

**THE FINAL BASIC ASSESSMENT REPORT FOR THE PROPOSED UPGRADE OF
THOKOZA ACCESS ROAD, LOCATED WITHIN WARD 18 OF TUGELA FERRY,
KWA-ZULU NATAL.**

(Prepared in Terms of EIA Regulations, 8 December 2014) (As Amended)

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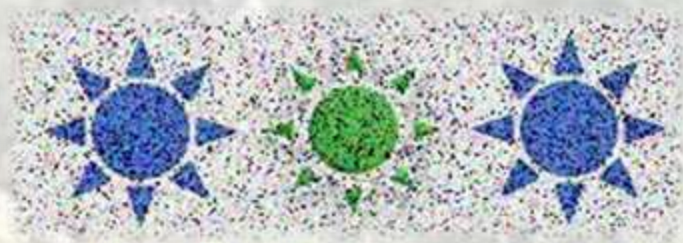
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When used as a reference this report should be cited as: Isolendalo Environmental Consulting, The Final Basic Assessment Report for the proposed upgrade of Thokoza access road, Located within ward 18 of Tugela Ferry, Kwazulu-Natal. The EIA reference must be included as well, DC24/0012/2018: KZN/EIA/0000951/2018.

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This technical report has been produced for Msinga Local Municipality based on the scope of work (supplemented by any additional information) submitted to Isolendalo Environmental Consulting during the course of the EIA process undertaken in line with appendix 1 of the EIA regulations 2014, which provides for developing a Basic Assessment Report. No part of the report may be reproduced in any manner without written permission from Isolendalo Environmental Consulting and/or Msinga Local Municipality.



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REFERENCE NUMBERS AND DUE DATES

EAP DOC REF	THO-001BAR
CA REFERENCE FILE	DC24/0012/2018: KZN/EIA/0000951/2018
NEAS REF FILE	
DBAR DEADLINE	04 October 2018
CA DEADLINE FBAR	16 January 2018

EXECUTIVE SUMMARY:

Msinga Local Municipality (MLM) through their Integrated Development Programme identified the need to engage with the upgrade of Thokoza access road. The name, Thokoza access road, accounts for 3 sections of road funded to be constructed and upgraded by the Msinga Local Municipality. Sections 1 and 3 of the 'project' have been weighed and have not fallen within the threshold of any of the Listed Activities within the amended EIA regulations 2014, hence, the Municipality has commenced with upgrading and construction of these sections. Isolendalo Environmental Consulting has been commissioned by Msinga Local Municipality to obtain an Environmental Authorization for section 2 of the 'Thokoza access road' which is being upgraded. Currently section 2 exists as a conjunction of tire tracks and portions of bare soils aligning to form the road. This Basic Assessment Report has been compiled to provide the information that is necessary for the competent authority to consider and come to a decision on the application submitted which has been issued a reference, DC24/0012/2018: KZN/EIA/0000951/2018).

This BAR has been compiled to meet the following objectives (EIA Regulations 2014: Objectives of a Basic Assessment Report);

- (a) determine the policy and legislative context within which the activity is located and how the proposed 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 of impact of the proposed activity and technology alternatives on 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; and
- (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 alternative;
 - (ii) Identify suitable measures to avoid, manage or mitigate identified impacts; and
 - (iii) identify residual risks that need to be managed and monitored.

The table of contents contained above, traces the location, within this document, within which each objective is met. Moreover, the scope of this document broad to meet the requirements noted within Appendix 1, Appendix 3, appendix 4 EMPr (attached within the appendices of this document), Appendix 5 and appendix 6. All the above appendices have been observed to produce this document through consultative measures between the EAP and other specialists including assessing officials.

SECTION A

PROJECT SETTING

ENVIRONMENTAL ASSESSMENT PRACTITIONER (EAP):

Trading name (if any):	Isolendalo Environmental Consulting		
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EAP EDUCATIONAL QUALIFICATIONS AND CVs, AND EAP PROFESSIONAL TEAM INVOLVED IN COMPILING THE BAR

Name & Surname	Qualifications	Professional affiliations	Experience (Yrs)
Welcome Nogobela	BSc. Hons Environmental Science	IAIASA 3333	15
Lwandisa Fada	BSc (Hons) Environment and Water Sciences.	//	3
Onesimo Jiba	BSc Environmental Studies	//	2
Full CV's are attached within annexure G.			

APPLICANT DETAILS

Trading name:	Msinga Local Municipality		
Contact person:	Mr. S.L. Sokhela		
Physical address:	R33 Main Road, Tugela Ferry		
Postal address:	R33 Main Road, Tugela ferry		
Postal code:	3010	Cell:	082 805 6956
Telephone:	033 393 0760	Fax:	033 439 0757
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SPECIALIST QUALIFICATIONS, PROFESSIONAL AFFILIATIONS AND CREDENTIALS

Name of specialist	Field of Expertise	Location within the document Section/s	Title of specialist report/ s as attached
Malachite Ecological Services	Wetland Impact Assessment	Annexure E	Wetland Assessment: Proposed upgrade of Thokoza Access Road located within the uMsinga Local Municipality, KwaZulu Natal.

SECTION B

PROJECT DETAILS, DESCRIPTION, ACTIVITIES TRIGGERED AND LEGISLATIVE FRAMEWORK

PROJECT NAME:

The upgrade of Thokoza access road.

PROJECT DESCRIPTION:

Thokoza access road is a project constituting of 3 sections of road (Figure 1); Section 1 – total of 2.83 km, Section 3 – total of 2.10 km and Section 2 – total of 2.40km. Each 'section' contributes to the initially known size of the project which is 7.33 km (Edtea comment 04, received on 13 /08 /2018 as attached on annexure D). The application lodged is for section 2 of the road which maintains the project name, Thokoza access road. As from hereon wards, the name refers to the section applied for.



Section 1:
Start: S28 32 37.3 E30 29 15.9
End: S28 31 24.7 E30 29 29.5
Section 2:
Start: S28 31 54.8 E30 30 36.2
End: S28 31 39.9 E30 31 06.6
Section 3:
Start: S28 32 01.8 E30 32 24.0
End: S28 32 41.6 E30 32 01.0

Co-ordinates



Figure 1: An image showing the location of the 3 sections of Thokoza access road.

Main roads around thokoza access road. (and Pomeroy)

Thokoza access road starts off intersecting with District road 2287 (D2287) at co-ordinates noted in the above figure (figure 1). Between the road's start and the road's end, which is the same road at the co-ordinates noted in the figure above, the road is a lineage of bare ground and tire tracks.

Tire tracks run from 0km to 1.8 km, where bare ground is curved to characterize an area regularly used by vehicles. See map below; -

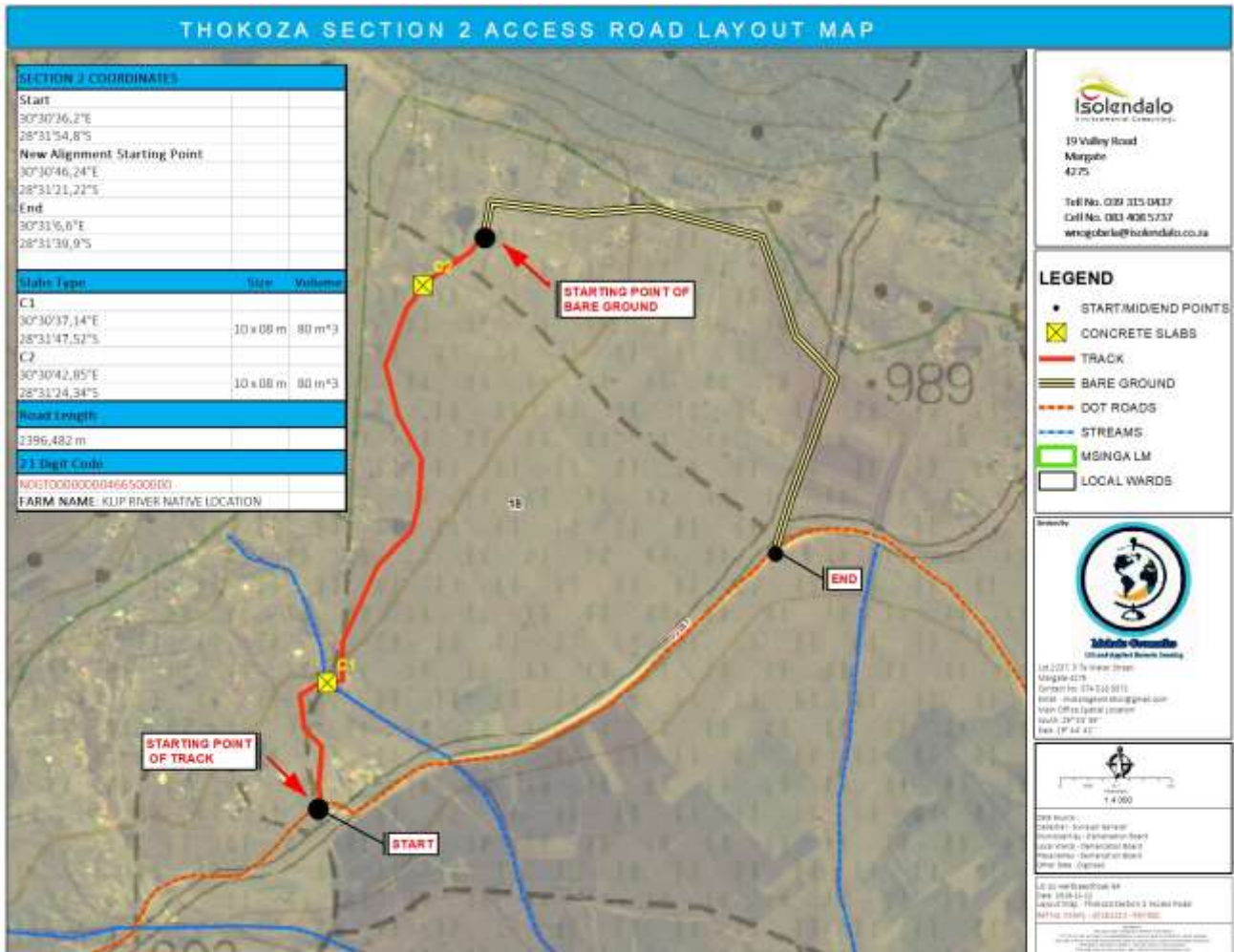


Figure 2: A site route plan depicting the different surfacing forming 'Thokoza Access Road'. An A3 hardcopy is attached on Annexure A.

The specialist report attached herewith notes that, "Based on the current identification of the four wetland indicators, one HGM unit was delineated within the assessment area. This was classified as a Seep system that flows in a southerly direction for approximately 1.5km from the road before forming a watercourse which is a tributary of the Mazabeko River." The Map above shows the point as C2, A concrete slab is proposed within this area. The image below shows a photographic image of the area and photographic representation of the delineation findings from page 24 of the specialist report;



Figure 3: An image showing the wetland area which has been identified and confirmed by the wetland specialist; C2 on figure 2.



Figure 4: A portion of Thokoza access road within which a concrete slab is also proposed, C1 on figure 2.

(larger images are contained within annexure C, Site Photos)

The image above shows another portion of the road within which a concrete slab will also be installed. However, though this area bears the characteristics of a wetland, it is important to point out that the findings of the specialist indicate otherwise (not a wetland).

The proposed project is to unify the road by upgrading the entire road into a type 7A gravel road. The proposed upgrades include the installation of stormwater management gullies and road signage. However, the triggering aspect of the road is the installation of the concrete slab within an identified wetland within the road lineage. Specifications as to the size of the concrete structure and the location are provided below.

SPECIFICATION, AND SCOPE OF THE PROPOSED PROJECT:

The road is being upgraded to a 7A gravel type access road that has the following storm water drainage pipes and width of 6m and an unaltered / unelongated 2.4 km length; -

Concrete slab 1: (28°31'50.7"S 30°30'36.0"E)

- Total length – 8 m
- Width – 10 m
- Height – 1 m
- Development footprint – 80 m³

Concrete slab 2: (28°31'24.2"S 30°30'42.9"E)

- Total length – 8 m
- Width – 10 m
- Height – 1 m
- Development footprint – 80 m³

Noting comment number 05 of the Comments received from EDTEA on 15/ 10/ 2018 (see annexure D), commencement of the road may occur whilst maintaining a 50m buffer on Either side of the identified wetland in terms of the Specialist report compiled by Malachite Ecological Services, annexure E. The wetland is at co-ordinates (28°31'24.2"S 30°30'42.9"E), as noted above.

Hence from KM 0 – KM 1 and from KM 1.2 to KM 2.33, the road may commence. The contractor will however have to be restricted to working areas to avoid damage to neighboring places. Refer to the Impact assessment (**mitigation measures**) form page 30.

LEGISLATIVE FRAMEWORK

A number of Acts and Policies from national and provincial governments deal with spatial and physical development. It is impractical to deal with each one of these documents in detail. This section, therefore, focuses on legislation and policies that have a fundamental impact and have been considered in developing this document to cover the scope of the requirements noted within the EIA regulations 2014 for consideration of the application for the proposed activity.

