PROPOSED DEVELOPMENT OF KHUBA SECONDARY SCHOOL ON FARM NO. 19 RESERVE RE/15839 IN THE NKANDLA LOCAL MUNICIPALITY, KING CETSHWAYO DISTRICT MUNICIPALITY, KWAZULU-NATAL

Basic Assessment Report

PREPARED FOR:
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PROJECT TITLE

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DOCUMENT GUIDE

The table below summarises the requirements of the 2014 NEMA EIA Regulations (as amended in 2017) in terms of the content requirements of EIA reports (Appendix 3[3] of GN.R326) and the relevant sections in the report where these are addressed.

Appendix 3 (3)	Description	Section in this report
1 (a)	An environmental impact assessment report must contain the information that is necessary for the competent authority to consider and come to a decision on the application, and must include -	Refer below:
	(iii) the EAP who prepared the report.	**Section B**
	(iv) the expertise of the EAP, including a curriculum vitae.	**Annexure 1D**
1 (b)	the location of the development footprint of the activity on the approved site as contemplated in the accepted scoping report, including -	**Section D** & **Figure 2**
	(i) the 21-digit Surveyor General code of each cadastral land parcel.	**Section D**
	(ii) where available, the physical address and farm name.	**Section D**
	(iii) where the required information in items (i) and (ii) is not available, the coordinates of the boundary of the property or properties.	**Section D**
1 (c)	a plan which locates the proposed activity or activities applied for as well as the associated structures and infrastructure at an appropriate scale, or, if it is (i) a linear activity, a description and coordinates of the corridor in which the proposed activity or activities is to be undertaken or (ii) on land where the property has not been defined, the coordinates within which the activity is to be undertaken.	**Section D**
1 (d)	a description of the scope of the proposed activity, including (i) all listed and specified activities triggered and being applied for; and (ii) a description of the associated structures and infrastructure related to the development.	**Section D**
1 (e)	a description of the policy and legislative context within which the development is located and an explanation of how the proposed development complies with and responds to the legislation and policy context.	**Section F**
1 (f)	a motivation for the need and desirability for the proposed development, including the need and desirability of the activity in the context of the preferred development footprint within the approved site as contemplated in the accepted scoping report.	**Section H**
h	a motivation for the preferred development footprint within the approved site as contemplated in the accepted scoping report.	**n/a** to scoping
1 (h)	a full description of the process followed to reach the proposed development footprint within the approved site as contemplated in the accepted scoping report, including -	**n/a** to scoping
	(i) details of the development footprint alternatives considered.	**Section I**
	(ii) details of the public participation process undertaken in terms of regulation 41 of the Regulations, including copies of the supporting documents and inputs.	**Section G** (also refer to PP report & FBAR)
	(iii) a summary of the issues raised by interested and affected parties, and an indication of the manner in which the issues were incorporated, or the reasons for not including them.	**PP report** submitted with FBAR
	(iv) the environmental attributes associated with the development footprint alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects.	**Sections' E** & **O**
	(v) the impacts and risks identified including the nature, significance, consequence, extent, duration and probability of the impacts, including the degree to which these impacts (aa) can be reversed; (bb) may cause irreplaceable loss of resources; and (cc) can be avoided, managed or mitigated.	**Section K**
	(vi) the methodology used in determining and ranking the nature, significance, consequences, extent, duration and probability of potential environmental impacts and risks.	**Section K**

	(vii) positive and negative impacts that the proposed activity and alternatives will have on the environment and on the community that may be affected focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects.	**Section K**
	(viii) the possible mitigation measures that could be applied and level of residual risk.	**Section K**
	(ix) if no alternative development footprints for the activity were investigated, the motivation for not considering such.	**Section I** sub-sections 1.1 & 1.2
	(x) a concluding statement indicating the location of the preferred alternative development footprint within the approved site as contemplated in the accepted scoping report.	**n/a** to scoping. **Section D** & **Figure 2**.
1 (i)	a full description of the process undertaken to identify, assess and rank the impacts the activity and associated structures and infrastructure will impose on the preferred development footprint on the approved site as contemplated in the accepted scoping report through the life of the activity, including -	**n/a** to scoping. Refer below:
	(i) a description of all environmental issues and risks that were identified during the environmental impact assessment process.	**Section K**
	(ii) an assessment of the significance of each issue and risk and an indication of the extent to which the issue and risk could be avoided or addressed by the adoption of mitigation measures.	**Section K**
1 (j)	(j) an assessment of each identified potentially significant impact and risk, including (i) cumulative impacts; (ii) the nature, significance and consequences of the impact and risk; (iii) the extent and duration of the impact and risk; (iv) the probability of the impact and risk occurring; (v) the degree to which the impact and risk can be reversed; (vi) the degree to which the impact and risk may cause irreplaceable loss of resources and (vii) the degree to which the impact and risk can be mitigated.	**Section K**
1 (k)	where applicable, a summary of the findings and recommendations of any specialist report complying with Appendix 6 to these Regulations and an indication as to how these findings and recommendations have been included in the final assessment report.	**Section K** (subsection 1.3) & **Section L**
1 (l)	an environmental impact statement which contains -	Refer below:
	(i) a summary of the key findings of the environmental impact assessment.	**Section M**
	(ii) a map at an appropriate scale which superimposes the proposed activity and its associated structures and infrastructure on the environmental sensitivities of the preferred development footprint on the approved site as contemplated in the accepted scoping report indicating any areas that should be avoided, including buffers.	**Section D** Figure 2, 3, 4 & 5.
	(iii) a summary of the positive and negative impacts and risks of the proposed activity and identified alternatives.	**Section M**
1 (m)	based on the assessment, and where applicable, recommendations from specialist reports, the recording of proposed impact management outcomes for the development for inclusion in the EMPr as well as for inclusion as conditions of authorisation.	**Section K** (subsection 1.3 & 1.4) & **Section L**
1 (n)	the final proposed alternatives which respond to the impact management measures, avoidance, and mitigation measures identified through the assessment.	**Section K** & **M**
1 (o)	any aspects which were conditional to the findings of the assessment either by the EAP or specialist which are to be included as conditions of authorisation.	**Sections' K, L** & **M.** Refer also to EMPr
1 (p)	a description of any assumptions, uncertainties and gaps in knowledge which relate to the assessment and mitigation measures proposed.	**Section K** (subsection 1.1.1 & 1.1.2)
1 (q)	a reasoned opinion as to whether the proposed activity should or should not be authorised, and if the opinion is that it should be authorised, any conditions that	**Executive Summary** &

	should be made in respect of that authorisation.	**Section M**
1 (r)	where the proposed activity does not include operational aspects, the period for which the environmental authorisation is required and the date on which the activity will be concluded and the post construction monitoring requirements finalised.	**n/a**
1 (s)	an undertaking under oath or affirmation by the EAP in relation to**:**	Refer below:
	(i) the correctness of the information provided in the reports.	**Annexure 1C -** signed EAP declaration. (Also refer to PP report submitted with FBAR).
	(ii) the inclusion of comments and inputs from stakeholders and I&APs.	
	(iii) the inclusion of inputs and recommendations from the specialist reports where relevant.	
	(iv) any information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by interested or affected parties.	
1 (t)	where applicable, details of any financial provision for the rehabilitation, closure, and ongoing post decommissioning management of negative environmental impacts.	**n/a**
1 (u)	an indication of any deviation from the approved scoping report, including the plan of study, including (i) any deviation from the methodology used in determining the significance of potential environmental impacts and risks; and (ii) a motivation for the deviation.	**n/a**
1 (v)	any specific information that may be required by the competent authority.	**TBC**
1 (w)	any other matters required in terms of section 24(4)(a) and (b) of the Act.	**none**
2	Where a government notice by the Minister provides for any protocol or minimum information requirement to be applied to an environmental impact assessment report the requirements as indicated in such notice will apply.	**n/a**

EXECUTIVE SUMMARY

The Coega Development Corporation (Pty) Ltd (**CDC**) as an implementing agent is assisting the KwaZulu-Natal Department of Education (**KZN-DOE**) in implementing various projects within the province of KwaZulu-Natal. This is being done under the School Building Programme of the KZN-DOE which is aimed at providing quality teaching facilities and to improve the quality of life of the previously disadvantaged communities. One of the overarching objectives of the programme is to create jobs, develop and transfer skills and reduce poverty. NCC Environmental Services (Pty) Ltd (**NCC**) has been appointed as the Environmental Assessment Practitioner (EAP) by CDC to act on behalf of the applicant for Environmental Authorisation (EA), the KZN-DOE, to undertake the legally required EA application process required for the "*Proposed development of Khuba Secondary School on farm no. 19 Reserve RE/15839 in the Nkandla Local Municipality, King Cetshwayo District, KwaZulu-Natal"* (hereafter referred to as "the project"). The aim of developing a new secondary school, which is in alignment with the School Building Programme, is to meet the growing demand for education in the area and provide learners with formal infrastructure which will facilitate, support and enhance the teaching and learning environment.

It has been confirmed by the competent authority, the KZN Department of Economic Development, Tourism and Environmental Affairs (EDTEA), that the proposed development triggers a NEMA listed activity and as such, prior environmental authorisation, in terms of the National Environmental Management Act (No. 107 of 1998) must be obtained prior to the commencement of any construction related activities. Activity no. 27 in Listing Notice 1 of the 2014 NEMA EIA Regulations (Government Notice R983, as amended in 2017), is triggered and therefore the application for EA will need to be supported by a Basic Assessment Report (BAR) prepared in accordance with the requirements of Government Notice R982, 2014 (as amended in 2017).

The land on which the development is proposed to be undertaken is owned by the Ingonyama Trust which falls under the Department of Public Works i.e. is state-owned land. Supporting documentation to this effect has been included as separate Annexures to this report.

Having carried out the impact assessment process and considered all available information, it is the opinion of EAP that the preferred alternative for the proposed development and associated activities, as applied for, should be authorised on the basis that the recommended mitigation measures as contained in this report, the EMPr and the associated specialist studies are included as conditions in respect of the authorisation.

TABLE OF CONTENTS

ACRONYMS / ABBREVIATIONS

BAR	Basic Assessment Report
BID	Background Information Document
BSP	Biodiversity Sector Plan
CA	Competent Authority
CBA	Critical Biodiversity Area
CDC	Coega Development Corporation
DEA	Department of Environmental Affairs
DFFE	Department of Forestry, Fisheries and the Environment
DOE	Department of Education
DWS	Department of Water and Sanitation
EA	Environmental Authorisation
ECO	Environmental Control Officer
EDTEA	Economic Development, Tourism and Environmental Affairs
EIA	Environmental Impact Assessment
EKZNW	Ezemvelo Kwa-Zulu Natal Wildlife
EMF	Environmental Management Framework
EMPr	Environmental Management Programme
ESA	Ecological Support Area
GN	Government Notice
IDP	Integrated Development Plan
I&AP	Interested and Affected Party
KCDM	King Cetshwayo District Municipality (formerly the uThungulu District Municipality)
KZN	Kwa-Zulu Natal
NEMA	National Environmental Management Act, 1998 (Act No. 107 of 1998)
NEM:AQA	National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004)
NEM:BA	National Environmental Management: Biodiversity Act, 2008 (Act No. 10 of 2004)
NEM:WA	National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008)
NLM	Nkandla Local Municipality
NHRA	National Heritage Resources Act, 1999 (Act No. 25 of 1999)
PPP	Public Participation Process
SANBI	South African National Biodiversity Institute
SAHRA	South African Heritage Resources Agency
SAHRIS	South African Heritage Resources Information System
SDF	Spatial Development Framework
SDG	Sustainable Development Goal
SDP	Site Development Plan
SHE	Safety, Health and Environmental

GLOSSARY OF TERMS AND DEFINITIONS

ALIEN SPECIES	(a) a species that is not an indigenous species; or (b) an indigenous species translocated or intended to be translocated to a place outside its natural distribution range by natural means of migration or dispersal without human intervention *(NEMBA, Act No. 10 of 2004)*
ALTERNATIVES	In relation to a proposed activity, means different means of meeting general purpose and requirements of an activity, which may include alternatives to – (a) the property on which or location where it is proposed to undertake the activity; (b) the type of activity to be undertaken; (c) the design or layout of the activity; (d) the technology to be used in the activity; (e) the operational aspects of the activity; and the option of not implementing the activity *(NEMA EIA Regulations, 2014).*
ASSESSMENT	The process of collecting, organising, analysing, interpreting and communicating information that is relevant to decision-making *(NEMA, Act No. 107 of 1998).*
BUILDING AND DEMOLITION WASTE	Refers to waste, excluding hazardous waste, produced during the construction, alteration, repair or demolition of any structure, and includes rubble, earth, rock and wood displaced during that construction, alteration, repair or demolition *(NEMWA, Act No. 59, 2008).*
BUND	An artificial containment wall (embankment) designed to contain spillages of a hazardous nature such as chemicals and hydrocarbons.
COMPETENT AUTHORITY	In respect of a listed activity or specified activity, means the organ of state charged by NEMA with evaluating the environmental impact of that activity and, where appropriate, with granting or refusing and environmental authorisation *(NEMA, Act No 107 of 1998)*. The Competent Authority for the Project is KZN EDTEA (Department of Economic Development, Tourism and Environmental Affairs).
COMPLAINTS REGISTER	A register containing all contact details of a person who made a complaint, and information regarding the complaint itself.
CONTRACTOR ENVIRONMENTAL OFFICER (EO)	The Contractor EO is employed by the contractor to ensure the contractor complies with the environmental standards, specifications, as well as the conditions and stipulations contained within the Site Documentation. The EO is available on site at all times and has the experience and/or knowledge to deal with environmental issues. The EO is also responsible for the management of all environmental and social related aspects as well as the implementation of this EMPr.
CONTAMINATION	The release/spillage of a substance into an environment where it is not normally found, which is detrimental to that environment, its ecosystems and to humans.
CONTAMINATED	Means the presence in or under any land, site, buildings or structures of a substance or micro-organism above the concentration that is normally present in or under that land, which substance or micro-organism directly or indirectly affects or may affect the quality of soil or the environment adversely *(NEM: WA, Act No. 59, 2008).*
CONTRACTOR	The individual and/or company that are responsible for the development and/or construction activities related to the proposed project. The Contractor is further responsible for the implementation of and compliance of all relevant legislation, and with the conditions and stipulations contained within the Site Documentation.
CONSTRUCTION SITE CAMP	The construction site camp refers to the designated area where the contractor's offices (temporary), and associated infrastructure will be located during the construction period of the proposed project.

CORRECTIVE (OR REMEDIAL) ACTION	Reactive response required to address an action that is in conflict with the requirements of the Site Documentation. The need for corrective action may be determined through monitoring, audits or management review.
PROJECT FOOTPRINT	Area on a project site that is impacted by the development activity.
DOMESTIC WASTE	Means waste, excluding hazardous waste that emanates from premises that are used wholly or mainly for residential, educational, health care, sport or recreation purposes; *(NEM: WA, Act No. 59, 2008).*
DECOMMISSIONING	To take out of active service permanently or dismantle partly or wholly, or closure of a facility to the extent that it cannot be readily re-commissioned *(NEMA EIA Regulations, 2014, GNR 983)*.
ECOSYSTEM	A dynamic system of plant, animal and micro-organism communities and their non-living environment interacting as a functional unit *(NEMA, Act No 107 of 1998).*
ENDANGERED SPECIES	Any indigenous species listed as an endangered species in terms of section 56 of NEM:BA, Act No 10 of 2004.
ENDEMIC SPECIES	An "endemic" is a species that grows in a particular area (is endemic to that region) and has a restricted distribution. It is only found in a particular place. Whether something is endemic or not depends on the geographical boundaries of the area in question and the area can be defined at different scales.
ENVIRONMENT	Means the surrounding within which a human exist and that are made up of: (i) The land, water and atmosphere of the earth; (ii) Micro-organism, plant and animal life; (iii) Any part or combination of (i) and (ii) and the interrelationships among and between them; and the physical, chemical aesthetical and cultural properties and conditions of the foregoing that influence human health and wellbeing *(NEMA Act 107 of 1998)*.
ENVIRONMENTAL ASSESSMENT PRACTITIONER	The individual responsible for the planning, management and coordination of environmental impact assessments, strategic environmental assessments, environmental management plan or any other appropriate environmental instruments introduced through regulations *(NEMA, Act No 107 of 1998).*
ENVIRONMENTAL AUTHORISATION	"Environmental authorisation", when used in Chapter 5, means the authorisation by a competent authority of a listed activity or specified activity in terms of this Act, and includes a similar authorisation contemplated in a specific environmental management Act; *(NEMA, Act No 107 of 1998).*
ENVIRONMENTAL AUDIT	Means work done to identify and evaluate compliance of the statement and the residual environmental impact of an existing activity, the effectiveness of mitigation measures and the functioning of monitoring mechanisms *().*
ENVIRONMENTAL AUDIT REPORT	Means a report contemplated in regulation 34. *(NEMA EIA Regulations, GNR982, 2014).*
ENVIRONMENTAL CONTROL OFFICER (ECO)	The ECO is an independently appointed duly qualified individual that is appointed to ensure the conditions and measures identified in the EMPr, Environmental Authorisation and all other relevant environmental permits are implemented and adequately monitored. The ECO is responsible to report any non-compliances to the competent authority, and will keep a daily record of all incidents.
ENVIRONMENTAL IMPACT	Change in an environment resulting from the effect of an activity on the environment, whether positive or negative. Impacts may be the direct consequence of an individual's or organisation's activities or may be indirectly caused by them (*NEMA*).
ENVIRONMENTAL IMPACT ASSESSMENT (EIA)	Means the systematic process of identifying, assessing and reporting environmental impacts associated with an activity and includes the basic assessment report and or scoping and environmental impact assessment reports (*NEMA, EIA Regulations 982 of 2014*).

ENVIRONMENTAL MANAGEMENT	Ensuring that environmental concerns are included in all stages of development, so that development is sustainable and does not exceed the carrying capacity of the environment.
ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPr)	A programme required in terms of section 24 of NEMA. A detailed action plan prepared for the Project to ensure that the recommendations for minimising and reducing negative environmental impacts as well as enhancing positive environmental impacts are implemented during the Project's life-cycle. This EMPr focuses on the pre-construction and construction (including rehabilitation) phase.
EROSION	The loss of soil through the action of water, wind, ice or other agents, including the subsidence of soil *(Conservation of Agricultural Resource Act, Act No 43 of 1983).*
GENERAL WASTE	Waste that does not pose an immediate hazard or threat to the environment or health, and includes: • domestic waste; • building and demolition waste; • business waste: and • inert waste. *(NEM: WA, Act No. 59, 2008).*
HABITAT	A place where a species or ecological community naturally occurs *(NEM: BA Act No. 10 of 2004).*
HARM	Means interference with the ecological systems of which the living organisms form part and in case of a living person includes harm, distress or annoyance to any of his senses or damage to his property.
HAZARD	Means a source of or exposure to danger *(NEMA).*
HAZARDOUS WASTE	Any waste that contains organic or inorganic elements or compounds that may, owing to the inherent physical, chemical or toxicological characteristics of that waste, have a detrimental impact on health and the environment *(NEM: WA).*
HERITAGE	That which is inherited and forms part of the National Estate (historical places, objects, fossils, etc as defined by the *National Heritage Resources Act 25 of 1999*).
HERITAGE RESOURCE	Any place or object of cultural significance *(National Heritage Resource's Act No 25 of 1999).*
HERITAGE SITE	A place declared to be a national heritage site by SAHRA or a place declared to be a provincial heritage site by a provincial heritage resources authority *(National Heritage Resource's Act, No 25 of 1999).*
IMPACT	A description of the potential effect or consequence of an aspect of a development on a specified component of the biophysical, social or economic environment within a defined time and space.
INTERESTED AND AFFECTED PARTY (I&AP)	Individuals and/or peer groups that are and/or maybe affected albeit positively or negatively by the proposed development activity. I&AP's may include authorities, local communities, environmental interest groups and the general public.
INDIGENOUS SPECIES	Any species that occurs, or has historically occurred, naturally in a free state in nature within the borders of the Republic, but excludes a species that has been introduced in the Republic as a result of human activity.
INCIDENT	An undesired event which may result in a significant environmental impact but can be managed through internal response.
MITIGATION	Measures designed to avoid, reduce or remedy the proposed adverse impacts (*DEAT, 1998*).
MONITORING	The repetitive and continued observation, measurement and evaluation of environmental criteria to follow changes over a period of time and to assess the efficiency of control measures *(DEAT, 1998)*.
PRE-CONSTRUCTION	Pre-construction entails planning, design and detailing of the development

	components prior to the commencement of the construction phase.
PREVENTATIVE ACTION	A predetermined action to address potential problems before they develop into situations which would be contrary to the requirements of the EMPr. Preventative action is most often determined from the results of monitoring and audits during management review.
PROJECT	In the context of this BAR, this term refers and applies to the 'Construction Phase' and has an end-point *i.e.* it commences from the time the Principal Contractor, overseen by the Client's project management team, is appointed to commence with the scope of works associated with the construction of Khuba Secondary School. The 'Project' lifespan comes to an end when the Construction and Rehabilitation phases are complete and the (normal) Operational phase of the school commences. *It is also used interchangeably with the word '*development*' in this document where both terms should be considered to have the same meaning.
POLLUTION	Means any contamination or change in the environment caused by: • Substances; • Radioactive or other waves; or • Noise, odours, dust or heat Emitted from any activity, including the storage or treatment of waste or substances, construction and the provision of services, whether engaged in by any person or organ of state, where that change has an adverse effect on human health or wellbeing or on the composition, resilience and productivity of natural or managed ecosystems, or on materials useful to people, or will have such an effect in the future (*NEMA, Act No. 107 of 1998)*.
RARE SPECIES	Taxa with small world populations that are not at present Endangered or Vulnerable, but are at risk as some unexpected threat could easily cause a critical decline. These taxa are usually 12ocalized within restricted geographical areas or habitats or are thinly scattered over a more extensive range. This category was termed Critically Rare by Hall and Veldhuis (1985) to distinguish it from the more generally used word "rare".
RED DATA SPECIES	Species listed in terms of the International Union for Conservation of Nature and Natural Resources (IUCN) Red List of Threatened Species, and/or in terms of the South African Red Data list. In terms of the South African Red Data list, species are classified as being extinct, endangered, vulnerable, rare, indeterminate, insufficiently known or not threatened (see other definitions within this glossary).
REHABILITATION	Return of a disturbed area to a state which approximates the state (wherever possible) which it was before the disturbance.
RISK	The variation of an actual outcome from the expected outcome, which implies the presence of uncertainty (Valsamakis *et al*. 2005). This definition indicates that there is an uncertainty surrounding the outcome of an event and about the degree of uncertainty of the actual outcome that is expected.
SPECIES	A kind of animal, plant or other living organism that does not normally interbreed with individuals of another kind, and includes any sub-species, cultivar, variety, geographic race, strain, hybrid or geographically separate population.
SITE ENGINEER	The SE is the Project Proponent's representative on site. The SE has authority to issue instructions and oversees the operations of the Contractor. Upon request from the CEO/ECO the SE has the mandate whereby, in emergency circumstances, he may override the instructions of the Contractor.
SITE DIARY	A daily site diary will be kept on site by the Contractor EO to record any incidents and non-compliances.
SOLID WASTE	All waste, including construction debris, chemical waste, excess cement/concrete, wrapping material, timber, tins and cans, drums, wire, nails, domestic, dead organic

	waste, asphalt products *(City of Cape Town: Standard Environmental Specification Version 6:2007)*.
SITE DOCUMENTATION	In this document, "*Site Documentation"* refers to all relevant documentation that pertains to the licensing, development, construction, operation and management of the Project Site: • All permits, licenses and authorisations; • Mitigation strategies; • Method statements and standard operating procedures; • Site Operation, Management and Maintenance Plans; • Site Design Documentation and final site layout plan; • Environmental Management Programme; and • Written instructions from the CA.
WASTE	Any substance, whether or not that substance can be reduced, re-used, recycled and recovered – (a) that is surplus, unwanted, rejected, discarded, abandoned or disposed of; (b) which the generator has no further use of for (he purposes of production; (c) that must be treated or disposed of; or (d) that is identified as a waste by the Minister by notice in the Gazette, and includes waste generated by the mining, medical or other sector, but— (i) a by-product is not considered waste; and (ii) any portion of waste, once re-used, recycled and recovered, ceases to be waste; *(NEM: WA, Act 59 of 2008)*
WATER POLLUTION	The National Water Act, 36 of 1998 defined water pollution to be the direct or indirect alteration of the physical, chemical or biological properties of a water resource so as to make it – less fit for any beneficial purpose for which it may reasonably be expected to be used; or harmful or potentially harmful (a) to the welfare, health or safety of human beings; (b) to any aquatic or non-aquatic organisms; (c) to the resource quality; or (d) to property.
WATERCOURSE	(a) a river or spring; (b) a natural channel or depression in which water flows regularly or intermittently; (c) a wetland, lake or dam into which, or from which, water flows; and/or (d) d) any collection of water which the Minister may, by notice in the Gazette, declare to be a watercourse as defined in the *National Water Act, Act No. 36 of 1998* and a reference to a watercourse includes, where relevant, its bed and banks.
WETLAND	Land which is transitional between terrestrial and aquatic systems where the water table is usually at or near the surface, or the land is periodically covered with shallow water, and which land in normal circumstances supports or would support vegetation typically adapted to life in saturated soil.

