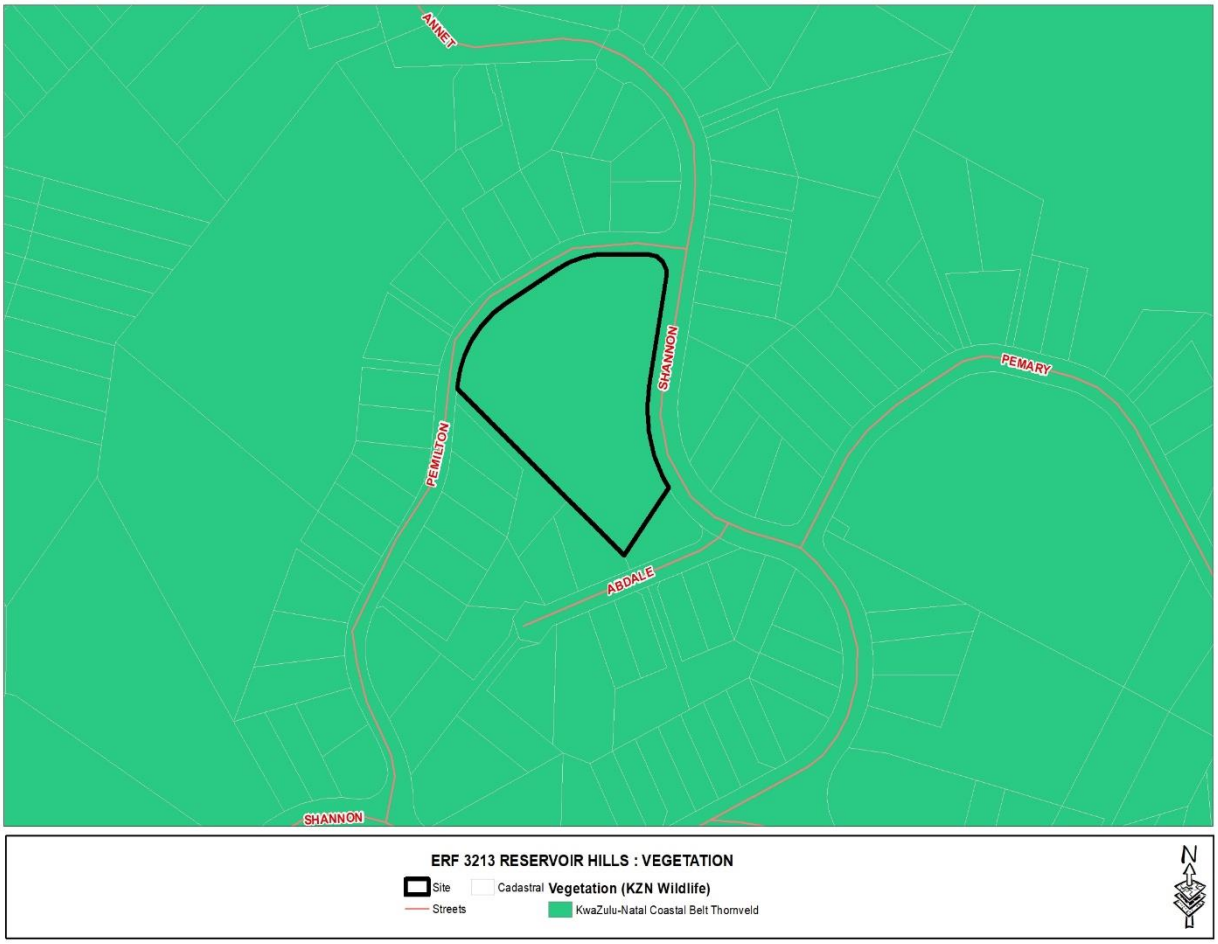


Figure 3 Vegetation Classification type

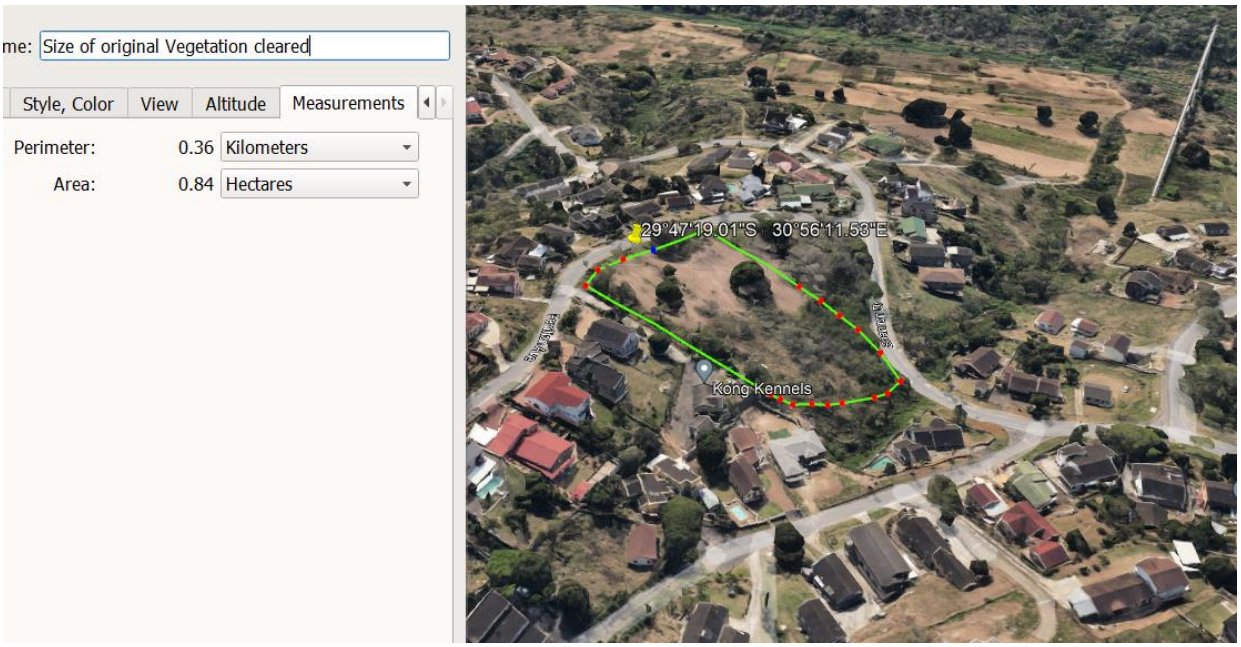
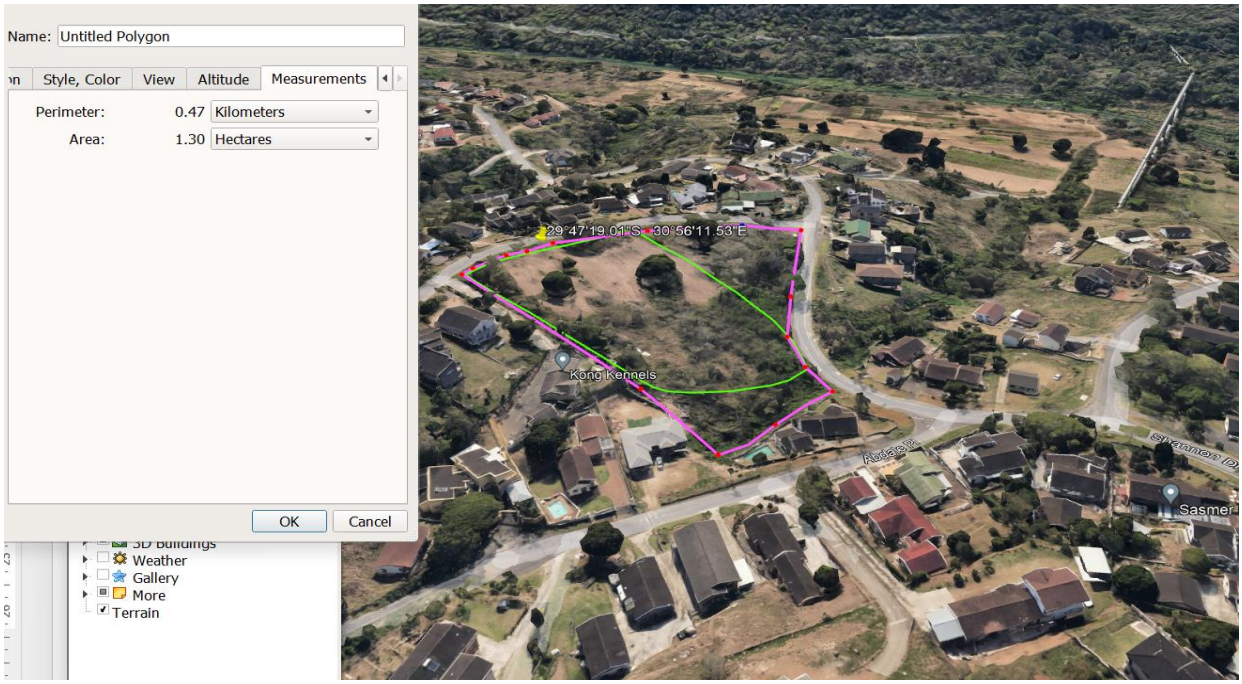


Figure 2 Vegetation is cleared on some parts of the site

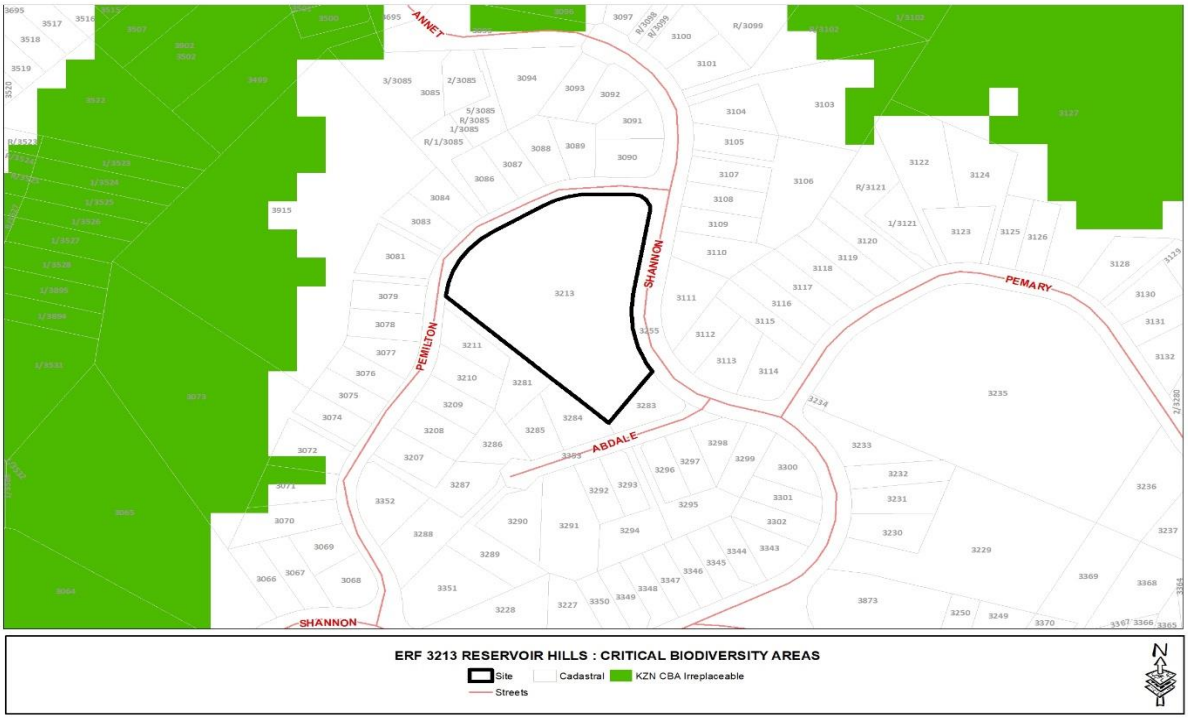
The areas where signficant vegetation remains on the site incode the valley head, and the area where the Hindu workship center is situated, which is currently occupied by transformed vegetation. A garden is created with diverse ornamental plants and alsoo grass lawn, as shown in the second picture below.