Regulation	Relevancy to the Proposal /Compliance
Constitution of Republic of South Africa (Act No 108 of 1996)	<p>The Constitution is the supreme law of the land. The Bill of Rights enshrines the rights of all people in our country and affirms the democratic values of human dignity, equality, and freedom.</p> <ul style="list-style-type: none"> Section 24: Everyone has the right to an environment, which is not harmful to their health or well-being. <p>This assessment has been undertaken to assess, minimise and present the findings to the competent Authority so as to make an informed decision with full knowledge of the environmental impacts associated with the project.</p>
National Environmental Management Act 107 of 1998, as amended	<p>To provide for co-operative, environmental governance by establishing principles for decision-making on matters affecting the environment, institutions that will promote co-operative governance and procedures for coordinating environmental functions exercised by organs of state; and to provide for matters connected therewith. The NEMA is the base line legislation for environmental protection in South Africa, a direct linkage to this project and the compliance therefore may be seen below in the regulations which have been promulgated in terms of the Act, to guide the assessment.</p>
Environmental Impact Assessment Regulations, 2014	<p>The EIA Regulations 2014, promulgated under NEMA (1998), focus primarily on creating a framework for cooperative environmental governance. Activities falling within the threshold of listed activities within the EIA Regulations 2014, as amended, require environmental authorization (EA) and must undergo an environmental assessment process and be authorized by the relevant Department of Environmental Affairs body prior commencement. Developments which trigger activities/ fall within the threshold of Activities Listed in Listing Notice 1 must apply for Environmental Authorization through the Basic Assessment Process. Those which trigger Listing Notice 2 Activities must apply through the Full EIA Process (Scoping and EIA) and where both Notices are triggered, requirements for activities listed under listing 2 apply unless otherwise agreed with the competent authority.</p>
National Environmental Management: Biodiversity Act 10 of 2004	<p>To provide for the management and conservation of South Africa's biodiversity within the framework of the National Environmental Management Act, 1998; the protection of species and ecosystems that warrant national protection; the sustainable use of indigenous biological resources; the fair and equitable sharing of benefits arising from bio - prospecting involving indigenous biological resources; the establishment and functions of a South African National Biodiversity Institute; and for matters connected therewith.</p>
National Water Act No 36 of 1998	<p>To provide for fundamental reform of the law relating to water resources; to repeal certain laws; and to provide for matters connected therewith.</p>
The National Waste Management Act No. 59, of 2008	<p>To reform the law regulating waste management in order, to protect health and the Environment by providing reasonable measures for the prevention of pollution and ecological degradation and for securing ecologically sustainable development; to provide for institutional arrangements and planning matters; to provide for national norms and standards for regulating the management of waste by all spheres of government; to provide for specific waste management measures; to provide for the licensing and control of waste management activities; to provide for the remediation of contaminated land; to provide for the national waste information system ;to provide for compliance and enforcement; and to provide for matters connected therewith .</p>
Msinga Local Municipality By Laws	<p>Applicable municipal by-laws which govern how developments within its area of administration commence as contained within the IDP, as reference within this document in a number of sections (BAR for Thokoza access road)</p>

LISTED ACTIVITIES TRIGGERED IN TERMS OF EIA REGULATIONS, 2014:

ACTIVITY TRIGGERED	LISTING NOTICE	HOW IT TRIGGERS as per EIA regulations	Specification of the triggering aspect of the project
Activity 19	Listing Notice 1	<p>The infilling or depositing of any material of more than 10 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 10 cubic metres from:</p> <p>(i) a watercourse;</p>	<p>90 m³ of concrete is proposed within a wetland as noted within page 12 above. Further to this, excavation to remove “soil, sand, shells, shell grit, pebbles or rock” of more than the stipulated 10 cubic metres will be engaged for the construction of the concrete slab structures.</p>

SECTION C

SITE LOCATION

Appendix 1, Section 3 (scope of assessment and content of basic assessment reports) subsection 1 (b) notes that, “the location of the project must be provided, including (i) the 21 digit surveyor general code of each cadastral land parcel; (ii) where available, the physical address and farm name; (iii) where required information in terms (i) and (ii) is not available, the co-ordinates of the boundary of the property or properties”.

The site for the proposed project is located within ward 18 of Tugela Ferry in an area called Emthaleni, within Umzinyathi District Municipality, Kwa-Zulu Natal. The farm name of the site is "Klip River Native Location".

21 DIGIT SURVEYOR GENERAL OF THE PROJECT STUDY AREA

N	0	G	T	0	0	0	0	0	0	0	0	0	4	6	6	5	0	0	0	0	0
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

SITE COORDINATES

ROAD START			
Latitude /Longitude	Degrees	Minutes	Seconds
South	28	31	55.12
East	30	30	36.10
ROAD END			
Latitude /Longitude	Degrees	Minutes	Seconds
South	28	31	40.01
East	30	31	06.72

ACCESS TO SITE (Directions)

Driving from Msinga Municipal Offices, head west towards R33; Turn right onto R33 and head North (in the direction towards Pomeroy); Turn right on D2287 and continue straight towards Emthaleni; Having continued for 9.2 Km you will arrive at Qinelani Clinic, the road (section 2) can be observed from D2287, as it is located above the premises of the clinic as seen in the image below.



Figure 3: Red roof of the Qinelani Clinic seen from a point on Thokoza access road.

SITE CADASTRAL MAPS

Key: The map below has been attached for one main purpose, to help trace the project location within Kwa-Zulu Natal, Umzinyathi District, Msinga Local Municipality and ward 18 within which the project is located (in an area called Emthahleni).

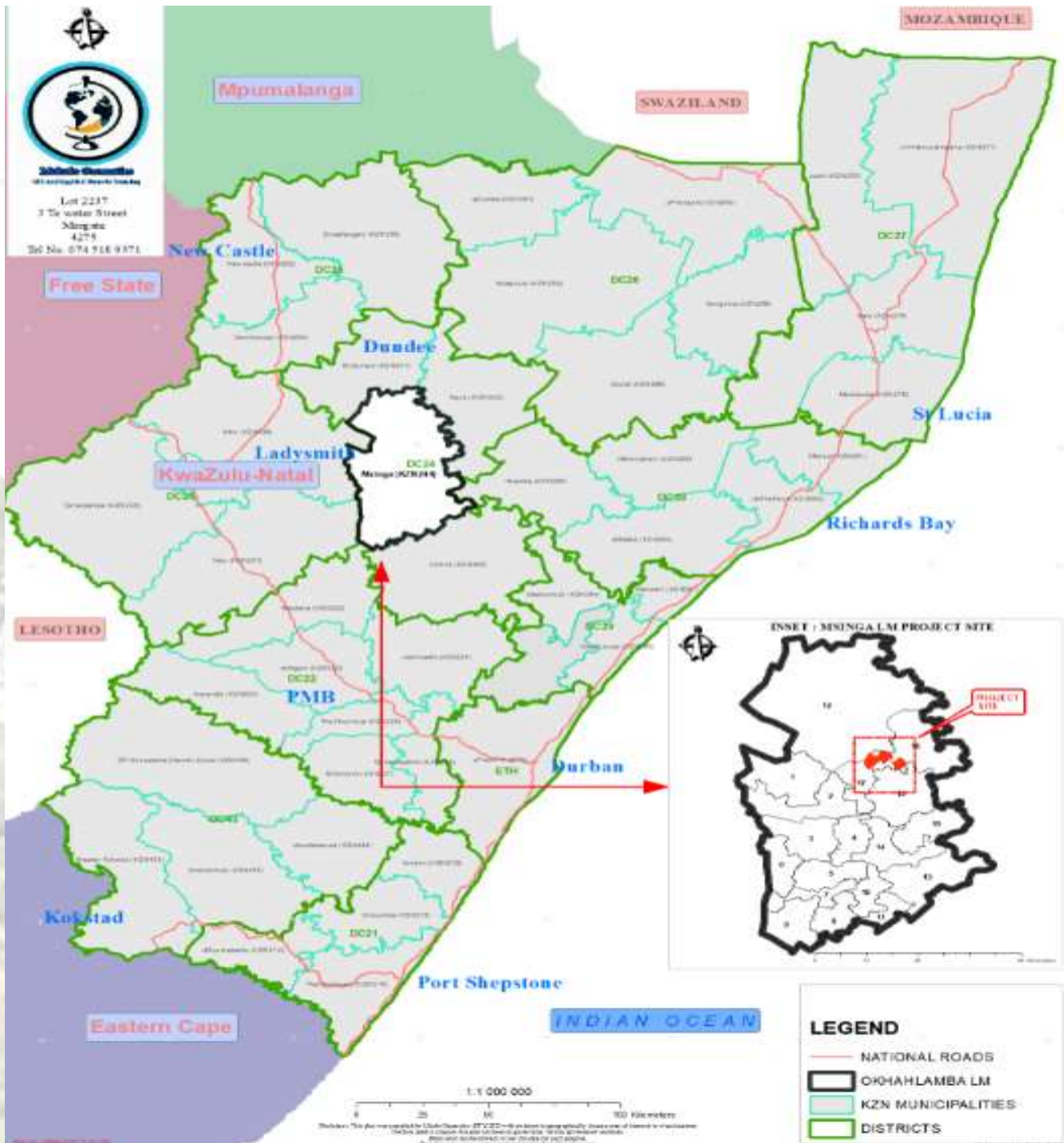


Figure 4: A mapping out the locality of the proposed site within uMzinyathi Local Municipality. An A3 version of the map is attached within annexure A to provide a more readable map, in case this is not visual enough for the observing party.

SECTION D

ENVIRONMENTAL ATTRIBUTES

Geology, soils and climate form the basic geomorphic relationship which gives rise to hydrological, topographical and biodiversity patterns. To better understand environmental attributes to the study areas environment we have also referred areas beyond the boundaries of the study area since they too attribute to the subject environment. The map below shows the location of the Msinga Local Municipality in relation to the surrounding Municipalities within the District and beyond. Map as sourced from: UMzinyathi District Municipality draft IDP 2015_16

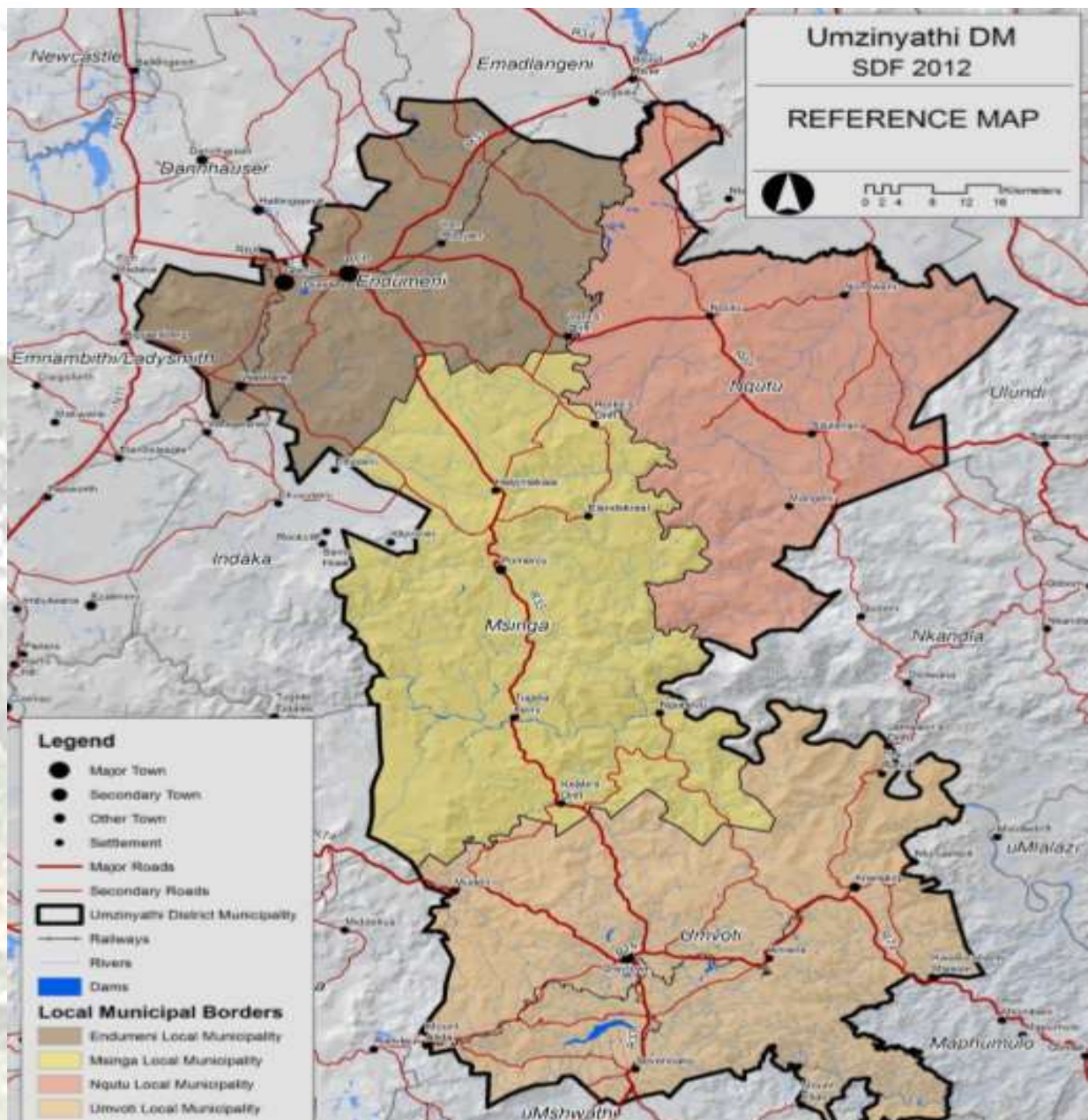
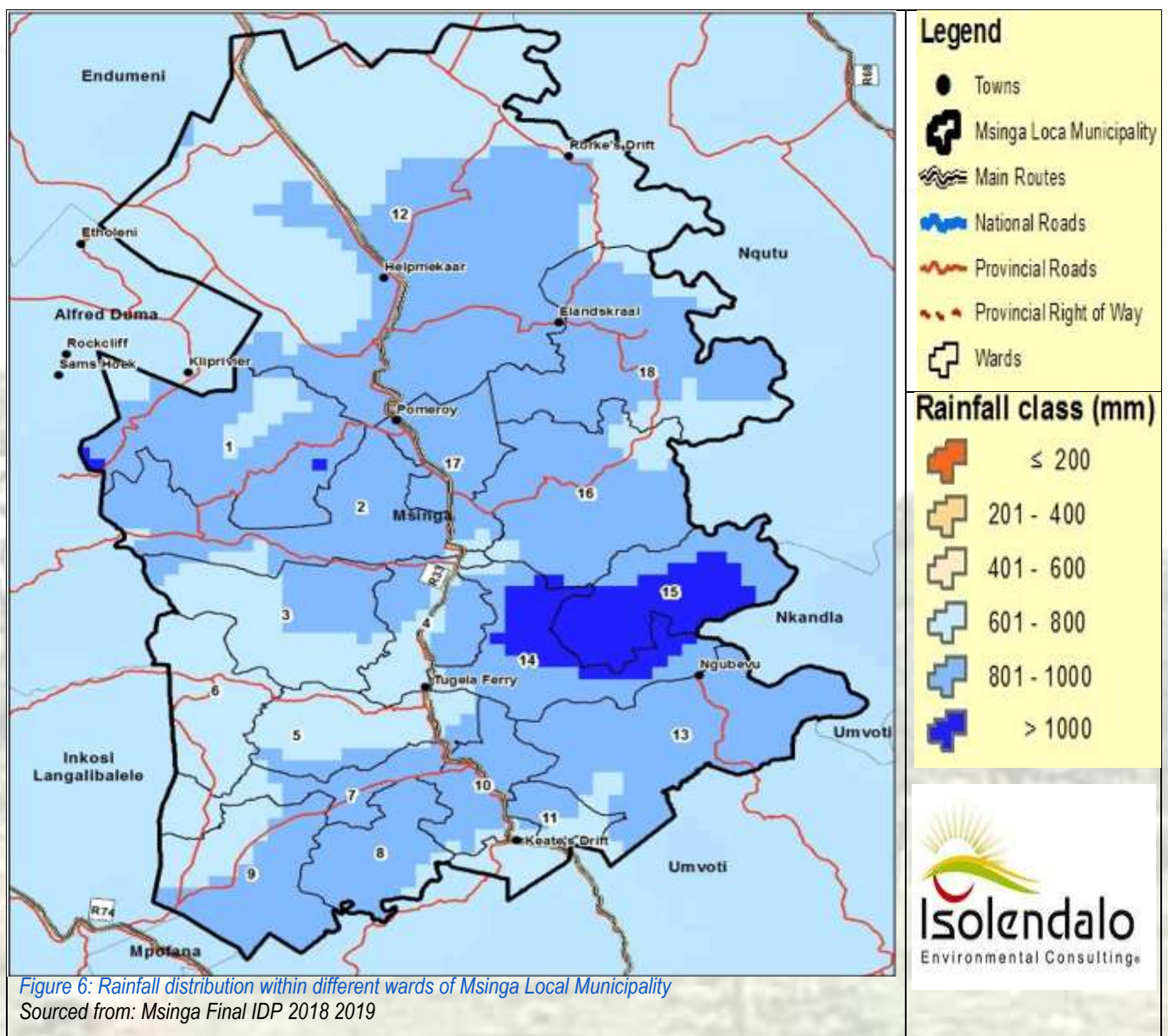


Figure 5: A reference map showing the Msinga Local Municipality within the Umzinyathi District Municipality and surroundings.