SECTION A: DETAILS OF THE APPLICANT

Applicant/Organisation/Organ of State:	KZN Department of Education		
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SECTION B: DETAILS OF THE ENVIRONMENTAL ASSESSMENT PRACTITIONER ("EAP")

Name of the EAP organisation:	NCC Environmental Services		
Project EAP:	Craig Burne *Pr.Sci.Nat.*		
Project EAP Qualifications:	MSc (Freshwater Ecology); BSc (Hons) Environmental Science		
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Lead EAP:	Ronaldo Retief *Pr.Sci.Nat.*		
Lead EAP Qualifications:	MSc (Zoology)		
Lead EAP EAPASA Reg. No.:	2019/181		

This Basic Assessment (BA) process was undertaken by NCC Environmental Services (Pty Ltd (hereafter referred to as 'NCC'). NCC is a Cape Town based environmental consulting firm with regional offices in Durban and Johannesburg. The company as extensive consulting experience in a variety of private and public sector development and construction projects throughout South Africa. In terms of the NEMA EIA Regulations (as amended), Appendix 1 of GN326 requires that a Basic Assessment Report (BAR) must contain the details of the Environmental Assessment Practitioner (EAP) who prepared the document and the relevant expertise of the EAP.

The lead EAP who provided guidance to the process and reviewed the BAR was fulfilled by Mr. Ronaldo Retief. Ronaldo is a Senior Environmental Consultant at NCC with over 15 years of experience in environmental assessment and has worked as both an EAP and specialist during the execution of many environmental impact assessments in South Africa as well as internationally. Ronaldo's highest qualification is an MSc in Zoology obtained from Rand Afrikaans University (RAU). Ronaldo is a registered EAP with the

Environmental Assessment Practitioners Association of South Africa (EAPASA) and a professional natural scientist with the South African Council for Scientific Professions (SACNASP) in the fields of Zoological, Ecological and Environmental Science.

The BAR has been compiled by Craig Burne, a Senior Environmental Consultant who has worked with NCC for 14 years. Craig's highest qualification is an MSc by dissertation in Freshwater Ecology obtained from the University of the Witwatersrand. Craig is a registered professional natural scientist with SACNASP in the field of Environmental Science and an accredited SASS5 practitioner with the Department of Water and Sanitation (DWS). Since 2008 Craig's functions have varied within the field of environmental management where he gained experience in compliance monitoring and environmental auditing for various construction development projects across South Africa. Craig's experience also includes environmental assessments, water use authorisation processes, permit applications, environmental risk assessments, water quality monitoring, aquatic biomonitoring, rehabilitation and alien vegetation monitoring, freshwater and wetland habitat assessments and the compilation of river rehabilitation and alien vegetation management plans.

Please refer to BAR **Annexure 1C** for the EAP Declaration, BAR **Annexure 1D** for the EAP and Specialists CVs and BAR **Annexure 1E** for the Specialists Declarations of Interest. A summary table of the specialist team who were appointed to carry out specialist assessments in terms of this proposed application are included in **Section C** below.

SECTION C: DETAILS OF THE SPECIALIST TEAM

Name	Area of expertise	Company	Study conducted	Qualifications
Ryan Kok	Terrestrial Biodiversity	Eco-Pulse	Terrestrial Compliance Statement	MSc (Biological & Ecological Science) BSc: Hons (Biological & Ecological Science) BSc (Environmental Science)
Juliette Lagesse	Freshwater Biodiversity	Eco-Pulse Environmental Consulting Services	Freshwater Compliance Statement	MSc (Wetland Geomorphology) BSc: Hons (Environmental Science) BSc: Zoology and Environmental Science
Jean Beater	Heritage	JLB Consulting	Heritage Impact Assessment	MA (Heritage Studies) MSc (Environmental Management)
Professor Marion Bamford	Palaeontology	Sub-consultant to JLB Consulting	Palaeontology Impact Assessment	PhD (Palaeobotany) MSc (Palaeobotany) BSc: Hons (Botany & Palaeobotany) BSc (Botany & Microbiology)
Rishaal Sahadew	Civil Engineering	Jinyela (Pty) Ltd	Traffic Impact Assessment	B Tech Civil Engineering (Pr Tech) ECSA Registration No: 201270357
Robert	Groundwater	JG Afrika	Groundwater	Provided on request

Schapers	and Geohydrology		assessment	
Prashant Mahabeer	Geotechnical Engineering	P K and Associates, sub-consultant to Madan Singh and Associates	Geotechnical Assessment	Provided on request

SECTION D: PROJECT INFORMATION

1.1 Activity Location

A locality map (**Figure 2**) is provided under section 1.7.1. of this report.

Location of proposed site:	The site where the development is proposed is portion 15839 in the Nkungumathe area of the Nkandla Local Municipality, King Cetshwayo District, KwaZulu-Natal. The site is located in Ward 1 accessible off District Road 2238 approximately one (1) kilometre from the turn off from the main tar road (P50-3) to Nkandla.
Erf name(s) and number(s) for each proposed site:	Farm No. 19 Reserve RE/15839
Property size(s) in m^2 and ha for the proposed site:	45 500m^2 (4.5 ha)
Co-ordinates (WGS84 datum):	28°31'23.69"S
	31° 5'14.19"E
Development footprint size(s) in m^2:	18 188m^2 / 1.8188ha (See Figure 3 and SDP - BAR **APPENDIX 10**)
Surveyor General (SG) 21 digit code for each proposed site:	N0GU00000001583900000

1.2 Project Description

The Coega Development Corporation (Pty) Ltd (CDC) is assisting the KwaZulu-Natal Department of Education (DOE-KZN) in implementing projects within the province of KwaZulu- Natal (KZN). This is being done under the School Building Programme of the DOE-KZN which is aimed at providing quality teaching facilities and to improve the quality of life of the previously disadvantaged communities. The programme is also aimed at creating jobs, developing and transferring skills and fighting poverty. In alignment with the School Building Programme, it is proposed that Khuba Secondary School (NatEIMS Ref no. 500490731) be developed on portion 15839 of Farm Reserve No. 19 in ward 1 of the Nkandla Local Municipality, King Cetshwayo District, KZN to accommodate 600 new learners from Grades 8 to 12.

The proposed site (portion 15839) is a currently vacant greenfield site with no existing buildings or services on it located along District Road 2238 adjacent to the existing Nkungamathe Primary School in

the Nkungumathe area of Nkandla. Construction activities will comprise of bulk earthworks to construct level platforms, school buildings, an internal paved driveway and parking area, a stormwater soak away / sewer retention area and the installation of a potable water supply and electrical infrastructure to service the school. **Tables 5** and **6** below for a description of the proposed buildings and associated infrastructure.

1.3 Activities Assessed During the Basic Assessment Process

Table 1: Activities triggered in terms of the National Environmental Management Act 107 of 1998 and the 2014 EIA Regulations (as amended) (Government Gazette No. 38282).

Listed Activity No(s):	Describe the relevant Listed Activity in Listing Notice 1 GN.R 983 (as amended by GN.R 326) required to undergo a Basic Assessment Process	Description of the activity
27	**The clearance of an area of 1 hectare or more, but less than 20 hectares of indigenous vegetation**, except where such clearance of indigenous vegetation is required for— (i) The undertaking of a linear activity; or (ii) Maintenance purposes undertaken in accordance with a maintenance management plan.	More than 1 hectare of indigenous vegetation will need to be cleared for the proposed development.

In terms of the National Water Act, the proposed development footprint and associated infrastructure will not encroach to within the "*regulated area of a watercourse*" i.e. to within 100m from the edge of a watercourse or within 500m from the delineated boundary of any wetland. Therefore no section 21(c) and/or (i) water uses will need to be authorised. If the need arises for groundwater to be abstracted from a borehole, consultation by the applicant with the authority (DWS) on whether a section 21(a) water use requires authorisation is recommended. **Table 2** provides context for what constitutes section 21 (a), (c) and (i) water uses.

Table 2: Regulatory framework in terms of the National Water Act for sections 21 (a), (c) and (i) water uses.

Regulatory framework	Description
Section 21 and 39 of the National Water Act (Act 36 of 1998); GN 509 in GG40229 dated 26 August 2016 "21 (c) and (i)"	A Section 21(c) water use is "*one which can impede or divert the flow of water in a watercourse*" and a Section 21(i) water use is "*one which can lead to the altering of the bed, banks, course or characteristics of a watercourse*".
Section 21(a)	*Taking water from a water resource*

No waste management activities in terms of the NEM: WA (Act 59 of 2008) listed in GN No. 921 dated 29 November 2013 will be triggered by the proposed development. Waste generated on site during construction will mostly be general wastes and potentially minor quantities of hazardous wastes such as used oils, paints, lubricants, greases, etc. Waste materials will not be stored on the site for a period longer

than a month nor will quantities reach that of the thresholds as prescribed in the listing notices. The closest landfill site should be utilised for disposal. Waste management during the operational phase of the school will fall within the area serviced by the Nkandla Municipality.

No listed atmospheric pollution or emission activities are triggered in terms of the NEM: AQA (GN No. 893). Dust created during construction will be managed in terms of the EMPr.

1.4 Details of All Components of the Proposed Project

1.4.1 Buildings

As per the Department of Education's Accommodation Schedule for Khuba Secondary School and the design layout in the SDP (See BAR **Appendix 10**), the list of proposed buildings (10 blocks from A t J) to be constructed are illustrated in **Table 3**.

Table 3: List of buildings proposed to be constructed for Khuba Secondary School.

Brief description	
1 x Principal's Office	1 x Computer room and storerooms
2 x Deputy Principal's Office	2 x HoD Office/Teachers' Workroom
1 x General Office	1 x Team Teaching Room/Activity Room
1 x Staffroom with Kitchenette	1 x Counselling Suite (attached to std classroom)
1 x Strongroom	1 x General Storeroom outside Admin Block
1 x Stationery/General Store	1 x Garden Stores and Changeroom
1 x Printing Room	1 x Gate House
2 x Sick Room (Male & Female)	1 x SNP Kitchen
1 x Entrance Hall	8 x Girls' Toilets
15 x Standard classrooms	8 x Boys' Toilet Seats and Urinal Spaces
3 x Multi-purpose classrooms	4 x Teacher Toilets
1 x Media centre and storerooms	1 x Disabled Toilet
Total Area	2 418m^2

1.4.2 Other associated infrastructure/amenities (e.g. roads, power and water supply/ storage)

There are associated external spaces/areas which are proposed to be developed in conjunction with construction of the new school buildings (See BAR **Appendix 10**); as highlighted in **Table 4** below.

Table 4: List of associated external spaces/areas proposed for Khuba Secondary School.

Brief description	
20 x Ordinary Parking Bays, 1 x Disabled Parking Bay and Driveway (2 300m^2); 1 x Assembly Area with Chess Board (300m^2) 1 x Covered dining area (465m^2) Covered Walkways (1 191m^2) Covered ramps (200m^2)	Grassed/landscaped areas (3 218m^2) Loffelstein retaining blocks (628m^2) Gabion basket retaining walls (68m^2) 1 x hardened Kombi Court (700m^2) 1 x Netball court (700m^2) 1 x Soccer field (6 000m^2)
Total Area	15 770m^2

1.4.3 Processing activities (e.g., manufacturing, storage, distribution)

Brief description
N/A

1.4.4 Storage facilities for primary raw materials and products (e.g., volume and substances to be stored)

Table 5: List of primary raw materials and products to be used during Construction.

Brief description		
Material	**Storage Method**	**Expected Volumes/Quantities**
Diesel	Any fuels will be stored in one or more above ground storage tanks (self-bunded) or on a weatherproof, impermeable bunded area. The bund capacity/volume must be 110% of the diesel tanks capacity.	Unknown and variable during Construction, however less than 20 000l (20m^3) will be stored on site at any given time as there are commercial fuel suppliers in Nkandla.
Motor oils	To be stored in the construction site camp within a bunded area which will be 110% of the oil volume.	Unknown, small quantities.
Grease	Stored at the construction site camp in a hazardous materials store.	Unknown, small quantities.
Hydraulic oils	Stored at the construction site camp in a hazardous materials store.	Unknown, small quantities.
Cement and stabilising agents	Stored at the construction site camp in a dedicated weatherproof storage facility. Delivered to site in batches as and when needed.	Unknown

Base building materials (building sand, gravel, bedding material, bricks, rock and / or G7 material sourced from commercial sources or registered quarries / borrow pits)	Stored on site in designated laydown areas as separate stockpiles.	Unknown

1.4.5 Storage and treatment facilities for effluent, wastewater or sewage:

Brief description below
No treatment of effluent, wastewater or sewerage is proposed to take place at the new school. Due to the absence of municipal sewer lines in the area, it is proposed that a soakaway / sewer retention area or septic tank be established on the site. The results of the percolation tests carried out during the geotechnical assessment indicate that a soakaway would satisfy the minimum requirements (25mm fall in water level in 30 minutes or less) set out by the National Building Regulations Council.

1.4.6 Storage and treatment of solid waste:

Brief description
As indicated in the NLM IDP, the municipality has a waste management policy and a waste management plan in place adopted by council in the 2018/2019 financial year. There is currently one licensed/permitted landfill site in the NLM with an operational weighbridge (NLM IDP). The landfill receives approximately 140 tons per months of general waste and is able to collect waste from ward 1, ward 3, ward 5, ward 6, ward 7, ward 8, ward 10, ward 12 and ward 14. During the Construction Phase, a temporary waste storage area will be established by the Contractor for storage prior to waste materials being transferred to the municipal landfill site for disposal. An area for refuse/waste storage will be available during the Operational phase of the school where municipal collection trucks will be able to gain access for the servicing/replacing of the refuse skips, bins and/or container at the school. In terms of any potential recycling opportunities/ initiatives during the Operational phase, these can be collaboratively explored and agreed to between the school management staff (KZN-DOE) and the Waste Management Section of the NLM: Website: https://www.nkandla.org.za/index.php/techncical-services/waste-management

1.4.7 Other activities (e.g. water abstraction activities, etc.)

Brief description
In terms of GN509 in GG40229 dated 26 August 2016, gazetted under the National Water Act (Act 36 of 1998), section 21 (c) and (i) water uses are those which can lead to the altering of the bed, banks, course or characteristics of a watercourse. A freshwater compliance statement was undertaken (See BAR **Appendix 4**) where no impact management mitigation measures were recommended for freshwater biodiversity, resource quality and the receiving downstream freshwater ecosystem based on the low sensitivity of the site. The proposed development footprint and associated infrastructure will not take place within the "regulated area of a watercourse" i.e. within 100m from the edge of any watercourse and within 500m from the delineated boundary of any wetland. No Water Use Authorisation (WUA) will be required for section 21(c) and (i) water uses. If available it is recommended that municipal water is utilised during the Construction and Operational Phase. Although water services infrastructure in the Nkandla Municipality needs upgrading and ongoing maintenance especially with the future housing development and investment attraction, water supply is not stated as a need for Ward 1 (including Nkungumathe) as per the municipal IDP. However, any potential water use needs for the proposed development, such as taking water from a water resource (section 21a) or storing water (section 21b) which may arise should be subject to an enquiry and clarification with the relevant authority (DWS) relating to the potential registration and authorisation processes and/or requirements for such water use. This is related to any intended use of groundwater (i.e. borehole) on site.

1.5 Physical Size of the Proposed Development

Property size(s):	
The size of all the properties (cadastral units) on which the development proposal is to be undertaken	**45 500m^2 (4.5ha)**
Size of the Facility:	
The size of the facility (development area) where the activity is to be undertaken	**18 188m^2 (1.8188ha)**
Development Footprint:	
The area that will be physically altered as a result of the undertaking of the development (*i.e.,* the physical size of the development together with all its associated structures and infrastructure, and clearing)	**18 188m^2 (1.8188ha)**

For Storage Facilities:		
The volume of any storage facility (combined)	**110% capacity of stored contents**	m^3
For Sewage/Effluent Treatment Facilities:		
Owing the remoteness of the site and the absence of formal wastewater infrastructure it is proposed that sewage and domestic wastewater is managed on site via a sewer retention area and septic tank according to a civil engineer's design. The maximum design capacity for sanitation/ablution facilities the school will be indicated in the building plans submitted to the NLM for approval.	**N/A**	m^3

1.6 Site Access

Description of the Access Roads that will be used during the Construction Phase:
Access during construction will be via the existing road network (tarred P-50-3 and gravel D2238) between Nkandla and Nkungumathe. Direct access onto the site footprint (portion 15839) will initially be via an existing vehicle track along the northern boundary perpendicular with the D2238. The proposed permanent school access point from the D2238 onto the driveway of the school is shown in the 'Site Layout Plan' (See Figures 1 to 3 below)**.** A paved or concrete internal driveway and parking area will be constructed with the relevant road signage displayed at an access gate with a perimeter site fence to be installed to secure the school from a safety perspective. A section of the driveway to the school will be constructed to join directly with the D2238 (See **Figure 1**) which will lead into a parking area in the eastern section of the property. The driveway and parking areas is shaded in grey in the SDP (**Figure 3**). **Note:** The position(s) and orientation of any temporary internal access routes (to be utilised during Construction on the site footprint) will need to be indicated by the appointed Contractor on their Site Access Plan and Site Establishment method statement.

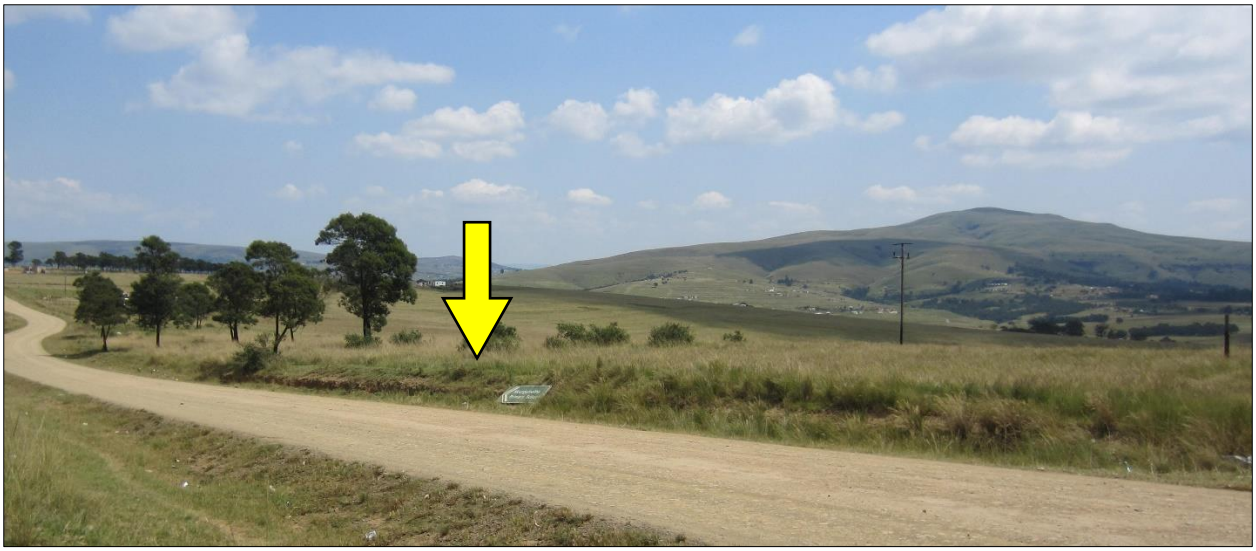


Figure 1: Planned construction access point (estimated by the yellow arrow) to the site from District Road 2238. The same access point for construction will be the final *i.e.* permanent, main access point to the school where an access gate will be constructed including a perimeter fence.

1.7 Description of the Property on which the Listed Activities are to be undertaken and the Location of the Activity on the Property

Brief Description:
The property (portion 15839) is owned by the Ingonyama Trust and is currently not zoned (i.e. is agricultural land), is currently vacant and being used for subsistence agricultural purposes i.e. livestock grazing for the surrounding communities (See site photographs under section 1.7.3). The topography of the property is characterised as a gently sloping landscape trending east-west with the site itself and surrounding area consisting primarily of secondary grassland (originally Midlands Mistbelt Grassland). There are also several low density housing settlements in a rural setting around the site with an existing school on the property adjacent to both the D2238 and the eastern most corner of the site (**Figure 2**).

Table 6: GPS positions (WGS84 datum) of the extent of the property, portion 15839.