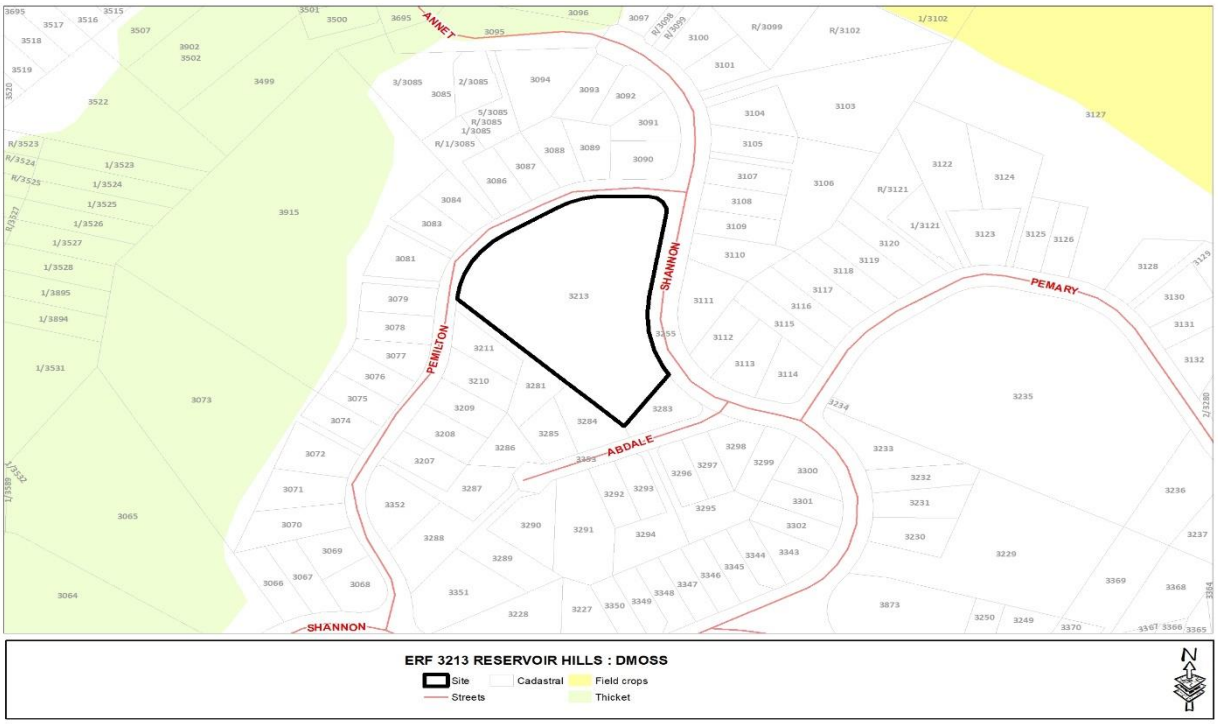
Figure 3 Areas where some land cover of vegetation exists.



General Biodiversity

The Critical Biodiversity Mapping shows that that site does not fall within the CBA zones within the area. It does not also fall within the DMOSS zoning areas. The mapping of these two-sensitivity zoning are presented in Figure 5 and 6, showing the CBA and DMOSS mappings of the area, in relation to the site.





Implication for the proposed development

Any development that entails removal of the vegetation within the development boundary of more than 1ha may have legal implications in terms of the environmental regulations. In terms of GNR 327 of NEMA, as published in December 2017, 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. In this case, at the time of commissioning these studies, vegetation was cleared on the site, for flood victims' disaster emergency shelter development. At least 700-800m2 of vegetation was cleared in the process. Given that the vegetation that remains on site at the time of commissioning this process is less than 1 ha, it is not anticipated that vegetation activity will be a trigger in terms of Section 24 of NEMA (Act 107 of 1998). However, the vegetation within the valley system must be maintained, to avoid any disturbance to water quality in the stream or disturbance to the wet riparian zones.

A few trees left on the site includes syringa and Albizia and acacia trees. These are mainly located within the religious centre on the north-eastern corner of the site. Consultation with the leaders of the community need to be done to ensure there are no social conflicts in removing any of these trees, if needed.

7.4 CURRENT AND POTENTIAL LAND USE

The site currently is mostly vacant land. The Environmental management Framework has zoned the area for Special Residential 1, which resonates with the proposed development in terms of the planning scheme of the municipality.

Implications for the proposed Development

The proposed development appears to be in line with the planning scheme of the Municipality. Given the tendency of informal settlements to spout into vacant lands, the proposed development is perhaps a way of ensuring control and enforcing a barrier with the development boundary, to protect these surrounding sensitive environments.

7.5 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.

7.6 CULTURAL/ HERITAGE ARCHAEOLOGICAL RESOURCES

Site assessment did not readily identify any significant heritage resources in the area. The site on the north-eastern corner has a religious, facility in the form of a small Hindu Devi-temple or shrine. Around this are established garden. Conversation with the members of the community, and some of the leaders of the temple, indicates that the

developers have allowed them to continue to utilise the temple where it is located, and the site clearance at the time excluded this portion of the site.

IMPLICATIONS FOR THE PROPOSED DEVELOPMENT

As it is now, with the exclusion of the temple, it appears there may be not significant issues. However, a communication with the leaders of the community is needed, to ensure that care is taken to avoid any social conflicts and to not disturb the worship centre. If any modification is expected, this should be communicated to the leaders and a agreement should be reached prior to any such activity. In general, Amafa KwaZulu Natali. It is also very likely that a Heritage Impact Study may be required, in terms of the National Heritage Resources Act (Act 35 of 1998), given the site is more than 500m2.

7.7 AVAILABILITY OF SUPPORT INFRASTRUCTURE /BULK SERVICES

The site currently is vacant but is located near the existing Reservoir Hills community. Electricity and Water infrastructure are located within the community. Confirmation letters may be required as part of the bulk service capacity assessment from eThekwini Municipality to this effect. Road net work exists around the site.

7.8 LEGAL BARRIERS

The proposed site is in close proximity to very sensitive hydrological feature in terms of a valley head with seasonal stream. Though the site is noted to be outside the recommended development setback lines for the major rivers, such as flood lines and wetland buffers, extra care or caution may be required when developing the site to ensure that the valley is not negatively impacted on. It is established that the site is within at least 32m of watercourse therefore require environmental authorisation in term of activity.

The site was cleared of vegetation for the emergency shelter for the flood victims.

As per the special exemption granted at the time through the special Directive In Terms of Section 30a (1) And (3) of The National Environmental Management Act No 107 of 1998: Emergency Authorisation for the Activities Required for the response to the provincial disaster declared under GN R2013 of 13 April 2022: severe weather events within Kwazulu-Natal, the site was cleared then as part of the emergency response. The intention then was to construct temporary shelters for the flood victims. However, this was abandoned.

Now the site is being considered for the permanent structures of WALK-UP UNITS to be allocated to beneficiaries. The planning thereby commissioned the EIA and other studies, such as Geotectonically investigation, engineering and others, to ensure sound

planning. Through there is no significant vegetation on the site currently, the site still triggers activity within 32m of the stream. Hence the Bais Assessment is being conducted, to get the valley delineated and the environmental risks fully assessed, and the appropriate recommendations provided.

IMPLICATIONS FOR THE PROPOSED DEVELOPMENT

From the assessment of the site, as it is at the commencement of this process, it is our opinion that environmental authorisation is required through an environmental impact assessment. In this case a Basic Assessment (BA) process as required by NEMA Regulations as published December 2017 as amended. This may take between 6 -12 months to complete. Also given that the site is within 500m of watercourses, a water use licence (WULA) may be required in terms of section 21 the National Water Resources Act (Act 36 of 1998).

8. IMPACT IDENTIFICATION AND ASSESSMENT

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, 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)
	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 way 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		
11 - ≤16	High		
	Positive		
	Negative		

	Positively High		

8.1 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 phase, construction phase, operational phase, decommissioning and 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.

For this proposed residential development at eThekwini, 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 reticulation infrastructure.

Social impacts include employment and business opportunities that may open up to the local and neighbouring communities as well as satisfaction that may be derived from the upgrade in the community's outlook. Other impacts may result from the operational stages of the development. The list below includes the potential identified impacts of the proposed development.

Some of these impacts may occur at the various stages but with different intensities and extent, and significance. These are assessed in relation to the various stages of the development, specifically construction and operational stages. It is noted that no decommissioning is envisaged in the proposed activities of this development. From this context, no decommissioning impacts are identified.

Construction stage Impacts

Direct impacts

1) Potential loss of biodiversity during construction stage, due to vegetation removal
2) The loss of indigenous vegetation due to the removal of land cover
3) Impacts on Hydrological and watercourses
4) Noise impacts
5) Dust generation and Air pollution
6) Possible water pollution / Surface runoff /Stormwater pollution
7) Soil disturbance and possible erosion activities
8) Heritage/Cultural /historical surface sites
9) Visual /aesthetic view disruption
10) Hydrocarbon (oil) Spills

11) Traffic generation and disruption in normal community life
12) Health and Safety issues
13) Job Creation

Indirect / cumulative Impacts

14) Improvement in the livelihood of local community members
15) Potential impacts on local services
16) Assistance in the stimulation of local economy
17) Potential contamination from improper waste management

Operational Stage Impacts

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

8.2 CONSTRUCTIONAL STAGE

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

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

		required								
15	Improvement in livelihood of local community	None required		3	2	6	0	0,75	**8,25**	
16	Impact on Local services	Yes		3	2	4	0	0,5	**4,5**	
17	Benefits to local economy stimulation	None required		2	2	6	0	0,5	**5**	
17	Potential contamination from improper waste management	None required		2	2	6	1	0,5	**5,5**	
									93,5	
	Mean Significance Rating								**5,84375**	0

8.2.2 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 AND MITIGATION NOT BEING IMPLEMENTED
Loss of critical biodiversity/habitat The existence of areas of high biodiversity integrity to accommodate critical habitats is very limited. No significant impact is expected on critical biodiversity from this proposed development given the site is relatively transformed, with	**3.5 =Low**	Though the site has undergone some form of transformation, the grassland on the site still constitutes a good land cover. The removal of these without mitigation may lead to accelerated stormwater. Vegetation removal should only be as	**Low**	Unnecessary encroachment on the areas on outskirts, may lead to degradation of the drainage line and disturbance of micro aquatic life within the catchment. These can be avoided by restricting development activity to the

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
only some regrown alien vegetation from previous settlement activities .. the areas where vegetation exist, are not being included in the development hence no impact is expected. However, given the proximity of the shallow drainage to the development, care need to be taken not to disturb the neighbouring vegetation areas.		much as needed for the development Appropriate stormwater management strategy needs to be implemented, to reduce stormwater velocity. During construction period, it is important to demarcate these areas off, to reduce any incidents of encroachment. No dumping of materials or turning of vehicles should be allowed. Any activity that will degrade the wetland area should be avoided.		development footprint only and removing only the among of vegetation needed to contain the development, while managing stormwater flow.
Loss of indigenous vegetation Most of the areas of indigenous vegetation in	2**,5 Low**	All areas that may be left bare during construction should be rehabilitated immediately with suitable vegetation		If all recommendations are adhered to, and monitoring of construction is strictly done, these issues should be

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
the site has been degraded. Disturbance of these surface cover may pave the ways for alien vegetation encroachment and hardened surfaces as result of loos of landcover. Given the that the development is to occur only within the existing or settled areas, no significant impact is expected on the indigenous vegetation. The only possibility of disturbance will be encroaching unto the neighbouring vegetation area due during construction.		(and approved by ECO and site Engineer) to avoid any alien species encroachment. This must be monitored during construction and post construction. These the wetland areas need to be incorporated in the open space plan of the community and considered no-development zones. During construction period, it is important to demarcate these areas off, to reduce any incidents of encroachment. No dumping of materials or turning of vehicles should be allowed. Any activity that will degrade the wetland area should be avoided.	**Low**	avoided, bringing the potential impact to moderate to low. Vegetation in natural form is quite low in extend due to degradation, but the few areas of good grassland for domestic grazing could be lost or reduced.

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
Impact on fauna The proposed site is next to a settled community and is relatively transformed. There is only grassland on the site. Site visit and walkthrough sis does not reveal any significant fauna species, other than normal bird species that perch in the areas eating from illegal waste dumping. In view of this, 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**	Machinery with low noise levels to be used. Site activities should be conducted during daytime hours to avoid night-time noise disturbances when people come home and want to rest. .	**Low**	This impact is expected to be limited, given that the community is an existing one, and with the current density, so significant fauna is expected other than occasional birds and domestic animals such as dogs and goats.
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.	**6,75 = Medium**	Machinery should be kept in good working order to reduce noise emission. Noise reduction mechanisms should be equipped if necessary.	**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

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
This is likely to last during the construction stage and daytime if all activities are restricted to day working hours.		The construction activities should be restricted to normal working hours and during the day, between 8 to 5pm.		nuisance to the community itself.
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 should be kept to a minimum, and uncovered soil should 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.