CLIMATE

Msinga municipality is characterised by a temperate climate, with warm to hot summers and mild to cool winters. The municipality falls within the coastal summer rainfall areas, with medium to low rainfall of 600 mm per annum. Rainfall is orographic in nature; the topography of this area strongly influences the climate of certain places within the same area in the form of annual floods which have claimed the lives of many residents of Msinga. Rainfall in the municipal boundary area is distributed as shown within the map below. Utilizing the map to Zoom in into ward 18, the conclusion is that the area receives moderate to high rainfall as the ward receives average rainfall that ranges is from (601 - 800) to (801 - 1000) mm per year.



THE SOIL FORM AND STRUCTURE WITHIN THE AFFECTED REGION.

After climate, geology is probably the second most important factor in the genesis of the soil-terrain landscapes of South Africa. The geological formations constituting the soil parent materials are highly variable with respect to the clay forming potential and silica content. These are passed on to the soils, giving rise to swelling black clays, sands etc. as well as differences in natural fertility and erodibility. Geology is thus indirectly responsible for a variety of soil-plant niches or habitats. Below is photographic representation of soil classes within Umsinga Local Municipality.

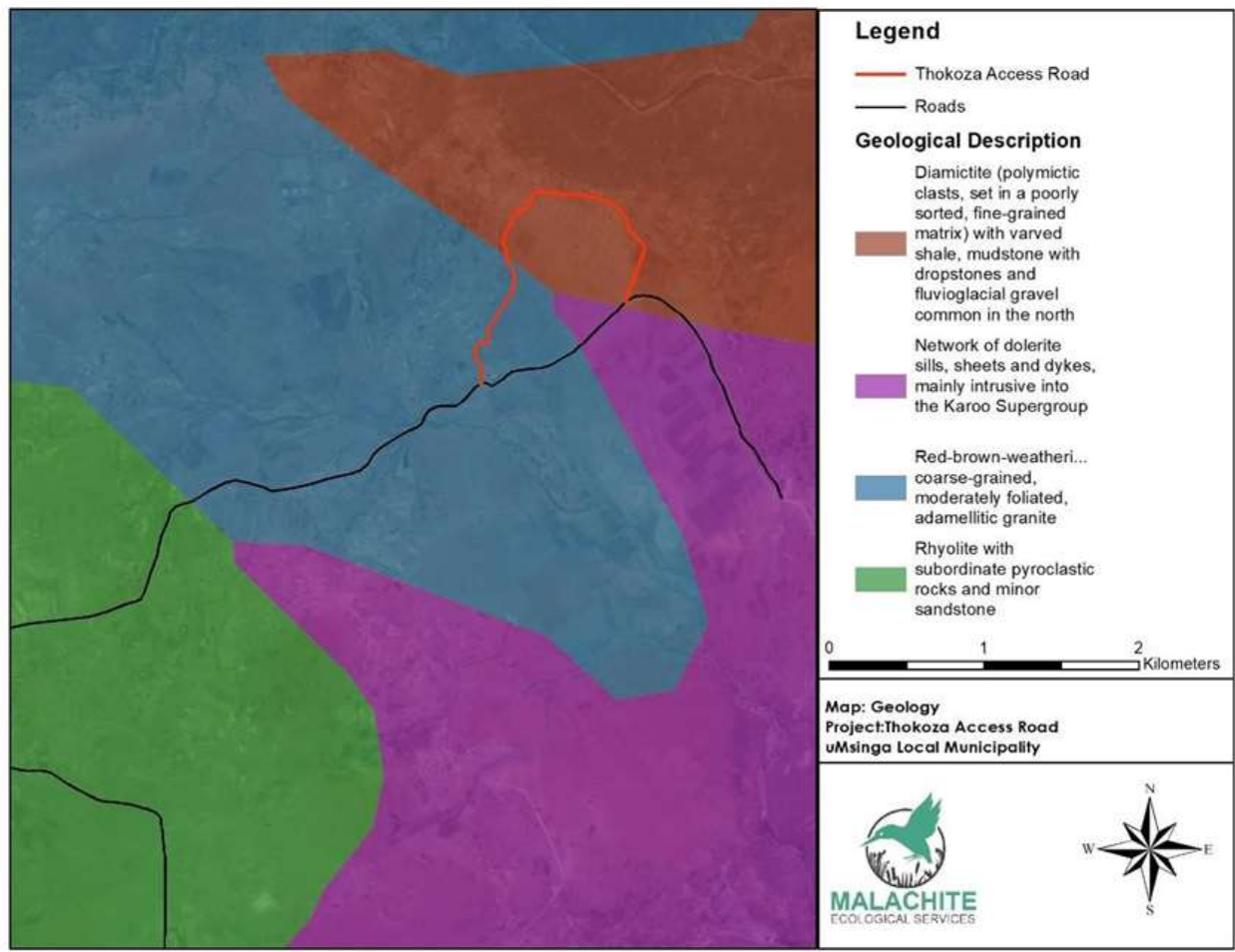


Figure 7: A map showing the soil classes associated with Msinga Local Municipality.

Source: Wetland Impact Assessnebt by Malachite Ecological Services (annexure E) page 13.

Zooming in into the area surrounding ward 18, which is situated East wards of Pomeroy (see figure 4 or 6): The geology, for most of the area, consists of the Eccca group, about 250 million years old, overlain with patches of the Drakensberg from about 65 million years ago. The Eccca Group that mainly consists of scale and sandstone (sedimentary rocks) is the most important geological formation. The Eccca Group is overlain by the Drakensberg Group consists of basalts and dolerites (igneous rocks). Metamorphic rocks such as amphibolite and gneiss are present in parts of the municipal area. Arenite is the most common rock covering most of the municipal area. Scale occurs throughout the area. Tillite is present along the Buffalo River but then only in the mountainous areas before it joins the Tugela River.

THE HYDROLOGICAL CHARACTERISTICS

The municipality has the fourth level (quaternary) catchment areas that drain into the Tugela and Umvoti Rivers. Blood River feeds into the Buffalo River that is the main tributary that drains the northern part of the municipal area. The Buffalo River flows into the Tugela east of Ngubevu from where the Tugela forms the boundary between Msinga and Nkandla. The Mooi River flows into the Tugela at Keate's Drift. The Thukela (**Tugela River**) is the largest river system in KZN. The Buffalo River is the main northern tributary of the Thukela River and flows in a south-easterly direction from the eastern escarpment to its confluence with the Thukela River near Nkandla. There are no significant dams in the entire municipal area. Zooming in into ward 18: the area is dominated by tributaries that feed into the Buffalo river which, as noted above, flows into the Tugela river which is located in further south from the study area. Because of the hilly terrain of the study area, wetlands are also a prominent feature of the study area (see image below).

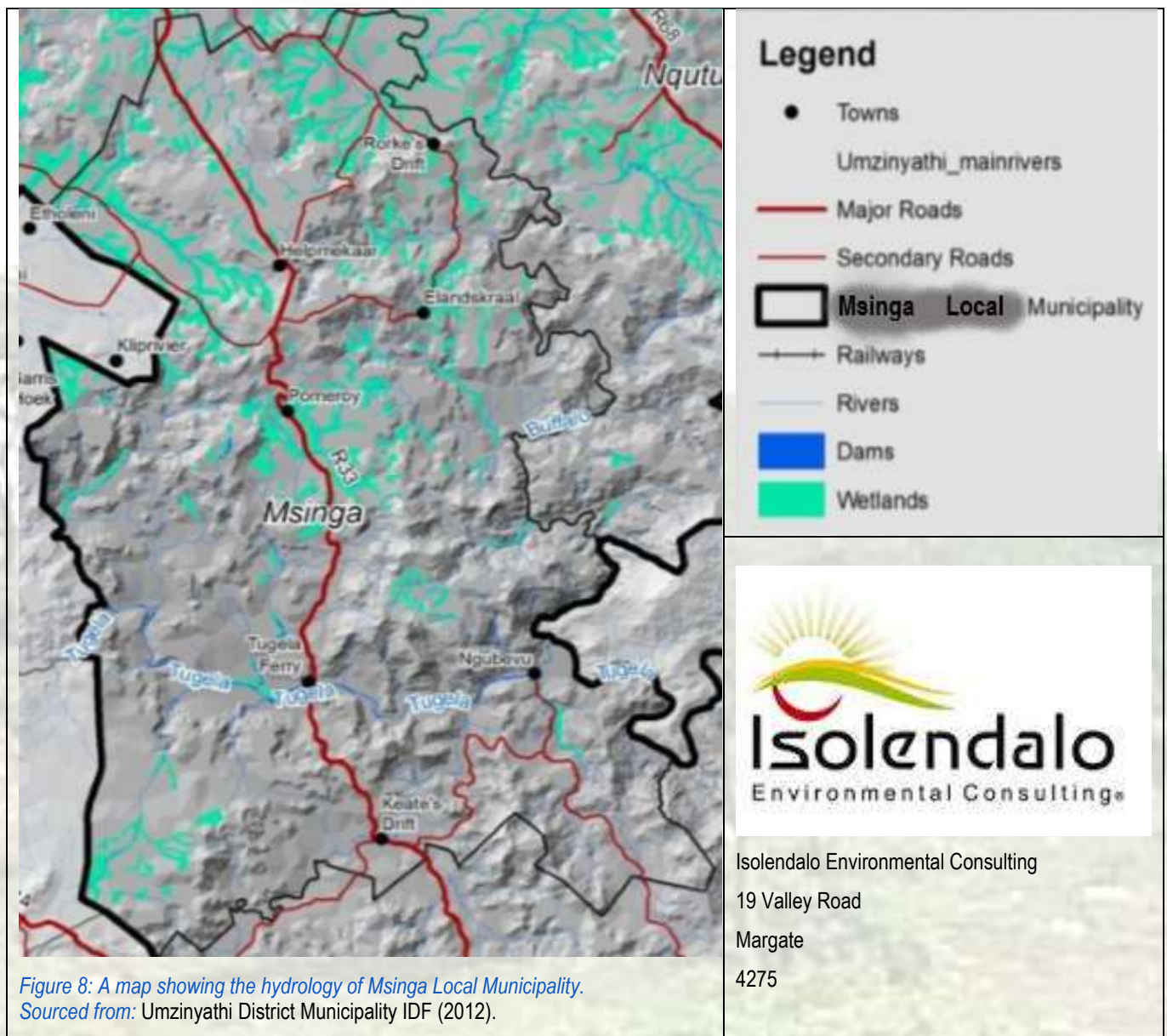


Figure 8: A map showing the hydrology of Msinga Local Municipality. Sourced from: Umzinyathi District Municipality IDF (2012).

Physical terrain

An analysis of the terrain elevation of the Municipal areas shows very significant features divided into three separate areas. The first is the northern plateau with the Biggarsberg and the Buffalo River valley dominating the landscape. The second element is the southern landscape defined by the mountains immediately north of Greytown and the Mvoti River valley. The most prominent area is the Tugela River valley into which the valleys carved by the Buffalo and Mooi Rivers feed into. The valley is marked by very deep gorges and steep slopes with very little land left for settlement and agriculture. Ward 18 has a varying elevation characterised low lying to steep areas. The map below shows that the area has an elevation ranging from 500 -1800 m above sea level, hence the area as observed below is prone to wetland areas.

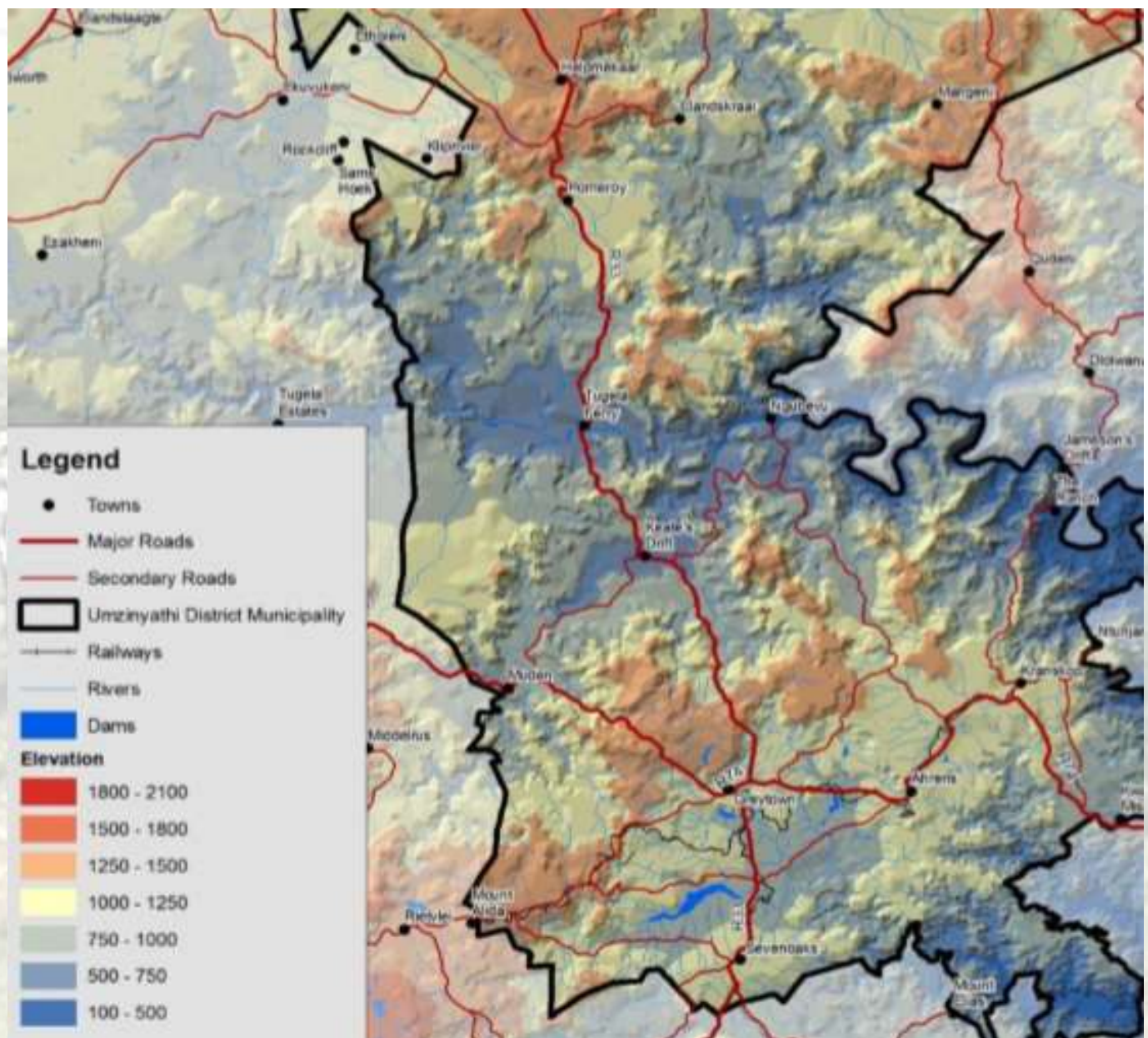


Figure 9: A mapping out of the topography of Msinga Local Municipality within Kwa-Zulu Natal. Source: Umzinyathi District Municipality IDF (2012).