	Points	**Latitude (S):** (deg.; min.; sec)			**Longitude (E):** (deg.; min.; sec.)		
Coordinates of the proposed development on the property/site:	**Corner 1**	28°	31’	20.87”	31°	05’	8.82”
	Corner 2	28°	31’	12.91”	31°	05’	14.03”
	Corner 3	28°	31’	15.69”	31°	05’	16.00”
	Corner 4	28°	31’	18.13”	31°	05’	19.98”
	Corner 5	28°	31’	23.70”	31°	05’	14.19”

1.7.1 LOCALITY MAP

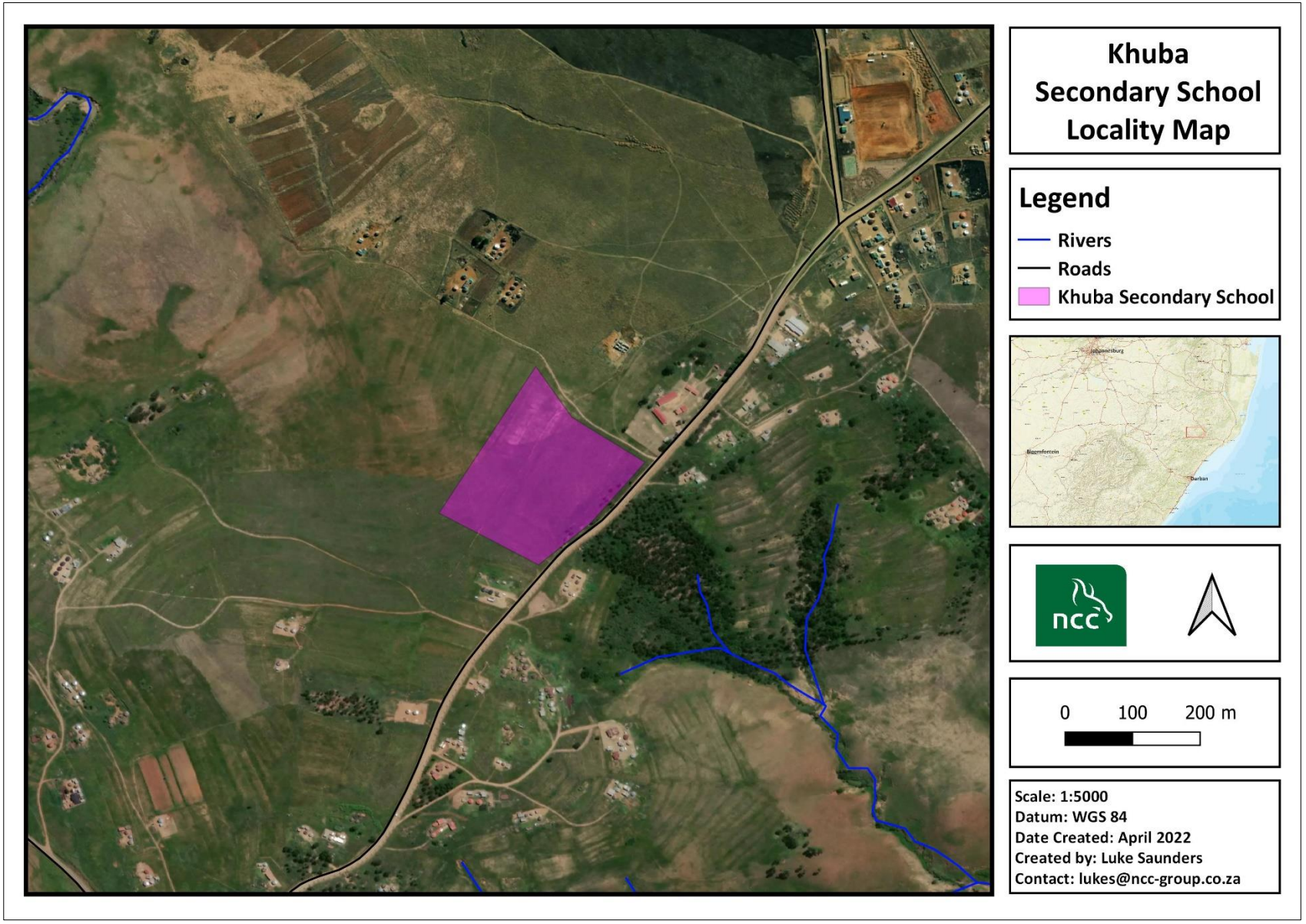


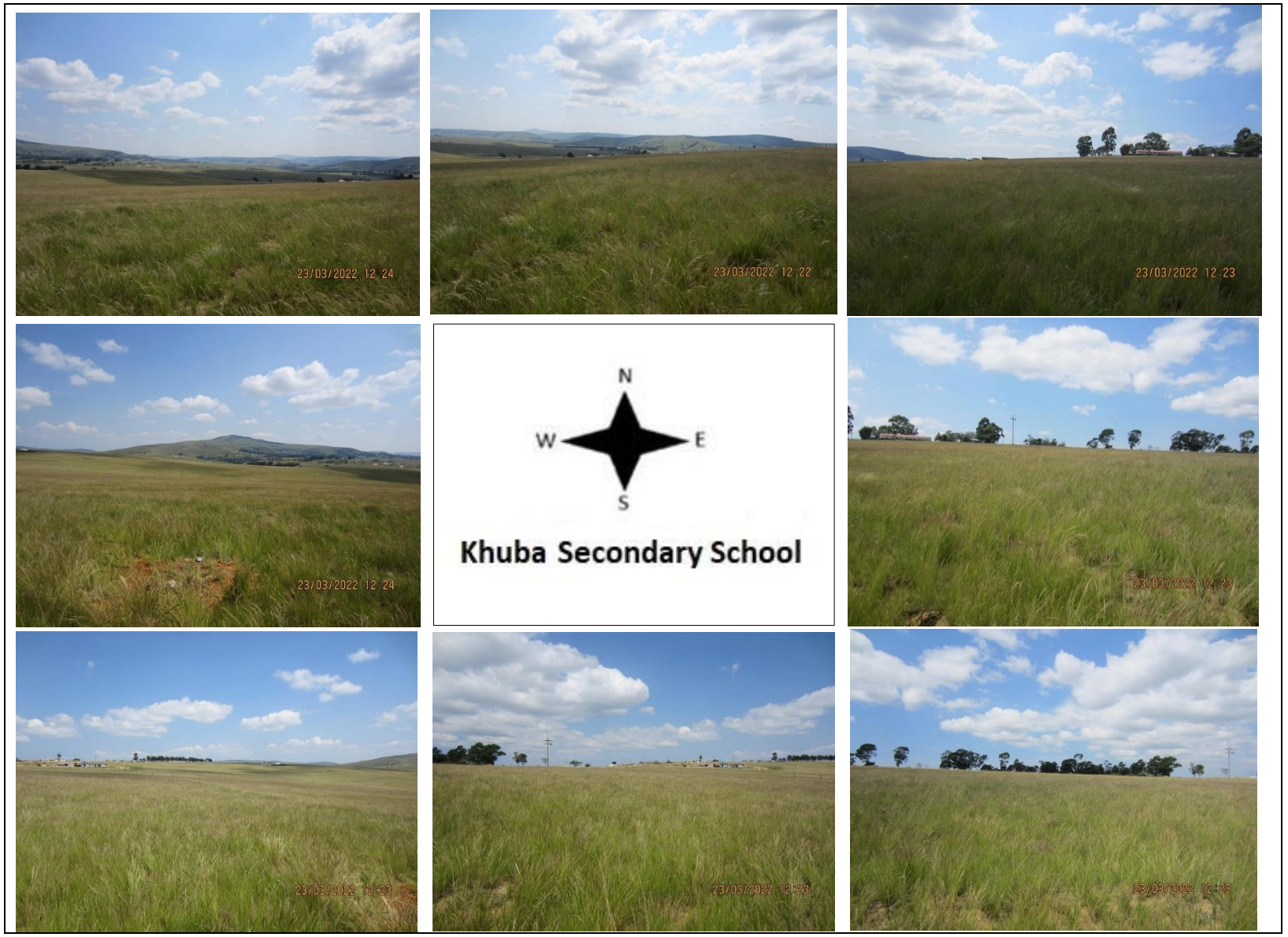
Figure 2: Site location.

1.7.2 SITE DEVELOPMENT PLAN

Figure 3: Site Development Plan on portion Farm No. 19 Reserve RE/15839 (See also BAR **Appendix 10**).

1.7.3 Site photographs

Views from various positions on the site footprint in the eight major compass directions (See also BAR **Annexure 5**).



1.7.4 Site sensitivity maps

The site sensitivity in terms of terrestrial and freshwater habitats is illustrated in **Figures 4** and **5**.

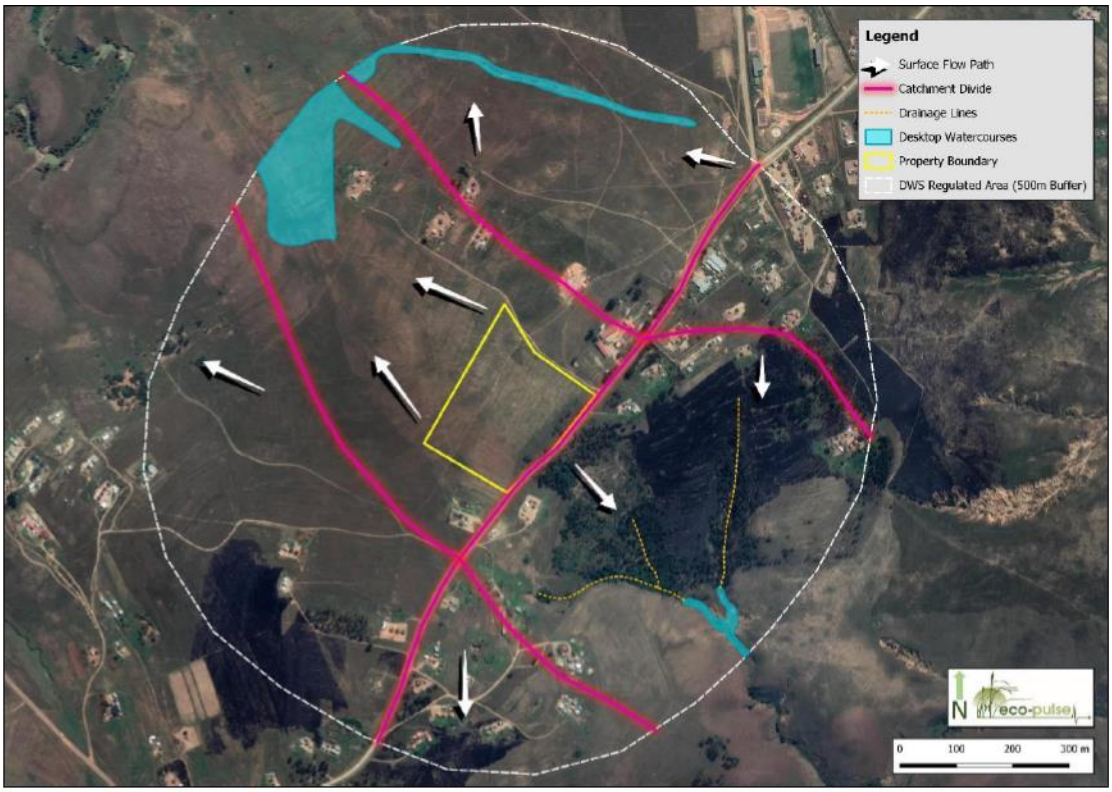


Figure 4: Desktop mapped watercourses within 500m of the site boundary where there are no watercourses or freshwater resources (including wetlands) on the site footprint or within either 32m or 100m from the site boundary. The white arrows indicate the direction of surface flow and the pink lines indicate the divide between local sub-catchments. Freshwater biodiversity sensitivity is low.

Figure 5: Terrestrial sensitivity map of the site footprint assessed to be low.

SECTION E: DESCRIPTION OF THE RECEIVING ENVIRONMENT

Additional reference maps to be looked at in conjunction with this section are included under report **Section N**.

1.1 Gradient of the Site

The general gradient of the site:

~~Flat~~	**Flatter than 1:10**	~~1:10 – 1:4~~	~~Steeper than 1:4~~
Description			
The topography of the site slopes very gently towards the west in a west-east direction at the top of a valley-type setting of the with some steeper more mountainous terrain much further towards the north (see photos under section 1.7.3). The average slope of the site is flatter than 1: 10. The slope on the other side of the district gravel road (D2238) slopes more steeply away from the road in a general south westerly direction.			

1.2 Location in Landscape

The landform(s) that best describes the site:

~~Ridgeline~~	~~Plateau~~	~~Side slope of hill / low hills / mountain~~	~~Closed valley~~	~~Open valley~~	**Plain**	**Undulating plain**	~~Dune~~	~~Sea-front~~
Description								
The topography of the landscape in the study area including the site is very gently sloping towards the west in a west-east direction at the top of a valley-type setting. The landform of the site is characterised by a generally flat surface adjacent to the D2238 road where the site is at its' highest elevation near the eastern most corner. The gradient reduces gently and more-or-less uniformly from this point in all directions between the NW and S compass bearings.								

1.3 Groundwater, Soil and Geological Stability of the Site

This section provides a description of the groundwater, soil and geological stability of the project area. More detailed information can be found in the specialist Geotechnical Assessment (**Appendix 9**) and the Groundwater Assessment (**Appendix 11**) reports as well as the various desktop maps in section N of this report also provide further background information. The regional geohydrology of the area can be broadly described as predominantly diamictite (tillite). The principal groundwater occurrence is from a fractured aquifer type with median borehole yields in the range of 0.1 to 0.5 l/s. Aquifer susceptibility and aquifer classification for the site are rated as medium-high and minor respectively.

Description of Groundwater on Site:

Shallow water table (less than 1.5m deep)	~~YES~~	**NO**	~~UNSURE~~
Seasonally wet soils (often close to water bodies)	~~YES~~	**NO**	~~UNSURE~~
Unstable rocky slopes or steep slopes with loose soil	~~YES~~	**NO**	~~UNSURE~~
Dispersive soils (soils that dissolve in water)	~~YES~~	~~NO~~	**UNSURE**
Soils with high clay content	**YES**	~~NO~~	~~UNSURE~~
Any other unstable soil or geological feature	~~YES~~	~~NO~~	**UNSURE**
An area sensitive to erosion	YES	**NO**	~~UNSURE~~
An area adjacent to or above an aquifer	~~YES~~	**NO**	~~UNSURE~~
An area within 100m of a source of surface water	~~YES~~	**NO**	~~UNSURE~~
An area within 500m of a wetland	~~YES~~	**NO**	~~UNSURE~~
An area within the 1:50 year flood zone	~~YES~~	**NO**	~~UNSURE~~
A water source subject to tidal influence	~~YES~~	**NO**	~~UNSURE~~

Type/s of geological formation underlying the site:

Granite	**Dolerite**	~~Other (describe)~~	**Quartzite**	~~Dolomite~~	~~Shale~~	**Sandstone**

Description
The regional geology of the study area is characterised by Dwyka Group tillite which is underlain by red-brown coarse grained arkosic to subarkosic sandstone and quartz arenite of the Natal Group. These rocks are overlying basement intrusive granites and gneisses of Swazian Age. In places the basement rocks are intruded by Jurassic aged dolerite sills and dykes. Air photo interpretation indicates there are no faults or dykes in the immediate vicinity of the site.

Soil type/s predicted on site:

Description
Dominant soils are generally apedal and plinthic derived mainly from shale and minor sandstones and less importantly from Jurassic dolerite dykes and sills. The dominant land types are Ac followed by Fa. Five trial pits profiled to a depth of ~3m across the site indicate two subsoil horizons, namely a colluvial layer and a residuum layer. The (transported) colluvium layer can be described as dry to slightly moist, dark brown and stiff with a gravelly sandy CLAY texture. The residuum layer is slightly moist, orange-brown, firm and micro-shattered with a slightly sub-rounded gravelly silty sandy CLAY texture.

1.4 Surface Water

Type/s of water features on site:

Perennial River	~~YES~~	**NO**	~~UNSURE~~
Non-Perennial River	~~YES~~	**NO**	~~UNSURE~~
Permanent Wetland	~~YES~~	**NO**	~~UNSURE~~
Seasonal Wetland	~~YES~~	**NO**	~~UNSURE~~
Artificial Wetland	~~YES~~	**NO**	~~UNSURE~~
Estuarine / Lagoon	~~YES~~	**NO**	~~UNSURE~~
Description:			
Based on a combined desktop assessment and field verification exercise by a freshwater specialist, no wetlands or rivers were identified on the site. The only wetlands identified are outside of the sub-catchment > 350m downstream and beyond the 500m NWA regulated area from where the development is proposed. No surface water or watercourse is located on the site or within 32m from the site boundary.			

1.5 Biodiversity

Flora and fauna of conservation significance (including threatened, protected and rare species) likely to occur in the various habitats of the study area were assessed at a desktop level using information obtained from various literature sources, on-line services and GIS information. Refer to BAR Appendix 5 for more detailed information.

1.5.1 Systematic Biodiversity Planning Category

Category				If CBA or ESA, the reason(s) for its selection must be described
~~CBA~~	~~ESA~~	~~Other Natural Area (ONA) / Ecological Infrastructure(EI)~~	**N/A**	**N/A**

1.5.2 Habitat Condition on Site

(Please also refer to BAR **Appendix 5**).

Habitat type	Description and observations
Degraded Secondary Grassland	The study site is situated within the Grassland Biome and more specifically the Midlands Mistbelt Grassland. Most if not all of the original grassland on site has been transformed previously by cultivation and is currently dominated by pioneer and ruderal grass species such as *Melinis repens* and *Sporobolus africanus*. The ecological condition is considered to be poor with little to no original species diversity remaining. The vegetation community on site is now characterised by *Sporobolus africanus*, *Sporobolus pyramidalis*, *Melinis repens*, *Paspalum spp*. and

	Cynodon dactylon observed closer to the road (D2238) edge. Forbs in areas that were previously cultivated were limited to a few which were scattered across these areas with *Prunus prunelloides* and *Richardia brasiliensis* being the most prevalent. A marginally higher diversity of forbs was observed towards the north-western boundary of the property indicating possible re-generation from more intact areas nearby or that some remnant species persist in these areas.

1.5.3 Ecosystems

Any ecosystem types will be identified and a description provided (if applicable), this can include terrestrial, aquatic, marine, etc.

Terrestrial Ecosystems		**Description of Ecosystem (Vegetation Type, Original Extent, Threshold (ha, %), Ecosystem Status)**
Ecosystem threat status as per the National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004)	~~Critically~~	N/A
	Endangered	Veg type = Midlands Mistbelt Grassland; Original Extent = 547 445ha; remaining natural = 130 599ha; Ecosystem Status = Poorly Protected (Jewitt, 2016).
	~~Vulnerable~~	
	~~Least Threatened~~	N/A
Description of any vegetation type and/or aquatic ecosystem present on the site.		
This includes any important biodiversity features/information identified on the site (e.g. threatened species and special habitats). Biodiversity targets and management objectives will be described if applicable:		

The vegetation type on the site and within the study area is classified as Midlands Mistbelt Grassland **(Gs 9)** (Mucina & Rutherford, 2006) which has an *Endangered* Ecosystem Status rating (Jewitt, 2018). Species of Conservation Concern (SSC) which are likely to occur broadly in the Midlands Mistbelt Grassland include:

Flora: *Pachycarpus rostratus*, *Schizoglossum ingomense* and *Merwilla plumbea.*

Mammals: *Chrysospalax villosus* (Rough-haired Golden Mole).

Birds: *Circus ranivorus* (African Marsh Harrier), *Falco biarmicus* (Lanner Falcon), *Geronticus calvus* (Southern Bald Ibis).

Reptiles: none.

Amphibians: *Breviceps bagginsi* (Bilbo's Rainfrog).

Invertebrates: none (data is deficient).

Aquatic Ecosystems							
Freshwater (including wetlands, rivers, depressions, flats, seeps pans and artificial wetlands)			Estuary		Coastline	
~~YES~~	**NO**	~~UNSURE~~	~~YES~~	**NO**	~~YES~~	**NO**

1.6 Land Use of the Site

This section highlights the current land uses type/s and/or prominent features that occur within project area. The highlighted land use/s have been identified as the current land use.

Description of current land use on the site:

~~Untransformed area~~	~~Low density residential~~	~~Medium density residential~~	~~High density residential~~	~~Informal residential~~
~~Retail~~	~~Commercial & warehousing~~	~~Light industrial~~	~~Medium industrial~~	~~Heavy industrial~~
~~Power station~~	~~Office / consulting room~~	~~Military or police base / station/ compound~~	~~Casino / entertainment complex~~	~~Tourism and Hospitality facility~~
~~Open cast mine~~	~~Underground mine~~	~~Spoil heap or slimes dam~~	~~Quarry, sand or borrow pit~~	~~Dam or reservoir~~
~~Hospital/medical centre~~	~~School~~	~~Tertiary education facility~~	~~Church~~	~~Old age home~~
~~Sewage treatment plant~~	~~Train station or shunting yard~~	~~Railway line~~	~~Major road (4 lanes and more)~~	~~Airport~~
~~Harbour~~	~~Sport facilities~~	~~Golf course~~	~~Polo fields~~	~~Filling station~~
~~Landfill or waste treatment site~~	~~Plantation~~	**Agriculture**	~~River, stream or wetland~~	~~Nature conservation area~~
~~Mountain, koppie or ridge~~	~~Museum~~	~~Historical building~~	~~Graveyard~~	~~Archaeological site~~
Other land uses (describe):	The land (portion 15839) is currently vacant and being used for subsistence agricultural activities i.e. livestock grazing for the surrounding local community.			

Description:
Portion 15839 is agricultural land currently and is currently vacant. The proposal is to develop the school on this land as a 'Greenfields' development.

1.7 Land Use Character of the Surrounding Area

According to the KCDM IDP, subsistence agriculture is a very evident and predominant in the land use Nkandla LM. Scattered rural settlement is also evident with most of the area coinciding with the Ingonyama Trust land. The site (portion 15839) is owned by the Ingonyama Trust which is in a rural area. **Figures 7** and **8** show the broad land use and SDF for the NLM.

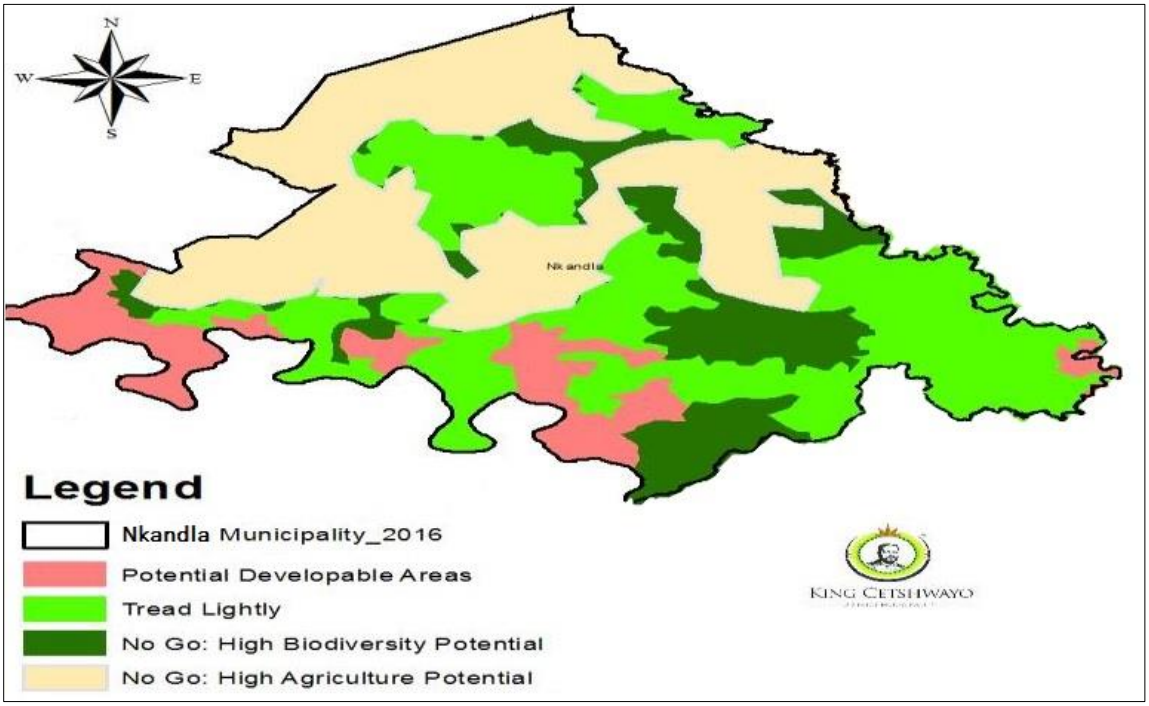


Figure 7: Broad land use in the Nkandla Municipality showing developable areas in relation to biodiversity and agriculture potential (KCDM 2021-22 IDP).

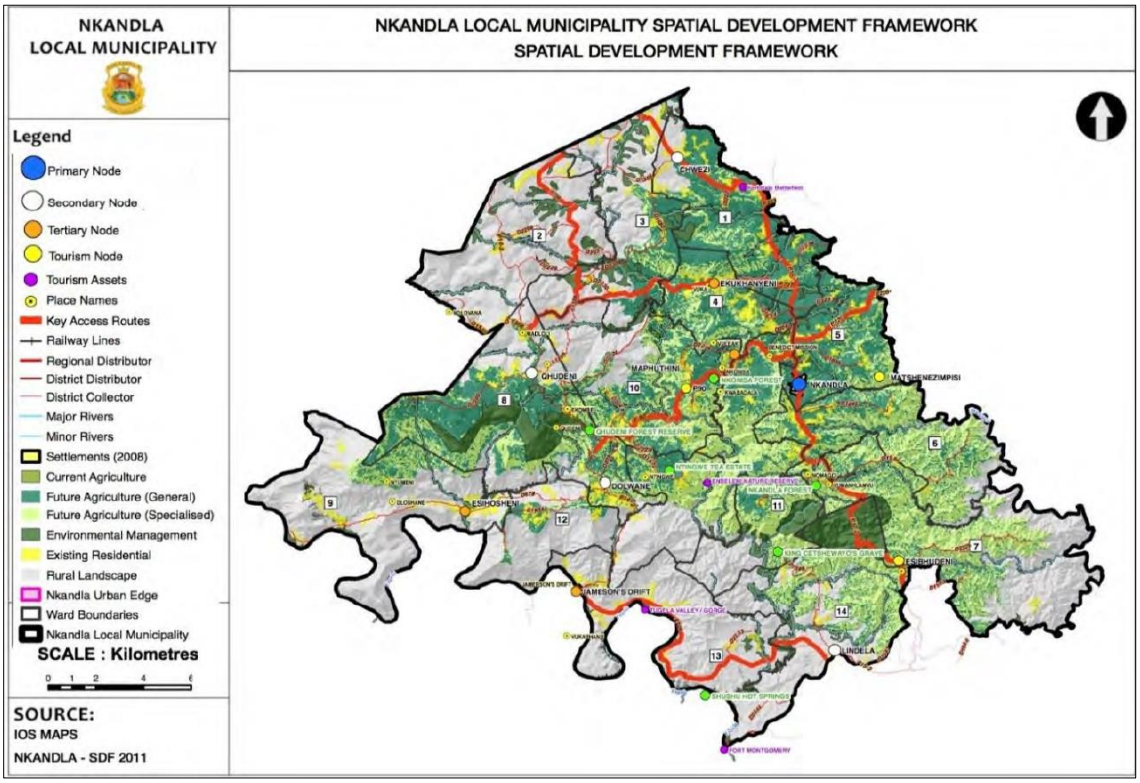


Figure 8: Nkandla LM Spatial Development Framework (Source: Nkandla LM 2017 SDF).