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
Possible disturbance to hydrological resources: The side is largely devoid of rivers and major wetlands. However, it is bordered by shallow drainage line and seepage areas. These have been identified. These have become the main channels for drainage and aquatic corridor into the river systems outside the site boundary. It is equally important to protect these areas from degradation.	**8**	Wetlands and watercourses are major hydrological systems that perform functions of flood attenuation and also server as habitat for some aquatic microorganisms within the broader catchment. Appropriate protection is necessary for all valley systems and water-logged areas in the catchment. It is therefore recommended that a buffer of 30m be established along the open valley system identified along the western boundary of the proposed site. • It is further recommended that in order to augment the catchment efficiency of the area, at detailed planning level, buffers of between 20 m and 15 m be established along the other drainage lines to protect important or sensitive natural communities that are	**Low to moderate**	Should the recommendations not be adhered to, possibility of encroaching on the wetland areas next to the site may result in wetland degradation. Cumulative impacts on these may be localized flooding, as these systems have become good channels for surface water management.

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
		specific to certain localities. No development should be allowed within the valley no-go areas.		
Underground water There is also the possibility of contamination of underground water as a results of soil pollution due to the 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. **Surface runoff pollution** Impact on surface water may be as a result of uncontrolled waste handling, including	**15 = High**	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	**Low**	Should there be no mitigation measures, possibility of storm water pollution during constructionism likely to result. This however, is likely to be localized.

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
stockpiles. **Storm water management** Given the proposed development regards the removal of land cover in some cases, the potential to create more hardened surfaces is 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 within the catchment system.		recycled where possible. A storm water management system, in terms of the National Building regulations needs to be implemented by the contracture 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 commencement of construction works on the site.	**Very Low**	Should no mitigation be implemented, this may constitute poor stormwater management which may result in Issues such as localized ponding, sedimentation, erosion and pollution among other things.
Soil disturbance/erosion The proposed activity will result in further surface 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	**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	**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 top soil removal, and soil erosion will be high given the fact

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
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		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.		that soil will be left bare exposed to wind and rain.
Cultural and Historical surface sites From this assessment, no significant heritage resources were identified. The site is currently bare, but with evidence of previous human activities, such farming and related activities.	**2=Low**	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 and Research Institute.	**Very low**	Recommended level of
Visual / Aesthetic Impacts Visual impacts are likely to emanate from construction activities such as storage of	**3.5=Medium**	Material storage during operations should be done at designated areas, in order not to constitute any aesthetic	**low**	Visual Impacts is most likely to occur if mitigations are not considered which will disturb the eyes and mind

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
materials, and neglected excavations. Construction of roads may also result in considerable altering of the current looks of the areas along such footprints.		nuisance. Soil stockpiling and excavations should be worked on and the areas restored within reasonable time frames, to reduce the length of visual impacts. Roadworks should be undertaken according to construction standards, and no unnecessary blockings and erecting of structures should occur. Where such are necessary, they should be removed as soon as work is complete in that area. Visual friendly materials should be used in all cases.		of the community. This may cause nuisance also to road users etc.
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	**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.	**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

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
or pollution of the soil, if not properly managed or prevented.		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 undersealed with drip pans. Fuels and petroleum product storage should be undertaken and 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		water, soil pollution and disturbance of the bio-equilibrium among other negative effects

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
		enforced during the construction and operational faces.		
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 and also the blocking of some roads, of lanes for construction work on such roads. This may cause some inconvenience to local residents. However, this is likely to be minimal given that the site can be accessed via different routes.	**4=Low**	Traffic control officers should be appointed to control the flow of traffic on the road to avoid such inconvenience. This kind of inconvenience can also be avoided by using alternative routes and proper planning of road diversions is necessary. Road closures and diversions and traffic disruption should be avoided as much as possible, and where such are necessary, should be within minimal durations to allow normal flow of traffic. Proper signage should company any planned roadworks, and disruption of traffic	**Very low**	If the mitigation measures are not implemented, there will be a high chance of unnecessary traffic disruption.

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
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 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	**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 the case of fire.

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
		be implemented with areas of dug trenches barricaded off.		
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 Layout 1: All the above employment will be generated. About 35 – 50 labourers may be employed for the duration of the proposed development. **For Layout Alternative two:** This layout proposed more units to be built,	**8.5 =medium**	No mitigation is required	**High**	N/A

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
to be about 480 or more. Whis will mean that the embayment duration will be longer compared to the preferred layout, where only 300 units are proposed.				
Improvement in livelihood of local community The temporal income generated may contribute to household life improvement in the short term. In the long term however, local people will gain skills that will help them on their future and they will stand a better chance of being hired when the development of this kind happens again.	**8,5=Medium**	None required	**Medium**	N/A

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
Impact on Local services Given that the development includes an upgrade of the existing community, most of the local services such as water and electricity resources are expected to aid the development process. Also some services such as road usage and water connections may be disrupted temporarily during construction.	**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 preceded with ample and adequate notifications of the affected areas. Services should be restored within the shortest possible time.	**Low**	Disruption in services without adequate notification may be a source of irritation for affected community. However, with proper mitigation measures, these should be mitigated.
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	**5=Medium**	None required	**Medium**	N/A

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
members means, more purchasing power, leading to the stirring of economic acidity in the local economy. In addition, access and improvement of bus routes will also empower easy movements within the community making people go about their daily business with much ease, thereby improving efficiency of any existing economic activities.				

8.3 OPERATIONAL STAGE

8.3.1 SUMMARY OF POTENTIAL IMPACTS AND THEIR RATINGS

	OPERATIONAL STAGE								
	Impact	Mitigation Required	Nature of Impact	Extent	Duration	Magnitude	Irreplaceable Loss of resources	Probability	Significance Score
1	Noise	Yes		1	1	2	0	0,25	1
2	Water pollution (water courses)	Yes		3	4	4	1	0,25	3
3	Soil disturbance /Erosion	Yes		1	1	4	1	0,5	3,5
4	Air Pollution	Yes		2	3	2	1	0,5	4
5	Stormwater management	Yes		3	2	6	1	0,25	3
6	Job Creation	None Required		3	4	6	0	0,5	6,5
7	Visual / Aesthetic impact	Yes		1	4	0	0	0,5	2,5
8	Traffic	Yes		2	1	4	0	0,5	3,5
9	Safety	Yes		1	2	4	0	0,5	3,5
10	Impact on Local services	Yes		3	4	4	0	0,5	5,5
11	Benefits to local economy	None Required		4	4	8	0	1	7,84
									47
	Mean impact rating								**3,3079**

8.3.2 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. Noise Noise levels are likely to be back to normal during the operational stage. The people who are to benefit from the proposed development are members of the community, hence it is expected that they will live in the same harmony and lifestyle as would now come to exist in the new development. It is therefore not expected that noise levels should increase beyond normal residential levels. However, should there not be management put in place, some radical behaviours may develop overtime.	**Score 1 = Low**	No mitigation required for noise during operational stage as life would have returned to normal as construction machines would have been withdrawn. During operational levels, there should be a proper management put in place to manage the facility. Security company should be engaged to maintain security in the area, Simple rules of occupancy should be developed and made availably to each person on rental, and should be	**Low**	Proper lay and order should be kept in the facility and enforced. A management company (preferably private) should be engaged to maintain the rentals of the facility and also manage the security.

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**
		enforced through various punitive measures if not adhered to, including expulsion from the residential facility.		
2. 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 and siltation and subsequent blocking of drains and disturbances of watercourses.	**Score 3** **Low**	• Waste management should be included in the responsibilities of the local authority and carried out regularly to avoid any contamination of the environment. . • Given the improvement in road network, it is expected that waste management services will also improve.	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.

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**
3. 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.	**Moderate 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. Land cover within the open spaces an riparian zones should be maintained to serve as a reduction mechanism for surface runoff.	Low	Should the mitigation measures not be implemented, and then there is possibility of the impacts discussed occurring. What could happen will be ponding and also or stagnation if the bare land is left for a longer time without any mitigation measures. Erosion may also occur as a result of improper discharge of stormwater.
4. Air Pollution Possible pollution sources during the operational phase may stem from waste left uncollected and on any unpaved roads within the area, generating dust.	**Low 4**	Speed regulating mechanisms should be applied on any unpaved roads, in such a way that reduces any potential dust generation. Waste collection as emphasised in the previous sections, should be regularly	Low 5	The identified impacts may occur, should no long-term mitigation measures not be put in place. People may have unrests and discomfort from such impacts.

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**
		carried out by the local authority.		
5. Storm water management • Given the proposed development regards the removal the 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.	**Score 3** **Medium**	• A stormwater management system, in terms of the National Building regulations needs to be implemented. Onsite, drainage systems will 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	**Low 6**	• 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.

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
		be identified and implemented as part of the stormwater channelling mechanism. • Onsite water harvesting infrastructure should be installed to the buildings, where possible to reduce the amount of stormwater flow.		
6. Job Creation Both the construction and operational phases of the proposed development are likely to create additional jobs for the local community. Jobs will be created during construction as labours, masons and other workers may be required. Operational phase of the development may however see fewer jobs. Potential jobs may include	**6.5Medium**	**N/A**		Should the development no be implemented, then the iterated or envisaged positive impacts are not likely to occur.

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**
maintenance staff and skilled labour work such as engineers overseeing and monitoring operation of services. Waste collection is also likely to generate some form of job avenues for some local community members. Also if a Security company is appointed, many security personnel may get employment within the management of the WALK-UP UNITS.				
7. 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	**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	**Very low**	Aesthetic or visual impacts are expected to normalize drastically during operation if all care is taken during stockpiling of materials and waste.

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**
and well formalised.		operation to ensure minimal aesthetic discomfort to community members.		
8. Traffic • Traffic should return to normal and rather improved, with additional and improved road network systems. The traffic is expected to normalise into the community, as there are different alternative routs around the facility.	**3.5 = Moderate**	• Proper signage should be applied, to ensure most efficient traffic situation during operational stage of the development. Traffic calming measures should be implemented on road networks, accompanied by proper signage.	•	• Improper signage and traffic control measures such as speed limits may result in traffic situations, inconvenience and in some cases possible accidents**.**
9. Safety Safety during operation concerns communal leaving in a complex setting. This may require some level of security and law enforcement to maintain law and order within the facility.	**3.5 Low**	As recommended earlier, the WALK-UP UNITS should be fenced and proper security featyres should be installed. A management company,	4 Very Low	

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
		including and security company should be engaged to management facility on contract bases. This way if they are not performing properly, they can be replaced with better ones. The municipality non-the-less if the custodial of the facility and should ensure that there is optimum security in the place, and the facility should be properly managed, and well kept to make life better for occupants.		
10. Impact on Local services Local services, should improve significantly during operational stages. Residential unites would've been upgraded, and water and sanitation services	**5.5 = Medium**	Potential impacts on local services during operation are expected to be rather positive, if services such as		

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**
provided. Road networks would have improved also. The area being used is part of the original township establishment hence it is envisaged that the existing facilities and infrastructure should be able to accommodate the proposed development. Waste collection should be managed by the municipality.		waste and stormwater management are handled efficiently.		
11. Improvement in livelihood of local Economy • At operational stage, the improvement in the local economy would stem from the improvement in services to the community. for instance, water connection will be readily available for domestic and commercial activities. • The population that may not be able to afford rent, will gain accommodation through these subsidised rental programmes. • Also, the municipality will also gain income from the rentals which may improve the municipalities	**8 = High**	None required	**NA**	**NA**

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**
financial stand, and also the local economy if used to improve further service delivery. • Improvement in road networks, mean people can go about their daily duties with much easy. Cumulative effect of all these improvements is expected to stimulate the local economy, though indirectly.				

8.4 NO GO ALTERNATIVE

Potential impacts:	**Significance rating of impacts (positive or**	**Proposed mitigation:**	**Significance rating of impacts**	**Risk of the impact** and **mitigation not being implemented**

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**
	negative):		**after mitigation:**	
The impacts of no go alternative are most likely to be felt from a socio economic development perspective. No go alternative, may imply that the community remain with the current issues of poor services. The envisaged job creations and economic stimulation may also not occur. All possible employment opportunities that are likely to arise from the proposed development construction and operational stages will be lost, or at least stunted. Socio economic benefits of the proposed development to the community are also likely to be lost.	**Moderately High**	Mitigation for this impact, is to find ways of implementing this development as planned, in an environmentally friendly and responsible manner, adhering to all legislations and guidelines as well as recommendations of this assessment.	Low	Should the mitigation not be implemented, then the issues described in the impacts section will continue as they currently are. More service delivery protests may rather occur. Also there may be dissatisfaction and conflict within the community as some residential unit hopefuls would have been denied houses, leading to social conflicts.