Biodiversity

Ezemvelo KZN Wildlife embarked on a process, since 2005, whereby it systematically mapped critical biodiversity areas in KwaZulu-Natal with increasing accuracy. This dataset is based on various studies on fauna, flora and water resources, identifying key local biodiversity areas to be considered in spatial planning and this is referred to as Minset. The Minset in the Msinga Municipality is indicated on the figure below. It is evident that large, scattered areas within the municipality is classified as Biodiversity area 3, referring to land which is substantially disturbed and transformed. These are exactly the same areas which are regarded as Medium to low environmentally sensitive areas. The study area falls within the least threatened areas. The physical Terrain of the area contributes to formation of wetland areas which are rated as vulnerable areas, hence, such are also present in the study area.

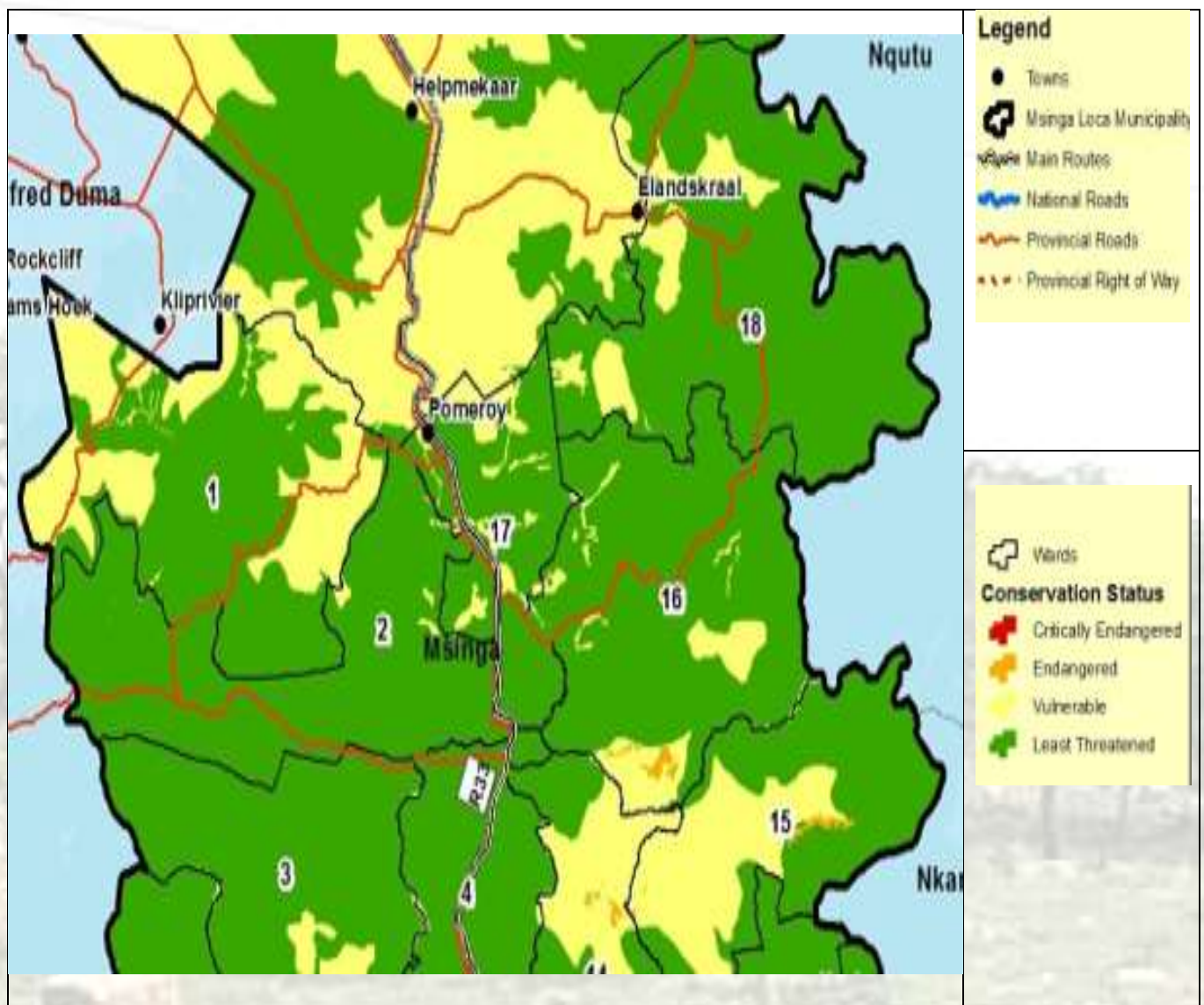


Figure 10: Conservation map of Msinga Local Municipality. Sourced from Umzinyathi District Municipality IDF (2012).

Vegetation types

The project area is located within the Savanna Biome. The access route traverses through Highveld Alluvial vegetation and lies on the boundary of KwaZulu-Natal Highland Thornveld and Thukela Valley Bushveld vegetation types. Highveld Alluvial vegetation was the dominant vegetation unit associated with the road upgrade route. All three vegetation units are discussed in greater detail below based on The Vegetation Map of South Africa [Mucina & Rutherford (2006), as referenced within the Wetland Impact Assessment by Malachite Ecological Services, P13].

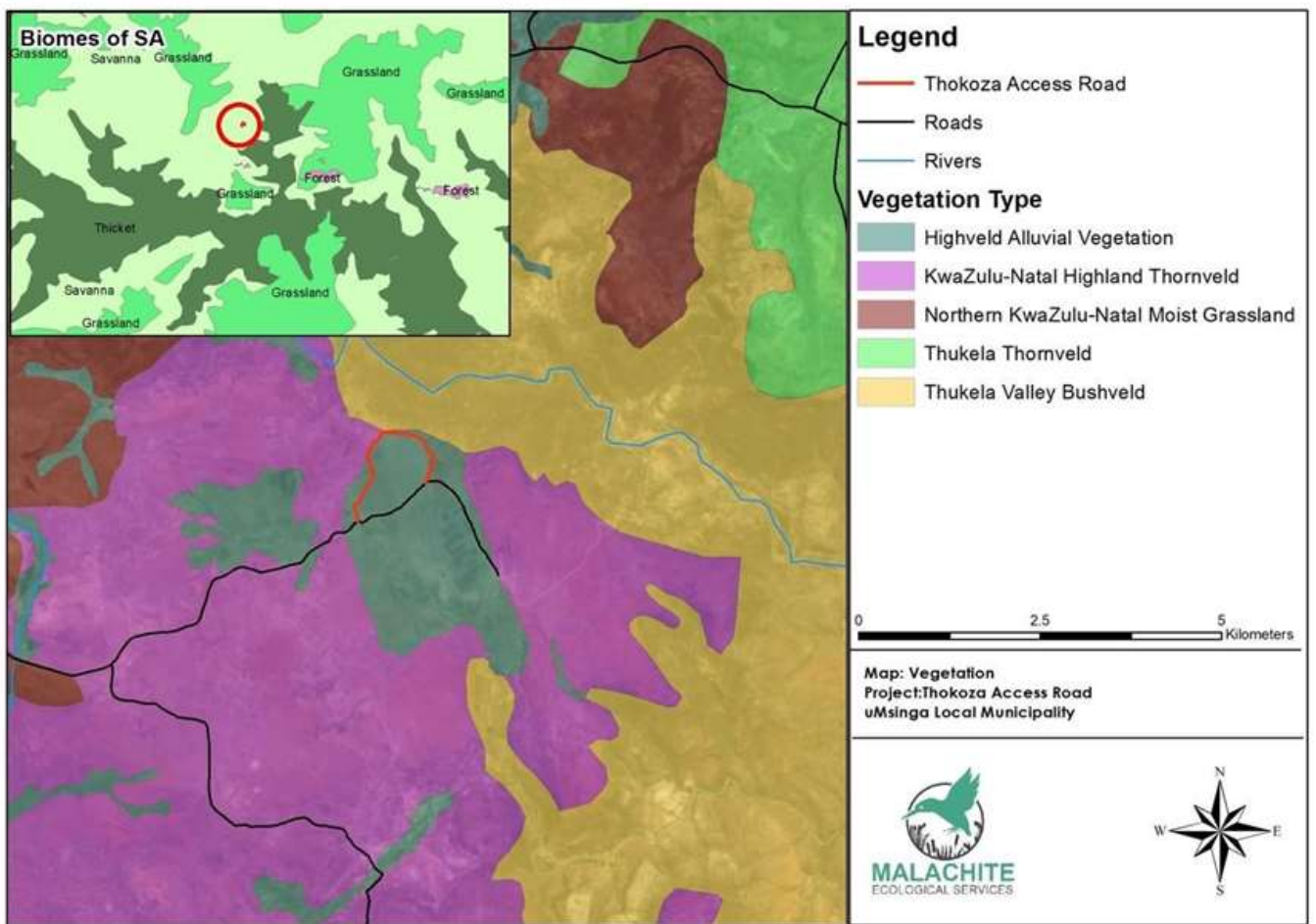


Figure 11: The map above indicates the vegetation types that can be located within the study area, the co-ordinates contained there-in are show the location of Tugela Ferry.

Source: Wetland Impact Assessnebt by Malachite Ecological Services (annexure E) page 15.

SECTION E

NEEDS AND DESIRABILITY

MOTIVATION OF ACTIVITY (Needs and Desirability) OF PREFERRED OPTION

The population of Msinga equates to a population density of 68 people per square kilometre and the population is largely concentrated around the towns of Tugela Ferry (including Msinga Top area), Keates Drift and Pomeroy. The gender structure of the Msinga LM is significantly female dominated in the age categories of 25 years and older. Conversely, the population younger than 19 years of age is however somewhat male dominated. The high unemployment rate resulting from a lack of economic activities and the limited economic base of the municipality results in many male household members leaving the Municipality in search of employment and income generating activities in other areas. Although the impact of HIV/Aids on the population structure is not quantified at municipal level, it can be expected that the influence of HIV/Aids in the stagnant demographic structures for 2011 has been an important contributing factor. Ward 18 consists of 6 locations namely Emthahleni (within which the project is proposed), Woza, Mahlaba, Mazabeko, Embidlini and Mbizimbelwe. The ward councillor for the ward is Mr T.M. Mabaso, who is the representative for the 177.35 km² land home to an estimated 3 681 population. The project will help to provide more Jobs for the project.

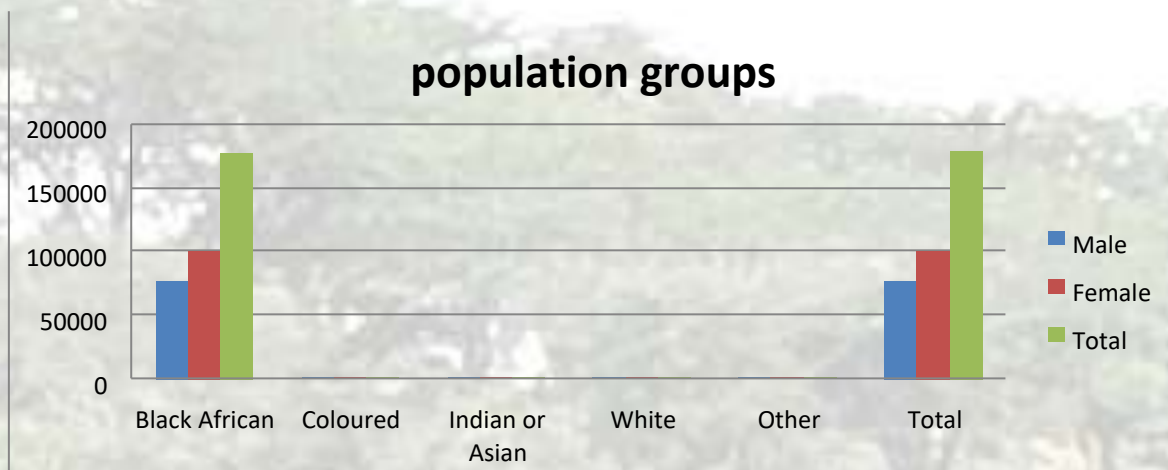


Table 1: Population by race and sex ratio

a. Socio-economic desirability of the activity

What is the expected capital value of the activity on completion?	R 10 000 000
What is the expected yearly income that will be generated by or as a result of the activity?	N/A
Will the activity contribute to service infrastructure?	YES
Is the activity a public amenity?	YES
How many new employment opportunities will be created in the development phase of the activity?	15
What is the expected value of the employment opportunities during the development phase?	R 3 000 000
What percentage of this will accrue to previously disadvantaged individuals?	N/A
How many permanent new employment opportunities will be created during the operational phase of the activity?	N/A
What is the expected current value of the employment opportunities during the first 10 years?	N/A
What percentage of this will accrue to previously disadvantaged individuals?	N/A

b. The need and desirability for the road

The road will serve more than 1 500 people from within its location for different amenities and will improve the overall access to public transport through basic infrastructure as required by Section 152 of the constitution (see legislative framework section above) *spelling out the objectives of local government as insuring access to at least basic services and facilitating economic development within a framework of financial sustainability*. The upgrade of Thokoza access road is part of a larger project being undertaken by the Municipality, whereby multiple existing informal roads in various wards of Tugela Ferry are being upgraded. The main issues being provision of basic services to communities, because the roads are corrugated, have potholes and are generally not safe to drive on. Services such as provision of health care through use of emergency mobile health care service (ambulance) and also provision of police service when required, especially to curb challenges of community violence and domestic violence within local community, who needed to access the community with better and drivable road access to provide basic services.

The motive behind the municipality's decision to upgrade the road is in two-fold; -

- (1) they are to provide efficient, safe and reliable service to the community.
- (2) Reliable road networks improve lives of the people as they are able to perform their everyday activities in safety and reliable infrastructure

MOTIVATION OF THE PREFERRED SITE

The preferred site will have fewer environmental degrading impacts because the upgrade is proposed within an existing culvert phase. Access roads provide ease of access to the area and within the boundaries of an area. Moreover; access roads promote development; and may trigger the interest of development of SMMEs by capable parties. The creation of Job creation and skill development is an advantage within the area of the proposed upgrade; the overall employees will be from the local area. Introduction of such opportunities improve local people i.e. their livelihoods in terms of skills, economy and awareness hence making them more economically active and may reduce poverty. Such are encouraged by the South African government, i.e. in terms of BEE objectives, the Skills Development Act No. 97 of 1998 principles etc.