The higher lying evenly sloped areas to the north of the NLM (where the site is) are covered typically by grassland while the very steep slopes in the south are mostly covered by dense bush or forests. Several plantations are situated in the central region of the municipality along the east west ridges in the vicinity of Qudeni and Nkonisa with a commercial sugar cane plantation situated at Ntingwe. The degraded grasslands tend to be found near human settlements and areas of subsistence farming which is the main reason for the degradation through overgrazing of these areas. Settlements are also scattered across the municipal area with the highest concentrations of people near transport routes.

Two highlighted land uses in the figure on the following page have been identified as land uses identified in close proximity (~500m radius) from the site. It is mostly subsistence type agricultural land with a few rural settlements and an existing school +/- one kilometre along the D2238.

Description of land use of surrounding areas:

~~Untransformed area~~	~~Low density residential~~	~~Medium density residential~~	~~High density residential~~	~~Informal residential~~
~~Retail~~	~~Commercial & warehousing~~	~~Light industrial~~	~~Medium industrial~~	~~Heavy industrial~~
~~Power station~~	~~Office / consulting room~~	~~Military or police base / station / compound~~	~~Casino / entertainment complex~~	~~Tourism and Hospitality facility~~
~~Open cast mine~~	~~Underground mine~~	~~Spoil heap or slimes dam~~	~~Quarry, sand or borrow pit~~	~~Dam or reservoir~~
~~Hospital / medical centre~~	**School**	~~Tertiary education facility~~	~~Place of Worship~~	~~Old age home~~
~~Sewage treatment plant~~	~~Train station or shunting yard~~	~~Railway line~~	~~Major road (4 lanes and more)~~	~~Airport~~
~~Harbour~~	~~Sport facilities~~	~~Golf course~~	~~Polo fields~~	~~Filling station~~
~~Landfill or waste treatment site~~	~~Plantation~~	**Agriculture**	~~River, stream or wetland~~	~~Nature conservation area~~
~~Mountain, koppie or ridge~~	~~Museum~~	~~Historical building~~	~~Graveyard~~	~~Archaeological site~~
~~Other land uses (describe):~~	~~Public Open Space~~			

1.8 Socio-Economic Aspects

Socio-economic impacts, both positive and negative, were considered during the assessment. This section describes the existing social and economic characteristics of the community in the vicinity of the proposed site, in order to provide baseline information (e.g., *population characteristics*

/demographics, level of education, the level of employment and unemployment in the area, available work force, major economic activities in the local municipality, etc.).

1.8.1 Administrative context

The town of Nkandla has a claim to be the 'cradle' of Zulu history. It falls with the NLM which is a Category B municipality (KZ286) and is one of five local municipalities in the KCDM. The NLM is surrounded by the Ulundi LM to the north, Nquthu LM in the north-west, Msinga LM in the west, uMvoti LM in the south-west, Maphumulo LM in the south, UMlalazi LM in the south-east and UMthonjaneni LM in the east. It is situated close to the country's two largest ports: 130km inland from Richards Bay and 250km north-east and inland from Durban. The town of Nkandla is classified as a Rural Service Centre (RSC) and a Provincial Rural Administrative Centre (PRAC) and is the only formalised urban area in the NLM. The closest other urban areas are Melmoth (50km south-east) and Eshowe (65km) in other local municipalities.

1.8.2 Local Demographic Profile

The total population in the NLM was 114 284 as indicated by Statistics South Africa (2016). A decline in population can be attributed to the lack of job opportunities, attrition due to various reasons, migration of people to other parts of the country to look for employment opportunities and the inability of the municipality to provide a range of elite services and amenities to the affording communities. Ward 1 had a population in 2011 of approximately 10 066 people as determined in the 2011 National Census (https://wazimap.co.za/profiles/ward-52806001-nkandla-ward-1-52806001/). With the area of ward 1 being 108.2km^2, this equates to 93.1 people per km^2.

IsiZulu is the language most spoken at home by 97% of people in Ward 1 with the other languages of English (1%), IsiNdebele (1%) and other languages (1%) each being spoken more or less equally by the remaining 3% of people. The population was estimated at 65 991 people in 2011 accounting for 14.3% of the HGDM population of 460 000. According to Statistics South Africa, Community Census 2001, 2011 and Community Survey 2016, the total population of the Municipality increased to in 76 753 people in 2016. The national census originally scheduled for 2021 did not taken place owing primarily to the Global Covid-19 pandemic. The population gender, race and age distributions are show in the tables below.

POPULATION SIZE & GENDER DISTRIBUTION					
REGION	**MALE**	**%**	**FEMALE**	**%**	**TOTAL**
Nkandla Municipality (2016)	51 947	45.5	62 337	54.5	**114 284**
Ward 1 (2011)	-	-	-	-	**10 066**

Both the NLM and ward 1 show a significant proportion of youth dependency and the overall population is split between youth (0-15), working class (15-64) and the elderly (+65). According to Statistics South Africa Census (2011) and Community Survey (2016), these figures are presented below.

AGE STRUCTURE (2016)	Youth (0 – 15)	Working Class (15 – 64)	Elderly (65+)	Total
Nkandla Municipality (2016)	45.9%	48.6%	5.5%	114 284
Ward 1 (2011)	49.8%	43.7%	6.6%	10 066

1.8.3 Households

The household size indicates the number of people living in one dwelling unit. Between 2011 and 2016 the average household size at a local level in the NLM increased from 4.9 to 5.2. However in 2011 there were approximately 22 463 households which reduced to 21 832 in 2016. Roughly 63% of these are female headed households which is similar to the figure for ward 1 of 61.2%. In 2011 there were 1792 households in ward 1 of which 42% were occupied rent-free. 26.5% of households in ward 1 were fully owned or being paid off which is comparatively much lower than household ownership in the entire municipality which stands at 87.3% (NLM IDP, 2020). 60% of households are traditional, 25% are houses, 10% are apartments, 3% are flats in backyards and the other 3% are classified as other. Only 0.3% are informal shacks.

1.8.4 Income and employment

Figures 9 to **11** below illustrate the employment figures and income levels for Ward 1 (Stats SA, 2011). These statistics are likely to have worsened after the covid-19 pandemic which has resulted in job losses across the province and the country.

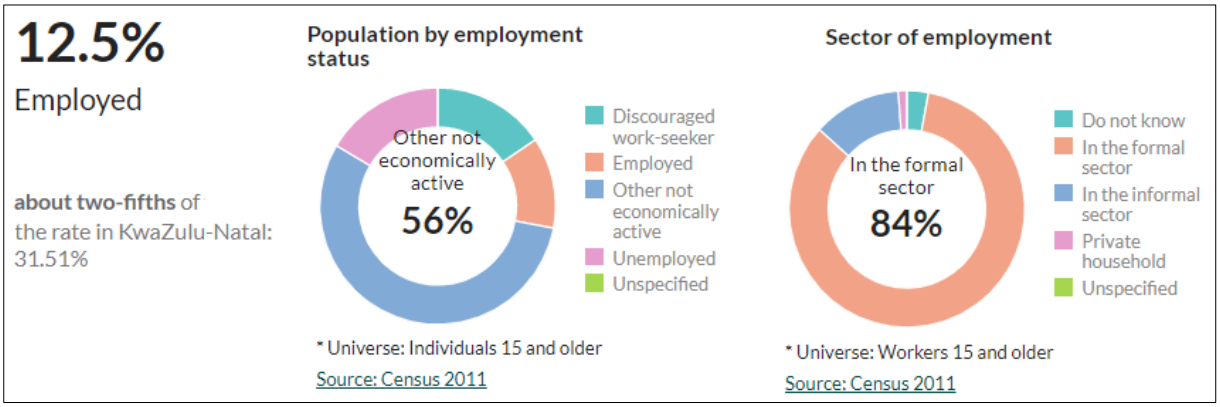


Figure 9: Employment levels in ward 1.

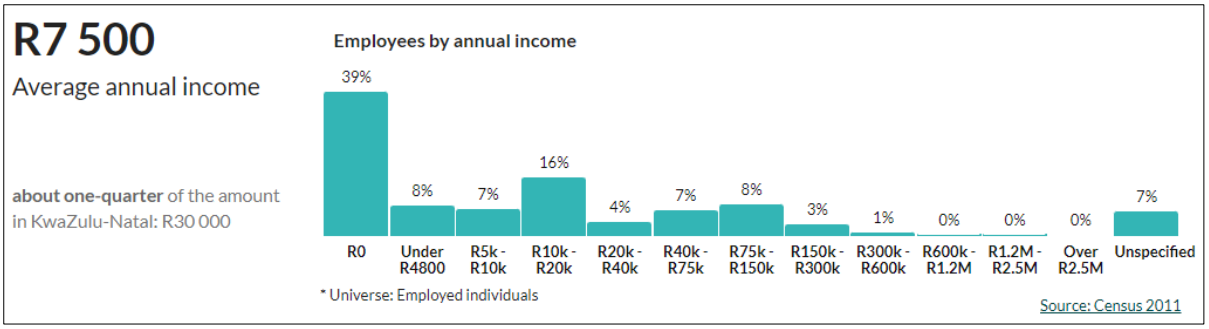


Figure 10: Average annual income in ward 1.

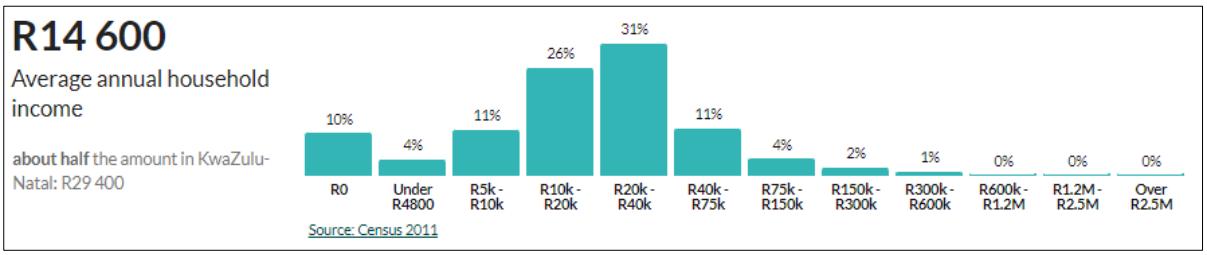


Figure 11: Average annual household income in ward 1.

1.8.5 Economic overview

While sources may differ, the NLM remains as one of poorest local municipalities within the KCDM. The primary economic activities are subsistence agriculture and trading of livestock. Most people (74.5%) rely solely on government social grants for survival and are therefore faced with poverty. Despite the bleak current economic conditions there is potential for growth in the local economy owing to the innumerable opportunities that are available to investors in the tourism and services sectors, respectively. According to the 2020 NLM IDP, local economic development and education are the focal points of the municipality to be used to improve the economic situation. Furthermore, the NLM, the KZN DOE and CDC as implementing agent are in support of economic development under the school building programme where the development of Khuba Secondary School will aid in the enhancement of education, employment opportunities and the promotion of future economic development in the NLM.

1.8.6 Education

According to the 2011 Statistics South Africa Census, only 21.2% of the NLM population had matric or higher. This percentage increased slightly to 23.9% during the 2016 Statistics South Africa Community Survey. Of this, only 4.9% attained a higher education level. The education levels in the NLM based on statistics in the most recent IDP indicates that a large proportion of the population have no schooling with less than a quarter attaining a secondary education. Only 46% of the population in the NLM have a secondary level of education meaning levels of illiteracy are relatively high (IDP, 2020).

Education (aged 20+) in the NLM	2016	2011
No schooling	24.7%	29.1%
Matric	23.9%	21.2%
Higher education	4.9%	4.8%

This poses a challenge for the municipality as there are a limited number of qualified or skilled individuals within the labour pool as the youth may move out of the NLM to seek to obtain an education and employment elsewhere in cities and urban areas across the province. Lack of education further increases the likelihood of unemployment hence the need to improve education facilities in ward 1 as well as across the other wards in the municipality in general. A comparison of the various education levels achieved in ward 1 is shown in **Figure 12.**

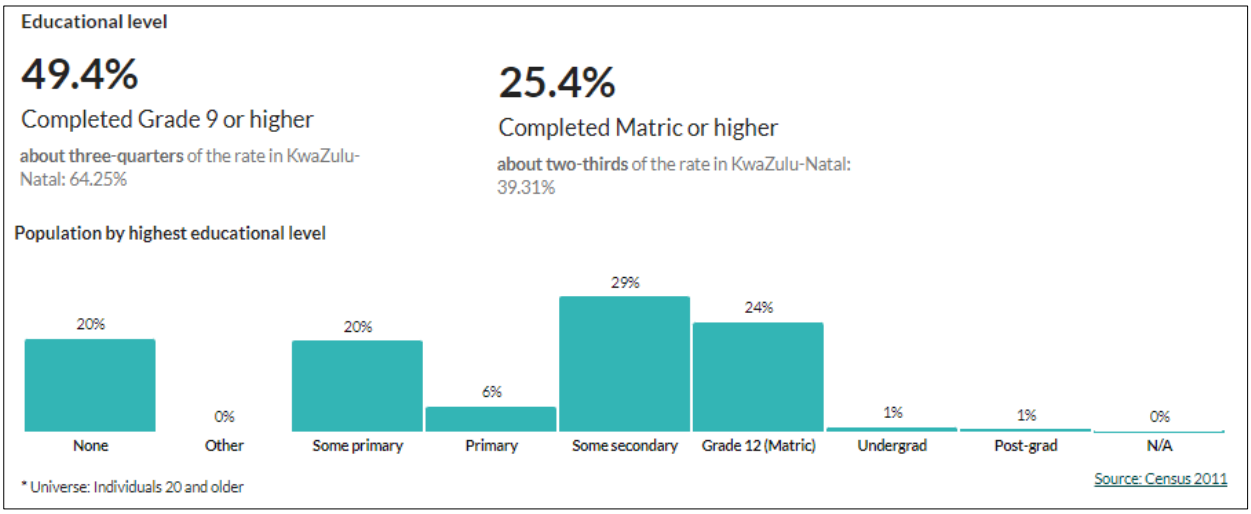


Figure 12: Education levels in ward 1.
Source: https://wazimap.co.za/profiles/ward-52806001-nkandla-ward-1-52806001/.

1.9 Heritage Aspects

In terms of heritage aspects, the DFFE National Screening Tool (https://screening.environment.gov.za/) highlighted medium sensitivity for Palaeontology and low sensitivity for Archaeological and Cultural Heritage (See **Figures 13a** & **13b**). Furthermore, the SAHRIS Paleo-sensitivity map (https://sahris.sahra.org.za/map/palaeo) as investigated by the heritage specialist indicates the study area to have moderate sensitivity (See **Figure 13c**).

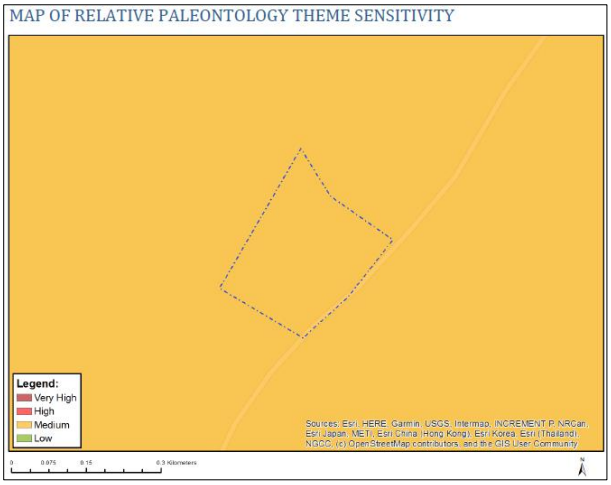


Figure 13a: Palaeontology Sensitivity.

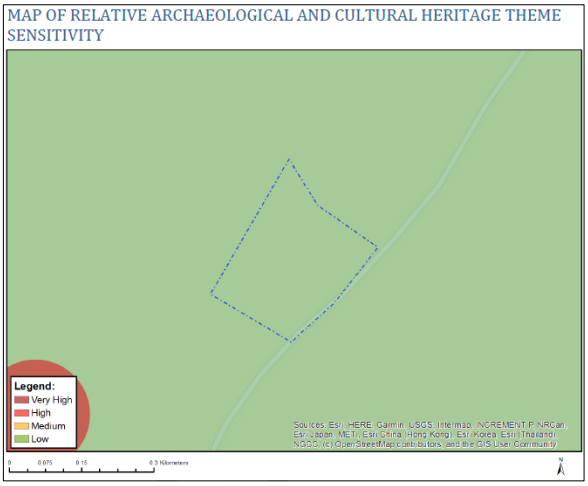


Figure 13b: Archaeological and Cultural Heritage Sensitivity.

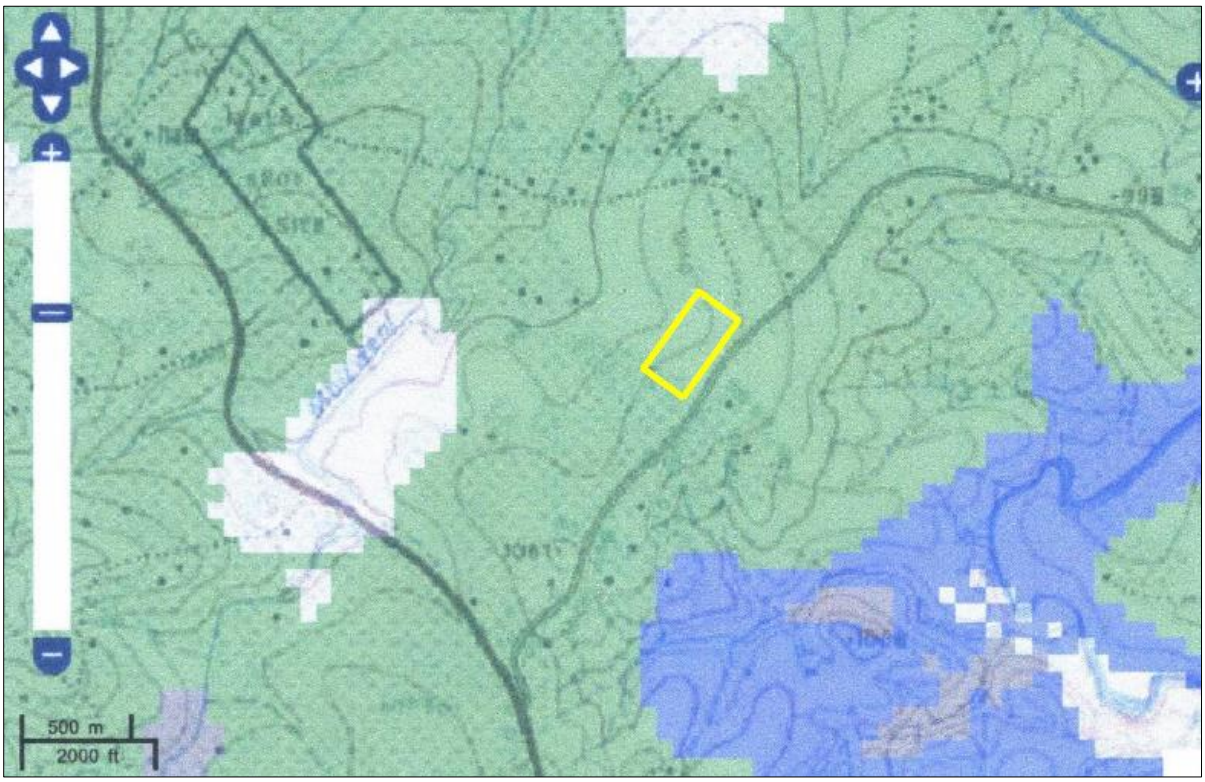


Figure 13c: SAHRIS Palaeo-sensitivity map for the site for the site which is represented as a yellow rectangle. Background colours indicate the following degrees of sensitivity: red = very highly sensitive; orange/yellow = high; green = moderate; blue = low; grey = insignificant/zero.

Specialist impact assessment studies were conducted in terms of the NHRA for heritage aspects and the findings are summarised below:

1.9.1 Heritage Impacts

The survey conducted confirmed found no evidence of heritage resources on the site footprint. Although the surrounding area does have several heritage sites including graves located +/-1km

north of the site footprint in the denser populated area of Nkungumathe as well as the site of the workplace of the herbalist Boma which is >400m south-west of the site footprint, none of these sites will be impacted by the construction of the school. Refer to **Appendix 6** for the heritage specialist report.

1.9.2 Palaeontological Impacts

Based on the lack of any previously recorded fossils from the area it is extremely unlikely that any fossils would be preserved in the soils of the Quaternary. There is a very small chance that fossils may occur in the mudstones of the Dwyka Group (early Karoo Supergroup) so a *Chance Find Protocol* for fossils should be included in the EMPr. If fossils are found by the Contractor, environmental officer or other responsible person once excavations for foundations and amenities have commenced, then such should be rescued and a palaeontologist called to assess and collect a representative sample. As the impact on palaeontological heritage would be low, the palaeontological specialist recommendation is for the school project should be authorised. Refer to **Appendix 7** for the palaeontological specialist report.

Is Section 38 of the NHRA applicable to the proposed development?	**YES**	~~NO~~	~~UNCERTAIN~~
Description			
In terms of the NHRA, section 38(1)(c)(i) is applicable as the proposed development area exceeds 5000m^2 in extent and will change the character of the site.			
Will the development impact on any national estate referred to in Section 3(2) of the NHRA?	~~YES~~	**NO**	~~UNCERTAIN~~
Description			
n/a			
Will any building or structure older than 60 years be affected in any way?	~~YES~~	**NO**	~~UNCERTAIN~~
Description			
n/a			
Are there any signs of culturally or historically significant elements, as defined in section 2 of the NHRA, including archaeological or paleontological sites, on or close (within 20m) to the site?	~~**YES**~~	**NO**	~~UNCERTAIN~~
Description			
n/a			

Management and mitigation measures as recommended in **Section K** of this report have been developed to minimise the project impact on any potential heritage resources.

SECTION F: APPLICABLE LEGISLATION, POLICIES, CIRCULARS AND/OR GUIDELINES

Table 7: List of applicable environmental legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks, and instruments that are applicable to the proposed development project.

Legislation	Administering Authority	Type of Permissions (If required)
National Environmental Management Act (NEMA) Act 107 of 1998 (as amended)	Kwazulu-Natal Department of Economic Development, Tourism and Environmental Affairs	Environmental Authorisation
National Environmental Management: Biodiversity Act (NEMBA) Act 10 of 2004	Kwazulu-Natal Department of Economic Development, Tourism and Environmental Affairs	Relevant consideration - Commenting authority
National Environmental Management: Waste Act (NEMWA) Act 59 of 2008	Kwazulu-Natal Department of Economic Development, Tourism and Environmental Affairs	Relevant consideration - Commenting authority
National Water Act (NWA) Act 36 of 1998	Department of Water and Sanitation	Relevant consideration - Commenting authority
Conservation of Agricultural Resources Act (CARA) Act 43 of 1983	Department of Agriculture, Land Reform and Rural Development	Relevant consideration - Commenting authority
National Heritage Resources Act (NHRA) Act 25 of 1999	KwaZulu-Natal Amafa and Research Institute	Notice of Intent to Develop - Letter of no objection
KwaZulu-Natal Amafa and Research Institute Act (Act 5 of 2018)	Amafa aKwaZulu-Natali Heritage Council	Relevant consideration - Commenting authority
Policies, plans, guidelines, spatial tools, municipal development planning framework		
King Cetshwayo District Municipality Integrated Development Plan	King Cetshwayo District Municipality	Relevant consideration - Commenting authority
King Cetshwayo District Environmental Management Framework	King Cetshwayo District Municipality	Relevant consideration - Commenting authority
King Cetshwayo District Municipality Spatial Development Framework	King Cetshwayo District Municipality	Relevant consideration - Commenting authority
Nkandla Local Municipality Integrated Development Plan	Nkandla Local Municipality	Relevant consideration - Commenting authority
Nkandla Local Municipality Spatial Development Framework, 2017	Nkandla Local Municipality	Relevant consideration - Commenting authority
uThungulu (former) District Municipality Biodiversity Sector Plan, 2014	King Cetshwayo District Municipality	Relevant consideration - Commenting authority
KZN Biodiversity Sector Plan, 2014	Ezemvelo KZN Wildlife	Relevant consideration - Commenting authority
Public Participation Guideline in terms of National Environmental Management Act, 1998 - (Department of Environmental Affairs, 2017)	Kwazulu-Natal Department of Economic Development, Tourism and Environmental Affairs	Relevant consideration, Competent authority

Table 8: Description of how the proposed development complies with and responds to the legislation and policy context, plans, guidelines, spatial tools, municipal development planning frameworks and instruments.