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; however, will keep the environment the way it currently is. Possible construction stage impacts as well may be avoided. Production levels will remain same or increase gradually. Possibilities of informal occupancy of the site may also rise. The proposed development, if properly managed after establishment should lead to proper and formalised settlement.				

9 CONCLUSIONS AND ENVIRONMENTAL IMPACT STATEMENT

The purpose of this is to detail 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 and alternatives may have on the environment prior to and after the management and mitigation of impacts have been taken into account, with specific reference to types of impact, duration of impacts, likelihood of potential impacts actually occurring and the significance of impacts.

The impact assessment and significance rating show that the construction stage impacts, and operational stage impacts are largely of medium significance, given the fact that the site is largely an already settled community. Construction stage impacts at an overall mean of 5,84375, which is Medium, while operational stage impacts have a mean of 3,039, out of 10, which are considered low. If all the proposed mitigations are implemented, these impacts should be reduced further. This is also attributed to the fact that other than the heritage sensitive areas identified, most of the hydrological and terrestrial impacts are located outside the development footprint.

Alternative A (preferred alternative), The Proposal

Biophysical environment

The site slopes gently, and a slope steepness of about 1:10 gradient. The site mostly It is noted that the development is mainly an in-situ upgrade within the existing community. Most of the vegetation on the site is already largely transformed and therefore the removal may not have significant, impact as if the vegetation were still pristine and of critical biodiversity. No red-data species were identified, and the vegetation is only noted to be largely vulnerable and not endangered.

The land cover however, act as flood attenuation mechanisms and protection against erosion. The proposed development will result in minimal clearing of vegetation on the proposed sites for the construction of houses and service infrastructure such as roads and stormwater infrastructure. The clearing of the site is likely to result in further exposing the land and possible surface runoff pollution. This can be mitigated by implementing appropriate stormwater management strategies, including proper channelling of the stormwater during construction and operational phases.

- **Riparian habitat impact**

  No direct development is envisaged on the wetland areas, as they are more than 500m from the development footprint. The shallow drainage identified on the western outskirts of the site is taken into consideration in development the layout according to the scope of the development footprint. These can be impacted on encroached on during construction if care is not taken. Therefore, the duty of care and adherence to the recommendations in this report are Walk-Up Units .

- **Other Construction Stage 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.

- **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 once the proper infrastructure is put in place especially in terms of roads and stormwater systems. The neglect of mitigation measures, such as waste management 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.

- Another most significant impact that need to be taken care of during operation is the management and maintenance of the facility. These facilities if not properly managed have the tendency of degenerating into deplorable states over time. The municipality therefore need to develop end enforced strict security and safety rules in managing these complexes.

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

- 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. Above all, it is the ***level of social satisfaction*** from better service delivery may also be a tangible social and economic impact from the proposed development.

From this assessment, it is observed that most of the negative impacts can be readily mitigated. Also, the positive socio economic impacts from the proposed development outweigh the identified negatives (if properly mitigated). A no-go alternative may therefore be unwarranted, given the absence of fatal flaws with the proposed upgrade of eThekwini community and infrastructure.

No-go alternative (compulsory)

The No-development option will mean that the anticipated effects of impacts of the development will not occur. All the envisaged construction stage impacts, such as dust, noise and so forth will not occur because of the proposed development.

In addition, even though much removal of land cover may not occur as a result of development, a no-go alternation in this case, may still pave the way for some form of degradation as the community expands in an uncontrolled manner, without proper infrastructure to manage potential impacts.

- Road networks may still be an issue and some parts of the community may not have proper access. Emergency services may not have access to vital areas of the community.
- From a socio-economic perspective, the no-development option may rather hinder the potential biophysical and socio-economic benefits that were envisaged. From this perspective, it can be asserted that the potential positive impacts outweigh the envisaged negative impacts, hence a no-go alternative may not be necessary.

10 RECOMMENDATIONS

From this assessment of the biophysical and socio-economic environment, given that there are no fatal flaws that will hinder the proposed development it is concluded that the proposed development is feasible. The proposed development is thus possible provided all impacts are duly mitigated as proposed.

In addition, the following recommendations 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 any unwarranted effects of the identified impacts.
- The development must be restricted to the current development footprint as per the layout included in this assessment.
- The drainage area bordering the site, should be fenced off during construction stage as no development zones, and no activity whatsoever must be undertaken within the riparian space.
- 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.

- Project implementation monitoring and audit report must be regularly submitted to the competent authority to ensure all conditions and mitigation measures and proper due diligence is being applied.
- During implementation, the municipality must appoint a proper management company to management operation of the facility, including the rental management, security and maintenance.
- From the information gathered and based on this Basic Assessment Process, given that no fatal flaws were identified, and given the development is likely to rather improve the settlement, it is our opinion and recommendation that the development may be allowed to proceed given the socio-economic benefits it may yield to the community and the environment. This may also add to the service delivery progress of the Local Municipality.

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Mucina, L., & Rutherford, M. C. (2006). The Vegetation of South Africa, Lesotho and Swaziland. *Strelizia, South African National Biodiversity Institute*, *19*.

SANBI. (2016). KwaZulu-Natal Systematic Conservation Plan (KZNSCP) : KZNSCP Vegetation types. Retrieved April 30, 2016, from http://bgis.sanbi.org/Projects/Detail/39

Shaw, C. S., & Escott, B. (2011). KwaZulu–Natal Vegetation Type Description Document for Vegetation Map 2011: kznveg05v2_1_11_wll. shp. Retrieved from http://cpu.uwc.ac.za/KZN/KZN_vegetationtypes_descriptionsVer2_1.pdf

11APPENDIXES

Appendix 1. Locality Mapping

Appendix 2 Proposed Development Layouts

Appendix 3 Proposed Public Participation report

Appendix 4 Specialists Studies (Added as attachments)