Technology Alternative

- The use of machinery with the assistance of human labour is the preferred alternative: this alternative is less likely to lead to injury, faster & cost effective
- The associated negative impacts include, a decrease in the number of job opportunities that will be created; Increased noise levels, spillage of hazardous substances etc., however the impacts associated with the use of machinery have been investigated through various means and can be reduced through the application of mitigation noted within the EMPr and this BAR.

NB: The construction mainly focused at human strength/ human labour has not been considered as a feasible alternative to implement for the project. Therefore, it has not been assessed within this document.

SECTION F

PUBLIC PARTICIPATION AND KEY STAKEHOLDER ENGAGEMENT PROCESS

DETAILED DESCRIPTION OF THE PROCESS FOLLOWED IN RESPECT TO PREFERRED ALTERNATIVE WITHIN THE SITE:

The EIA regulations 2014 (as amended) within chapter 6 contemplate the guidelines for a undertaking public participation.

The land on which the project is proposed is under the control of the Msinga Local Municipal Council, hence sub-regulation (1) does not apply on the application lodged to which this basic assessment report is applied. The public participation process to which this Basic assessment report and EMPr (contained within annexure F) was subjected is contemplated on the EIA regulations 2014 (as amended) regulation 40. (See annexure D).

- (1) Stakeholders were provided with the Draft BAR for commenting and all comments received have been attached within annexure D of this final BAR and they were provided 30 days to comment on the Draft Basic Assessment Report development as per the amended EIA Regulations 2014.
- (2) All stakeholders (Including Department of Economic Development, Tourisms, Environmental Affairs; KZN Department of Water and Sanitation; Ezemvelo KZN Wildlife)

Details of Alternatives Considered:

EIA Regulations 2014 (as amended) Regulation 41, provides for the process which must be undertaken for a legitimate public participation for consideration of the Application by the Competent Authority. 41 (1) provides that the regulation only applies in instances where adherence to the provisions of the public participation applies hence the regulation is applied to this BAR. Therefore, the public participation process was undertaken in terms of Regulation 41 (2) which notes the means by which the person conducting the public participation process must give notice to all potential interested and affected parties.

Regulation 41 (2)	(a)	site notices were erected on site taking into account the conditions noted in sub-regulations (3) & (4);
	(b)	the proponent is the Msinga Local Municipality which is the governing body of the land within which the project, hence, the process noted in subsection (2) (a) complies with sub-regulation (2) (b);
	(c)	The advertisement for the proposed project was placed on Ilanga Provincial Newspaper, hence it complied with
	(d)	the requirements of (2) (c);
	(e)	No other alternatives were engaged with the community apart from the ones noted above as they were not deemed necessary;

Site Notices

The public participation process (as noted above) involved putting up site notices on site in Zulu and English. Site notices were placed on site on the 9th of July 2018.

Advertisement

The proposed upgrade of the informal road was advertised on Ilanga newspaper on 19 July 2018.

Alternative Engagement with Community (if deemed Necessary)

No other alternatives were engaged with the community apart from the ones noted above as they were not deemed necessary.

Register of I&APs

A register of interested and affected parties was opened and maintained to contain the names, contact details and addresses of all the I&APs recorded as per Regulation 42 (a); (b); and (c), when applicable. The register is attached within annexure D.

Minutes of Public Meeting

- No minutes have been recorded since there was no meeting held.

Proof of Stakeholder Engagement

- The comments received are attached within annexure D of this report along with the response of the EAP.

Notification of Interested and Affected Parties

- Communication has been kept where necessary with stakeholders via telecommunication and E-mails when necessary, available records are presented in annexure D.

Issues Raised by IAP's

- All the comments and related information from the interested and affected parties are recorded and can be noted in annexure D as per regulation 44 (1).

SECTION G

ENVIRONMENTAL IMPACT ASSESSMENT OF ALTERNATIVE SITE IDENTIFIED AND ASSESSED

PROCESS UNDERTAKEN TO IDENTIFY, ASSESS AND RANK IMPACTS

The process undertaken to identify, assess and rank and ranking the impacts the activity will impose on the preferred location was developed with the guidance of Appendix 1. The process therefore takes into account the provisions of the EIA regulations promulgated in terms of the NEMA (Act no. 107 of 1998) and relevant legislation.

METHODOLOGY (Matrix Risk):

Nature

The nature of the impact is herewith classified as either direct, indirect or cumulative.

- Direct impacts: impacts usually caused from activities carried out on site that can only be monitored to be carried out within certain confines but cannot at all be avoided, i.e. clearing of vegetation to mark a road reserve in an area populated with vegetation.
- Indirect impacts: secondary impacts resulting from direct impacts, i.e. erosion resulting from destabilised soils due to clearing of vegetation.
- **Cumulative impacts:** impacts which could result during the life cycle of the project as a result of one or two impacts that are usually unnoticed as single elements of such.

Intensity/ Magnitude

Encompasses three required aspects of identified impacts namely; the degree to which impacts can be reversed, the degree to which impacts may cause irreversible effects and the degree to which an impact can be mitigated. The impacts identified may be associated with the natural, social and cultural functions of the environment

Table: Rating Scale for Intensity of the Impact

Intensity of the Impact	Rating
Low (Impacts are reversible, mitigatable and replaceable by discontinued of the source of impact with no need to implement further mitigation measures)	1
Moderate (impacts are reversible, mitigatable and replaceable though moderate change the environment is identified with a loss of natural habitats. The natural habitat remains predominantly intact. Impacts can be restored by natural factors within 3-6 months)	2
High (The change in ecosystem processes and loss of natural habitat and biota is great, some remaining natural habitat features are still recognizable. Mitigation measures must be implemented within provided time frame by the ECO).	3
Very High (The modifications have reached a critical level and the ecosystem processes have been modified completely with an almost complete loss of natural habitat and biota. A rehabilitation plan must be drawn to reverse this impact, the consultation of relevant stake holders may be required).	4

Probability of Impacts

Table 3: Rating Scale for Probability of Impact

Probability of the Impact	Rating
Improbable (No chance of occurring)	1
Probable < 50% chance of occurring	2
High Probability 50 % ≥ 90 % chance of occurring	3
Definite > 90 % chance of occurring	4

Duration

Herewith the duration of the impact refers to the period into which the impact will be experienced i.e. short, medium and long term.

Table 1: Rating Scale for Duration the Impact

Duration of the Impact	Rating
Immediate < 1 year	1
Short 1>5 Years	2
Medium 5 ≥ 10 Years	3
Long > 10 Years	4

Extent

The extent is associated with the geographic extent of the impact, whereby if the occurrence of the impact will either have local, regional, National and globally negative impacts.

Table 2: Rating Scale for Extent of the Impact

<i>Extent of the Impact</i>	<i>Rating</i>
<i>Site Specific</i>	<i>1</i>
<i>Local 1 km ≥ 5 km</i>	<i>2</i>
<i>Regional 5 > 10 km from site</i>	<i>3</i>
<i>National/ Internally/Globally ≥ 10 from site</i>	<i>4</i>

Significance

The total significance = [(Magnitude+Extent+Duration) x Probability]: The following colours are primarily allocated for illustrative representation of each rating as per the degree of each rating; red for a severe significance, Yellow for a medium significance and green for low significance of effect.

Table 5: Rating Scale for significance of the impact of the Impact

Significance of the Impact	Consequence of Significance	Rating
Very Low	The impact is unimportant, and it requires not the mitigation. As such, the impact is regarded as acceptable for the proposed development.	<5
Low	The impact is very minor and may require limited mitigation. It may be regarded as accepted in light of the proposed mitigation.	5≥10
Medium (Medium-written black because of the colour barrier)	The impact is clearly effective but moderate and can be mitigated/ avoided by the implementation of proper mitigation measures.	10≥20
Moderate	The impact is clearly effective, failure to mitigate could lead to the entire project unacceptable.	20≥30
High	There are slim chances of mitigation measures.	30≥40
Very High	The impact is relatively high and there is no possible mitigation measure for this impact. As such, social, cultural and Economic activities of the community are disrupted.	>40

Result comment: summary of the result reflected under impacts after mitigation. The result comment must be considered reliable with the implementation of mitigation measures. NB//: A range of mitigation measures is provided; one or two measures may be required to mitigate a certain aspect.

AN ASSESSMENT OF EACH IDENTIFIED POTENTIAL SIGNIFICANT IMPACT AND RISK

Impact	Before /	Probability	Duration	Extent	Intensity	Significance	Result Comment
Clearing of vegetation	Impact before mitigation	3	1	1	2	= (1+1+2) x 4 S= 16	Vegetation will be removed on phase; However, vegetation on the lineage of the road however is mainly grass since the road exists already. The focus should therefore to limit vegetation clearing to the lineage of the road. The Moderate rating on the clearing of vegetation in terms of intensity is based on the fact that cleared vegetation will not grow back as the road will transverse over the cleared area. Having applied the provided mitigation measures the occurrence of the impact will not change, however occurrence will be confined to necessary areas, hence, the change in the difference with the rating.
	Impact after mitigation	2	1	1	2	= (1+1+2) x2 S= 8	
Lack of safety and security	Impact before mitigation	3	3	4	4	= (3+4+4) x 3 S = 33	The public has been and will still be involved in the project so that there is fellowship between the project personnel and the community, this helps minimise any riots, theft, lawsuits, violence and notoriousness to the clients name. Provided that the mitigation measures are not implemented, fellowship may be threatened leading to disruption to the project and posing harm to the project personnel. A firm working relationship between the ECO, Safety Officer, Resident engineer, CLO and Project Managers will have to be maintained to ensure that the community works hand-in-hand with project personnel in order for the project to prevail.
	Impact after mitigation	1	1	2	2	= (1+1+2) x 2 S = 8	

Pollution of land	Impact before mitigation	2	1	1	1	= (1+1+1) X 2 S = 6	Though the impacts may be detrimental in severe cases of land pollution; considering this project and the type of chemicals to be used and the volumes to be used, impacts will be insignificant if all the mitigation strategies provided in this document (EMP and Section D of BAR) are implemented in the manner monitored by a qualified ECO.
	Impact after mitigation	1	1	1	1	= (1+1+1) x 1 S = 3	
Pollution on water	Impact before mitigation	2	1	1	1	= (1+1+1) x 2 S= 6	Wetland systems are able to self-rehabilitate over time considering the contaminating agent is removed and the mitigation measures within this document are considered and monitored, the impacts after mitigation are foreseen to be insignificant. Close monitoring of the ECO is however recommended.
	Impact after mitigation	1	1	1	1	= (1+1+1) x 1 S= 3	
Erosion (bare soils)	Impact before mitigation	3	2	1	3	= (2+1+3) x 3 S= 18	Simple revegetation of the bare ground with deep rooted plants can help mend this impact. The soil can be watered mean while the plants are growing to avoid soil revision by wind. Areas requiring gabions will be identified with the ECO and those should be installed accordingly. Erosion mitigation must be applied and monitored as per recommendation within this application document.
	Impact after mitigation	1	1	1	1	= (1+1+1) x 1 S= 3	
Noise	Impact before mitigation	2	1	1	1	= (1+1+1) x 2 S = 6	The noise levels associated with the project applied for are not deemed too high, especially if mitigation measures are applied; even so, noise anticipated is inevitable but can only be controlled and monitored to control it in case of unnecessary noise. Noise generated must emerge from construction vehicles and be limited to construction hours. (7:30am to 4:30pm)

	Impact after mitigation	1	1	1	1	= (1+1+1+) x 1 S = 3	
Traffic	Impact before mitigation	2	1	1	2	= (2+1+1) x 2 = 8	Traffic flow will be slowed down as a result of the project. However, the severity of the impact is mostly dependent on the area. Stop and Goes will be used successfully along this road lineage and will be very effective due to the low traffic volumes in the area. The project is within a rural area where there is not much traffic.
	Impact after mitigation	1	1	1	1	= (1+1+1) x 1 = 3	
Dust	Impact before mitigation	4	4	1	1	= (4+1+1) x 4 S= 20	Without mitigation measures dust will Dust suppression measures will be implemented with monitoring of the appointed ECO/ SHE officer. Mitigation include, but are not limited to; regular wetting of the road, stockpiled soils to be covered and /or wettened, controlling speed limits along the road, blasting is not envisioned and must not be engaged without notifying the ECO, grass clearing must be limited to areas of construction, etc. Dust suppression will have to be stringently monitored as the road is situated within a residential area. The proposed road is a gravel surfaced road, hence, when it is dry dust will be omitted from the surface of the road, provided the road is in a good state, the dust omitted will be of a minimal intensity.
	Impact after mitigation	1	4	1	1	= (4+1+1) x1 S= 5	

IMPACTS THAT MAY RESULT FROM THE PLANNING AND DESIGN PHASE

SITE ALTERNATIVES

Alternative S1 (preferred alternative)

Direct impacts:

- The main significant impacts associated with planning and design phase on the basis of the site alternative are positive and these include; Job creation and job allocation: jobs are allocated and are still to be allocated for professional skilled persons such as engineers, land surveyors and environmental practitioners and ECOs

Indirect impacts:

- New knowledge is introduced to the interested and affected parties as they are involved in the public participation process i.e. interested and affected party;
 - This protects the people: creating awareness on the things that should not happen in developments, especially because the project is situated in a deep rural area. In such areas, people are usually manipulated for instance in some locations Wetlands have been ignored which have led to their contamination, awareness helps people to seek help from the government.

Cumulative impacts:

- Authorization and proper execution of projects such as this project will ultimately help restore trust of communities in the government, even communities adjacent to the receiving community.
- The ability of communities to trust authorities influences other aspects in such environments, i.e. crime: whenever communities lose their trust on the government, they tend to take matters into their own hands, which is forbidden by law in South Africa (however this is merely a small example of the benefits of such).

No-go alternative (compulsory)

Direct impacts:

- The no-go alternative would imply that the status quo on site would remain unaltered.
- It would also contribute to a great loss of capital as money has been spent in designing the project and other aspects on this phase as stated above.

- The employment opportunities created for the community members in the planning and design phase would not be allocated to the number of people planned for, hence leaving the community helpless i.e., in terms of job opportunities (which is not the focus of the project, but beneficial to the community) and safe access routes.
- Mostly importantly the no-go alternative would mean that the client is denied its efforts to provide safe access roads.

Indirect impacts:

- Loss of capital already invested by The client should it not be authorised.
- The community is involved in a number of public participation activities; hence, they are looking forward to the government's actions to improve their situation and ensure their safety.

Cumulative impacts:

- If community members community are involved public participation activities and are made to look forward to the government's proposals to improve their situation and ensure their safety after their complaints and then nothing is done, Ultimately the community will resort to revolts as means to getting the government to act in matters of the community. This could lead to more capital, lethal revolts and more disruption.

mitigation measures to manage the potential impacts listed above:

- The threats identified can be avoided by the Authorization of the project, even improving the situation of the community, in terms of economy and awareness.