Legislation, Policies, Plans, Guidelines, Spatial Tools, Municipal Development Planning Frameworks, And Instruments	Describe How The Proposed Development Complies With And Responds:
National Environmental Management Act (NEMA) Act 107 of 1998	Environmental Impact Assessment process being complied with according to the Section 24 of NEMA (Act 107 of 1998) and NEMA EIA Regulations GNR 982 (Government Gazette 38282, 14 December 2014), Regulation 19 under the National Environmental Management Act (NEMA) Act 107 of 1998: (a) Basic Assessment Report (BAR) (b) Environmental Management Programme (EMPr)
National Heritage Resources Act (Act 25 of 1999)	The following sections under the National Heritage Resources Act (NHRA) Act 25 of 1999 refer directly to the identification, evaluation and assessment of cultural heritage resources: a) Protection of Heritage Resources – Sections 34 to 36; and b) Heritage Resources Management – Section 38 A Palaeontological and Heritage Impact Assessment was compiled to identify, assess and, if necessary, mitigate against any areas of heritage significance.
National Environmental Management: Biodiversity Act (NEMBA) Act 10 of 2004	This Act deals with the management and conservation of biological diversity within RSA and of the components of such biological diversity. The Act in conjunction with NEMA and the associated guidelines was considered for assessing any features supporting various levels of biodiversity on the site which may be either important or protected and/or listed as critically endangered, endangered or vulnerable. Terrestrial and freshwater compliance statements were undertaken. No protected plants or threatened plant species were observed on the development footprint. No freshwater biodiversity and associated aquatic ecosystems of high biodiversity conservation importance we found to occur directly on the site.
National Environmental Management: Waste Act (NEMWA) Act 59 of 2008	The Act was considered in determining whether any listed activities were triggered by the proposed project. No listed waste activities will be triggered. Definitions of waste types were identified through the applicable sections in the Act. Any waste generated as part of the proposed development will need to be done in accordance with the municipal by-laws of the NLM.
National Water Act (NWA) Act 36 of 1998	The Act was considered in determining whether any water uses were applicable to the proposed development. A freshwater compliance statement was undertaken. No section 21 (c) or (i) water uses will require an application for authorisation from the

	authority (DWS).
King Cetshwayo District Municipality Integrated Development Plan (IDP)	The IDP was consulted for information relevant to development planning considering biodiversity, cultural, and socio-economic considerations in order to ascertain whether the project is aligned with its vision and requirements at a district level.
Nkandla Local Municipality Integrated Development Plan (IDP)	The IDP was consulted for information relevant to development planning considering biodiversity, cultural, and socio-economic considerations in order to ascertain whether the project is aligned with its vision and requirements at a local level.
King Cetshwayo District SDF	The SDF was considered in order to ascertain spatial planning information relevant to biodiversity, cultural, and socio-economic considerations in order to align the project with its vision and requirements at a district level.
Nkandla Local Municipality SDF	The SDF was considered in order to ascertain spatial planning information relevant to biodiversity, cultural, and socio-economic considerations in order to align the project with its vision and requirements at a local level.
King Cetshwayo District EMF	The EMF was considered in order to ascertain the biophysical and socio-cultural systems of the area to reveal where specific land-uses are to check the development is either aligned with or at least not in conflict with the strategic spatial planning of the district which uses the EMF as a vehicle for sustainable development determined by environmental considerations, socio-economic needs and integrated governance.
KwaZulu-Natal Amafa and Research Institute Act (Act 5 of 2018)	The KZN-RIA is utilised as the basis for the identification, evaluation and management of heritage resources and in the case of Cultural Resource Management (CRM) those resources specifically impacted on by development as stipulated in Section 41 of NHRA. This study falls under s41(8) and requires comment from the relevant heritage resources authority.
King Cetshwayo District Municipality Biodiversity Sector Plan (BSP)	As precursor to a Bioregional Plan, this is a tool for supporting and streamlining land-use planning and environmental decision-making across all sectors and tiers of government, with an emphasis on the spatial implications for development and conservation. The BSP provides a clear indication of all Critical Biodiversity Areas (CBAs) and Ecological Support Areas (ESAs) identified within the District. The proposed development footprint does not fall within a Protected Area or within a CBA or ESA.
Public Participation Guideline in terms of National Environmental Management Act, 1998 (Department of Environmental Affairs, 2017)	Guideline document in conducting the Public Participation Process for Basic Assessments. This document was used to guide the public participation process for the proposed development, including Chapter 6 of GN.R 982.

SECTION G: PUBLIC PARTICIPATION

All public participation processes must fulfil the requirements set out in Section 41 of the 2014 NEMA EIA Regulations (as amended) as well as the actions taken by the EAP. All methods considered and undertaken during the Project's public participation process can be referred to in **Table 9**.

A Background Information Document (BID) (See BAR **Annexure 4A** and **4B**) describing and highlighting the proposed development and the associated assessment process was compiled for the public participation process (PPP) in order to provide pertinent information, summarised into the following key points:

1. A brief description of the proposed development;
2. Location of the proposed site footprint of the proposed development;
3. An explanation of the NEMA-listed activities triggered and how the Basic Assessment (BA) and EA application process are to be followed;
4. The locations for public viewing of the BAR and specialist studies; and
5. Contact details of the EAP in order to address any queries and/or obtain the BAR.

At commencement of the public participation process, the BAR, BID, specialist reports and all BAR Annexures and Appendices will be uploaded to the NCC website and made available for review by project stakeholders and registered Interested and Affected Parties (I&APs) at the following web-link: https://ncc-group.co.za. Any member of the public that requests to be registered as an I&AP or requests more information relating to the project and the BAR will be forwarded the above web-link by the EAP where all information will be made available.

Table 9: Summary of various methods to adopt and follow during the public participation, as considered necessary in terms of the Regulations.

In terms of Regulation 41 (2) of the EIA Regulations, 2014 (as amended) -	
(a) fixing a notice board at a place conspicuous to and accessible by the public at the boundary, on the fence or along the corridor of -	
i. the site where the activity to which the application relates, is or is to be undertaken; and	IsiZulu and English notices to be fixed to the at the location of the proposed site. Furthermore, a public notice to be placed at the Nkungumathe Public Library.
ii. any alternative site	No alternative sites were considered for this proposed school development.
(b) giving written notice, in any manner provided for in Section 47D of the NEMA, to –	

i. the occupiers of the site and, if the applicant is not the owner or person in control of the site on which the activity is to be undertaken, the owner or person in control of the site where the activity is or is to be undertaken or to any alternative site where the activity is to be undertaken;	The proposed site footprint is situated on land owned by the Ingonyama Trust. Written notice via email to be accordingly provided to the landowner.
ii. owners, persons in control of, and occupiers of land adjacent to the site where the activity is or is to be undertaken or to any alternative site where the activity is to be undertaken;	Background Information Documents (BIDs) and Registration and Comment Forms in both English and IsiZulu to be hand-delivered in sealed envelope to the GKLM Ward 1 Councillor (if available) to distribute to the neighbouring community. EAP to deliver notices. Where occupiers of plots / erven / houses immediately surrounding the proposed site footprint i.e. portion 15839 are available to directly receive the BID and registration forms, they will be hand delivered and a register signed by each recipient. In cases where the adjacent land occupiers are not available to receive and sign for the letters at the time of delivery and distribution, the letters will be left in either post boxes (if available), securely attached to the plot's fence and/or left secured at/on the doorsteps to each respective plot (Photos to be included in Public Participation Report).
iii. the municipal councillor of the ward in which the site or alternative site is situated and any organisation of ratepayers that represent the community in the area;	Written notice via email to be accordingly provided.
iv. the municipality (Local and District Municipality) which has jurisdiction in the area;	Written notice via email to be accordingly provided.
v. any organ of state having jurisdiction in respect of any aspect of the activity; and	Written notice via email to be accordingly provided.
(c) placing an advertisement in -	
i. one local newspaper; or	Advertisements (English and isiZulu) to be published in the Zululand Observer.

1.1 Advertisements

Advertisements in both English and isiZulu in terms of the notification for public participation were placed in a local newspaper, namely the Zululand Observer, which circulates in the Nkandla area.

1.2 Public Facilities

Stakeholders, I&APs and members of the public to be provided an opportunity to review the BAR, a hardcopy to be placed at the nearest public library in Nkungumathe. Copies of isiZulu and English BIDs to be included in the BAR including all accessory information (specialist reports, EMPr, etc).

1.3 Electronic Correspondence

Stakeholders and interested and affected parties (I&APs) to be provided an opportunity to download and review the BAR located at the following web-link https://ncc-group.co.za under 'Public Documents'. Notification emails to be sent to various Organs of State and stakeholders at the commencement of the PPP. The details of the government departments and/or authorities where initial email notifications are to be sent to is in **Table 10**. Included in the email distribution list are *inter alia* the relevant heritage authority (AMAFA-KZN), conservation authority (Ezemvelo KZN Wildlife), Department of Water and Sanitation (DWS) and local government *i.e.* the Nkandla Local Municipality. All relevant email-related notifications sent to the relevant departments and any correspondence received to be included in the PP report submitted as part of the Final BAR submission after the PPP and associate 30-day timeframe is complete. Copies of the emails and attached notification letters to be included as a BAR Annexure. Unless requested not to do so, any I&APs that register and provide email contact details during the PPP to be included in all relevant email correspondence.

1.4 Notifications and Notice Boards

An isiZulu and English site notice board with dimensions 600mm x 420mm as per the Regulations, to be erected at the site/property (portion 15839).

1.5 Letter Drops

The ward 1 municipal ward councillor (if available) to be liaised with and provided with notification letters and BIDs by hand to distribute to occupiers of adjacent land/properties to notify them about the proposed development. Where occupiers of the surrounding plots/houses are available to receive the letters, a register to be signed by each recipient. In cases where the adjacent land occupiers are/were not available to receive and sign for the letters at the time of delivery and distribution, the letters will be:

- left in post boxes (if available); or

-securely attached to the fence around the respective plot / erf / stand; or

-left secured at/on the doorsteps to each respective plot / erf / stand.

Copies of the letter receipt register, as well as photographic evidence of the letter drops to be included as an Annexure to the FBAR.

1.6 SMS

A bulk short message service (sms) to be sent to any registered I&APs (for those that do not have / do not provide a contact email address) notifying them where and how to obtain the relevant BAR documentation.

1.7 Summary of Comments and Responses

Any comments received throughout the public participation process (PPP), and the responses provided by the EAP, to be included as 'comments and responses' in the Public Participation (PP) report. Included in the PP report will be copies of any supporting records, relevant email correspondence, proof of various submissions, notifications, adverts, etc relating to the PPP.

1.8 Organ of State and Authority Consultation

Table 10: List of State Departments / Organs of State / Authorities to be notified / consulted during the BA process.

Name	State Department / Organ of State/ Authority	Contact Details		
		Phone	Email	Address
Ms Zama Mbanjwa Ms Jacky Ndlovu	KZN Department of Economic Development, Tourism & Environmental Affairs (EDTEA)	033 264 2906 033 264 2898	Zama.Mbanjwa@kznedtea.gov.za Jacky.Ndlovu@kznedtea.gov.za	Private Bag X9152, Pietermaritzburg, 3201
Mr M. Mdamba	KZN EDTEA - King Cetshwayo District Office	033 264 2898	Muziwandile.Mdamba@kznedtea.gov.za	Environmental Services, North Park Offices, 1st Floor, Block D, Corner of Aloe Loop And via Verbena St, Veldenvlei, Richards Bay, 3900
Ms X. C. Ntanzi	KZN Department of Public Works	033 355 5524	Xolile.Ntanzi@kznworks.gov.za	Private Bag X9041, Pietermaritzburg, 3200
Mr Sipho Shandu	KZN Department of Agriculture & Rural Development (District)	082 454 8041 035 780 6700	Sipho.shandu@kzndard.gov.za	Private Bag X549, Eshowe, 3815
Mrs Claribal Thembisiwe Xulu	KZN Department of Agriculture & Rural Development (Local)	035 833 0068 082 454 8049	Thembisiwe.Xulu@kzndard.gov.za	Private Bag X128, Nkandla, 3855
Ms SR Thompson, secretary to Mrs NE Hlophe	KZN Department of Health	035 787 6319 083 301 7360	salome.thompson@kznhealth.gov.za	P/Bag X20034, Empangeni, 3910
Ms Judy Reddy	KZN Department of Transport	033 355 0027/43 033 355 0569	judy.reddy@kzntransport.gov.za	Private Bag X9043, Pietermaritzburg, 3200
Mr Vishnu Govender	KZN Department of Cooperative Governance & Traditional Affairs	031 204 1780	vishnu.govender@kzncogta.gov.za	Wadley House, 115 Jabu Ndlovu St, Pietermaritzburg, 3200
Sicelo Mahlawe	Nkandla Municipality	067 087 4196	smahlawe@nkandla.org.za	Private Bag X161, Nkandla, 3855
Nokubonga Mahaye	Ward 1 Councillor - Nkandla Municipality	072 188 6709	cllrnpmahaye.nka@gmail.com nokubonga405@gmail.com	Private Bag X161, Nkandla, 3855
Colleen Moonsamy Ntombethu Makwabasa	Department of Water & Sanitation	031 336 2889 031 336 2846	MoonsamyC@dws.gov.za makwabasan@dws.gov.za	88 Joe Slovo Street, Durban, 4000 PO Box 1018, Durban, 4000
Thembalakhe Sibozana	KZN Dept of Forestry, Fisheries and the Environment (DFFE)	033 392 7721	tsibozana@environment.gov.za	185 Langalibalele Street, Old Mutual Building, PMB, 3201
Nerissa Pillay	Ezemvelo KZN Wildlife	033 845 1817	nerissa.pillay@kznwildlife.com	PO Box 13053, Cascades, Pietermaritzburg, 3202
John Pakwe	Amafa-KZN	033 394 6543	info@amafainstitute.org.za phoarchaeology@amafapmb.co.za	PO Box 2685, Pietermaritzburg, 3200

SECTION H: NEED AND DESIRABILITY

The following section motivates and explains the needs and desirability of the project (including demand for the activity) by highlighting the needs and desirability of the project in the context of various integrated and spatial plans, frameworks and other pertinent information, either Provincial or Municipal.

The development in terms of the property's existing land use rights
Description
The project area is located in a community where the demand for quality education is high. The need for a secondary school within ward 1 is evident by virtue of the fact that improving of education is a strategic objective for the NLM as outlined in the most recent IDP. Furthermore, the property is owned by the Ingonyama Trust who are in support of this school development going ahead.

Location factors which favour the current land use (associated with the development proposal and associated listed activities applied for)
Description
One of the needs highlighted in the IDP is a secondary school for Nkungumathe. The proposed development aims to provide formal school infrastructure more conducive to a learning and sporting environment to provide the youth in the surrounding community (i.e. learners) a better opportunity to receive a good education which increases their likelihood of becoming further qualified, finding employment and improving the quality of their lives. The proposed school development will create a safe and healthy learning environment that will not only benefit current and future learners and educators, but the community as a whole, through the uplift of the community in support of positive social change. The proposed upgrade will also remedy the current education and unemployment problems in the local community by providing them with an opportunity to further their careers and secure jobs. The land is currently being utilised in a subsistence manner as grazing land for livestock however there are other portions of land around the NLM which will continue to support livestock grazing. As described in the IDP, one of the primary challenges of existing schools are the poor and deteriorating conditions of classrooms and the lack of utility services linked to these classrooms. There is also a need to ensure that the range of subjects offered at schools are in line with the general economic development strategies of the Municipality. Many school children are dropping out of school at an early age which means there is a need for an integration of efforts within the

community through the development of mentorship programmes that will result in meaningful social development to help increase surveillance in the hope that students do not drop-out of school at secondary level. The local ward councillor has indicated the project would be beneficial as local residents want to improve the level of education within their community.

All comments and responses received during the PPP will be compiled as a 'comments and responses' included in the Public Participation (PP) Report to be submitted as an Annexure to the FBAR.

The Development in terms of the following:
(a) Provincial Development Plans ("PDP")*
Description
The implementation of the Provincial Growth and Development Plan (PGDP) and Provincial Growth and Development Strategy (PGDS) is to assist the KZN Province in realising its vision. A number of goals are identified however in the context of this project, the PDP makes reference to education goals as: **Improve and Expand Education and Training** – Early Childhood Development to be transferred from Social Development to Basic Education; – 18% of the age group 3-4 have access to ECD in contrary to the 2020 target of 35%; – 74% of Grade 1 learners have attended Grade R; – 6.5% improvement in Matriculant results since 2014 with a pass percentage of 76.2% in 2018; – 43 new schools have been constructed since 2014; – 604 Leaner Support Agents have been employed to curb the rate of drop-outs with special focus towards the girl-child; – Over the past 5 years 47 000 school children have benefited from the learner transport in 320 schools across the province; – Bursaries to the tune of R1.8 billion has been awarded to more than 16 000 students between 2014-2018; – The province cannot participate in the Fourth Industrial Revolution and its opportunities and all skills development due to the slow pace in rolling out broadband connectivity. ***The above represents factors relevant to the project and do not highlight all goals identified.***
(b) Integrated Development Plan and Spatial Development Framework of the Local Municipality
Description

At a district level, the King Cetshwayo District Municipality have a Plan in place to ensure alignment with government priorities. By aligning its priorities with the National Government Priorities and Plans, their intention is to facilitate the Government's implementation of Plans. The King Cetshwayo District Municipality will directly and indirectly address most of Government Plans through Plan and Priorities alignment. Education is included as one of the priorities in the Plan.

Sustainable Development Goals (SDGS)	National Development Plan (NDP - Vision 2035)	Provincial Growth and Development Plan (PGDP Goals 2035)	KZN/MP Cross Border Priorities	District Priorities (IDP/DGDP)
• Quality Education	• Quality education • Build a capable state	• Human Resource Development	• Education	• Skills Development • Social Facilitation and Development

Although the municipality has made significant progress in addressing service backlogs and promoting development within its area of jurisdiction, there are still a number of key development challenges that face the municipal area and its people. This includes the poor condition of several public facilities, including schools, and a general lack of the required tools and equipment for effective delivery of the related services.

The NLM's IDP Medium-Term Strategic Framework (MTSF) focuses on eight (8) priorities which include:

1. Radical economic transformation, rapid economic growth, and job creation;
2. Rural development, land and agrarian reform and food security;
3. Ensuring access to adequate human settlements and quality basic services;
4. **Improving the quality of and expanding access to education and training**;
5. Ensuring quality health care and social security for all citizens;
6. Fighting corruption and crime;
7. Contributing to a better Africa and a better world;
8. Social cohesion and nation building.

Delivering basic services forms part the NLM's Goals and Objectives in alignment with the MTSF with education (no. 4 above) being one of these priority deliverables.

(c) An Environmental Management Framework ("EMF") adopted by the District or Province.

Description

Section 24(2)(e) of NEMA makes provision for the Minister (or MEC in concurrence with the Minister) to identify geographical areas based on environmental attributes in which activities may not commence without environmental authorisation (EA) OR activities that may be excluded (exempted) from authorisation by the competent authority". It is important to note that as stated in the KCDM EMF, the EMF will not be fulfilling this outcome of NEMA (including/exempting listed activities from EIAs) and will only fulfil the role of informing spatial and land-use planning as well as supporting informed decision-making.

Community need for the Project and the associated land use
Description
It has been indicated in the IDP that based on engagements between the Municipality, Ward Committee Members and Community Based Organisations, improved education is a community need including for ward 1.

The impact on sensitive natural and cultural areas by the proposed development or the land use associated with the development proposal
Description
It has been identified by relevant specialists via terrestrial and freshwater biodiversity assessments and heritage assessments that the proposed development will have minimal impact on natural and cultural areas. See BAR **Appendices 4**, **5**, **6** and **7** respectively.

The development impact on people's health and well-being (e.g. noise, odours, etc.)
Description
The development may have limited negative impact during the construction phase in terms of typical construction related activities. Visual and sense of place impacts are relative and will be temporary during the construction phase and cam be further confirmed through consultation with interested and affected parties during the public participation process. Provided that the conditions and other precautionary and mitigation measures stipulated in both this BAR and the EMPr are complied with, it is not anticipated that the proposed activity will impact negatively on people's safety, health or wellbeing, but rather have a positive impact on the well-being of the local community once the school is fully operational.

Cumulative impacts (positive and negative) of the proposed land use associated with the development proposal and associated listed activity (ies) applied for.
Description
In terms of peer-reviewed published literature based on various case studies, it is broadly accepted that cumulative impacts (effects) are best considered at a *policy*, *plan* or *programme* level (Clarke, 1994) for example in a Strategic Environmental Assessment (SEA) rather than at a *project* level (i.*e.* a BA or EIA). The temporal and geographical scales of analysis used at a *project* level are insufficient to comprehensively assess cumulative effects owing to numerous data, jurisdictional and methodological obstacles (Canter and Kamath, 1995). *Literature sources:* Canter, L.W. and Kamath, J. (1995) Questionnaire checklist for cumulative impacts, *Environmental Impact Assessment Review*, **15(4**), 311 – 339. Clarke, R. (1994) Cumulative effects assessment: a tool for sustainable development, *Environmental Impact Assessment Review* **12(3),** 319:322. In the context of this proposed land use it is anticipated that no significant negative land-use impacts, including negative cumulative impacts, will occur. The site footprint itself where infrastructure is proposed does not possess any biodiversity areas or aspects of significant importance. The same applies from a heritage/cultural perspective. From a socio-economic point

of view, the new school will deliver on the need for good educational facilities and assist in increasing the number of youth gaining improved access to secondary education. Enhanced education aligns directly with Goal 4 of the 2030 Sustainable Development Goals (SDGs) which is to achieve universal quality education; and indirectly with many of the other SDGs relating to reducing poverty, hunger and inequality and creating conditions for decent work opportunities and economic growth.

Source: https://www.un.org/sustainabledevelopment/sustainable-development-goals/

The cumulative effect of improved education enhances competitiveness and increases the quality of life. Improved human health and well-being are examples of indices which are used to assess changes in the quality of life.

***Please note:** This section is subject to change if and once all input and comments have been received during the PPP.*

The development in terms of best practicable environmental option for the site
Description
The proposed development would take place on land which is adjacent to a district road with good access which is in close proximity to another school and public library. The vegetation is secondary, grassland transformed through previous soil tilling and crop cultivation where biodiversity sensitivity is low where the risk of loss of sensitive species is highly unlikely. A land used for education purposes will have a much lower impact on the natural environment in comparison to other land uses such as light or heavy industry, manufacturing, commercial enterprises or processing plants. Negative impacts to the surrounding community and natural environment (soil, water and vegetation) will be minimal if correct mitigation measures are implemented during construction.

The benefits to society in general and the local communities
Description
A new secondary school will allow the community to benefit through access to a significantly improved education facility. It is anticipated that the proposed development will assist in increasing the number of pupils educated to primary level gaining access to a secondary school and enhancing their educational careers.

Description of how the general objectives of Integrated Environmental Management as set out in Section 23 of the NEMA have been taken into account:
Description
The purpose of Section 23 of NEMA is to promote the application of appropriate environmental management tools in order to ensure the integrated environmental management of activities. The aim of these principles is to identify, predict and evaluate the actual and potential impact on the environment (including socio-economic and cultural environments), to assess alternatives and propose mitigation options which will contribute to minimizing detrimental impact. For this application: • The principles of environmental management as set out in section 2 of NEMA were taken

into account and integrated during the EIA process.

- The actual and potential impact that the proposed development might have on the environment, socio-economic conditions and cultural heritage, the risks and consequences and alternatives and options for mitigation of activities, with a view to minimising negative impacts and maximising benefits, were identified and evaluated during the EIA process.
  The nature of the application results in minimal negative impacts.
- The effects that the proposed activity will have on the environment will receive adequate consideration before actions are taken in connection with them. Mitigation measures have been proposed in this regard and described in both this report and the attached Environmental Management Programme which will ensure that the activities proposed will be conducted in a controlled manner therefore assisting in reducing the chances of significant adverse environmental impacts.
- A Public Participation Process (PPP) will be followed to ensure an adequate opportunity for all affected parties to comment.
- All environmental attributes in management and decision-making were considered that may have a significant effect on the environment.
- Modes of environmental management, best suited to ensuring the best activity is pursued, were identified and employed, including the Environmental Management Programme and mitigation measures as identified in this Report.