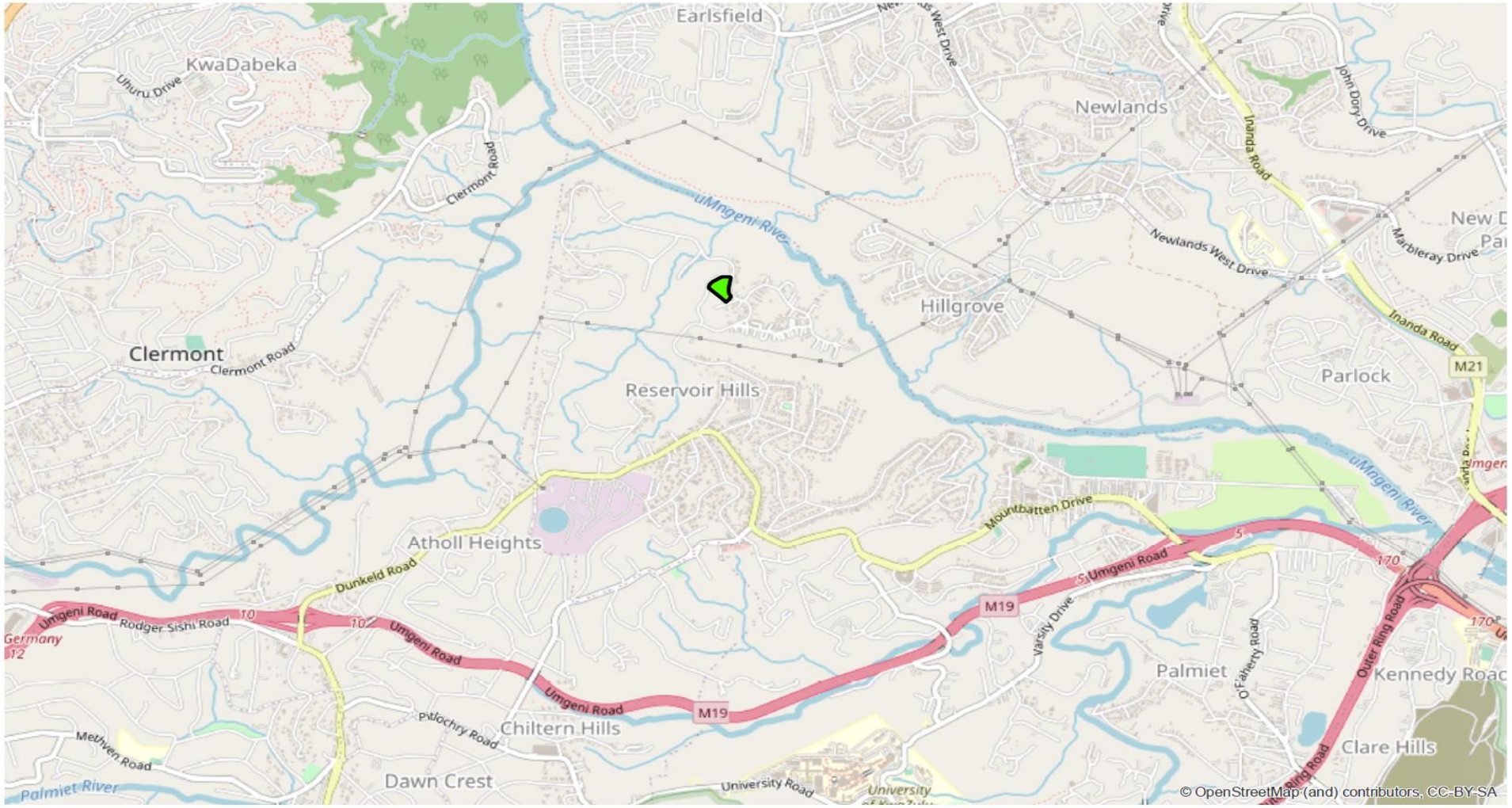
4.1 Geotech report

4.2 Bulk Services Report Rev 4

4.3 Wetland Feasibility Report

Appendix 5 EMPr

APPENDIX 1 PROJECT LOCATION

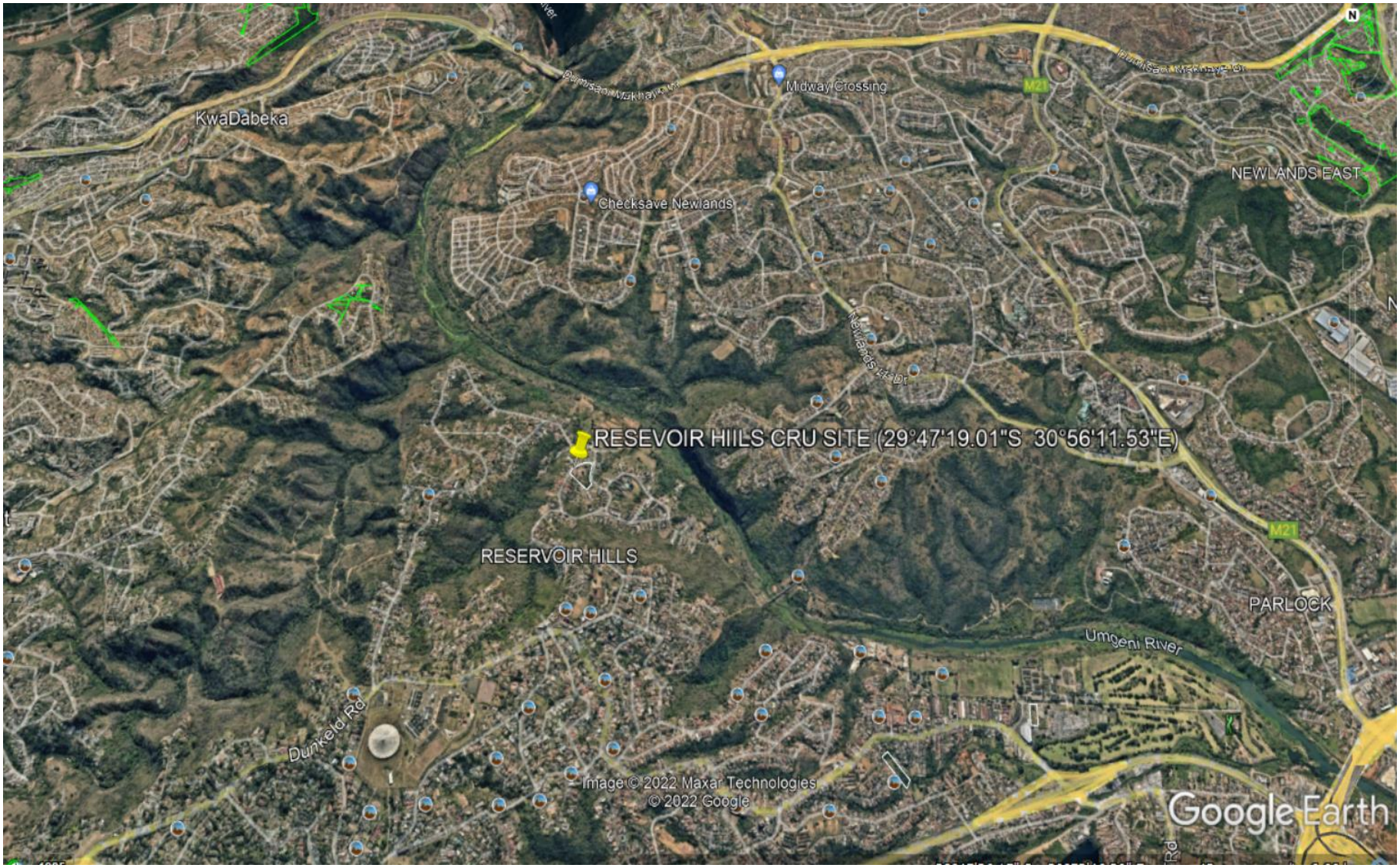


Erf 3213 Reservoir Hills : Locality

Site

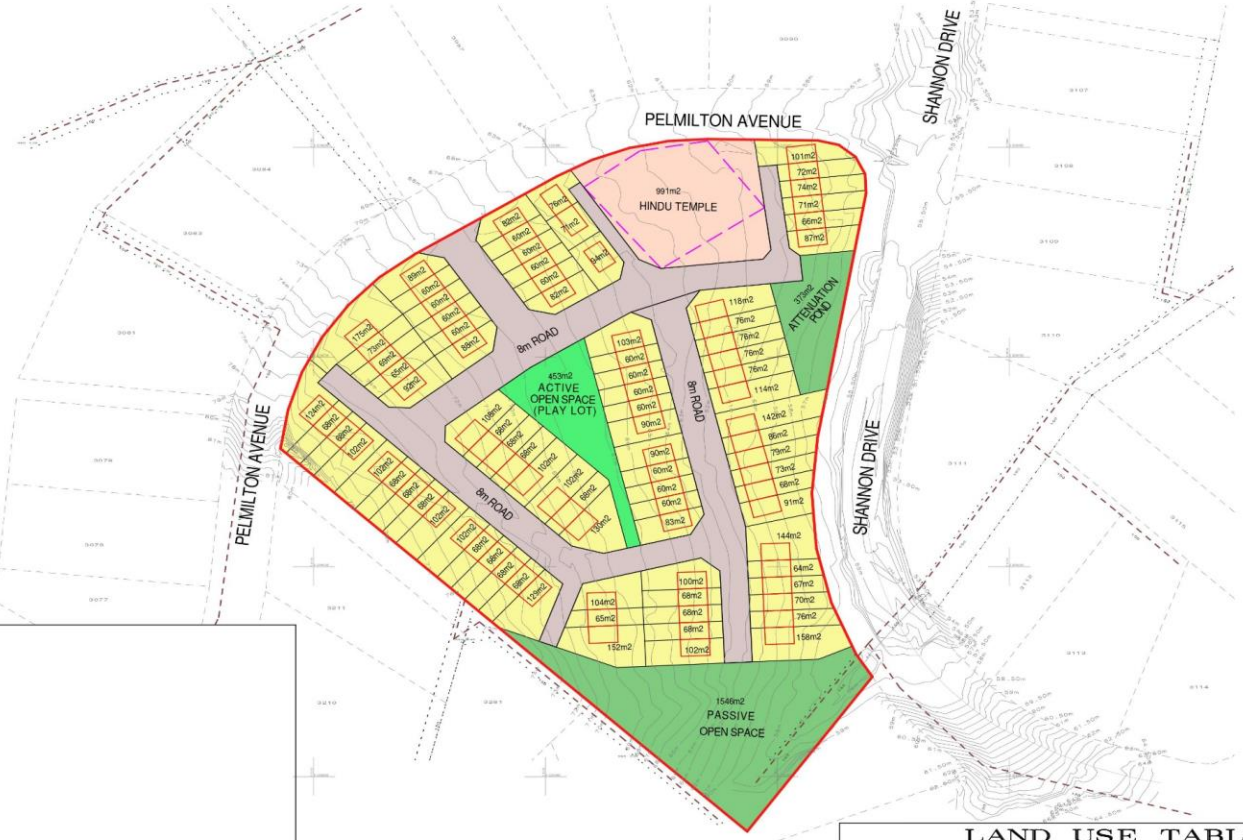
0 120 240 480 720 960
Meters

N


KwaDabeka
Midway Crossing
M21
NEWLANDS EAST
Checksave Newlands
Newlands Link Dr
RESEVOIR HIILS CRU SITE (29°47'19.01"S 30°56'11.53"E)
RESERVOIR HILLS
M21
PARLOCK
Umgeni River
Dunkeld Rd
Image © 2022 Maxar Technologies
© 2022 Google
Google Earth


PG-13 Plumbing & Hardware Supplies
Bunje
Bagz Couture
RESEVOIR HIILS CRU SITE (29°47'19.01"S 30°56'11.53"E)
Pemary Ridge Primary School
Sasmer Group
Shannon Dr
vip driving school
Pampally Way
AFRICAN PRIDE PROJE
© 2022 Google
Google Earth

PLAN SHOWING PROPOSED SUBDIVISION OF ERF 3213 RESERVOIR HILLS, ETHEKWINI MUNICIPALITY



STANDARD INFORMATION

Owner :
Title Deed No.:
S G Diagram No.:
SPLUMA Reference No.: .....

NOTES

CONTOUR INTERVAL = 1m
MINIMUM WIDTH OF PANHANDLE ACCESS = 3m
MINIMUM ERF SIZE =300m2
ALL AREAS AND DIMENSIONS ARE APPROXIMATE AND ARE SUBJECT TO A DETAILED FINAL SURVEY
RETAINING WALLS LESS THAN 2M IN HEIGHT MAYBE REQUIRED IN SOME AREAS, SUBJECT TO DETAILED DESIGN

LEGEND

1. DENOTES OUTSIDE FIGURE.
2. DENOTES EXISTING SEWER PIPES.
3. DENOTES SURVEYED TEMPLE AREA.

LAND USE TABLE

LAND USE	No.of SITES	No.of RESID UNITS	AREA (ha)	%
PUBLIC HOUSING 1	86	86	0.72	–
TEMPLE/CHURCH	01	–	0.10	–
ACTIVE OPEN SPACE	01	–	0.05	–
PASSIVE OPEN SPACE	02	–	0.19	–
PROPOSED ROADS	02	–	0.26	–
TOTAL	92	86	1.32	–

sibuko DEVELOPMENT PLANNERS CC
Unit 2, Building 4
141 WITCH-HAZEL AVENUE, CENTURION
P.O BOX 7623,
CENTURION
0157
TEL: 012 643 1154
FAX: 086 293 2943
EMAIL: naeks@sibukoafrica.co.za

PROJECT TITLE
ERF 3213
RESERVOIR HILLS

DRAWING TITLE
LAYOUT OF ERVEN

DESIGNED BY: Z. SODLADLA
CHECKED BY:
SCALE: 1 : 1000 (ON A3 PAPER)
CO-ORDINATE SYSTEM: WG 31
DATE: 05 APRIL 2023
DRAWING No.: 3213/WD4
REVISION

4.1 Other approvals already received; or indicate if any are in process by providing details of these NO.

Picture on top left is garden around the temple. Two pictures on the bottom is part of the valley head with flourishing alien species

APPENDIX 2SITE PHOTOGRAPHS

4.2 Site photos

APPENDIX 2 PUBLIC PARTICIPATION REPORT

PUBLIC PARTICIPATION REPORT

ERF 113 Reservoir Hills WALK-UP UNITS HOUSING DEVELOPMENT

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

TABLE OF CONTENTS

CONTENTS

1. INTRODUCTION

This report is a summary of the public participation process and activities being or that have been so far for the assessment process curried out for the eThekwini Ext 8 WALK-UP UNITS Project. Public participation is done with the assistance of the Ward Councillors and also Ward Committee Members within the community to ensure the community is provided sufficient opportunity to participate. This report details the activities carried out and outcomes to date. Generally, the community is happy and anxiously waiting for the project to be executed and completed., as was indicated from interactions with them.

2. PUBLIC ADVERTISEMENT

2.1 Site notices

Site notices were laced within the community in places that are mostly assessable by the community members, under the guidance of the Development Committee members. Photographs of some of the Site Notices are attached in Appendix 2(i).

2.2 Newspaper advertisement

A newspaper advertisement is being placed in a local newspaper. This is to further give notice to the public and invite comments on the Basic assessment report. Copy of the advert is included in this public participation report Appendix 2(ii).

3. BACKGROUND INFORMATION DOCUMENT (BID)

Background Information was prepared and distributed within the community of eThekwini suburb of Sisulu where the formalisation is to take place. This was done with the assistance of the local councillor/ ward committee members. All those who received such information were encouraged to register as interested and affected parties if they so wish. A copy of the BID and list of people to whom it was distributed are attached in Appendix 2.

4. PUBLIC MEETINGS

A public engagement was initially planned to be the distribution of BIDs to neighbouring residents. The possibility of public meeting is not ruled out. Once the community is mobilised, then the development will be again presented. Should three be any comments that warrant this, it will be held, and those issues addressed. As at now, no significant issues have been received from the community, other than their support for the proposed development as expressed by some residents during interaction during site visit.

5. COMMENTS FROM STAKEHOLDERS

The draft basic assessment report (BAR) has been distributed to key stakeholders between the 1st of November to the 30th, as part of the 30 day normal 30 day comment window, this is being distributed to relevant government departments and municipalities) for comments. These include, AMAFA, KZN Wildlife, EDTEA and DWS. Comments received are inculcated into this final report to be competent authority. Indications from KZN Wildlife is that since the development is formalisation of the existing settlements and does not include any of the wetland areas or areas of biodiversity concern then no issues are envisaged. The report submitted was not commented on within the comment period. Report has also been loaded unto SAHRIS for AMAFA, but no comments were provided. A screen shot of the status is included in this report. Given the development is in-situ upgrade of the already degraded areas no critical issues are expected in terms of heritage resources. Biodiversity Comments from DWS and EDTEA are responded to and integrated into the finalisation of this report.

SITE NOTICE (TO BE ADDED)

NEWSPAPER ADVERTISEMENT (TO BE ADDED)

BACKGROUND INFORMATION DOCUMENT (BID) AND DISTRIBUTION LIST

BID DISTRIBUTION LIST

STAKEHOLDER COMMENTS AND REPONSES

To be added when received

AMAFA Proof of submission online

APPENDIX4 SPECIALISTS STUDIES

Appendix 4 Specialists Studies (Added as attachments)

4.1 Geotech report

4.2 Bulk Services Report Rev 4

4.3 Wetland Feasibility report

eThekwini Local Municipality

Environmental Impact Assessment for Walk-Up Units) Housing Project on Erf 3213, Reservoir Hills – Durban

Construction & Operational Stage

ENVIRONMENTAL MANAGEMENT PROGRAMME

(EMPr)

ISIBUKO DEVELOPMENT PLANNERS
77 HOWICK ROAD, PIETERMARITZBURG
TEL: 033 394 5723 FAX: 033 394 5715

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

Table of Contents

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

The National Environmental legislation requires that an assessment of potential environmental issues is undertaken as an important component of development projects. The Environmental Impact Assessment process identifies potential impacts that may arise at various stages of the development process and how these impacts can be mitigated. An Environmental Management Plan serves as a guideline.

Bizycon Pty Ltd (PTY) LTD conducted a Basic Assessment environmental investigation regarding the eThekwini Ext 8 settlement formalisation which include housing and service installations such as roads upgrades. This process 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 in order to minimize the potential environmental impacts associated with construction works along the drainage lines, rivers and associated wetlands. 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 cognizance relevant legislative instruments that relate to the proposed development. The on us 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.

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 his 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 most likely activities that may impact on sensitive areas is the roadworks and construction of houses near to the wetland areas on the boundary of the site as shown in Figure 2 below. These areas require extra care during the construction period. These should be fenced off as no-development zones.

Figure 4 Site layout with sensitive areas that may be impacted (work across watercourses).