PROCESS, TECHNOLOGY, LAYOUT OR OTHER ALTERNATIVES

Alternative A1 (preferred alternative)

Direct impacts:

- There are no anticipated significant negative impacts identified during the planning and design phase related to the process, technology, layout or other alternatives on site alternatives.

The chosen process and technology during this phase include taking water samples with small cups; taking soil samples i.e. through the use of tools such as AMS soil augers; taking measurements through measuring instruments, etc of which any negative effects on the environment are negligible and are only associated with investigation of site.

- The main significant impacts associated with this phase on the basis of the site are positive and these include: Job creation and allocation for professionally skilled persons such as engineers, land surveyors and environmental practitioners and also, job opportunities that have been created for low skilled persons will be allocated to them once the project is approved (through hiring).

Indirect impacts:

- New knowledge is introduced to the parties involved: people from the community are introduced to steps and process, technology, layout or other alternatives that are involved for a project to start and be authorized;
This protects the people making them to be aware of the things which should not happen and those that should in developments, especially because the project is situated in a deep rural area and in such, people are usually manipulated because of the lack of knowledge.

Cumulative impacts:

- community members community are involved public participation activities and are made to look forward to the government's proposals to improve their situation and ensure their safety after their complaints and then nothing is done; ultimately, the community will resort to revolts as means to getting the government to act in matters of the community. This could lead to more capital, lethal revolts and more disruption.

No-go alternative (compulsory)

Direct impacts:

- Should the project not be authorised the positive impacts identified will not take effect and development potential will be nil and access to goods and services will be limited and dependant on weather as the situation is.
- It would also contribute to a great loss of capital already spent in designing and planning for the project.
- The local community will not have safe access to goods and services.
- The employment opportunities created for the community members in the planning and design phase will not be allocated to the number of people planned for.

Indirect impacts:

- The community is involved in a number of public participation activities; hence, they are looking forward to the government's actions to improve their situation and ensure their safety. Should the project not be authorized by the Department, this could lead to loss of trust on relying on the government by the community.

Cumulative impacts:

Should the project not be authorized by the Department Loss of income may result from i.e. community members who might revolt against poor development or service delivery.

mitigation measures to manage the potential impacts listed above:

The impacts identified above are positive and require no mitigation should the project be authorized.

There is need to address the effects that may result from the no-go alternative.

- This alternative would not only mean that the community is denied safety and security, but also personal empowerment through skills and capital.

IMPACTS THAT MAY RESULT FROM THE CONSTRUCTION PHASE

SITE ALTERNATIVES

Alternative S1 (preferred site)

Direct impacts:

- Removal of vegetation and exposure of soils. Mainly grass close to or at the wetland area.
- Degradation of wetland and quality from excavating or removal of materials.
- Materials and Substances may pollute the surface and/or ground on the site i.e. Substances such as cement residue, oils and fuel hence there's a possibility of water contamination
- traffic increases.
- The social status of the community will be improved through: -
 1. employment: allocation of the jobs created in the planning and design phase for the people of the community of the project through hiring.
 2. Skills.
 3. More business opportunities: People make use of opportunities such as renting out their toilet facilities to construction personnel through agreements.

Indirect impacts:

- Removal of riparian vegetation to facilitate construction may contribute to erosion of road verges, resulting in increased sediment loads to nearby watercourses.
- Bare soils are prone to wind erosion with associated generation of dust and windblown sand during high wind velocities.
- Increased traffic leads to being late and the overall time that people must do certain activities as opposed to their normal schedules.
- Clearing of vegetation decreases carbon dioxide absorption from the atmosphere and decreased air quality results.
- Soil compaction

Cumulative impacts:

- The bare soil area may be invaded by invasive and/or exotic species.
- Creation of economically proactive citizens from the community.
- Diseases associated with poor air quality (i.e. Asthma) may increase in close by community's overtime.
- Soil compaction increases will lead to increased run-off hence increased erosion effects.
- Decreased water quality with effects to all organism's dependent on the watercourses and any water resource linked to them.
- Continual alterations to the abiotic characteristics of the environment may affect the species within the environment i.e. reproduction, food sources etc, leading to species migration
- Species migration to more survivable environments.

No-go alternative (compulsory)

Direct Impacts:

- The positive impacts identified will not be implemented and development potential will be nil and access to goods and services will be limited and dependant on weather as the situation is.
- loss of capital already invested into the project by the Department of Transport.
- The local community will not have safe access to goods and services.
- The employment opportunities created for the community members in the planning and design phase will not be allocated to the number of people planned for.
- Flooding of the road during peak rainfall due to lack of proper stormwater management.

Indirect impacts:

- Should the project not be authorized, the situation of the community will remain the same, meaning that people's lives may be lost during high rainfall.

Cumulative impacts:

- Should the project not be authorized by the Department Loss of capital may result from i.e. community members who might revolt against poor development or service delivery.

mitigation measures to manage the potential impacts listed above:

- Appointment of an ECO to monitor compliance with the EMPr implemented for the project
- Erosion can be minimized by ensuring that construction activities are confined to disturbed areas of the river banks
- Post construction phase, the disturbed areas must be rehabilitated by stabilizing the banks with gabions or geotextiles to ensure regrowth of riparian vegetation. On-going monitoring is required until recovery of such.
- The installation of piped culverts to ensure continuation of on phase small streams is imperative.
- The physical characteristics of the wetland will not be significantly altered except for the site of the proposed on which a causeway will also be located.
- The disturbed areas must be planted with deep rooted vegetation to stabilize the banks, provide shade to control the water temperature and provide habitat and food.
- To avoid soil and water contamination in cases where the machine being used are faulty, the contractor will have to make sure of the following:
 - Provision of drip trays all the time onsite
 - Placing of generators over the drip tray
 - Avoid soil erosion by ensuring that rehabilitation/landscaping in all areas where construction is taking place.
 - Provision of waste bins to avoid pollution by means of waste and use of chemical abluion.

PROCESS, TECHNOLOGY, LAYOUT OR OTHER ALTERNATIVES

Alternative A1 (preferred alternative)

Direct impacts:

- Excavation activities with removal of vegetation and exposure of soils
- Materials and Substances may pollute the surface and/or ground water on the site i.e. Substances such as cement residue, oils and fuel hence there's a possibility of water contamination
- traffic increases.
- Construction activities are generally associated with a greater than normal level of noise and disturbance.
- Some of the activities which could constitute a noise nuisance during construction are power tools, driving, loading and off-loading, vehicle hooters and reverse sirens. This impact is specifically important in this development because of the proximity to the neighbouring residential properties.
- traffic will be generated i.e. the delivery of construction supplies, staff and equipment. Traffic impact would of short duration as it would be restricted to the improvement period. After the proposed improvement the traffic flow will be generally improved.
- Substances such as cement residue is especially important and must be adequately controlled.
- contamination with oils from the machines used and vehicles during construction.

- Degradation of stream and water quality from excavating or removal of sand can increase sediment load and turbidity downstream which may degrade the quality of domestic and livestock water supply.
- Continued employment for contractors completing work within the surrounding area.
- There is potential for construction labour to trespass onto neighbouring properties; and
- Construction personnel / construction vehicles – movement of construction personnel and vehicles may pose a potential health and safety risk to road users and local residents.

Indirect impacts:

- Exposed surfaces during construction would provide a source of sediments to be taken up by storm water resulting in downstream sedimentation of the water resources.
- Areas of unconsolidated soil due to removed vegetation will be present. These soils will be prone to wind erosion with associated generation of dust and windblown sand during high wind velocities.
- Health issues such cholera, asthma, diarrhea due to negligence from the persons working on site i.e. causing water contamination of drinking water; inhaling of fumes.
- Injuries by communities as the result of unsafe keeping of working areas.
- The site has already been cleared from vegetation and this bare soil area may be prone to the invasion and establishment of invasive and/or exotic species.
- Impact of Construction Camp: Construction camps might further contribute to possible indirect impacts due to the possible fuel spillage, and erosion due to various activities and movements of construction vehicles. Spillage may lead to contamination of soil and adjacent water bodies.
- Impact on Borrow pits: it might be necessary to obtain additional fill material from borrow pits and should be obtained from existing borrow pits to reduce the impacts that the creation of new borrow pits will have on the environment.
- Surface water run-off contamination: An increase in traffic will contribute to an increase in contamination of roadside soils due to particulates from tyres, brake and road wear, petrochemical products leaking from vehicles.
- Creation of an economically proactive community.

Cumulative impacts:

- Impact of removal of riparian vegetation: Removal of riparian vegetation to facilitate construction could contribute to erosion of road verges, resulting in increased sediment loads to nearby watercourses. Uncontrolled/ managed pollution could ultimately lead to the contamination of the area and adjacent areas
- Invasion and establishment of alien and/or invasive vegetation.

No-go alternative (compulsory)

Direct Impacts

- None of the impacts identified for the proposed activity will occur (including positive and negative impacts) if the proposed activity does not proceed. There would be inefficiency by continuing to use the culvert in the phase and the transport problem being experienced currently will not be addressed. In addition, road safety risks associated with the use of the culvert in the phase would continue.

Indirect impacts:

- The community is involved in a number of public participation activities; hence, they are looking forward to the government's actions to improve their situation and ensure their safety. Should the construction activities not be carried out by the Department, this could lead to loss of trust on relying on the government by the community.

Cumulative impacts:

- Should the project not be authorized by the Department Loss of income may result from i.e. community members who might revolt against poor development or service delivery.

mitigation measures to manage the potential impacts listed above:

- Concrete and/or cement will not be mixed directly on the ground but will be mixed offsite or on a mortar board. Visible remains of concrete as a result of construction will be physically removed and disposed of as building wastes.
- To avoid soil and water contamination in cases where the machine being used are faulty, the contractor will have to make sure of the following:
Provision of drip trays all the time onsite
Placing of generators over the drip tray
- Maintenance done on construction vehicles must be done in such a manner to prevent spillage of fuel and oils.
- After the completion of construction, any possible soil compaction and spillage of substances within the construction camp must be rehabilitated.
- Use of soft engineering solutions in connection with surfacing of the arrears not developed for vehicle parking within camsite. This will allow percolation and seepage of water into the ground without being contaminated with any oils or other negative effects.
- Use construction waste as fill material where possible
- Obtain fill material from road reserve to minimize the impact of creating new borrow pits.
- Limit construction activities, as far as practically possible, to normal working hours, i.e. 7am to 5pm weekdays.

- Should work take place after hours, nearby residents should be notified. Signage with the contact details of the responsible person should be provided at the site for residents with complaints in this regard.
- A complaints register should be kept to document complaints and the corrective action taken. No loud music to be allowed on site.
- Ear plugs need to be provided for persons operating machinery that emits excessive noise.
- All reasonable precautions will be taken to minimize noise generated on site i.e. construction vehicles will be kept in good working order so as not to generate excessive noise and avoid spillages of fuels.
- The contractor will minimise the use of sound amplification equipment on site.
- Activities which will lead to excessive noise near residential areas, will be limited to take place during the day.
- Schedule the construction process to limit obstruction to traffic flows during peak traffic hours.
- Should erosion scars begin to form on the landscape, erosion counter measures should be implemented immediately.
- Re-enforce river banks with gabions where applicable to prevent instability of the river banks.
- Restrict disturbance to riparian areas to as close as practically possible to the proposed project sites' footprint. Areas outside of the footprint and reasonable construction access to be marked as no-go areas.
- On completion of the construction all exposed soil must be revegetated, preferably with indigenous vegetation.
- Implementation of erosion control measures where applicable
- Re-vegetate and rehabilitate after construction
- Where possible limit the removal of riparian vegetation.
- The culverts must span the river system so as to cause minimal impact to the river and to alleviate further flooding.
- Erosion can be minimized by ensuring that construction activities are confined to disturbed areas of the river banks
- Post construction phase, the disturbed areas will be rehabilitated by stabilizing the banks with gabions or geotextiles to ensure regrowth of riparian vegetation. On-going monitoring will be implemented.
- Vegetation removed will be replaced post construction phase.
- Proper storm water management plan to address the issue of storm water will be implemented for the areas that require it to avoid run-off that could cause further erosive effects.
- Immediate revegetation of all bare soil areas must take place. The species utilized must be determined by a suitably qualified specialist. Where possible, storm water must be conveyed through grassed swales rather than concrete channels to aid infiltration and reduce run-off
- The disturbed areas will be revegetated with deep rooted vegetation to stabilise the banks, provide shade to control the water temperature and provide habitat and food
- Berms and/or drainage channels must be constructed around all infrastructures and must be checked regularly for any structural damage or blockages.
- Topsoil should be cleared in a phased manner to avoid large areas of unconsolidated soils.
- During construction adequate dust suppression techniques must be implemented including but not limited to: regular wetting of exposed soil and stockpiles; use of dust retardant sprays; and where applicable covering of soil stockpiles.
- Soil stockpiles should be covered, wetted or otherwise stabilized to prevent wind erosion and dust generation.
- A water cart or sufficient watering equipment should be available to wet soils during windy days if wind-blown sand and dust becomes a problem.

- Speed limits on the access road should be limited to 30 km/h and strictly enforced to control dust.
- Topsoil should be removed and stockpiled in an appropriate manner: Stockpiled separately from subsoil, monitored for- and protected from erosion and kept clear from exotic vegetation
- Re-vegetated areas should be watered until vegetation has become established.
- Site offices, storage area, construction areas, material lay-down areas, access routes, infrastructure footprints and No-Go areas should be clearly demarcated.
- No construction workers are permitted to be accommodated overnight on the site or in the site construction camp except for security personnel. Any construction personnel found to be trespassing must be subjected to a disciplinary hearing;
- Construction workers / construction vehicles should take heed of normal road safety regulations; thus, all personnel must obey and respect the law of the road. A courteous and respectful driving manner should be enforced and maintained so as not to cause harm to any individual; and
- A designated speed limit should be set by the developer to limit possible road strikes.
- Construction camp should be erected where it will have the least environmental impacts.
- All construction activities should be limited to the demarcated area.
- Access to the demarcated construction area should be strictly controlled
- Entry points and access routes to the site must be clearly marked and traffic limited to those areas.
- Suitable information and warning signage should be erected before construction commences.
- Speed travelled by vehicles must be kept to a minimum and speed limits enforced.
- Ensure that there is a first aid facility and trained first aiders at the site
- Energy of the water course can be mitigated by conducting the constructing activity in phases i.e. work on a particular segment of the river whilst diverting the water to the active part of the river to ensure that the flow of the water be similar to that of the river current so as not to cause deposition of sediment.
- It is imperative that the construction occur during the dry season to lessen the impacts.
- The flow of water in the river will be diverted to within the river so that downstream users have access to water for sustenance. The flow of water will be diverted into a properly designed and constructed channel that has been stabilised.
- Due to construction occurring in the dry season, the turbidity of the river system will be able to accommodate the diverted water with minimum impact to the river bed and the aquatic environment or cause erosion to the banks.
- The gradient of the area surrounding the proposed footprint for development is fairly flat as such, the stream power will be negligible during the dry season which would not cause significant changes to the morphology of the river or its aquatic habitat.
- The alterations to the physical characteristics of the river must be kept to a minimum.
- Fluvial processes in the river are crucial to the distribution of vital gases, nutrients and small organisms so the flow of the river to downstream users must not be stopped.
- Rivers are dynamic systems in that they are continuously adjusting to changes in discharge and sediment load. The river will revert to its natural function post construction and fulfil its intended role.
- Use of chemical ablation facilities will be implemented
- Provision of waste bins to avoid pollution by means of waste
- Appointment of an ECO

- Ensure efficient scheduling for the delivery of asphalt
- appointed contractors must immediately arrange to collect and suitably dispose of dumped asphalt.
- Areas where dumping occurs need to be rehabilitated to their original (pre-dumping) conditions.
- Monitoring contamination/ pollution of the water resource will include conducting monthly water quality tests upstream, at source and downstream of the construction activity. This will be done on a monthly basis and 3 months post construction. This will ensure that the increase in sediment load and turbidity downstream does not affect the quality of the water.
- Close monitoring of the site by qualified Environmental Control Officer to ensure that the proposed development has a minimal impact on the receiving environment.
- Evaluation of designs and provide recommendations to limit and reduce environmental, social and economic impacts associated with the proposed activities will be implemented to ensure impacts are kept to a minimum.