Description of how the principles of environmental management as set out in Section 2 of the NEMA have been taken into account

Section 2 of NEMA contains the principles which, amongst other functions, serve as guidelines, by reference, to which any organ of state must exercise any function when taking a decision in terms of NEMA or any statutory provision concerning the protection of the environment.

In general, the principles must guide the interpretation, administration and implementation of NEMA and any other law concerned with the protection or management of the environment. Section 2 of the NEMA provides that development must be socially, environmentally and economically sustainable.

The main and applicable principles of environmental management as set out in Section 2 of NEMA emphasises the following in Section 2(2):

- Environmental management must place people and their needs at the forefront of its concern, and serve their physical, psychological, developmental, cultural and social interests equitably.

  The proposed development of Khuba School will serve the wider community without negatively affecting others in any significant way.

- Sustainable development requires the consideration of all relevant factors, including but not limited to being socially, environmentally and economically sustainable.

For the development to be socially and environmentally sustainable, it must have the ability to maintain the qualities as highlighted in the principles:

- That the disturbance of ecosystems and loss of biological diversity are avoided, or where they cannot be altogether avoided, are minimised and remedied

  The proposed development of Khuba School will not result in significant loss of biological diversity or loss of ecosystem functioning. Disturbance will be kept to the project footprint, and mitigation measures put in place to avoid disturbance outside of the site footprint.

- That pollution and degradation of the environment are avoided, or, where they cannot be altogether avoided, are minimised and remedied

  It is anticipated that with the diligent implementation of the recommendations of the BAR and the EMPr, significant environmental pollution and degradation will be avoided.

- That the disturbance of landscapes and sites that constitute the nation's cultural heritage is avoided, or where it cannot be altogether avoided, is minimised and remedied

  The project is predicted to not have a negative impact on any national heritage resources as no areas of heritage value have been identified on the site by the relevant specialists. Mitigation measures have been recommended in the event of any chance finds of any items of cultural or historical importance, in particular during site clearing and evacuation.

- That waste is avoided, or where it cannot be altogether avoided, minimised and reused or recycled where possible and otherwise disposed of in a responsible manner.

  It is inevitable that the Construction phase of the proposed project will generate a certain amount of general waste, mostly in the form of building rubble. It has been recommended in the EMPr that re-use and recycling initiatives are investigated in terms of the waste hierarchy and that disposal to landfill is considered a last resort. The Applicant is advised to oblige the Contractor to adopt the waste hierarchy approach of re-using and recycling waste materials, where feasible, prior to landfill disposal.

  During the operational phase, any waste generated should be appropriately managed (minimised, collected, sorted, temporarily stored, re-used and recycled, where feasible) with any remaining waste being serviced and transported to the registered municipal landfill site.

- That the use and exploitation of non-renewable natural resources is responsible and

equitable, and takes into account the consequences of the depletion of the resource.

The applicant is encouraged to consider using non-renewable energy sources wherever they are feasible and cost effective. In more remote site locations, for example those without access to formal/permanent electricity infrastructure, would better qualify for electricity provision via renewable energy sources e.g. solar panels. The use of non-renewable resources is arguably not considered to be crucially important to this development application and in the EAP's opinion, is not a condition which should be enforced on the applicant.

- Avoidance, minimisation and remedying of negative environmental impacts

  The implementation of precautionary and mitigation measures that have been incorporated in the EMPr and specialist reports will ensure that detrimental environmental impacts are avoided or limited. The applicant will need to comply with the conditions of the Environmental Authorisation (EA) and the recommendations of the BAR and EMPr should a decision be taken by the Competent Authority to issue an EA. The applicant is advised to implement best practice principles to avoid causing any unnecessary and unforeseen damage to the natural environment.

- Environmental justice must be pursued so that adverse environmental impacts shall not be distributed in such a manner as to unfairly discriminate against any person, particularly vulnerable and disadvantaged persons.

  The project must make every effort to address the requirements of the local community and minimise negative environmental impact on the surrounding environment. A public participation process in terms of Chapter 6 of the 2014 EIA Regulations (as amended) is undertaken to ensure a just process is followed.

- Decisions must be taken in an open and transparent manner, and access to information must be provided in accordance with the law. Active participation of all interested and affected parties must be promoted.

- **The information contained in this report, including all comments, correspondence with organs of state and local authorities will be made available to the public. The EIA process provides interested and affected parties, including organs of state, with ample opportunity for review, comment and input on the process and available documentation. A public participation process in terms of Chapter 6 of the 2014 EIA Regulations (as amended) is undertaken to ensure a just process is followed.**

- Sensitive, vulnerable, highly dynamic or stressed ecosystems, such as coastal shores, estuaries, wetlands, and similar systems require specific attention in management

and planning procedures, especially where they are subject to significant human resource usage and development pressure.

- **The proposed development is not likely to increase pressure on human resource usage as the development is not in a sensitive, vulnerable, highly dynamic or stressed ecosystems. With appropriate design and implementation of the recommended mitigation measures, the ecosystem types surrounding the site will be minimally affected, if at all, by a secondary school.**

Considering the above, the Competent Authority, in this case KZN EDTEA, has a responsibility to respect, protect, promote and fulfil the social and economic rights in Chapter 2 of the Constitution and in particular the basic needs of categories of any persons disadvantaged by unfair discrimination.

During the BA process, various options were considered in terms of the proposed development being environmentally sustainable. Alternatives were investigated to ensure that disturbance of ecosystems and loss of biological diversity is avoided through implementation of appropriate mitigation measures.

The proposed activity will not impact negatively on the nation's cultural heritage nor exploit non-renewable natural resources. A risk-averse and cautious approach was followed taking into account the limits of current scientific knowledge regarding the consequences of decisions and actions.

The proposed project will not impact negatively on people's environmental rights. The participation of all interested and affected parties in environmental governance will be promoted and their comments will be respected and considered.

If the Competent Authority grants permission to commence with the proposed project, the State will not disregard its responsibility towards the citizens of this country or promote unfair discrimination.

SECTION I: DETAILS OF ALTERNATIVES CONSIDERED

The NEMA EIA regulations, 2014 (as amended) defines "***Alternatives***" as:

"In relation to a proposed activity, means different means of fulfilling the general purpose and requirements of the activity, which may include alternatives to the—

a) Property on which or location where the activity is proposed to be undertaken;
b) Type of activity to be undertaken;
c) Design or layout of the activity;
d) Technology to be used in the activity; or
e) Operational aspects of the activity;

And includes the option of not implementing the activity;"

The general objective of integrated environmental management *is, inter alia,* to "*identify, predict and evaluate the actual and potential impact on the environment, socio-economic conditions and cultural heritage, the risks and consequences and alternatives and options for mitigation of activities, with a view to minimising negative impacts, maximising benefits, and promoting compliance with the principles of environmental management*" (NEMA, Section 23).

The identification, evaluation, consideration and comparative assessment of alternatives directly relate to the management of impacts, in relation every identified impact, alternatives, modifications or changes to the activity must be identified, evaluated, considered and comparatively considered to:

- In terms of negative impacts, firstly avoid a negative impact altogether, or if avoidance is not possible alternatives to better mitigate, manage and remediate a negative impact and to compensate for/offset any impacts that remain after mitigation and remediation; and
- In terms of positive impacts, maximise/optimise these impacts.

1.1 Preferred Alternative

The preferred alternative is the proposed development, as presented, described and assessed in this BAR. This is the alternative for which an environmental authorisation is being applied for.

1.2 Location Alternative

An alternative site location was not considered feasible to assess from a practical and financial perspective as the need for a school in ward 1 has been established and there is already existing services and infrastructure close to and adjacent to the portion 15839 i.e. an existing access road, a library and another school.

1.3 Activity Alternatives

As the application is for a proposed school development and associated facilities and infrastructure in a rural setting and given that a school is an identified community need, no activity alternatives were considered or assessed. Land which is used for educational purposes will have a very low impact on the natural environment in comparison to other land uses such as light or heavy industry, manufacturing, commercial enterprises or processing plants.

1.4 Design/Layout alternative

The Applicant has a standard design for the new school build programme in the province. Alternatives design layouts were considered by the architects and planning designers in terms of avoiding encroaching into any sensitive environments whilst maximising the area available for the school layout in accordance with the necessary building standards and regulations.

1.5 Technology Alternative

Consideration of such alternatives is to include the option of achieving the same goal by using a different method or process *(e.g. to reduce resource demand and increase resource use efficiency.)* In a building type development, technology could be applied to enhance energy efficiency, water saving, waste management etc, depending on the nature and scale of the development.

Within the context of the Applicant's existing school building designs, traditional energy options (*i.e.* electricity) and technology options (*i.e.* building materials) have been considered and included in the proposed design. Rainwater harvesting from roofs (for small-scale storage and irrigation requirements at the school) may be incorporated as an additional technology incorporated into the technology design to save and use water more sustainably. No further technology alternatives were considered.

1.6 Operational Alternative

Not applicable to this type of development.

1.7 No-Go Alternative

Should the No-Go alternative be selected, the site would remain as vacant land and continue to be used by a few members of the local community for subsistence agricultural (primarily livestock grazing). Illegal or otherwise unauthorised settlement of people seeking land for housing is another potential scenario which could become a reality should the No-Go alternative be opted for portion 15839. This will not address the issue of inadequate educational facilities available to the surrounding community, thus maintaining the status quo in terms of the number of youth not

gaining access to a quality schooling facility and acquiring the associated benefits from a safe and healthy learning environment. This will potentially result in an increase in the number of youth not attending primary school and, in turn, not finishing a complete schooling career. This would further exacerbate the level of unemployable individuals in the region which will place a further strain on all spheres of government primarily the local municipality and local community.

SECTION J: ENVIRONMENTAL ASPECTS ASSOCIATED WITH THE ALTERNATIVE

1.1 Description of the Environmental Aspects Associated with the Proposed Development

If development of Khuba Secondary School is approved, there are activities which will have an impact on various aspects that should be taken into account during various phases. These impacts on identified aspects are summarised in the section boxes below.

1.2 Ecological Aspects

The proposed development and its alternatives impact on CBAs or ESAs.
Description
The proposed development is not located within any CBAs or ESAs.
The proposed developments impact on terrestrial vegetation, or aquatic ecosystems.
Description
The site development footprint is in a terrestrial ecosystem comprised of grassland which has been significantly degraded/transformed by human activity and which now has a low sensitivity for terrestrial biodiversity where most of the original species have been replaced with monospecific grass communities with low levels of species richness and diversity. No aquatic, riparian or wetland habitats or freshwater biodiversity will be directly affected or lost if the site is developed as per the proposed SDP design layout.
The proposed development impact on any populations of threatened plant or animal species, and/or on any habitat containing unique signature of plant or animal species.
Description
No threatened flora or faunal species were identified on the site by the terrestrial biodiversity specialist. If such are identified during construction, mitigation measures have been provided in the EMPr.
Other biological aspects which will be impacted on by the Project
Description
No other biological aspects of significance were identified during the BA process.

1.3 Heritage and Cultural aspects

No heritage or cultural resources were identified on the proposed development footprint by the specialists during the assessment process. See BAR **Appendices 6** and **7** for further detail.

1.4 Social and Economic aspects

Expected capital value of the project on completion.	R83 million
Expected yearly income or contribution to the economy that will be generated by or as a result of the project.	35-40% of the contract value (which is R83 million)
New skilled employment opportunities created in the construction phase of the project	Between 5 – 10
New skilled employment opportunities created in the *operational* phase of the project	Between 10 – 60
New un-skilled employment opportunities created in the construction phase of the project	Between 20 – 30
New un-skilled employment opportunities created in the *operational* phase of the project	Between 2 – 4 support staff
What is the expected value of the employment opportunities during the construction and *operational* phase?	+/-R25 million during construction +/-R9 million during operation

1.5 Waste (Including Effluent) Management

Predicted waste types and quantity produced during the construction phase (actual type of waste, *e.g.* oil, and whether hazardous or not) and estimated quantity per type?	**m^3**
General Waste	
Building and Demolition (Construction) Waste	Unknown and expected to be variable
The construction phase will result in the generation of some excess spoil material and residue rubble waste. This is however expected to be of relatively minimal quantities. Construction areas must be contained and all related non-recyclable waste generated during the construction phase must be removed to the municipal waste disposal site i.e. a registered landfill site. This includes construction rubble (excess concrete/soil/rock/spoil). All waste material categorised as recyclable may be donated to local communities or SMMEs within the area.	
Domestic Waste	Unknown, expected to be minimal
Waste from general construction workers will be contained in a designated refuse area. Waste will be separated into recyclable waste streams, and non-recyclable waste will be directed to a registered landfill site. All waste material categorised as recyclable may be donated to the local SMMEs within the area.	
Inert Waste	Unknown expected to be minimal
The construction phase may result in the generation of some inert waste. This is however expected to be minimal. Construction sites will be contained and all related waste generated during the construction phase will be removed to the municipal landfill site. All waste material categorised as recyclable may be donated to the local SMMEs within the area.	

Hazardous Waste	
Oil wastes and other liquid fuel wastes (including spills and contaminated soil)	Unknown expected to be minimal
May be produced from construction vehicles/plant workshop. Separate bins should be provided for general and hazardous waste. As far as possible, provision should be made for separation of waste for recycling.	
Sewerage	Unknown, expected to be minimal
The construction phase will result in the generation of sewerage waste. Mobile ablution facilities must be provided for all construction personnel where such facilities are to be serviced regularly (twice weekly) by a registered service provider (SP) where sewerage must be collected and transported and disposed of at the nearest WWTW. Certificates or proof of disposal must be obtained by the Contractor from the facility and/or the SP.	
Predicted waste types and quantity produced during the operational phase (actual type of waste, *e.g.* oil, and whether hazardous or not) and estimated quantity per type?	**m^3**
General Waste	
Domestic Waste	Unknown
Hazardous Waste	
Little to no hazardous wastes are predicted	Negligible / none
Types of waste and estimated quantity per waste treated/disposed of on-site	**m^3**
Not Applicable (No on-site treatment or disposal will occur)	-
Identified locations and Service provider for the treatment and disposal of waste (private vs. municipality)	
Registered waste service providers to be appointed by Contractor for waste disposal at registered site(s) within the Nkandla Local Municipality.	

Measures that will be taken to reduce, reuse or recycle waste
Waste on site will be managed in such a way as to conform to the National Environmental Management Waste Act (Act 59 of 2008). The following waste streams will provisionally be reduced, reused or recycled if there is local capacity in terms of service provision to do so: 1) Building rubble to be used as fill material where possible 2) Glass and office waste paper/cardboard should be recycled 3) Scrap metal and used steel should be taken off site for recycling 4) Old/used oil should be sold if possible to hydrocarbon recycling service providers (e.g. OILKOL, Rose Foundation). If not, it must be disposed of at a licensed/certified hazardous waste management facility with proof of safe disposal submitted 5) Wood/timber should be distributed for re-use if opportunities exist to do so

1.6 Water Use

Indication of the source(s) of water for the development proposal						
Municipal	~~Water board~~	~~Groundwater~~	~~River, Stream, Dam or Lake~~	~~Other~~	~~The project will not use water~~	
Predicted volume of municipal water to be utilised during Construction:					Unknown	m^3
Predicted volume of water to be extracted from a groundwater source, river, stream, dam, lake or any other natural feature per month:					0	m^3

Any Project requirement for a water use authorisation from DWS?

No section 21 (c) or (i) water uses will require authorisation from DWS as there are no watercourses in the NWA regulated area.

Important to note however is that if water abstraction from a borehole is an intended need, the Applicant (KZN-DOE) will need to enquire with the relevant authority (DWS) relating to the requirements and any potential authorisation/registration process for the use of a borehole i.e. groundwater. The appointed Contractor will need to identify sources of water to use during construction for construction purposes and ensure such use is legal.

Measures that will be taken to reduce water demand, and measures to reuse or recycle water

Rainwater harvesting from building roofs at the school may be implemented using pipes connected to roof gutters directed to temporary storage tanks. Such water may be utilised for small-scale storage and irrigation requirements around the school grounds and sports fields.

1.7 Transport, Traffic and Access

Impacts in terms of transport, traffic and access

According to the specialist traffic impact assessment (**BAR Appendix 10**), the surrounding road network will not be altered or upgraded in any way in the near future that will result in the redistribution of the background traffic volumes. The analysis indicated that the existing road network will be able to handle the combined 2026 traffic volumes and that the proposed development will have a negligible impact on the performance of the surrounding intersections and background traffic volumes will remain exactly the same.

The existing road network will be utilised for access to the site during construction. An internal access road for the school leading to a vehicle parking area will be connected to the existing district road (D2238). Safety measures for traffic during construction will need to be implemented by the applicant and contractor who should liaise with to confirm and obtain, if applicable, any permissions from the municipal roads department.

1.8 Nuisance Factors (Noise, Odour, Etc.)

Impacts in terms of Nuisance Factors
Noise
There will be a short-term increase in noise levels during the Construction phase due to the use of construction machinery and the introduction of labour and Contractor personnel to the site.
Dust
Increased dust levels due to construction activity on the project footprint are anticipated, primarily during the earthworks phase (which includes clearing of the site, excavations and digging of trenches). Vehicle movement and labour transportation are likely to be minor contributors to short-term dust generation.

SECTION K: IMPACT ASSESSMENT, IMPACT AVOIDANCE, MANAGEMENT, MITIGATION AND MONITORING MEASURES

1.1 METHODOLOGY

In this assessment, the impacts are described in terms of their characteristics, including the impact's spatial and temporal features (namely *extent*, *duration*, *probability* and *severity*). While an impact assessment typically focuses on the negative (-) impacts, an impact can also be positive (+) or neutral (0). Whether an impact is negative, positive or neutral is referred to as its **Nature.** The definitions of the impact terms used in this BA are described below:

- **Duration (temporal scale)** – how long will the impact last? The time period over which a resource / receptor is affected
- **Extent (spatial scale)** – will the impact affect the national, regional or local environment, or only that of the site? The reach of the impact (i.e. physical distance an impact will extend to)
- **Likelihood (Probability)** – how likely is it that the impact may occur? Measure of the likelihood with which the impact is expected to occur
- **Severity (consequence)** – will the impact be of high, moderate or low severity? A measure of the damage that the impact will cause if it does occur

Impact characterisation and criteria are summarised in the matrix below:

Occurrence	**Duration**	Temporary - (period of less than 1 year	1	**Likelihood (Probability)**	Highly unlikely - probably will not happen	1
		Short term - period of less than 5 years	2		Unlikely - some possibility, but low probability	2
		Medium term - period of less than 15 years	3		Likely - distinct possibility	3
		Long term - period of less than 20 years	4		Highly likely - most probable	4
		Permanent - a period that exceeds the life of project	5		Definite - impact will occur regardless of any mitigation measures	5
Severity	**Extent**	On-site - impacts that are limited to the Project site.	1	**Severity**	No effect - will have no effect on the environment	0
		Local - impacts that are limited to the Project site and adjacent properties.	2		Minor - minor and will not result in an impact on processes	2
		Regional - impacts that are experienced at a regional scale, i.e. Kwazulu-Natal.	3		Low - low and will cause a slight impact on processes	4
		National - impacts that are experienced at a national scale.	4		Moderate - moderate and will result in processes continuing but in a modified way	6
		Trans-boundary/ International - impacts that are experienced outside of South Africa.	5		High - processes are altered to the extent that they temporarily cease	8
					Very high - results in complete destruction of patterns and permanent cessation of processes	10

The **Significance** (quantification) of potential environmental impacts identified during the Basic Assessment have been determined using a ranking scale, based on the following (terminology has been taken from the Guideline Documentation on EIA Regulations, of the Department of Environmental Affairs and Tourism, April 1998):

Occurrence

- Probability of occurrence (how likely is it that the impact may occur?)
- Duration of occurrence (how long may it last?)

Severity

- Severity (Magnitude) of impact (will the impact be of high, moderate or low severity?)
- Scale/extent of impact (will the impact affect the national, regional or local environment, or only that of the site?)

The environmental significance of each potential impact is assessed using the following formula:

Significance Points (SP) = (Severity + Duration + Extent) x Probability

The maximum value is 100 Significance Points (SP). Potential environmental impacts were rated as *HIGH*, *MODERATE* or *LOW* significance on the following basis:

≤ 30 significance points	**LOW** environmental significance
31 - 60 significance points	**MODERATE** environmental significance
≥ 61 significance points	**HIGH** environmental significance

1.1.1 Description of any gaps in knowledge

Gaps in knowledge include:

- Issues that may arise from the public participation process which have not yet been identified by the EAP.
- Future changes in circumstances and legislation can also not be accounted for at this stage.
- Uncertainties in current scientific understanding.

1.1.2 Description of any underlying Assumptions and Uncertainties

Initial assumptions

- It is assumed that all information on which this report is based is truthful and correct.

- All the relevant design and mitigation measures specified in this report will be implemented in order to achieve an acceptable level of impact and to ensure minimal impact on the surrounding environment.
- It has been assumed that the description of the proposed project, provided by the applicant, is accurate.
- It is assumed that the Public Participation Process undertaken as part of the Basic Assessment Process will be sufficient and adequate. Every effort will be made to inform all potential stakeholders of the proposed development (notification through letters, advertisements, site notices). The demography, language preferences or social standing of some potential I&APs cannot always be catered for despite best efforts.

Initial Uncertainties

The impacts have been identified and assessed to the EAP's best ability. Any other impacts not identified are currently unknown.

1.1.3 Adequacy of the Assessment Methods

During the Basic Assessment process a range of potential impacts are identified and assessed/evaluated against certain criteria. Impacts are identified through various ways which include:

- Site visits by the EAP and specialists to determine the nature and sensitivity of the site and to gain an understanding of the surrounding environment;
- Consultation with the Applicant and key stakeholders to provide an understanding of the need for the proposed activity;
- Environmental screening using the recently developed DFFE Screening Tool (https://screening.environment.gov.za);
- The following specialist input was obtained via the following specialist studies:
  - Terrestrial Biodiversity Compliance Statement
  - Freshwater Biodiversity Compliance Statement
  - Heritage (Archaeological, Cultural and Palaeontological) Impact Assessments
  - Geotechnical Assessments
  - Traffic Impact Assessment
- Consideration of the applicable legislation, guidelines and policies (see complete list in **Section C** of this document);
- Standard impact assessment methodology was utilised so that a wide range of impacts can be compared (in order to ensure uniformity).

The assessment methods used are anticipated to be adequate for the nature of the application and site and it is believed that sufficient information has been compiled and assessed during this BA.

1.1.4 Cumulative impacts

Cumulative impacts (effects) are impacts which result from the incremental impact of a proposed activity or activities on a common resource when added to the impacts of other past, present or reasonably foreseen future activities and include direct or indirect impacts which accumulate over time and space.

1.2 IDENTIFICATION, ASSESSMENT AND RANKING OF IMPACTS TO REACH THE PROPOSED ALTERNATIVES INCLUDING THE PREFERRED ALTERNATIVE WITHIN THE SITE

This section focuses on the identified issues, impacts and risks that influenced the identification of the alternatives. This includes how aspects of the receiving environment have influenced the selection. The summarised list of identified potential impacts for each alternative are below:

Alternative 1: ***Preferred Alternative***	**Construction impacts:**
	• Loss of terrestrial vegetation - biodiversity (permanent/long-term)
	• Soil and groundwater contamination (short term/local)
	• Pollution (all media)
	• Loss of heritage and cultural resources
	• Increased water usage (temporary)
	• Traffic congestion (temporary)
	• Air quality
	  ○ Dust (temporary)
	  ○ Noise (temporary)
	• Visual (temporary)
	• Socio-economic (positive and negative)
	
	Operational impacts:
	• Socio-economic (positive)
	  ○ Increase in education levels
	  ○ Adequate schooling facilities
	• Cumulative (net positive – enhanced quality of life)

Alternative 2: ***No-go Alternative*** **(Status Quo)**	**Construction impacts:**
	None - no construction activities will take place (*Status quo* remains)
	
	Operational impacts: n/a
	• Socio-economic impacts
	Positive socio-economic impacts <u>would not</u> be realised:
	  ○ No increase in education levels
	  ○ Inadequate schooling facilities
	Negative impacts
	• No improvement in education levels
	• Continued rate of unemployment
	• Potential use of property for inappropriate or unlawful land use
	• Potential increased risk of crime

The following section describes the impacts and risks identified for each alternative, including the **Nature of Impact, Significance, Severity** (Consequence), **Extent, Duration and Probability** (Likelihood) of the impacts, including the degree to which these impacts can be reversed; may cause irreplaceable loss of resources; and can be avoided, managed or mitigated.