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.

- In the case of the site for the proposed community upgrade such sensitive areas such as wetlands and associated buffer areas are noted and mapped out. As shown in Figure 7 and work around these areas should be planned to avoid or at least reduce any negative impacts.

3.3 Potential development activities

- Potential development activities that may impact on receiving environment include:

  a. Clearing of the site unto surrounding areas and into the river systems or working within watercourses, such as road upgrades and pipe laying across rivers,

  b. Storage of equipment and material unto surrounding 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

  j.

As a general principle to observe in conducting 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.
- Though the vegetation on the site is severely transformed, the site is surrounded by river systems and which could be the receiver of any environmental malpractices on the site. Thus the buffer zones between the site development footprint and the river should be strictly maintained as no-development zones as mapped on the layout.

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 affected beneficiary communities or as in this case the surrounding houses, road users, and also workers/construction staff.
- The purpose of this EMPr in this regard is to provide guidelines that would ensure that the health and safety needs of residents are taken into consideration during the construction and operation period and that, every necessary and possible step is taken to ensure that the normal social life of

the community 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**. A checklist that may be used for internal monitoring of environmental performance is contained in Appendix 1.

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 vegetation through dining of trenches or working within watercourses	To ensure safety of the surrounding environment and the River systems are not disturbed	• Vegetation removal within the drainage lines and buffer zones should be strictly avoided, as this will serve as storm water control mechanism for the river systems. • All areas where vegetation is tripped off, for any reason, should be re-vegetation immediately after construction in that section or spot 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
Clearing of the vegetation during site establishment fencing and construction.	To ensure safety of the surrounding environment and the River systems are not disturbed	• Vegetation removal within the buffer zones should be strictly avoided, as this will serve as storm water control mechanism for the river systems. • All areas where vegetation is tripped off, such as camp site etc, should re-vegetation 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

Impact	Management Objectives	Management /Mitigation Actions	Monitoring			
			Indicator	**Methodology**	**Frequency**	**Responsibility**
Noise Impacts						
Noise is likely to be generated from the use of equipment and from construction workers on site.	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
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.	• 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 • During the construction phase, suitable parking area should be created and designated for construction trucks and vehicles. • A construction supervisor should be	Monitor, Record and report non-compliance.	Records of complaints register and visual observations	Continuous	Contractor EHS Manager

Impact	Management Objectives	Management /Mitigation Actions	Monitoring			
			Indicator	**Methodology**	**Frequency**	**Responsibility**
	Managing the flow of traffic at critical areas where necessary.	appointed to coordinate construction traffic during the construction phase (by drawing up a traffic plan prior to construction).				
Safety, Health and Environment						
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	Prevention unnecessary	• No mixing of cement directly on the ground.	Monitor activities and record and	Incident registers	Continuous	Project Developer, ECO and

Impact	Management Objectives	Management /Mitigation Actions	Monitoring			
			Indicator	**Methodology**	**Frequency**	**Responsibility**
spillage or discharge of construction wastewater into the surrounding environment	pollution impacts on the surrounding environment	• All spills to be reported to the ECO. • Ensure that adequate containment 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.	report non-compliance by undertaking inspections.			contractor
Heritage Resources (Archaeology and Palaeontology)						
Impact on Archaeology and Palaeontology	Prevent damage and destruction to fossil, artefacts and material of heritage significance	• Carry out general monitoring of excavations for potential fossil heritage, artefacts and material of heritage importance as per the Chance Find Protocol (Refer to Heritage Report in BAR) • All work must cease immediately, if any human remains and /or other Archaeology, Paleontology and historical material are uncovered. Such material, if exposed, must be reported to the nearest museum, archaeologist/ palaeontologist and to AMAFA (or the South African Police	Monitor excavations and construction activities for archaeological and paleontological material. Contact AMAFA/SAHRA and identified paleontological/ Archaeology if any heritage features	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**
		Service), so that a systematic and professional investigation can be undertaken. Enough time should be allowed to remove/collect such material before construction recommences.	are uncovered.			
Groundwater Management						
Contamination of soil and ground water through spillage of concrete and cement	To control concrete and cement batching actives to prevent spillages and contamination of soil, groundwater and the marine environment.	• 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 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	Monitor the handling and storage of sand, stone and cement as instructed	Register of incident	Daily	Project Developer, Contractor and EHS Manager.

Impact	Management Objectives	Management /Mitigation Actions	Monitoring			
			Indicator	**Methodology**	**Frequency**	**Responsibility**
		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.				
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
Storm water Management						
Pollution of the surrounding environment because of	Reduce the contamination of storm water	• The appointed Contractor should compile a Method Statement for Storm Water Management during the construction phase.	Compile Method Statement Monitor the	Register of incidents	Once off (and thereafter updated as required).	Contractor ECO/ EHS Manager

Impact	Management Objectives	Management /Mitigation Actions	Monitoring			
			Indicator	**Methodology**	**Frequency**	**Responsibility**
contamination of storm water. Contamination could result from chemicals, oil, fuels, sewage, solid waste, litter etc.		• Provide secure storage for oil, chemicals and other waste materials to prevent contamination 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 (what cannot be avoinded) vegetation should be removed and no disturbance to surrounding vegetation should be permitted. • Accumulation of water on the surface must be avoided always.	banding and containment structures. Monitors via site audits and record non-compliance and incidents (i.e. by implementing walk through inspections.)	Visual observation	Weekly Weekly	Contractor
Waste Management						
Pollution of the surrounding environment because of the	Reduce soil and groundwater and river contaminations	• 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	Inspection of the temporary waste storage area.	Register of incidents	Daily	ECO & EHS Manager

Impact	Management Objectives	Management /Mitigation Actions	Monitoring			
			Indicator	**Methodology**	**Frequency**	**Responsibility**
handling, temporary storage and disposal of solid waste (general and hazardous).	because of incorrect storage, handling and disposal of general and hazardous waste.	be covered with suitable material, where appropriate. • 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.	Monitor waste generation and collection throughout the construction phase	Visual observation		
Air Quality Management						
Increased dust level and Air Quality Impact: Emissions from construction vehicles and	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**
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 reWalk-Up Unitsited. • Ensure that goods and services are sources from the local and regional economy as far as reasonably possible.	Maximize local employment for unskilled labour and provincial/national skilled labour. Visual observation Procurement source documents	Records of staff members Number of Local people employed	During the construction phase	Contractor and ECO.

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 the establishment and spread of alien invasive plants.	• 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 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.	Monitor the removal of the alien invasive vegetation Visual observation		During the removal process	EHS Manager / Municipal Environmental Officer in Charge

Impact	Management Objectives	Management Actions	Monitoring			
			Indicator	Methodology	Frequency	Responsibility
Land rehabilitation	Ensure land (neighbours) 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 surrounding environment	• Storm water should not be allowed to encounter effluent. • Monitoring water qualify of onsite borehole should be conducted. • Ensure that excrement, carcasses, feed and other operational waste and hazardous materials are appropriately and effective contained and disposed of without detriment to the environment	Carry out though inspection of piping, loading hoses, and banding for leaks, using a checklist. Proof of attendance to training sessions to be kept on file at the terminal.	Incident reports Visual observation	Daily	Project Applicant (municipal Environmental Officers)

Impact	Management Objectives	Management Actions	Monitoring			
			Indicator	Methodology	Frequency	Responsibility
Air Pollution Environmental contamination of the surrounding environment from organic waste and Operation of Crematorium	Prevent unnecessary air pollution impacts because of the improper / inadequate / negligent operational procedures.	• Ensure that operational waste are appropriately and effectively contained and disposed without detriment to the environment. • Adhere to the best practice guidelines for managing farm operations. • Ensure that the development is designated and lined with impermeable substances (concrete) in accordance with advice from international best practice norms. • Establish appropriate emergency producers for accidental contamination of the surroundings. Waste recycling should be incorporated into the facility's operations as far as possible. • The relevant standards for air quality must be adhered to.	Assurance of functionally of fire extinguishers via inspections and certification by an accredited fire service company. Regularly check and record Air quality , and functionality of furnace strappers Regular records of crematorium, as per facility specifications	Complaints report Maintenance register /Signed by operating engineer and Municipality environmental Officer /Inspector	As needed	Project Applicant
Potential impact on the health of operating	To ensure that there are no adverse	• Operational personnel must wear basic (i.e. gloves) are necessary during the	Medical investigations or surveillance to be undertaken for the	Visual observation	As necessary	EHS Manager and Project

Impact	Management Objectives	Management Actions	Monitoring			
			Indicator	Methodology	Frequency	Responsibility
personnel, especially in the crematorium resulting in potential health injuries.	effects on the health of operating personnel	operational phase. • Fire extinguishers should be easily accessible on site.	operating personnel. Keep a register of the medical records for the operating personnel.			Developer.
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. • Poultry legislation guidelines should be adhered to. • 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	Reduce the impacts of increased storm water discharge to	• Regular monitoring of stormwater quality and river health	Implement surface water quality monitoring programme, based on consultation with the	Incident reports	As agreed during the operational phase.	Project ECO Project Applicant (Municipal

Impact	Management Objectives	Management Actions	Monitoring			
			Indicator	Methodology	Frequency	Responsibility
may end up in the rivers	the environment		landowner			Environmental Officer)
		• 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	Maximise local employment and local business opportunities to promote and improve	• 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	Maximise local employment for unskilled labour and provincial/ national skilled labour		During the operational phase	Project Developer

Impact	Management Objectives	Management Actions	Monitoring			
			Indicator	Methodology	Frequency	Responsibility
	local economy	services are sourced from the local and regional economy as far as reasonably possible.				
Boost in the economy of Region 2	Maximise positive impacts through ensuring produce is sold to local markets	• Ensure that the proposed project has secured local buyers	Seek out local markets and secure formal trade agreement	Monthly supplier reports	Monthly	Project developer
Environmental Awareness`						
Increased energy consumption during the operational phase	Reduce energy consumption where possible	• Encourage the use of energy saving equipment (such low voltage light and low-pressure taps) and promote recycling. Operational personnel must be made aware of energy conservation practices as part of the environmental awareness training programme.	Monitor energy usage via site investigations. Conduct training for all operational personnel		Monthly	EHS Manager / Municipality

Impact	Management Objectives	Management Actions	Monitoring			
			Indicator	Methodology	Frequency	Responsibility
		• Firefighting equipment must be made available at various appropriate locations				
Safety, Health and Environment						
Pollution of the surrounding environment as a result of the handling, temporary 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 decommissioning phase should be stored temporarily on site in suitable (and correctly labelled waste collection bins and skips (or similar). • Ensure that enough general waste disposal bins are provided for all personnel throughout the site. These bins must be emptied on a	Monitor activities and record and report non-compliance by undertaking inspections.	Compliance reports Visual observations	Throughout the decommissioning phase	Project applicant, ECO and Contractor

Impact	Management Objectives	Management Actions	Monitoring			
			Indicator	Methodology	Frequency	Responsibility
		regular basis.				
Spill contingency, Management and Handling of Chemicals/Dangerous Goods						
Potential spillage of effluent to the surrounding environment from chemicals used in crematorium and ablution facilities of the cemetery	Reduce the spillage of domestic effluent and the impact thereof on the environment.	• Ensure that normal sewage management practices are implemented during usage	EHS Manager to monitor via site audits and record non-compliance and incidents	Incident reports Visual observations	Monthly	EHS Manager and Environmentalist
		• Ensure that the toilet/sanitation facilities are maintained in a clean, orderly a sanitary condition.	Monitor via site audits and record non-compliance and incidents	Incident reports Visual observations	Daily	EHS Manager and Contractor
Waste Management						
Pollution of the surrounding environment as a result of the handling, temporary storage and disposal of	Reduce soil and ground water contamination as a result of incorrect storage. Handling and	• Include regular waste collection from the facility into the municipal waste stream.	Carry out monitoring throughout the operational phase	Compliance reports Visual observations	Continuously thought-out life of project	Project Developer and EHS Manager

Impact	Management Objectives	Management Actions	Monitoring			
			Indicator	Methodology	Frequency	Responsibility
solid waste	disposal of general and hazardous waste					
		•	•			

5. EMP CONCLUSIONS AND RECOMMENTATIONS

The significance of most of the issues identified may be effectively reduced after mitigation should this environmental management plan be carefully followed. The proposed development will be undertaken as part of the in-situ upgrade which requires that care be taken to not unnecessarily inconvenient the community during construction. The concluding recommendations are:

- 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.
- 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 Nation 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.