IMPACTS THAT MAY RESULT FROM THE OPERATIONAL PHASE

SITE ALTERNATIVES

Alternative S1 (preferred alternative)

Direct impacts:

- Water contamination as a result of road use by vehicles, which are not roadworthy, that leaks oils, which could be washed down to the river during rainy days.
- Destabilization of banks by cattle near river, as this area may be prone to an increase in residents for accessibility to transport.
- Safe access to goods and services and public transport in rainy weather

Indirect impacts:

- Human health from communities downstream might be negatively affected provided contamination is not prevented.

Cumulative impacts:

- Unsafe drinking water from the adjacent or adjacent river systems.

No-go alternative (compulsory)

- **Direct impacts:**

N/A

- **Indirect impacts:**

N/A

- **Cumulative impacts:**

N/A

mitigation measures to manage the potential impacts listed above:

Implementation of all the mitigation and monitoring measures outlined and contained in this Document, including the EMP and; -

- Ongoing maintenance of the project site during and after completion to ensure that it is safe, and people must be made aware of the dangers of dumping waste within their water resources.
- If excessive spillage of oil and fuel etc., should occur due to accidents, it should be cleaned up immediately
- Regular monitoring and maintenance of the road to ensure that foreign items are collected and suitably disposed of e.g. collection and disposal of spent rethreads and other debris.
- Monitoring the rehabilitated area to ensure that vegetation grows, and the area rehabilitated is compact and cannot any stage collapse.

PROCESS, TECHNOLOGY, LAYOUT OR OTHER ALTERNATIVES

Alternative A1 (preferred alternative)

Direct impacts: Not applicable: there is no technology that will be put to use for the project to operate, impacts will result only from the site locality, due to the fact that the project proposed allows vehicle route access over the water course. Therefore people may dump waste, etc., as mentioned above.

Indirect impacts: N/A

Cumulative impacts: N/A

No-go alternative (compulsory)

Direct impacts: Not anticipated during this phase

Indirect impacts: Not anticipated during this phase

Cumulative impacts: Not anticipated during this phase

mitigation measures to manage the potential impacts listed above:

- N/A

IMPACTS THAT MAY RESULT FROM THE CLOSURE OR DECOMMISSIONING PHASE

Decommissioning is not envisioned. However, the objective of providing guidelines during the closure phase is to prevent structures from being left to deteriorate, look unsightly and to cause harm to the environment. It is imperative that non-functional structures be removed as soon as possible, and that the site is rehabilitated as soon as possible. If non-functional structures are not needed anymore, and not removed, it must be maintained that they will be used to prevent the environmental degradation of the site.

The Contractor is to outline a method statement for the dealing with accidents / spillages of hazardous materials. This statement must be handed to the Engineer as well as ECO.

The contractor must include these aspects when compiling their method statement for closure and rehabilitation: -

- Contractor must ensure that all side and mitre drain, V Drains and scour check walls as well on access and haul roads are functioning properly and are well maintained.
- The construction area must be cleared of litter, debris (e.g. Cement packets, bitumen residues etc.) and other domestic waste on completion of the day's work.
- All litter throughout the site must be picked up on a daily basis and placed in the bins provided with waste to be separated according to type of waste.
- Excavated soil and other material must be deposited in a spoil area as agreed with ECO and engineer.
- All exposed earth must be rehabilitated promptly with suitable vegetation to protect the soil.
- Storm water control and wind screening must be undertaken to prevent soil erosion on site.
- There must be no offsite impacts of storm water. A general rule is that the storm water velocity eddies on the site must be the same as the predevelopment area.
- If cut and fill earthworks are required, these must be limited to the minimum necessary. Cut and fill banks must not be sloped steeper than 1: 1.5. All fill must be well compacted in layers on placement and must not be loose end-tipped. No cut or fill slope must exceed 2.5 m vertical height. All earthworks must be vegetated as soon after completion of construction as is practically possible with locally sourced indigenous vegetation where possible.
- The Contractor must not in any way modify nor damage the banks or beds of streams, rivers, wetlands, other open water bodies and drainage lines adjacent to or within the designated area, unless required as part of the construction project specification. Where such disturbance is unavoidable approval must be obtained from the ECO.
- Water quality is affected by the incorrect handling of substances and materials. Soil erosion and sediment is also detrimental to water quality. Mismanagement of polluted run-off from vehicle and plant washing and wind dispersal of dry materials into rivers and

watercourses are detrimental to water quality. i.e., All embankments, unless otherwise directed by the Engineer, must be protected by a cut off drain to prevent water from cascading down the face of the embankment and causing erosion.

- The Department of Water Affairs and the ECO as well as other emergency contact numbers provided by the Municipality must be contacted in order to deal with spillages and contamination.
- Every effort must be made to ensure that any chemicals or hazardous substances do not contaminate the soil or ground water on site.
- No machinery may be left standing within the watercourse area.
- Movement of machinery and workers within the watercourses must be monitored and limited.
- No waste may be dumped into the affected watercourses.
- Vegetation that is removed is to be replanted and excavation is to be kept to a minimum.
- Immediate re-vegetation of stripped areas and removal of aliens by weeding must take place.
- In the event of infilling, replacement of subsoil must precede the topsoil replacement, and all material must be well compacted.
- All empty containers must be removed from the site for appropriate disposal at a licensed facility and must be treated as hazardous waste.
- Hazardous substances / materials are to be transported in sealed containers or bags.
- Regular communication between the Contractor and the IAPs is important for the duration of the contract.
- Waste from chemical toilets must be disposed of regularly and in a responsible manner by a registered waste contractor. Care must be taken to avoid contamination of soils and water, pollution and nuisance to adjoining areas.
- Contaminated water associated with construction activities must be contained in separate areas with berms and must not be allowed to enter into the natural drainage system.
- Soil that is contaminated with, e.g. cement, bitumen, petrochemicals or paint must be disposed of at a registered hazardous landfill site.
- Contractors activities and movement of staff is to be restricted to designated construction areas.
- Should the construction staff be approached by members of the public or other stakeholders, they must assist them in locating the Engineer or Contractor or provide a number on which they may contact the Engineer or Contractor.
- Disruption of access for local residents must be minimised and must have the consent of the Engineer.
- The Contractor is to inform neighbours in writing of disruptive activities at least 24 hrs beforehand.
- The site must be kept clean to minimize the visual impact of the site.
- Notice of particularly noisy activities must be given to residents adjacent to the construction site. Noisy activities must be restricted to the times given in the Project Specification or General Conditions of Contract.

Queries and complaints are to be handled by:

- documenting details of such communications;
- submitting these for inclusion in the complaints register;
- bringing issues to the Engineers attention immediately;
- taking remedial action as per Engineer's instruction.

SECTION H

SUMMARY OF FINDINGS AND IMPACT MANAGEMENT BY SPECIALIST REPORT (Appendix 6)

SUMMARY OF FINDINGS

Wetland Assessment:

Malachite Ecological Services was appointed by Isolendalo Environmental Consulting (Pty) Ltd to undertake a Wetland Impact Assessment for the proposed upgrade of Thokoza Access Road located within the uMsinga Local Municipality. Based on the current identification of the four wetland indicators, one HGM unit was delineated within the assessment area. This was classified as a Seep system that flows in a southerly direction for approximately 1.5km from the road before forming a watercourse which is a tributary of the Mazabeko River.

The Seep was assessed with regards to its health according to the Wet-Health methodology and was classified as Largely Modified (PES Category D). There have been a number of changes to the catchment and wetland system. These include the development of rural nodes including road infrastructure, housing, subsistence agriculture and livestock grazing. Cultivation of the entire Seep system has taken place, both historically and currently. These changes have resulted in an increase in hardened surfaces within the catchment, as well as a decrease in basal cover, facilitating the formation of erosion gullies within the wetland system. Impacts such as reduced basal cover provide favourable conditions for the encroachment of invasive alien plant species within and adjacent to the wetland system. Invasive vegetation was noted during the investigation however, this was limited and largely confined to the edges of erosion gullies and areas of elevated disturbance. Species recording included *Cirsium vulgare* and *Tagetes minuta*.

Ecosystem goods and services were calculated for the Seep wetland. Scores received ranged from Low to Moderate for all ecosystem service resources. The Seep system received moderate scores for natural ecosystem services associated with flood attenuation, sediment trapping; and filtration (i.e. phosphate, nitrate and toxicant trapping). As this Seep is utilised for cultivation it received high scores for the provision of natural resources as well as the use of the wetland for the cultivation of food. This use of the wetland has resulted in a decline in the health of the system.

An Ecological Importance and Sensitivity (EIS) assessment was undertaken to rank the identified water resources in terms of provision of goods and services or valuable ecosystem functions which benefit people; biodiversity support and ecological value as well as the reliance of subsistence users (especially basic human needs uses). The EIS scores for the Seep were Low. This is largely due to the location of this system within a rural settlement area. The wetland system is utilised for livestock grazing (decreasing the basal cover) and subsistence cultivation, leading to a decrease in basal cover and an increase in the disturbance within the wetland. This lowers the use of the area by faunal species due to suboptimal conditions. These further limits the opportunity for this system to contribute to the maintenance of biodiversity within the larger catchment. **Details are contained within the report attached within Annexure E.**

IMPACT MANAGEMENT MEASURES FROM SPECIALIST REPORTS

WETLAND ASSESSMENT:

Any development activity in a natural system will have an impact on the surrounding environment. In order to address these impacts, the implementation of a site-specific mitigation measures that are aimed at reinstating favourable hydrological conditions and allow for the regeneration of the functional integrity of the watercourses along the road route are required.

Identified negative impacts associated with this project include: Soil erosion; sedimentation and further degradation of the Seep system, which will have knock-on impacts downstream of the road; The loss of wetland area as the road is widened; Pollution potential of the Seep as a result of construction related activities as well as future operational impacts with regards to polluted runoff from the hardened road surface; and Encroachment of invasive alien species into the wetland from the disturbance to the vegetation communities.

Positive impacts are also associated with the proposed development and include the long-term improvement in the control of surface run-off entering the Seep from the road through the upgrade of stormwater control structures along the road. Currently stormwater runoff from the existing road has contributed to the formation of erosion gullies within the Seep and this must be addressed during the construction phase of the road.

The Risk Assessment for the proposed project as per the General Authorisation in terms of Section 39 of the National Water Act, 1998 (Act No. 36 of 1998) for Water Uses as defined in Section 21 (c) and (i) (Notice 509 of 2016) was undertaken. Impacts associated with the proposed project received Low Risk Scores with impacts to the water resources being small and easily managed. Several general and specific measures are proposed to mitigate these impacts on the water resources.

- To counter existing soil erosion along the road care must be taken at the design stage that the correct placement of water directing techniques be designed and specified in a manner that will best mitigate the effects of stormwater runoff.
- The use of sustainable drainage systems (SUDS) must be incorporated into the design of the road and associated drainage systems.
- Proper management and disposal of construction waste must occur during the upgrade of the road.
- No release of any substance i.e. cements or oil that could be toxic to fauna or faunal habitats; Wet cement and/ or concrete must not be allowed to enter the Seep.
- Portable toilets must be placed outside of a 100m buffer from the wetland system.
- Do not locate the construction camp or any depot for any substance which causes or is likely to cause pollution within a distance of 100m of the Seep
- An invasive alien management programme must be incorporated into the Environmental Management Programme.
- Ongoing alien plant control must be undertaken. Areas which have been disturbed will be quickly colonised by invasive alien species. An ongoing management plan must be implemented for the clearing/eradication of alien species.
- Construction staff and vehicles must stick to the construction servitude and not be allowed to access sensitive area

Details are contained within the report attached within Annexure E.

ENVIRONMENTAL IMPACT STATEMENT

Summary of findings

Alternative S1 (preferred site)

Thokoza access road is currently existing and is being utilized by the members of the community. Considering the fact that the road is in existence, other alternatives have not been considered. Opening a new road to serve the purpose as the road would have more negative impacts on the area in which proposed is located. The impacts associated with the upgrade of Thokoza access road will be minimal provided recommended mitigation measures are implemented.

Alternative A1 (preferred alternative)

The main impacts that were identified during the four phases of the development (planning and design phase, construction phase, operational phase, and the decommissioning or closure phase), whether it be direct, indirect or cumulative, all occur on main spheres; the land, water and air. All the impacts that were identified have been addressed in the best feasible ways, the implementation of the mitigation measures contemplated herewith are aimed and complete obliteration of such or mitigation to the most minimal state. The main issues identified are due to the location of the site, the technology and procedures and the nature of the project. The application of strict environmental principles in ensuring safe keeping of the environment is vital and adherence to the approved EMP. The approval of the proposed development as proposed by the Client as it is of vital importance for the socio-economic status of the surrounding communities.

No-go alternative (compulsory)

The disapproval of this proposed development will not only affect the department's target of service delivery but will affect the communities' socio-economic status i.e. jobs to be created.

SECTION I

RECORDING OF THE PROPOSED IMPACT MANAGEMENT OBJECTIVES

The objectives of the proposed impact management objectives are outlined and contained within this document and the EMPr which is attached within Annexure E of this document. The main objective is to promote sustainable development, therefore comply with the legislative framework around sound development with regards to legislated environmental practice. The EMPr highlights that p.6:

In accordance with the Integrated Environmental Management Guidelines published by the Department of Economic Development, Tourism and Environmental Affairs (DEDTEA) in 2014, the purpose of an Environmental Management Programme (EMPr) is “to describe how negative environmental impacts will be managed, rehabilitated, monitored and how positive impacts will be maximized”.