THE ALTERNATIVES WHICH WERE ASSESSED WERE:
Alternative 1 (A1): PREFERRED ALTERNATIVE (Construction of Khuba Secondary School)
Alternative 2 (A2): NO-GO ALTERNATIVE (*Status quo*)

The following tables below serve as a guide for summarising each alternative in relations to aspects. The tables incorporate each alternative to ensure a comparative assessment. The alternatives being assessed are divided into 'Columns 2 and 3' for each impact assessed with 'Column 1' containing the various impact criteria; as follows:

Column 1	**Column 2**	**Column 3**
Nature of Impact, criteria and rating descriptions	Assessment per criteria and rating descriptions for **A1: Preferred Alternative**	Assessment per criteria and rating descriptions for **A2**: **No-go Alternative**

Impacts that may result from the planning, design and construction phase (briefly describe and compare the potential impacts (as appropriate), significance rating of impacts, proposed mitigation and significance rating of impacts after mitigation that are likely to occur as a result of the planning, design and construction phase.

CONSTRUCTION PHASE						
Aspect		Terrestrial Biodiversity				
Activity		Site Clearance				
Nature of Impact		Negative (-) Impact on terrestrial vegetation and ecological processes. Direct loss of vegetation, loss of existing grassland.				
Alternative		**A1**			**No-Go (A2)**	
Status		**Pre-Mitigation**	**Post-Mitigation**		**Pre-Mitigation**	**Post-Mitigation**
Significance rating	**Duration**	1	1		N/A	N/A
	Extent	5	3		N/A	N/A
	Severity	2	2		N/A	N/A
	Probability	2	1		N/A	N/A
	Significance	**16**	**6**		N/A	N/A
Risk Rating		**Low**	**Low**		*Status quo* remains – **Low**. The current condition (degraded grassland) would remain	
Indirect Impact		Low				
Cumulative Impacts prior to mitigation		Low/ Negligible				
Degree to which the impact can be reversed		Irreversible to improbable				
Degree to which the impact may cause irreplaceable loss of resources		Irreplaceable				
Proposed Mitigation Measures		• Areas not affected by the placement of new facilities must be cleared of alien invasive species. • Restrict losses of natural habitat to footprints, avoid peripheral or unnecessary losses of natural habitat; ensure proper rehabilitation of areas outside development footprints (where accidental habitat degradation occurs). • Worker/ contractor awareness programmes, ensuring minimal conflict situation. • Control of human movement in adjacent grassland habitats. • Implement generic monitoring programme and mitigation measures that are aimed at identifying and preventing the uncontrolled spread of impacts into adjacent areas of grassland habitat.				
OPERATIONAL PHASE						
Not Applicable. Vegetation within the development footprint will be cleared during construction. No further clearing will take place with the remainder of the original vegetation on the site remaining as open space.						

CONSTRUCTION PHASE						
Aspect		Freshwater resources including biodiversity				
Activity		Site (soil and vegetation) clearance, access creation, trenching and excavations, building works.				
Nature of Impact		Negative (-) Impaired water quality, altered hydrological regime, erosion and sedimentation of wetlands & watercourses, spread and/or establishment of alien and/or invasive species, loss of freshwater biodiversity.				
Alternative		**A1**			**No-Go (A2)**	
Status		**Pre-Mitigation**	**Post-Mitigation**		**Pre-Mitigation**	**Post-Mitigation**
Significance rating	Duration	1	1		N/A	N/A
	Extent	5	3		N/A	N/A
	Severity	2	0		N/A	N/A
	Probability	2	1		N/A	N/A
	Significance	**16**	**4**			
Risk Rating		**Low**	**Low**		**Low**	**Low**
Indirect Impact		None				
Cumulative Impacts prior to mitigation		Negligible				
Degree to which the impact can be reversed		Reversible				
Degree to which the impact may cause irreplaceable loss of resources		Low				
Proposed Mitigation Measures		Comply with EMPr and mitigation measures.				
OPERATIONAL PHASE						
Not Applicable, none required.						

CONSTRUCTION PHASE						
Aspect		Loss of or discovery of heritage resources				
Activity		Trenching & Excavations				
Nature of Impact		Negative (-) if destroyed, Positive (+) if discovery contributes to new scientific knowledge. Direct impact on chance finding of heritage resources and Palaeontological finds during site excavations				
Alternative		**A1**			**No-Go (A2)**	
Status		**Pre-Mitigation**	**Post-Mitigation**		**Pre-Mitigation**	**Post-Mitigation**
Significance rating	Duration	2	2		N/A	N/A
	Extent	1	1		N/A	N/A
	Severity	4	2		N/A	N/A
	Probability	2	2		N/A	N/A
	Significance	**14**	**10**			
Risk Rating		**Low**	**Low**		**Low**	**Low**
Indirect Impact		None				
Cumulative Impacts prior to mitigation		Negligible				
Degree to which the impact can be reversed		Improbable to Irreversible				
Degree to which the impact may cause irreplaceable loss of resources		Irreplaceable				
Proposed Mitigation Measures		Demarcate find and manage via the Chance Find Procedure (See Palaeontological Impact Report)				
OPERATIONAL PHASE						
Not applicable as the site would be established; no future earth works are planned or predicted.						

CONSTRUCTION PHASE						
Aspect		Environmental Contamination / Hazardous wastes				
Activity		Hazardous Substances Use				
Nature of Impact		Negative (-) Potential soil and groundwater contamination				
Alternative		**A1**			**No-Go (A2)**	
Status		**Pre-Mitigation**	**Post-Mitigation**		**Pre-Mitigation**	**Post-Mitigation**
Significance ranking	**Duration**	2	1		N/A	N/A
	Extent	2	1		N/A	N/A
	Severity	8	6		N/A	N/A
	Probability	3	2		N/A	N/A
	Significance	**36**	**16**			
Risk Rating		**Moderate**	**Low**		*Status quo* remains – **Low**. The current condition would continue.	
Indirect Impact		None				
Cumulative Impacts prior to mitigation		Negligible				
Degree to which the impact can be reversed		Partially reversible				
Degree to which the impact may cause irreplaceable loss of resources		Low				
Proposed Mitigation Measures		• Removal and clean-up of spill immediately after occurrence. • All construction vehicles must be properly maintained to prevent leaks. • Cement mixing must be confined to a designated area and must be done on an impervious surface, or pre-mixed cement must be used. • Any fuel stored on site must be kept in bunded storage tanks. • Drip trays are to be utilised during daily greasing and re-fuelling of machinery and to catch incidental spills and pollutants. • Drip trays are to be inspected on a weekly basis for leaks and effectiveness, and emptied when necessary. This is to be closely monitored during rain events to prevent overflow. • All hazardous waste materials and chemicals must be removed for reuse (*i.e.* stored) or appropriate management (lawful disposal or recycling) through authorised waste management service providers.				
OPERATIONAL PHASE						
Not Applicable as the proposed facility is a secondary school and based on that land-use, it is predicted that little to no hazardous substances will be generated or used on site during the operational phase.						

CONSTRUCTION PHASE						
Aspect		Waste Management				
Activity		General construction wastes produced on site				
Nature of Impact		Negative (-) if waste is not properly managed; Positive (+) if a formal waste management system is established. Impact of surrounding environment and community, along with potential health risks to users and local community.				
Alternative		**A1**			**No-Go (A2)**	
Status		**Pre-Mitigation**	**Post-Mitigation**		**Pre-Mitigation**	**Post-Mitigation**
Significance ranking	**Duration**	2	2		N/A	N/A
	Extent	2	1		N/A	N/A
	Severity	4	2		N/A	N/A
	Probability	4	2		N/A	N/A
	Significance	**32**	**10**			
Risk Rating		**Moderate**	**Low**		*Status quo* remains – **Low**. The current condition (no formal waste management system) would continue to exist.	
Indirect Impact		Bad odours, breeding of pests and vermin.				
Cumulative Impacts prior to mitigation		Negligible				
Degree to which the impact can be reversed		Reversible				
Degree to which the impact may cause irreplaceable loss of resources		Low				
Proposed Mitigation Measures		• Implement waste management measures as per the EMPr. • Demarcated area must be allocated for waste sorting and disposal on the site. • Place adequate number of waste receptacles around site during Construction. • Disposal of all wastes at an appropriate registered landfill site.				
OPERATIONAL PHASE						
In terms of long-term waste monitoring, maintenance and servicing requirements and procedures to be followed at the school during operations, an Operation Manual / SLA should be developed which details the timeframes, responsibilities and financial provisions/arrangements between the NLM and KZN-DoE.						

CONSTRUCTION PHASE						
Aspect		Wastewater (Sewerage) Management				
Activity		Disposal of sewerage				
Nature of Impact		Negative (-) impact on surrounding environment and local community if wastewater is not managed correctly and lawfully (*i.e.* through leaks, spills, breakages, blockages, overloading, etc of the on-site septic tank / soak away system).				
Alternative		**A1**			**No-Go (A2)**	
Status		**Pre-Mitigation**	**Post-Mitigation**		**Pre-Mitigation**	**Post-Mitigation**
Significance ranking	**Duration**	2	2		N/A	N/A
	Extent	2	2		N/A	N/A
	Severity	4	2		N/A	N/A
	Probability	4	2		N/A	N/A
	Significance	**32**	**12**			
Risk Rating		**Moderate**	**Low**		**Low**	**Low**
Indirect Impact		Maintenance impacts experienced at the site footprint associated with any servicing, repairing and/or un-blocking of the on-site septic tank / soak away system.				
Cumulative Impacts prior to mitigation		Significant				
Degree to which the impact can be reversed		Reversible				
Degree to which the impact may cause irreplaceable loss of resources		Low to Moderate				
Proposed Mitigation Measures		• Contractor must make sufficient chemical ablution facilities available for all staff on site for as long as there may be no access to utilise the proposed new existing sewerage septic tank soak-away system. • Sufficient numbers of chemical ablutions (ratio 1: 10) for both males and females must be regularly serviced, always supplied with toilet paper and maintained in hygienic conditions. • A letter should be obtained from the NLM approving the design and capacity of the on-site sewerage septic tank soak-away system.				

CONSTRUCTION PHASE						
Aspect		Water Management (including stormwater)				
Activity		Construction-related water use				
Nature of Impact		Negative (-) impact on surrounding environment (erosion and sedimentation)				
Alternative		**A1**			**No-Go (A2)**	
Status		**Pre-Mitigation**	**Post-Mitigation**		**Pre-Mitigation**	**Post-Mitigation**
Significance ranking	**Duration**	2	2		N/A	N/A
	Extent	2	2		N/A	N/A
	Severity	4	2		N/A	N/A
	Probability	4	3		N/A	N/A
	Significance	**32**	**18**			
Risk Rating		**Moderate**	**Low**		**Low**	**Low**
Indirect Impact		If groundwater abstraction becomes a requirement, there may be an impact on the surrounding users if quantities exceed the capacity of the catchment.				
Cumulative Impacts prior to mitigation		Minor / Negligible				
Degree to which the impact can be reversed		Reversible				
Degree to which the impact may cause irreplaceable loss of resources		Low				
Proposed Mitigation Measures		• Limit vegetation clearing to only the site footprint, reducing need for dust suppression with water on exposed soil surfaces. • Adopt a phased approach to site clearing or a no impact approach (leave vegetation *in-situ* until such time it needs to be removed. • Installation of water capture (rainwater harvesting) devices such as storage JoJo tanks linked to roof gutters, etc. • Implement proper waste management and rehabilitation measures as per EMPr to prevent any localised soil and water pollution (e.g. sedimentation due to due lack of vegetation cover and contamination of storm/rain water due to poorly managed wastes). • The quantity of water needed for the duration of the construction phase is to be calculated and planned for in				

	detail. • Contractors to conservatively use water during the construction period and train and monitor staff usage. • No liquid waste, including grey water, or contaminated water with spilled chemicals may be discharged into or onto any water body, drainage line, road or stormwater drain to avoid groundwater and surface water pollution. • Fix leaking or broken taps.
OPERATIONAL PHASE	
Responsible water use is recommended throughout the operational phase. Inspecting, reporting and fixing of leaking or broken taps is recommended. Rainwater harvesting/capture for non-potable water uses at the school (e.g. for sport field irrigation) recommended to continue with all necessary maintenance to be carried out as and when required. Stormwater management infrastructure must be properly maintained and monitored. If stormwater management measures put in place are deemed insufficient, a qualified engineer must be appointed to assist with additional stormwater attenuation mechanisms and remediation.	

CONSTRUCTION PHASE						
Aspect		Installation of borehole				
Activity		Machinery usage, drilling, piling, excavations, de-watering				
Nature of Impact		Negative (-) Contamination/pollution of groundwater				
Alternative		**A1**			**No-Go (A2)**	
Status		**Pre-Mitigation**	**Post-Mitigation**		**Pre-Mitigation**	**Post-Mitigation**
Significance ranking	**Duration**	1	1		N/A	N/A
	Extent	2	1		N/A	N/A
	Severity	4	2		N/A	N/A
	Probability	3	2		N/A	N/A
	Significance	**21**	**8**			
Risk Rating		**Low**	**Low**		**Low**	**Low**
Indirect Impact		None expected				
Cumulative Impacts prior to mitigation		The cumulative impact of any groundwater pollution would be limited to the site and immediate surrounds.				
Degree to which the impact can be reversed		Reversible				
Degree to which the impact may cause irreplaceable loss of resources		Low				
Proposed Mitigation Measures		• Drill rigs, vehicles and all other machinery shall be kept in good working order and inspected on a regular basis for possible leaks and shall be repaired as soon as possible if required. There must be no spills or leaks from vehicles/machinery/ablution facilities; • Environmental induction and awareness training for all site-based project role-players. • Drip trays shall at all times be placed under vehicles/ machinery that require in-situ repairs and be emptied into designated containers and disposed of at a licenced hazardous material disposal facility; • Accidental spills (concrete, chemicals, process water, hydrocarbons, waste) need to be reported immediately so that effective remediation and clean-up strategies and procedures can be implemented • Soil that is contaminated by fuel or oil spills must be collected to be treated at a pre-determined and dedicated, bunded storage location until disposal off site at a licensed landfill.				

CONSTRUCTION PHASE						
Aspect		Noise				
Activity		Construction vehicles movement, machinery usage, construction workers				
Nature of Impact		Negative (-) Increased noise levels may be a nuisance factor to neighbouring land occupiers/users				
Alternative		**A1**			**No-Go (A2)**	
Status		**Pre-Mitigation**	**Post-Mitigation**		**Pre-Mitigation**	**Post-Mitigation**
Significance ranking	**Duration**	1	1		N/A	N/A
	Extent	2	2		N/A	N/A
	Severity	6	2		N/A	N/A
	Probability	4	4		N/A	N/A
	Significance	**36**	**20**			
Risk Rating		**Moderate**	**Low**		**Low**	**Low**
Indirect Impact		None expected				
Cumulative Impacts prior to mitigation		None expected as the impact would be limited to the site and immediate surrounds				
Degree to which the impact can be reversed		Completely reversible at the end of construction				
Degree to which the impact may cause irreplaceable loss of resources		None				
Proposed Mitigation Measures		• Noise should be kept to a minimum in accordance with the SANS standards for urban areas. • Construction activity to be restricted to normal labour law working hours (Limit working hours to daylight hours). • Attend to complaints as far as reasonably possible, as per EMPr specifications. • Notify surrounding properties and school occupants of potentially high noise levels. • Environmental induction and awareness training for all site-based project role-players.				
OPERATIONAL PHASE						
Not applicable as majority of the nuisance noise will originate during the Construction Phase which has been addressed above. Adherence to Municipal Noise By-Laws will be sufficient enough to address any future noise related issues.						

CONSTRUCTION PHASE						
Aspect		Traffic				
Activity		Increased traffic activity				
Nature of Impact		Negative (-) Disturbance to traffic flow conditions and safety risks for local residents, road construction workers and road users during the proposed construction of the school				
Alternative		**A1**			**No-Go (A2)**	
Status		**Pre-Mitigation**	**Post-Mitigation**		**Pre-Mitigation**	**Post-Mitigation**
Significance ranking	**Duration**	2	2		N/A	N/A
	Extent	2	2		N/A	N/A
	Severity	4	2		N/A	N/A
	Probability	2	1		N/A	N/A
	Significance	**16**	**6**			
Risk Rating		**Low**	**Low**		**Low**	**Low**
Indirect Impact		Increased vehicle emissions				
Cumulative Impacts prior to mitigation		Negligible				
Degree to which the impact can be reversed		Irreversible				
Degree to which the impact may cause irreplaceable loss of resources		No loss of resources				
Proposed Mitigation Measures		• Establish speed reduction measures around project area. • Establish construction vehicle warning signs around project area. • Demarcate and temporarily fence off dangerous areas/ construction areas as no-go areas for learners, teachers and the general public to avoid safety related incidents. • Constantly inform/educate learners and teachers about no -go areas to avoid safety related incidents. • Notify surrounding properties of potentially high noise levels. • Adhere to Health & Safety Specification for the Project.				
OPERATIONAL PHASE						
As the development is situated in an area with low vehicle ownership, most of the students will continue to walk to school and/or use public transport. An increased in traffic volumes during the Operational Phase is likely to be negligible and limited to any school staff that own a vehicle and drive daily to and from the school.						

CONSTRUCTION PHASE						
Aspect		Air Quality				
Activity		General site activities				
Nature of Impact		Negative (-) Increase in Dust Levels during Construction				
Alternative		**A1**			**No-Go (A2)**	
Status		**Pre-Mitigation**	**Post-Mitigation**		**Pre-Mitigation**	**Post-Mitigation**
Significance ranking	**Duration**	2	2		N/A	N/A
	Extent	2	2		N/A	N/A
	Severity	4	2		N/A	N/A
	Probability	4	2		N/A	N/A
	Significance	**32**	**12**			
Risk Rating		**Moderate**	**Low**		**Low**	**Low**
Indirect Impact		None significant				
Cumulative Impacts prior to mitigation		Should more than one other construction project be underway and commence at the same time in the immediate/local vicinity, this may result in cumulative dust (air quality) impacts in the area.				
Degree to which the impact can be reversed		Fairly reversible				
Degree to which the impact may cause irreplaceable loss of resources		None				
Proposed Mitigation Measures		• Limit vegetation clearing to only the site footprint. • Adopt a phased-approach to site clearing (vegetation/soil) or a no impact approach (leave vegetation *in-situ*) until such time it needs to be removed, reducing the area and duration time of exposed soil surfaces. • Demarcate and cover any soil stockpiles with shade netting to reduce dust during windy conditions. • Where appropriate, use dust control methods (e.g. water or dust suppressants). • Implement dust control/reduction and mitigation measures as per EMPr.				
OPERATIONAL PHASE						
Not applicable as the majority of the dust related issues will originate during the Construction phase, which has been addressed above. Once fully developed and rehabilitated, the operational school should result in little to no poor air quality or dust-related impacts.						

CONSTRUCTION PHASE						
Aspect		Visual				
Activity		General construction activities will have a visual impact				
Nature of Impact		Negative (-)				
Alternative		**A1**			**No-Go (A2)**	
Status		**Pre-Mitigation**	**Post-Mitigation**		**Pre-Mitigation**	**Post-Mitigation**
Significance ranking	**Duration**	2	2		N/A	N/A
	Extent	2	2		N/A	N/A
	Severity	2	0		N/A	N/A
	Probability	4	4		N/A	N/A
	Significance	**24**	**16**			
Risk Rating		**Low**	**Low**		**Low**	**Low**
Indirect Impact		None significant				
Cumulative Impacts prior to mitigation		Low				
Degree to which the impact can be reversed		Low to moderate				
Degree to which the impact may cause irreplaceable loss of resources		Low				
Proposed Mitigation Measures		• Good housekeeping and maintain a neat construction site. • No work permitted to take place at night where light disturbances (visual impacts) could impact residents. • Rehabilitate disturbed areas appropriately in line with EMPr guidelines.				
OPERATIONAL PHASE						
The resulting visual impact of the school, once constructed, could be argued to be negative (-), positive (+) or neutral (0) and is a subjective/qualitative judgement based on people's personal values, experiences and opinions – whether similar or different. There are no long-term visual impacts that the school will have on any visually sensitive receptors and their locations e.g. resorts, reserves, protected areas, parks, tourist sites, heritage sites, scenic routes, recreational areas, etc.						

CONSTRUCTION PHASE						
Aspect		Socio -economic benefits (job creation)				
Activity		Construction and investment of capital and human resources in the development				
Nature of Impact		Positive (+)				
Alternative		**A1**			**No-Go (A2)**	
Status		**Without Enhancement**	**With Enhancement**		**Without Enhancement**	**With Enhancement**
Significance ranking	**Duration**	2	2		N/A	N/A
	Extent	2	2		N/A	N/A
	Severity	2	4		N/A	N/A
	Probability	4	4		N/A	N/A
	Significance	**24**	**32**			
Risk Rating		**Low**	**Moderate**		**Low**	**Low**
Indirect Impact		Increase in regional and national level of education of South Africans to increase quality of life.				
Cumulative Impacts prior to mitigation		Alignment with the Municipality's overarching development strategies for the area in general.				
Degree to which the impact can be reversed		Moderate				
Degree to which the impact may cause irreplaceable loss of resources		None				
Proposed Enhancement Measures		• Oblige Contractor to increase local procurement practices and employ people from local communities, as far as feasible, to maximise the benefits to the local economy. • Procure construction materials, goods, and products from local suppliers where feasible, and keep records of local procurement by both themselves and contractor. • Employ labour-intensive methods in construction, where feasible. • Facilitate the training and upskilling of local employees in the broader construction industry to contribute towards local community upliftment.				

OPERATIONAL PHASE						
Aspect		Socio-economic benefits (job creation)				
Activity		Operational and maintenance activities required for a functioning, formal school				
Nature of Impact		Positive (+)				
Alternative		**A1**			**No-Go (A2)**	
Status		**Without Enhancement**	**With Enhancement**		**Without Enhancement**	**With Enhancement**
Significance ranking	**Duration**	5	5		N/A	N/A
	Extent	2	2		N/A	N/A
	Severity	0	6		N/A	N/A
	Probability	2	4		N/A	N/A
	Significance	**14**	**52**			
Risk Rating		**Low**	**Moderate**		**Low**	**Low**
Indirect Impact		Increase in regional and national level of education of South Africans to increase quality of life.				
Cumulative Impacts prior to mitigation		Alignment with the Municipality's overarching development strategies for the area in general.				
Degree to which the impact can be reversed		Moderate				
Degree to which the impact may cause irreplaceable loss of resources		None				
Proposed Enhancement Measures		• A number of new permanent employment opportunities are likely to be created during the Operational phase of a formal school. The demand for several more teachers and support staff (e.g. administration, sport and ground staff) may increase. • School management guided by the KZN-DoE and the NLM can provide support to SMME development in Ward 1 e.g. consider hiring local community members for any basic ongoing maintenance requirements at the school e.g. grass cutting, alien vegetation clearing, refuse removal, fence repairs, etc.				

OPERATIONAL PHASE						
Aspect		Wastewater Management				
Activity		Disposal / treatment of sewerage				
Nature of Impact		Negative (-) impact on surrounding environment and local community if wastewater is not managed correctly and lawfully (*i.e.* through leaks, spills, breakages, blockages, overloading, etc of the on-site septic tank / soak away system).				
Alternative		**A1**			**No-Go (A2)**	
Status		**Pre-Mitigation**	**Post-Mitigation**		**Pre-Mitigation**	**Post-Mitigation**
Significance ranking	**Duration**	5	5		N/A	N/A
	Extent	3	3		N/A	N/A
	Severity	6	6		N/A	N/A
	Probability	3	1		N/A	N/A
	Significance	**42**	**14**			
Risk Rating		**Moderate**	**Low**		**Low**	**Low**
Indirect Impact		Maintenance impacts experienced at the site footprint (*i.e.* a school) associated with any servicing, repairing and/or un-blocking of the soak-away system.				
Cumulative Impacts prior to mitigation		Significant				
Degree to which the impact can be reversed		Reversible				
Degree to which the impact may cause irreplaceable loss of resources		Low to Moderate				
Proposed Mitigation Measures		• Design of an adequate sewage system on the site by a competent engineer; • School to utilise chemical ablution facilities serviced by registered local service providers in any event that the on-site sewage soak-away septic tank become temporarily out of service and/or during maintenance/repair.				