DETAILED CV OF EAP

CV of EAP

ENVIRONMENTAL SCIENTIST | CONSULTANT

CURRICULUM VITAE OF BRENDA MAKANZA

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PROFESSIONAL PROFILE

A dedicated and passionate Environmentalist with valuable theoretical and experiential acumen in the areas of environmental conservation and administration; Brenda Makanza holds 16 years of experience gained through direct involvement in several conservation initiatives. Currently a Principal Environmental Consultant of the DIGES, South Africa; responsible for leading, administrating and completing assessments on Environmental Statements, as well as overseeing studies, interpreting technical reports and appendices regarding the same.

She leverages academic skills gained through an honours-level degree in Environmental Science and Post Graduate Certificates in Integral Water Management and Geo-informatics; alongside the proficient ability to actively and valuably participate in the development, design and implementation of environmental / conservation management policies and consultation initiatives; thereby supporting the highest standards of Environmental Management and Sustainable Development, in all undertakings.

Career Objectives: Environmentalist| Sustainability Consultant / Advisor | EIA / Environmental Consultant| GIS Consultant.

PROFESSIONAL STRENGTHS:

- Persistent and balanced approach to the mutually beneficial achievement of organisational objectives and stakeholder goals.
- First-class problem-solving skills and practical decision-making abilities. Dedicated to maintaining high-quality standards in all tasks.
- Able to apply analytical thinking/reach conclusions apart from and when using technical models.
- Able to develop ideas and solutions to meet diverse objectives, as required by the situation.
- Passionate interest in the fields of environmental management and conservation. Fully skilled and qualified with regards to the area of interest.
- Strong communication skills, verbal and written. Apt research, data analysis and report creation acumen.
- Hard-working and highly motivated. Able to work on own initiative and as part of a team.
- Leadership skills; guide and motivates teams towards the valuable attainment of results.
- Organised and able to complete projects on time and within budget. Ability to continually ensure that processes are moving as efficiently as possible, without sacrificing quality.
- *Computer Literacy*: ArcGIS [Documentation(Geodatabases), Analysis and Map Production] | Erdas Imagine [Analysis and Map Production] | Microsoft Office [Reporting].

VALUE-ADDED DELIVERABLES | EXPERIENCE:

- Serves in an advisory capacity to Private Clients, Government Departments, Municipalities and Parastatals.
- Conducts Site Assessments, Environmental Impact Assessments, Environmental Audits, Groundwater Quality Analysis and Waste Management Audits, to identify contamination and other areas of concern.
- Conducts site analysis and map production using different GIS software;
- Documents spatial data using different databases;
- Researches collect and analyses data/samples, and prepares reports to assist with decision making. Applies theory to the specific context to identify creative, practical approaches to overcome challenging situations.
- Makes use of relevant industry tools, including Geographic Information Systems, in support of effective and efficient environmental monitoring and auditing.
- Upholds principles regarding the sustainable management of Natural Resources, liaising with stakeholders and assisting with the development of Environmental Policies.
- Enforces relevant Laws and Occupational Health and Safety requirements as indicated within the specific context, communicating guidelines to stakeholders through regular information sessions.
- Understands continuous improvement, and keeps up-to-date with changes in methodologies, new thinking and approaches.

ENVIRONMENTAL SCIENTIST | CONSULTANT

- Promotes knowledge management and a learning environment through leadership and personal example; seeking and applying developed wisdom and best practices in all undertakings.

QUALIFICATIONS

ISO 14001: 2015: Lead Auditor, SACAS, 2022

Combined ISO 45001:2018 and ISO 14001: 2015: Implementation and Internal Audit, NOSA, 2020

Incident Investigation Level 3, NOSA, 2020

SAMTRAC, NOSA, 2020

PGC Professional Diploma Geo-Informatics; UNIGIS, 2016

PGC Introduction to Geo-informatics; University of Johannesburg, 2012

PGC Integral Water Management; Saxion University, The Netherlands, 2008

Environmental Science & Health [with Honours]; NUST, Zimbabwe, 2004

Senior Certificate / Matric; Mutare Girls High, Zimbabwe, 1999

PROFESSIONAL REGISTRATION

SACNASP : Pr. Sci. Nat (Environmental Science-400016/17)
EAPASA : Registered EAP (2019/1542)
WISA : Associate Member

PROFESSIONAL EXPERIENCE

Name of firm	DIGES Group, South Africa
Designation	**Principal Environmental Consultant**
Period of work	2009 to Date

Key Roles & Accountabilities:

- Responsible for carrying out assessments on all Environmental Statements; overseeing the interpretation of technical reports and appendices which may comprise part or all of the ES.
- Conducting / managing site surveys and utilising data gathered to forecast future ecological developments.
- Studying/assessing Environmental Impact Developments on; soil, groundwater, rivers, lakes and wildlife habitats within a variety of ecosystems.
- Ensuring that the EIA register is maintained / up-to-date, and preparing/presenting all required statements and documentation regarding; evidence for public inquiries and reports to relevant stakeholders.
- Working in strict compliance with all relevant legislation, policies and stakeholder department instructions and resolutions.
- Implementing and upholding the application of all job site safety plans; attending the weekly general safety meeting and the weekly supervisor's safety meeting to gain and provide feedback on-site safety issues.
- Compiling and making available all required safety program documentation, records and regulatory compliance documentation.
- Performing reviews and inspections of the Jobsite to ensure full compliance with Provincial OH&S regulations, codes and policy.
- Identifying workplace safety hazards, and developing and implementing all necessary corrective actions to minimise or eliminate the same.

Key Projects:

- EIA and Map production for various townships, residential complexes and office parks.
- Borrow Pit applications
- EIA and Map production for the construction of various ESKOM Electricity Power lines and substations.
- EIA, Monitoring and Map production for various roads, bridges and pipelines.
- Formulation of Municipality Policies and State of the Environment reporting.

ENVIRONMENTAL SCIENTIST | CONSULTANT

- Licensing, monitoring and auditing of several Landfills.
- WULA and GA for powerlines, mines and roads.
- Documentation- Compilation of borehole databases.

Projects and Professional Technical Experience

Walk-downs and CEMPr

- Walk-down and CEMPr for the Ariadne-Venus 400kV powerline within various Municipalities in KZN Province
- Walk-down and compilation of CEMPr for the Medupi Witkop 400kV powerline in various Municipalities, Limpopo Province.

Basic Assessment

- EMP and Basic Assessment Report for Establishment of Seshego Cemetery within Polokwane Local Municipality.
- EMP and Basic Assessment Report for Upgrading of gravel road from Praktiseer to Taung village within Greater Tubatse Local Municipality
- Basic Assessment for the construction of Klarinet Bridge within Emalahleni Local Municipality.
- Proposed construction of a 132kV power line from PPRUST substation to the proposed Akanani substation within Mogalakwena Local Municipality.
- Basic Assessment for the establishment of Sakhelwe extension within Emakhazeni Local Municipality.
- Proposed Southgate Township Establishment within Polokwane Local Municipality.

Scoping & Environmental Impact Assessments

- Proposed construction of a 30 km 132kV power line from Amandla substation within Elias Motsoaledi Local Municipality, Greater Sekhukhune District to Kwaggafontein substation within Thembisile Hani Local Municipality, Nkangala District.
- Proposed construction of a 45 km 132kV power line from Jane Furse ss to the new Mamatsekele ss within Makhuduthamage Local Municipality, Greater Sekhukhune District.
- Proposed Koedoesdoorns township establishment within Thabazimbi Local Municipality;
- Proposed Madala township establishment within Emakhazeni Local Municipality.
- Proposed Rustenburg Strengthening Project within Rustenburg Local Municipality.
- Proposed construction for the Limpopo East Strengthening Corridor within Limpopo Province.
- Proposed construction of Hyperrama pipeline within COE.

Amendments

- First and second amendment for the 132kV Mamatsekele powerline within Limpopo Province.
- Borrow Pit Application for road upgrading from Polokwane to Matlala village within Aganang local Municipality Capricorn District, Limpopo Province.

Borrow Pits

- Borrow Pit Application for upgrade (gravel to tar road) of roads D4066 and D4100 from Lebowakgomo/Middlekop
- Borrow Pit Application for upgrading from gravel to tar of road from Matsakali to Altein, to Shangoni Gate within Colin's Chabane Local Municipality
- Borrow Pit Application for upgrading from gravel to tar of road from Giyani to Malonga within Greater Giyani Local Municipality.
- Borrow Pit Application for upgrading of the road (gravel to Tar) from Manaileng to Rafiri within Lepelle Nkumpi Local Municipality.
- Borrow Pit Application for upgrading Of 5 km Internal Road (Gravel to Tar) At Marulaneng within Lepelle Nkumpi Local Municipality.

Strategic Planning

- Review & Updating of Free State Environmental Outlook
- Review & Updating of Bushbuckridge Local Municipality Integrated Waste Management Plan
- Review & Updating of eNdumeni Local Municipality Integrated Waste Management Plan
- Compilation of the South 32, Khutala Mine Biodiversity Action Plan
- Compilation of South 32, Khutala Mine Integrated Waste Water Management Plan
- Compilation of South 32, Khutala Mine Integrated Waste Management Plan

Water Use Licence Applications

- Amendment of WUL for Tivani Mine, Greater Tzaneen.
- WULA for Klarinet Ext5 and Ext6 Bridge Construction.

ENVIRONMENTAL SCIENTIST | CONSULTANT

- WULA for construction of 400kV Ariadne-Venus power line within KZN province.
- General Authorisation for the construction of Hyperrama pipeline within COE.
-

Monitoring

- Landfill auditing and water monitoring at the City of Ekurhuleni's operational and closed landfills.
- Landfill auditing and water monitoring at the City of Ekurhuleni's operational and closed landfills.

Name of firm	Ministry of Environment, Water & Climate, Zimbabwe
Designation	**Assistant: Southern Africa Biodiversity Support Programme**
Period of work	2007 to 2008

Key Roles & Accountabilities:

- Compiled/packaged and disseminated all required targeted biodiversity materials to relevant stakeholders; documenting specific activities undertaken by National Biodiversity Task Forces and Expert Working Groups, and recording the outcomes of the same.
- Communicated with the Programme Management Unit (PMU) in Gaborone, and host institutions, regarding the maintenance of Regional databases for up-to-date information on Programme outputs.
- Worked closely alongside the Convention Biological Diversity National Focal Point & National Programme Co-ordinator, ensuring that National Clearing House Mechanisms (CHMs) could access information on biodiversity-related documents and outputs as needed.
- Assisted the National Programme Co-ordinator in raising awareness of the Programme at different National forums and developed Biodiversity proposals for funding requirements.
- Liaised with relevant stakeholders including; clients, local authorities, professionals and contractors on several Programme related issues.
- Convened meetings of; the National Biodiversity Forum, expert working groups and other key stakeholders, on specific biodiversity topics.
- Conducted an 'inventory' of relevant biodiversity initiatives/projects underway within the country and the SADC Region.

Name of firm	IUCN ROSA [The World Conversation Union], Zimbabwe
Designation	**Intern: Ecosystems Programme**
Period of work	2002 to 2003

Key Roles & Accountabilities:

- Worked alongside Regional, National, and International environmental organisations; assisting in developing environmental management policies that took into account relevant economic, social, and environmental values.
- Generated situational analyses, summary documents and preliminary reports used in project formulation/development.
- Designed environmental project proposals for Southern Africa, and sought funding for developed proposals; preparing work plans and related key result areas regarding the same.
- Compiled implementation schedules, activity tasks, programme material requirements and itineraries for Regional workshops, as required.
- Documented and maintained records of specific activities undertaken by participants within the Ecosystems Programme.

PERSONAL DETAILS

Date of Birth, Nationality	24 March 1981,
Gender	Female
Languages	English

Curriculum Vitae

Of
Honu-Siabi MacCarthy

Cell: +27 (0) 719212618 Fax: +27(0)86 776 33 25 E-mail: macsiabi@gmail.com /maccarthy@developmentimpact.co.za

PERSONAL INFORMATION

Surname	:	Honu-Siabi
First Names	:	MacCarthy
Gender	:	Male
Current residence	:	South Africa (Pietermaritzburg / Johannesburg)

Profile summary:
Having been working in the development sector for a while, I have acquired more than 12 years experience in critically assessing the environmental, economic and social impacts of development interventions, in Africa. I have worked with both the public and private sector on diverse developmental initiatives and mostly work across sectors, and in collaborate with other individuals, teams and institutions in ensuring collective efforts towards sustainable and people-centered development and growth in South Africa and in on the continent of Africa as a whole.