The EMPr will serve as a guideline with the specific objectives to:

1. Provide a pro-active, feasible and practical working tool to enable the measurement and monitoring of environmental performance on site.
2. Ensure that the construction and operational phases of the project continues within the principles of Integrated Environmental Management.
3. Detail specific actions deemed necessary to assist in mitigating the environmental impact of the project.
4. Ensure that the safety recommendations are complied with.
5. Provide feedback for the continuous improvement in environmental performance.
6. Serve as a framework for the acceptable implementation of environmental and social initiatives.
7. Be able to stand as a structure which addresses the relevant concerns of the public regarding the development.

SECTION J

IMPACT MANAGEMENT OUTCOMES FOR THE DEVELOPMENT, FOR INCLUSION IN THE EMPr

The following have been noted for inclusion within the mitigation measures for implementation during construction and closure phases of the project (included within the final EMPr): -

- All litter throughout the site must be picked up on a daily basis and placed in the bins provided with waste to be separated according to type of waste.
- Excavated soil and other material must be deposited in a spoil area as agreed with ECO and engineer.
- All exposed earth must be rehabilitated promptly with suitable vegetation to protect the soil.
- Storm water control and wind screening must be undertaken to prevent soil erosion on site.
- If cut and fill earthworks are required, these must be limited to the minimum necessary.
- Cut and fill banks must not be sloped steeper than 1: 1.5. All fill must be well compacted in layers on placement and must not be loose end-tipped.
- No cut or fill slope must exceed 2.5 m vertical height.
- All earthworks must be vegetated as soon after completion of construction as is practically possible with locally sourced indigenous vegetation where possible.
- The Contractor must not in any way modify nor damage the banks or beds of streams, rivers, wetlands, other open water bodies and drainage lines adjacent to or within the designated area, unless required as part of the construction project specification. Where such disturbance is unavoidable approval must be obtained from the ECO.
- Water quality is affected by the incorrect handling of substances and materials: Soil erosion and sediment is also detrimental to water quality. Mismanagement of polluted run-off from vehicle and plant washing and wind dispersal of dry materials into rivers and watercourses are detrimental to water quality. i.e. All embankments, unless otherwise directed by the Engineer, must be protected by a cut off drain to prevent water from cascading down the face of the embankment and causing erosion.
- Every effort must be made to ensure that any chemicals or hazardous substances do not contaminate the soil or ground water on site.
- No machinery may be left standing within the watercourse area.
- Movement of machinery and workers within the watercourses must be monitored and limited.
- No waste may be dumped into the affected watercourses.
- Vegetation that is removed is to be replanted and excavation is to be kept to a minimum.
- Immediate re-vegetation of stripped areas and removal of aliens by weeding must take place.
- In the event of infilling, replacement of subsoil must precede the topsoil replacement, and all material must be well compacted.
- The site must be kept clean to minimize the visual impact of the site.
- Notice of particularly noisy activities must be given to residents adjacent to the construction site. Noisy activities must be restricted to the times given in the Project Specification or General Conditions of Contract.

SECTION K

POTENTIAL ASPECTS RELEVANT TO FINDINGS OF ASSESSMENT BY EAP &/ OR SPECIALIST

- N/A

SECTION L

DESCRIPTION OF ASSUMPTIONS, UNCERTAINTIES, AND GAPS

The main limitation is that most scientific methods are developed based on studies conducted in controlled systems/ environments hence it is impractical to apply scientific methods in an open system. However, the experience in the field has enabled the EAP to draw more precise assumptions and conclusions on the project, by including various sources and desktop analysis to produce the outlined findings within the study.

This report is based on information supplied by the Client and on-site assessment undertaken. As such, all information is given in good faith, however, no physical testing or chemical analyses were performed during the course of this assessment. Although every effort is made to request and obtain all specific information the EAP cannot be held accountable or accept responsibility for any misconduct or changes done after the specific site visits and scope of works upon approval of the scope of works assessed within this document. All reports sourced by the consultant for use have been referenced.

SECTION M

CONSTRUCTION METHOD STATEMENT AND REHABILITATION

CONTRACTOR'S GENERIC METHOD STATEMENT.

- A contractor has not been appointed as of yet, however the method statement will be Once the contractor has been appointed.

REHABILITATION

A rehabilitation plan will be drawn based on the method statement and will be amended as the project progresses. The rehabilitation plan Must be submitted to the Department prior the commencement of rehabilitation.

SECTION N

DETAILS OF FINANCIAL PROVISIONS FOR REHABILITATION, CLOSURE, AND ONGOING POST DECOMMISSIONING MANAGEMENT OF NEGATIVE ENVIRONMENTAL IMPACTS

- To be supplied once the contractor has been appointed, once the project has been Authorized.

SECTION O

EAP RECOMMENDATIONS AND UNDERTAKING

RECOMMENDATIONS

Planning and design phase:

- Careful consideration of the Environmental Management Programme (EMPr)
- Appointment of Environmental Control Officer (ECO) for the project.
- ECO to review proposed project scope against Environmental Authorization by DEDTEA.
- Further to this: - *Careful planning of the construction camp can ensure that time and costs associated with environmental management and rehabilitation is reduced*

Construction Camp Site Establishment, setup and management

- a) The camp site must be located on the previously disturbed site
- b) The Contractor must obtain permission from the landowner to be establish the Construction Camp site.
- c) The construction camp must be located a distance of at least 100 m from the edge of delineated watercourses and be outside of the 100-year flood line.
- d) Adequate parking must be provided for site staff and visitors.
- e) The construction camp must be properly fenced and secured with a 1.8 m high bonnox (or similar type) fence and locked after construction hours. It must be kept in a clean and orderly state at all times.
- f) The Contractor must attend to, monitor and manage the drainage of the campsite to avoid sheet erosion and / or standing water. Run-off from the camp site must not discharge into neighbouring properties.
- g) Storing of refuse outside of the camp site is prohibited.

Construction phase:

- Induction to all construction personnel on contents of EMPr and environmental authorization and compliance and penalties associated there to.
- Advice the contractor's areas suitable for contractor's temporal mobile site offices
- Advice on what to do with waste being produced on site by allowing such waste to be disposed of at a registered landfill sites

The following to be monitored by ECO during construction:

- Control of dust especially in areas that are in close proximity to residential areas

- Cleaning of spillages immediately'
- Demarcation of sites for no go areas
- Demarcation of construction sites and prevent public access to these areas
- Monitor complaints, investigate and implement rectifying measures
- Monitor areas for pollution and degradation.
- Monthly audit report to be produced.

Operational phase:

Monitoring post construction will be implemented during the first three months to ensure that all necessary rehabilitation strategies are implemented, this monitoring will cross over to the operational phase of the project. No specified monitoring on basis of environmental impact assessment will be carried out for the operational phase by the ECO is expected.

Decommissioning phase or Closure phase:

The contractor must include these aspects when compiling their method statement for closure and rehabilitation: -

- Contractor must ensure that all side and mitre drain, V Drains and scour check walls as well on access and haul roads are functioning properly and are well maintained.
- The construction area must be cleared of litter, debris (e.g. Cement packets, bitumen residues etc.) and other domestic waste on completion of the day's work.
- All litter throughout the site must be picked up on a daily basis and placed in the bins provided with waste to be separated according to type of waste.
- Excavated soil and other material must be deposited in a spoil area as agreed with ECO and engineer.
- All exposed earth must be rehabilitated promptly with suitable vegetation to protect the soil.
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- There must be no offsite impacts of storm water. A general rule is that the storm water velocity eddies on the site must be the same as the predevelopment area.
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- The Contractor must not in any way modify nor damage the banks or beds of streams, rivers, wetlands, other open water bodies and drainage lines adjacent to or within the designated area, unless required as part of the construction project specification. Where such disturbance is unavoidable approval must be obtained from the ECO.
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watercourses are detrimental to water quality. i. All embankments, unless otherwise directed by the Engineer, must be protected by a cut off drain to prevent water from cascading down the face of the embankment and causing erosion.

- The Department of Water Affairs and the ECO as well as other emergency contact numbers provided by the Municipality must be contacted in order to deal with spillages and contamination.
- Every effort must be made to ensure that any chemicals or hazardous substances do not contaminate the soil or ground water on site.
- No machinery may be left standing within the watercourse area.
- Movement of machinery and workers within the watercourses must be monitored and limited.
- No waste may be dumped into the affected watercourses.
- Vegetation that is removed is to be replanted and excavation is to be kept to a minimum.
- Immediate re-vegetation of stripped areas and removal of aliens by weeding must take place.
- In the event of infilling, replacement of subsoil must precede the topsoil replacement, and all material must be well compacted.
- All empty containers must be removed from the site for appropriate disposal at a licensed facility and must be treated as hazardous waste.
- Hazardous substances / materials are to be transported in sealed containers or bags.
- Regular communication between the Contractor and the IAPs is important for the duration of the contract.
- Waste from chemical toilets must be disposed of regularly and in a responsible manner by a registered waste contractor. Care must be taken to avoid contamination of soils and water, pollution and nuisance to adjoining areas.
- Contaminated water associated with construction activities must be contained in separate areas with berms and must not be allowed to enter into the natural drainage system.
- Soil that is contaminated with, e.g. cement, bitumen, petrochemicals or paint must be disposed of at a registered hazardous landfill site.
- Contractors activities and movement of staff is to be restricted to designated construction areas.
- Should the construction staff be approached by members of the public or other stakeholders, they must assist them in locating the Engineer or Contractor or provide a number on which they may contact the Engineer or Contractor.
- Disruption of access for local residents must be minimized and must have the consent of the Engineer.
- The Contractor is to inform neighbours in writing of disruptive activities at least 24 hrs beforehand.
- The site must be kept clean to minimize the visual impact of the site.
- Notice of particularly noisy activities must be given to residents adjacent to the construction site. Noisy activities must be restricted to the times given in the Project Specification or General Conditions of Contract.

EAP UNDERTAKING AND DECLARATION

I,.....hereby approve that the drafted report as in terms of EIA Regulations, 2014 as prescribed in terms of S22(2) in relation to conduct and eligibility, hereby acknowledge that the information hereby presented as in terms prescribed in the said regulations is at all cost correct and is aligned to proposed development as per proposal by the applicant (often referred to as client). The presentation presented in this document is by no means compromise the site physical aspect of the environmental features so to make the proposed development approvable. However, our assessment is based on true ground assessment and literature review, and practical consultation with all stakeholders as prescribed in the process procedure as in Chapter 6, S40 (1) (2) and or S41.

The Competent Authority (CA) has by law vested interest in the protection of the environmental aspect hence the decision is always based on the provided information and if all has been aligned to EIA Regulations, 2014 inclusive of other relevant legislation as contained in the latter pages of this document.

Signed at _____ on _____ of _____ 20_____

Signature: _____ Capacity: _____

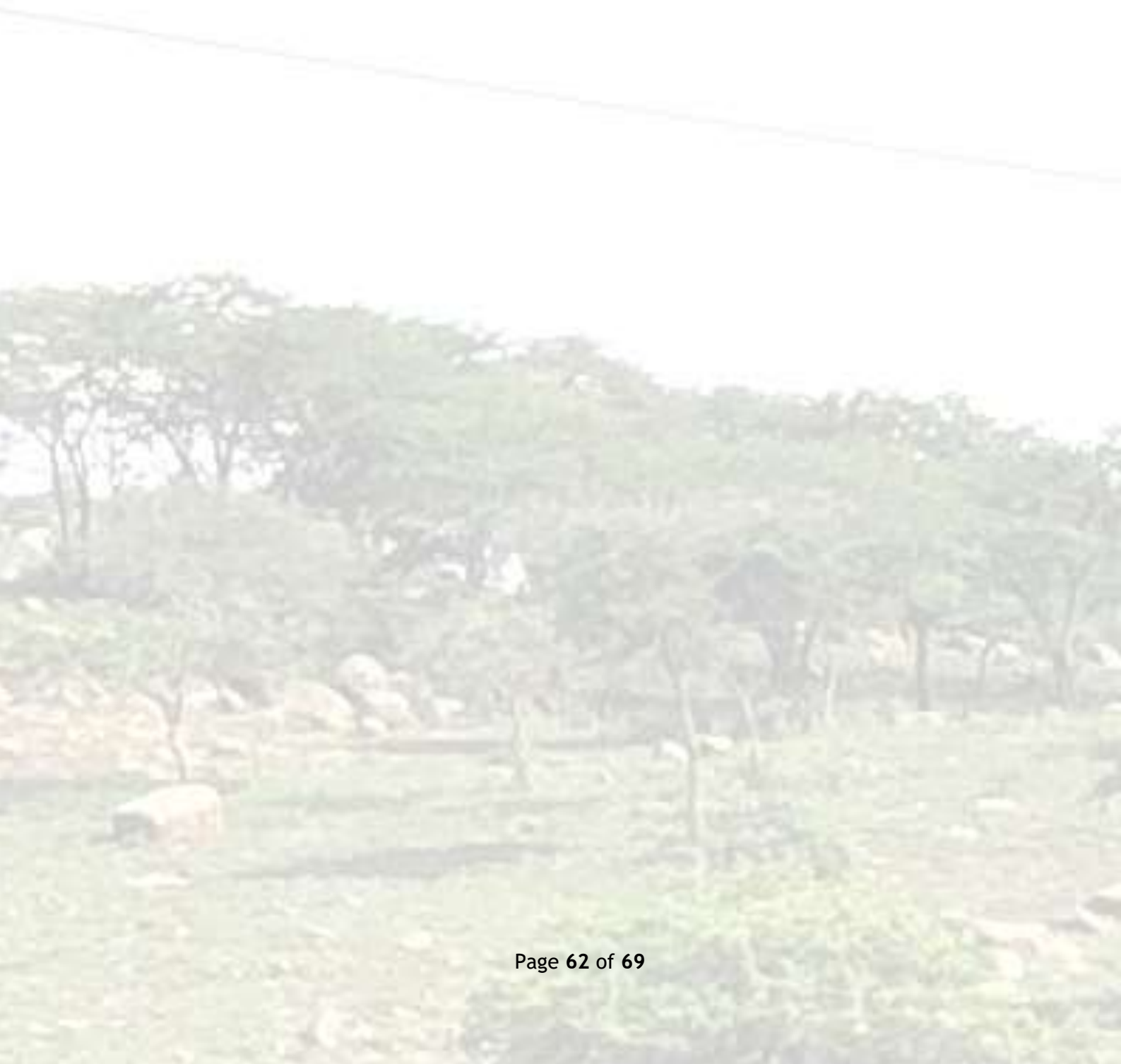
OFFICIAL STAMP AFFIX HERE:

THE HARDCOPY SUBMITTED HAS BEEN
SIGNED AND STAMPED

SECTION P

OTHER RELEVANT INFORMATION FOR COMPETENT AUTHORITY

- N/A



SECTION Q

CONCLUDING STATEMENT/REMARKS

In consideration of the study area and the findings, the proposed construction 'may' (provided that mitigation measures are implemented) provide opportunities to improve the current impact on associated wetlands, those caused to the wetland by the use the currently existing road occurring on the site. It is therefore the opinion of the EAP that the project be favourably considered and allow for the upgrade of the Thokoza access road to proceed. An ECO for monitoring must be appointed before the proposed development's commencement.