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

Skills and Competencies

- Good Programme implementation and management skills
- Ability to use MS Projects in scheduling, executing and managing complex projects
- Conversant with all Microsoft Office End User Applications (Word, Excel, PowerPoint, Access, Publisher etc), Corel Draw, SPSS etc
- General Knowledge in computer Hardware and Software.
- Excellent verbal and written communication skills all levels
- Research, workshop, organisation, facilitation and Presentation skills
- Attention to details and strong result oriented thinking and innovation ability
- Ability to work under pressure with less or no supervision
- Design and implementation of monitoring systems
- Data collection (multiple methods/tools), data analysis and reporting skills
- Ability to search, using search protocols, and write up high quality academic/professional output

RESEARCH ACTIVITIES / CONFERENCES /WORKSHOPS

Research

Theses	**An Analysis of the Implementation of a Monitoring & Evaluation System at the NGO sector: The Case of the NGO SaveAct, 2013** *(Paper on this is being edited for publication)*
Market research	Commercialization Goat meat in the KZN Province Department of Finance & Economic Development (Funder) 2011

Conferences /Presentations

Conference	**Presenter:** Unpacking diagnostics as a key component in public policy making process: The need for evidence in diagnosing societal problems **5th SAMEA Biennial Conference** **Sandton, Johannesburg, RSA** 12-16 October 2015
Capacity-Building Workshop	**Research synthesis and Systematic Reviews** (3IE training) **African Evidence network Colloquium on Research evidence use** University of Johannesburg November 2014
Workshop and conference	**Participant** - Workshop on Systematic Reviews and Impact Evaluations

	Presenter: *The critical role of monitoring and evaluation systems in impact evaluation: Lessons from a case study* **3IE, Asian Development Bank *Conference:* Making Impact Evaluations Mater; Better evidence for Effective Policies and Programmes.** Asian Development Bank Manila, Philippines 1-5 September, 2014
Conference	**Presenter-** An Analysis of the Implementation of a Monitoring and Evaluation System: The Case of the NGO SaveAct **SAMEA, DPME *Conference on:* Policy Research: Do findings make a difference** 16 to 20 September 2013
Capacity-Building Workshop	**Participant**-Developing Monitoring and Evaluation Systems SAMEA and DPME *workshop Series* 25-27 September, 2013, Durban

AWARDS AND RECOGNITIONS

Conference Scholarship	3IE Sponsorship to attend and present poster at workshop and conference dubbed Making Impact Evaluations Matter. Manila, Philippines, Sept 1-7, 2014
Best Poster Presentation Award	1st Position, Best poster presentation, Making Impact Evaluation Matter Conference, Manila, Philippines, 2014
Emerging Evaluator Award (Scholarship)	South African Monitoring and Evaluation Association (SAMEA) 4th Biennial Conference, Sandton, Johannesburg, Sept 2013
Runner up (2nd Position) – National	Millennium Essay Competition (Organized for all Secondary Schools Nationwide) Ghana Millennium Commission, Nov 2000

EMPLOYMENT HISTORY

Employer	**Bizycon Pty Ltd / Development Impact Group**
Position	Snr EAP – EIAs, Research & Evaluations
Duties	Managing projects and consulting -
Duration	2011 to date

Employer	**Quest Research Services (QRS)**
Position	Snr Consultant – Monitoring and Evaluation
Duties	Project consultancy
Duration	2016 - 2019

Employer	**University of the Witwatersrand**
Position	MOOC Community Teaching /Facilitating (short consultancy)
Duties	Assisting with student issues, monitoring and moderating online discussion forums and helping plan and review new modules and online courses.
Duration	September 2016 – November 2016

Employer	**Anglophone Centre for learning on Evaluation and Results (CLEAR-AA), Wits School of Governance**
Position	Researcher
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 report writing, in addition to conducting presentations and meetings, and also organizing workshops and other interactive events.
Duration	November 2015 – April 2016

Employer	**Nature & Development Group of Africa**
Position	Project Manager (consulting) Project Manager – Environmental Consulting and Research
Duration	2009 – 2012, 2012 to 2015

Name of employer	**Nisis Engineering Designs Co. Ltd** (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, General administration
Duration	Feb, 2006—November, 2007.

Name of company	**Thembaletu Community Education Centre**
Position	Trainer/ Facilitator
Duties	Training participants in Basic Business Skills, Reviewing Training material, preparing and conducting assessments and

Evaluation, and reporting at meetings

DEVELOPMENTAL WORK EXPERIENCE /PROJECTS

RECENT MONITORING AND EVALUATION PROJECTS

Jan 2017 –July 2017	**Diagnostic Evaluation** of the implementation process of Pomfret Relocation and Rehabilitation intervention. –A project to evaluate the implementation process and also diagnose socio economic conditions of Pomfret community for redesigning of new intervention and provide cabinet with sufficient evidence for decision making.
Client	DPME
Project Leader (QRS)	Mr C Dube
My role /Position	Principal Evaluator
Nov 2016	**Design and Facilitation of (2 Workshops**): **Dialogue among Higher Educational Institutions across Sub-Sahara Africa** on the Professionalization of Monitoring and Evaluation in Africa, including curriculum structuring and delivery. Held in Nairobi (for Eastern and Southern Africa) and Accra (for Western Africa).
Implementer /Employer	CLEAR AA (Wits School of Governance)
Project Leader (QRS)	Ms H Robertson
My role /Position	Organiser and Co Facilitator
Oct 2015 –April 2016	**Strengthening the Monitoring and Evaluation Framework of City Of Johannesburg: Institutional Support from CLEAR AA:** Diagnostic assessment of the current monitoring & Evaluation system, programme design, curriculum development and training
Implementer /Employer	CLEAR AA (Wits School of Governance)
Project Leader (QRS)	Ms H Robertson / Dr Laila Smith
My role /Position	Programme Coordinator
Nov 2016	**Workshop Design and Facilitation:** **Monitoring and Measuring the effect of Human Settlement interventions:** A re-look at the human settlement mandate and evaluation frameworks of various sectors of government as related to Outcome 8 of the National Development Plan. The workshops sort to find a dialogue on integration and aligning of the evaluations frameworks related to various legislative instruments such as the IUF, SPLUMA, MTSF, and MEIA Etc.
Implementer /Employer	DPME /CLEAR-AA
Project Leader (QRS)	Dr Laila Smith /Ms M Amisi
My role /Position	Programme Design and Co-Facilitation.

2. ENVIRONMENTAL IMPACT ASSESSMENT PROJECTS:

Some Selected Projects worked on in this regard include:

Environmental Impact Assessment (BAR) for Residential development on Erf 1087 Posmasburg, Northern Cape

Project Implementing Agent	:	Thuso Enviro and Developments
Project Leader	:	Mr R Themeli
Project Consultant (Environmental)	:	MacCarthy Honu-Siabi
Project status	:	In progress 2020

Environmental Impact Assessment (BAR) for Residential development on 15 Strathcona Drive, Clansthal, Durban

Project Implementing Agent	:	
Project Leader	:	Mr H P Rayes
Project Consultant (Environmental)	:	MacCarthy Honu-Siabi
Project status	:	In progress 2020

Environmental Impact Assessment (BAR) for Greater Kokstad Cemetery Establishment

Project Implementing Agent	:	Inzuzo Yesizwe Development Planners
Project Leader	:	Mr Mxolisi Ndlovu
Project Consultant (Environmental)	:	MacCarthy Honu-Siabi
Project status	:	Completed July 2020

Environmental Impact Assessment for EThekwini Housing Project, EThekwini

Project Implementing Agent	:	Isibuko Development Planners
Project Leader	:	Ms Sithokoza Cele
Project Consultant (Environmental)	:	MacCarthy Honu-Siabi
Project status	:	Completed Aug 2020

Environmental Impact Assessment for Greenco Poultry Farm, Bela Bela, Limpopo

Project Implementing Agent	:	Development Impact Group (DIG)
Project Consultant (Environmental)	:	MacCarthy Honu-Siabi
Project status	:	Completed June 2020

Environmental Analysis for Town Planning Scheme: Nquthu Local Municipality

Project Implementing Agent	:	NANGA Projects
Project Leader	:	Mr Suleiman Mwajuzuu
Project Consultant (Environmental)	:	MacCarthy Honu-Siabi
Project status	:	Completed 2019

Environmental Analysis for Town Planning Scheme: Umlalazi Local Municipality

Project Implementing Agent	:	NANGA Projects
Project Leader	:	Mr Suleiman Mwajuzuu
Project Consultant (Environmental)	:	MacCarthy Honu-Siabi

Project status : Completed 2018

Environmental Analysis for Town Planning Scheme: Emfuleni Local Municipality, Mpumalanga
Project Implementing Agent : Isibuko Development Planners
Project Leader : Mr M Maseko
Project Consultant (Environmental) : MacCarthy Honu-Siabi
Project status : 2018

Project identification and Township Establishments Nkangala District – Strategic Development Framework (SDF)
Project Implementing Agent : Isibuko Development Planners
Project Leader : Mr M Maseko
Project Consultant (Environmental) : MacCarthy Honu-Siabi
Project status : 2016

Middlebuilt Housing Project, Delmas – Environmental Impact Assessment (Scoping)
Project Implementing Agent : Isibuko Development Planners
Project Leader : Mr M Maseko
Project Consultant (Environmental) : MacCarthy Honu-Siabi
Project status : 2016

West Rand Poultry Value Chain – Environmental Impact Assessment
Project Implementing Agent : DRDLR, through Nkwele Agribusiness &Investments
Project Leader : Mr Thati Tladi
Project Consultant (Environmental) : MacCarthy Honu-Siabi
Project status : Completed 2016

Environmental Impact Assessment Groutiville Priority 2 Sanitation Project
Project Implementing Agent : Linda Masinga & Associates, Durban
Project Leader : Patrick Addo
Project Consultant (Environmental) : MacCarthy Honu-Siabi
Project status : Completed 2015

Environmental Impact Assessment Namani Shopping Mall Ekuvukeni – near Ladysmith
Project Implementing Agent : Isineke Developments
Project Leader : Dr Nelson Mwanyama
Project Consultant (Environmental) : MacCarthy Honu-Siabi
Project status : Completed 2015

Environmental Impact Assessment (Basic Assessment) Mkhuze Waste Water Treatment Works
Project manager : RCR Collaborative, Durban
Project Leader : Patrick Addo
Project Consultant (Environmental) : MacCarthy Honu-Siabi
Project status : Completed 2015

Environmental Impact Assessment (Environmental Scoping &EIA) for Redcliff Housing Project

Project manager	:	RCR Collaborative, Durban
Project Leader	:	Patrick Addo
Project Consultant (Environmental)	:	MacCarthy Honu-Siabi
Project status	:	Completed 2012

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

Other 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 on EIAs and Environmental Management

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

REFERENCES

1 Name	:	Dr. Nelson Mwanyama
Position	:	Director of Projects /CEO
Organisation	:	Isineke Developments / Bizycon Pty Ltd
Contact Number	:	nelson@isineke.co.za
2. Name	:	Mr. P. K. Addo
Position	:	Managing Director
Organisation	:	Nature and Development Group of Africa CC Pietermaritzburg
Contact Number	:	+27(0)83 555 22 88

IAIAsa Secretariat
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43 Birchwood Court, Montrose Street, Vorna Valley, Midrand, 1618

Postal address:
PO Box 11666, Vorna Valley, 1686
Email: operations@iaiasa.co.za
Website: www.iaiasa.co.za

IAIAsa Confirmation of Membership: 2022/2023
MacCarthy Honu-Siabi Membership Number: 6819

19 Oct 2022

TO WHOM IT MAY CONCERN

Mr MacCarthy Honu-Siabi, Bizycon (Pty) Ltd (Development Impact Group) (IAIAsa membership Number **6819**) is a paid-up Full Member in good standing of International Association for Impact Assessment, South Africa and has been a member of IAIAsa since 01 Mar 2021.

Membership has been continous from 01 Mar 2021 to date.

This membership is valid from 01 Mar 2022 to 28 Feb 2023.

IAIAsa is a voluntary organisation and is not a statutory body regulating the profession. Its members are however expected to abide by the organisation's code of ethics which is available on our website.

IAIAsa is an Affiliate of IAIA which is an international body through a memorandum of understanding. IAIA is not responsible or liable for the actions or activities of the Affiliates. Membership of one does not imply membership of the other.

Any enquiries regarding this membership may be directed to the Secretariat at the above contact details.

Yours sincerely

Rethabile Mbokodi
President 2021/2022