OPERATIONAL PHASE						
Aspect		Groundwater				
Activity		Groundwater abstraction from borehole				
Nature of Impact		Negative (-) Over-abstraction of groundwater from borehole, groundwater unfit for human consumption, contamination/pollution of groundwater				
Alternative		**A1**			**No-Go (A2)**	
Status		**Pre-Mitigation**	**Post-Mitigation**		**Pre-Mitigation**	**Post-Mitigation**
Significance ranking	**Duration**	4	4		N/A	N/A
	Extent	2	2		N/A	N/A
	Severity	6	2		N/A	N/A
	Probability	3	2		N/A	N/A
	Significance	**36**	**16**			
Risk Rating		**Moderate**	**Low**		**N/A**	**N/A**
Indirect Impact		Reduced water availability in the regional aquifer or water table (groundwater level drawdown) which may affect other water users				
Cumulative Impacts prior to mitigation		Low to moderate				
Degree to which the impact can be reversed		Reversible (de-commission borehole)				
Degree to which the impact may cause irreplaceable loss of resources		Low				
Proposed Mitigation Measures		• Borehole and use of groundwater from borehole to be registered with the authority (DWS); • Borehole meter to be installed to measure volumes abstracted; • Regular monitor the water quality of the borehole (e.g. via a site specific groundwater management plan); • User to adhere to any allowable yield limit(s) of the borehole (recommendation is 0.41 l/s for a maximum of 8 hours a day resulting in a daily volume of 12 m^3/d).				

1.3 SPECIALIST STUDIES, FINDINGS AND RECOMMENDATIONS

A number of specialist studies and reports come attached as **Appendices** to this BAR. The terrestrial and aquatic ecological studies are in line with the content requirements set out in the NEMA Protocols (GN320 dated 20 March 2020) published in terms of the EIA Regulations, 2014 (as amended) where compliance statements were undertaken based on the findings where no significant impacts for terrestrial and freshwater biodiversity were identified and hence no recommendations provided by the specialists in this regard. A summary of the other specialist study findings, impact management measures and recommendations have been included in **Tables' 11** to **14** below.

Table 11: Heritage (Archaeological and Palaeontological) Impacts and Recommendations.

Activity	Potential Impact	Specialist Recommendations
Construction Excavations and Trenching	Discovery of and damage to subsurface artefacts during trenching and excavations	**Palaeontology** The following procedure is only required if fossils are seen on the surface and when drilling/excavations commence. *Chance Find Protocol:* 1. When excavations begin the rocks and must be given a cursory inspection by the environmental officer or designated person. Any fossiliferous material (plants, insects, bone, or invertebrates) should be put aside in a suitably protected place. This way the project activities will not be interrupted. 2. Photographs of similar fossils must be provided to the developer to assist in recognizing the fossil plants, vertebrates, invertebrates or trace fossils in the shales and mudstones (for example see Figure 5). This information will be built into the EMP's training and awareness plan and procedures. 3. Photographs of the putative fossils can be sent to the palaeontologist for a preliminary assessment. 4. If there is any possible fossil material found by the developer/environmental officer then the qualified palaeontologist sub-contracted for this project, should visit the site to inspect the selected material and check the dumps where feasible. 5. Fossil plants or vertebrates that are considered to be of good quality or scientific interest by the palaeontologist must be removed, catalogued and housed in a suitable institution where they can be made available for further study. Before the fossils are removed from the site an AMAFA or SAHRA permit must be obtained. Annual reports must be submitted to AMAFA/SAHRA as required by the relevant permits. 6. If no good fossil material is recovered then no site inspections by the palaeontologist will be necessary. A final report by the palaeontologist must be sent to AMAFA/SAHRA once the project has been completed and only if there are fossils. 7. If no fossils are found and the excavations have finished then no further monitoring is required.
	Discovery of and damage to fossils during trenching and excavations	**Heritage**: • For any chance heritage finds, all work must cease in the area affected and the Contractor must immediately inform the Project Manager. A heritage specialist must be called to site to inspect the finding/s. The relevant heritage resource agency (the Institute) must be informed about the finding/s. • The specialist will assess the significance of the resource/s and provide guidance on the way forward. • Permits must be obtained from the Institute if heritage resources are to be removed, destroyed or altered. • Under no circumstances may any heritage material be destroyed or removed from the project site unless under direction of a heritage specialist. • Should any recent remains be found on site that could potentially be human remains, the South African Police Service as well as the Institute must be contacted. No SAPS official may remove remains (recent or not) until the correct permit/s have been obtained. • The Fossil Chance Find Protocol must be included in the EMPr for the proposed construction of the school (see above).

Table 12: Geotechnical Report Impacts and Recommendations.

Aspect	Impact	Specialist Recommendations
Excavations and foundations	Heave, slaking, instability, collapse	• Unconsolidated excavations and embankments must be shored laterally and retained/supported to prevent collapse of the material. • The main structures of the development be founded. • Any loose or remoulded soft material must be removed from the foundation trenches prior to casting of concrete. • Bottom of foundations to be compacted to at least 95% MOD AASHTO prior to casting. • Structure fill should be G7 (COLTO) quality or better. • Reinforced strip footings to be supported on hand augered piles at the corners of the structure and at the intersecting load bearing walls at intervals not greater than 3m along the foundation length's width. • The hand augered piles should be placed at depths of very dense soil horizons at anticipated minimum depths > 2.5m B.E.G.L.. • Modified concrete or soil raft foundations could be considered as alternatives. • Once formation level is achieved samples should be collected for further CBR and/or stabilised tests. • Ground should be graded away from structures to negate ingress of surface water runoff into soil beneath the foundations. • Contractor to develop a stormwater management plan. • The percolation tests indicate the material on site is suitable for a soak away sanitation system.

Table 13: Groundwater Report Impacts and Recommendations.

Aspect	Impact	Specialist Recommendations
Groundwater abstraction from a borehole	Strain on available water supply Poor water quality unfit for human consumption	• The groundwater management plan for the borehole is to abstract water at a maximum rate of 0.41 l/s on a maximum 8-hour duty. The resulting daily volume is 12 m^3/d. • The maximum recommended pump installation depth is 47mbgl. • A storage capacity of 24 m^3 is recommended. • Rainwater harvesting and water saving techniques are encouraged to alleviate the strain on the demand versus supply. • As total coliforms and SPC exceed the SANS241 operational limits it is recommended that a chlorine shock treatment be carried out prior to using the borehole. • Ongoing quarterly water quality monitoring should be carried out.

Table 14: Traffic Impact Report Impacts and Recommendations.

Aspect	Impact	Specialist Recommendations
Transport to the site by road traffic	Potential increase in traffic volumes Deterioration in road condition Increased safety risk	• The analysis showed that the existing road network will be able to handle the combined 2026 traffic volumes and that the proposed development will have a negligible impact on the performance of the surrounding intersections. • Pedestrians will be adequately accommodated on the existing verges therefore there is no need for additional pedestrian infrastructure. • The proposed development is expected to generate public transport traffic however not to the extent that the existing road network will require improvements. • No road safety concerns were observed during the site visit and traffic count period. Traffic speeds appear to be acceptable on all roads, there was no evidence of pedestrian / vehicle conflict and it is expected that the proposed development will not cause the road safety conditions on the surrounding road network to deteriorate in any way.

1.4 IMPACT MANAGEMENT, MITIGATION AND MONITORING MEASURES

Based on the assessment, a description of the impact management, mitigation and monitoring measures as well as the impact management objectives and impact management outcomes included in the Environmental Management Programme (EMPr), are provided. The project-specific EMPr constitutes part of this BAR, as **Appendix 2**.

The EMPr represents an overall framework for the Project to ensure that the recommendations for minimising and reducing negative environmental impacts as well as enhancing positive environmental impacts are implemented during the life-cycle of the development. It serves as an additional guideline to prevent unnecessary environmental impacts by providing a description of the methods, measures and procedures for mitigating and monitoring impacts and contains environmental objectives to reduce or eliminate negative impacts throughout the Construction phase, and where relevant, the Operational phase.

The objective of the EMPr is to provide consistent information and guidance for implementing the management and monitoring measures to help achieve environmental policy goals. An effective EMPr is concerned with both the immediate outcome as well as the long-term impacts of the Project.

The EMPr aims to achieve the following objectives:

- To provide a structured framework within which the environmental management requirements will be implemented, audited and reported on, in order to ensure that potential impacts on the environment are minimised.
- To set out mitigation measures and environmental specifications which are required to be implemented during the various phases of the development in order to minimise the extent of environmental impacts, to manage environmental impacts and where possible to improve the condition of the environment.
- To emphasise standards and guidelines that are required to be achieved in terms of environmental legislation and authorisation conditions.
- To provide a clear indication of the environmental management requirements of each of the role players involved.

Mitigation and monitoring measures included in the EMPr are for the following:

Construction Phase –

- Access and construction traffic
- Site demarcation and no-go areas

- Contractor's camp
- Housekeeping, health and safety
- Plant and fuel handling
- Waste management
- Concrete and cement works
- Paints, hazardous substances
- Materials handling, use and storage
- Stormwater and erosion controls
- Dust controls
- Fire controls
- Avoidance of water wastage
- Ablution facility requirements

Operational Phase –

- Infrastructure maintenance and associated requirements in terms of long-term waste, water and vegetation management.

1.4.1 Other Impact Management, Mitigation and Monitoring Measures

The adherence to requirements that are prescribed in a Specific Environmental Management Act relevant to the listed activity or specified activity in question include the NHRA.

In terms of the NHRA, specifications for archaeological monitoring have been included in the EMPr.

SECTION L: SUMMARISED FINDINGS OF THE SPECIALIST STUDIES

1) **Terrestrial Biodiversity Compliance Statement**

Provided the generic mitigation measures contained in the EMPr and compliance statement report are adhered to, the compliance statement can be considered sufficient to inform the Environmental Authorisation for the site from a terrestrial vegetation perspective.

2) **Freshwater Biodiversity Compliance Statement**

The sensitivity of the aquatic biodiversity on Reserve No.19 of 15839 can be regarded as 'Low'. The proposed Khuba School development will not impact on any natural freshwater biodiversity and no impact management interventions are required.

3) **Palaeontological Impact Assessment**

The impact on the fossil heritage is very low so as far as the palaeontology is concerned, the project should be authorised.

4) **Heritage Impact Assessment**

During the site inspection no heritage sites were found. The construction of Khuba Secondary School may proceed as long as the recommendations and mitigation measures provided in the specialist heritage report and in the desktop palaeontological report are adhered to and implemented where necessary.

5) **Geotechnical Assessment**

Earthworks should be carried out in line with SANS1200 in accordance with the OHS Act. The percolation tests satisfy the National Building Regulations Council's minimum requirements of 25mm fall in water level in 30 minutes or less. A borrow pit investigation is recommended to determine and economic source of subgrade and structural fill material from a local source.

6) **Groundwater Impact Assessment**

One borehole designated KZN180757 was successfully drilled at the site. The groundwater management plan for the borehole is to abstract at a maximum rate of 0.41l/s on a maximum 8-hour duty with a resulting daily volume of 12 m^3/d. The maximum recommended pump installation depth is 47 mbgl with a recommended storage capacity of 24m^3. Rainwater harvesting and water saving techniques are encouraged to alleviate the strain on the demand versus supply. As total coliforms and SPC exceed the SANS241 operational limits it is recommended that a chlorine shock treatment be carried out prior to using the borehole. Ongoing quarterly water quality monitoring should be carried out.

7) **Traffic Impact Assessment**

Taking the recommendations and points in the traffic report into consideration, it is recommended that from a traffic impact perspective the proposed development can be approved.

SECTION M: RECOMMENDATIONS OF THE EAP

It is the opinion of the EAP that the information contained in this BAR and corresponding documentation is sufficient to make a decision in respect of the application for environmental authorisation (EA) for the listed activities triggered in terms of this proposed school development. The required specialist studies as recommended in the DFFE National Screening Tool have sufficiently been carried out as well as a socio-economic assessment which has been incorporated into this BAR. Based on the following motivational reasons in the Environmental Impact Statement (EIS) below, it is recommended that this proposed development be authorised (subject to any input during the Public Participation Process):

Environmental Impact Statement - a summary of the key findings of the BA
The environmental attributes of the site are not such that the proposed development would have significant negative impacts on biodiversity. The proposed footprint is on a site where the original grassland vegetation has been transformed due to agricultural activity where much of the original species are no longer present. No direct impacts on biodiversity resources of significance are expected. As there are no watercourses in close proximity to the development footprint, no significant impacts to watercourses (and the associated habitats and freshwater biodiversity) are expected to occur. Impacts on other aspects of the proposed project were also investigated and have been assessed, namely heritage, traffic, soil (geotechnical) and groundwater impacts. The impacts identified have been assessed and err on the conservative side (Refer to impact tables in **Section K**). The socio-economic benefits cannot be overlooked. A new and adequate learning facility for young learners will be provided along with the introduction of temporary jobs and skills development for the surrounding communities during construction. The project will provide +/- 40 employment opportunities during the construction phase and a maximum of 64 during the operational phase. General impacts such as noise and dust disturbance will be short term and low in impact. In terms of the long-term cumulative impact of the project, it will have an overall net positive effect due to the provision of better educational facilities which will enhance the education levels of youth in the community. The IDP and SDF both make provision for the need for the development of educational facilities in the Nkandla Local Municipality. The proposed development will complement what is stipulated in these overarching framework plans. Compared with the No-Go Alternative, the overall net cumulative impact of the Preferred Alternative is expected to enhance human benefits with no negative effect on human health or well-being and no significant ecological damage to the natural environment. Cumulative negative effects on the biophysical environment are likely to be minor/negligible due to the low terrestrial and aquatic biodiversity in the surrounding area. The long term cumulative visual impact of a new school is considered to be minor or neutral given that vthe surrounding land-use/landscape already has human inhabitation (settlements), roads and electrical infrastructure.

All things considered it is the EAP's opinion that the development would not have detrimental effects on the environment or society, but should rather have an overall significant positive impact in terms of the wider considerations regarding socio-economic impacts benefits, in particular within the Education Sector. The overall impact significance would be low and should not affect the decision to authorise the school to be developed.

The positive impacts (benefits) of the proposed development outweigh the negative impacts. Any negative impacts can be mitigated as per the proposed measures in this document and the EMPr (BAR **Appendix 2**).
There is a social need and desirability for the development. The proposal is in line with social infrastructure and services development strategies of the Local and District Municipalities and in particular with regards to providing additional secondary educational facilities.

Summary of the positive and negative impacts that the proposed development and alternatives will cause in the environment and community.

Apart from the anticipated Construction phase impacts, which would be temporary (short-term duration), other impacts identified (including cumulative impacts) are associated ecological aspects, waste and use of groundwater. Where impacts are unavoidable, they have been found to be of moderate to low significance according to the criteria used and furthermore, can be mitigated through appropriate design and effective implementation of the EMPr. The only feature of significance would be the possible occurrence of sub-surface heritage artefacts, graves or fossils, however mitigation measures through monitoring and recording have been proposed for any chance finds/discoveries.

Positive socio-economic impacts are associated with job creation which would materialise during the Construction phase, thus reducing the unemployment rate in the area and the creation of increased educational opportunities for learners within Ward 1.

The No-Go Alternative will result in the environment remaining as is with no construction upgrades of the facilities currently utilised at Khuba Secondary School. Should the proposed development not proceed, the local community and its surroundings will not benefit from the positive impacts associated with the development. The No-Go Alternative conflicts with the Local Municipality's Strategic and Integrated Development Plans whereas the Preferred Alternative is aligned with the aforementioned as it proposes to address the needs of the local community by providing them with formal educational facilities.

EAP Opinion

The preferred alternative for the proposed development and associated activities as applied for should be authorised on the basis that the recommended mitigation measures as contained in this report, the EMPr and specialist studies are included as conditions in respect of the authorisation.

SECTION N: SENSITIVITY AND DESKTOP MAPS

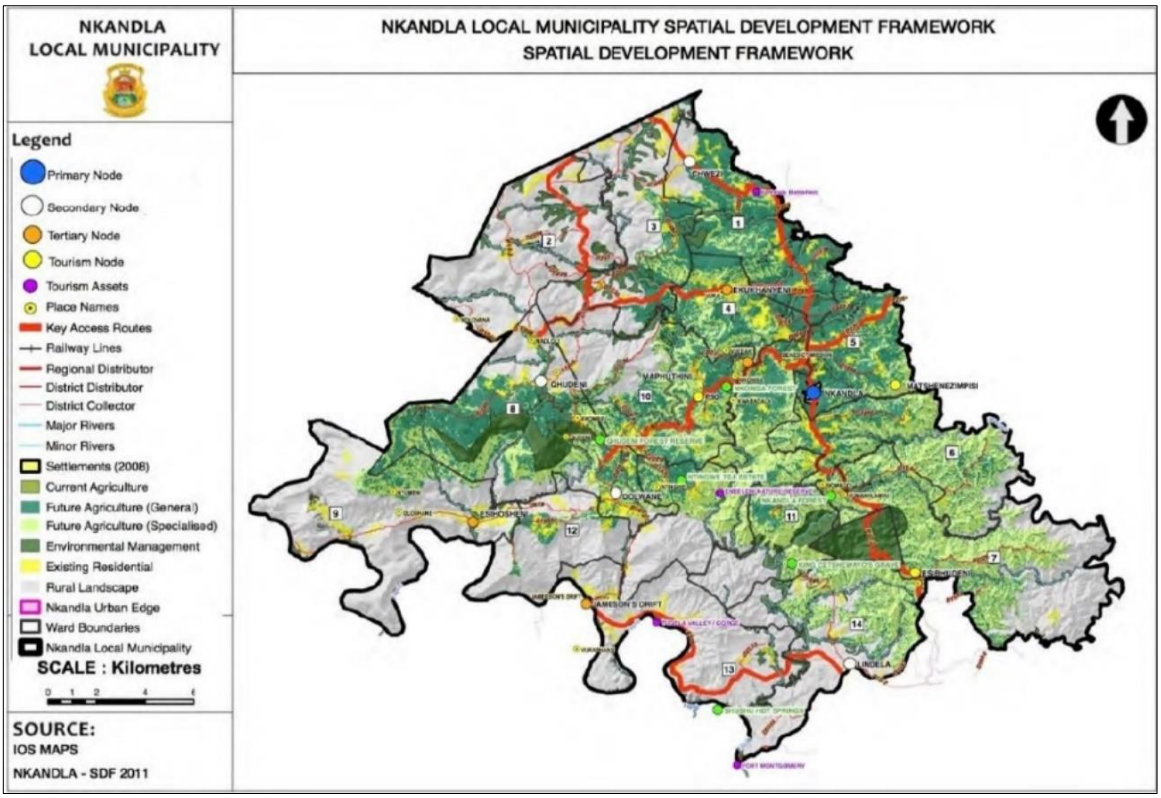


Figure N1: NLM SDF map (Source: IDP).

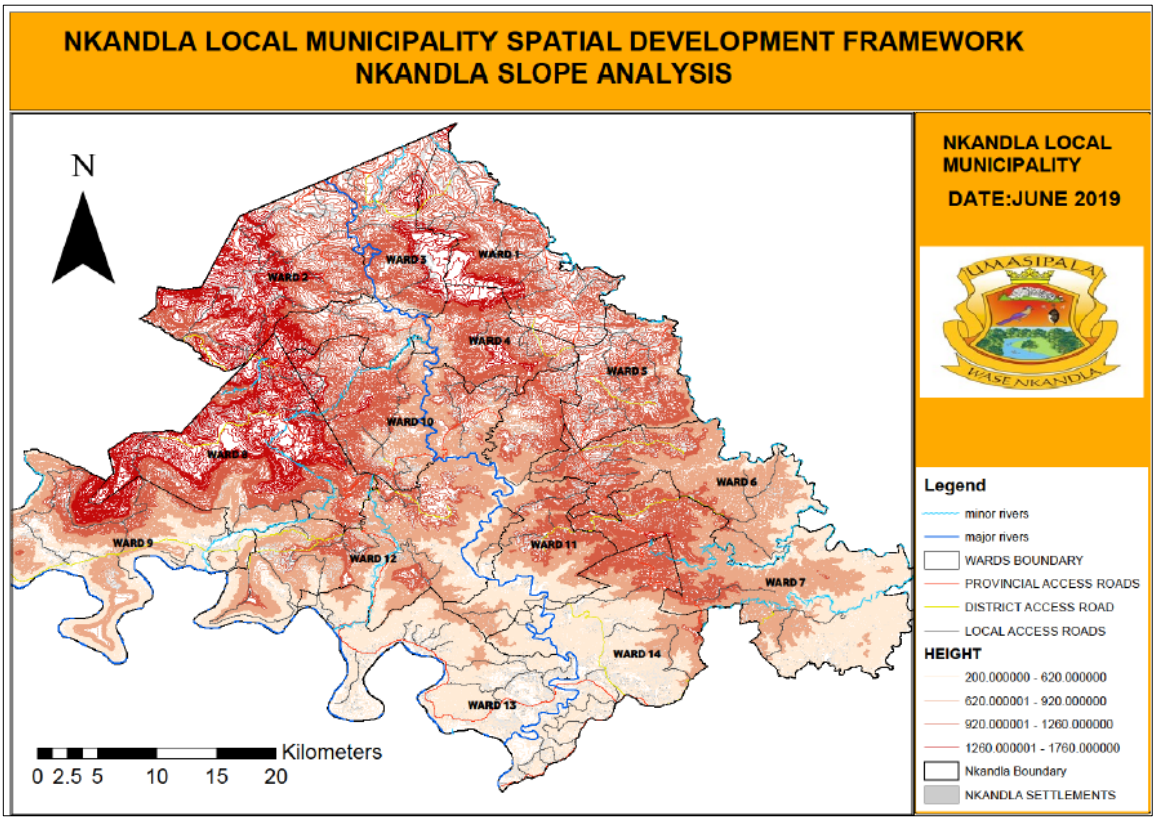


Figure N2: NLM slope analysis (Source: IDP).

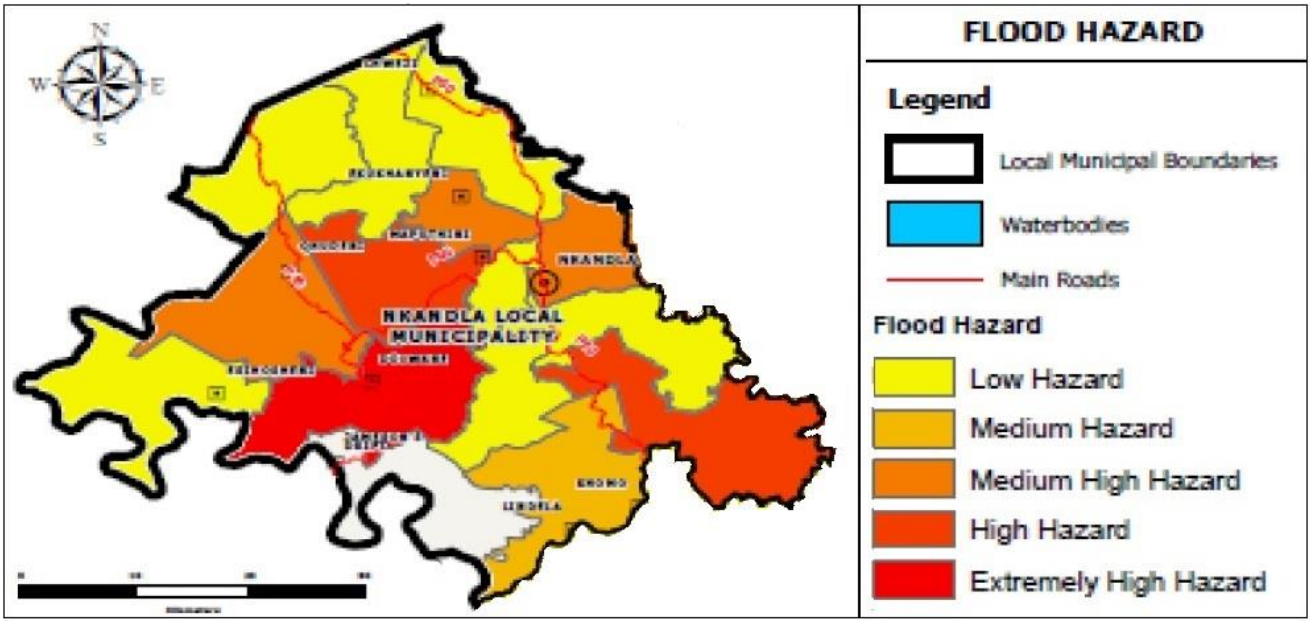


Figure N3: Nkandla LM Flood Hazard Rating Map (Source: KCDM EMF).

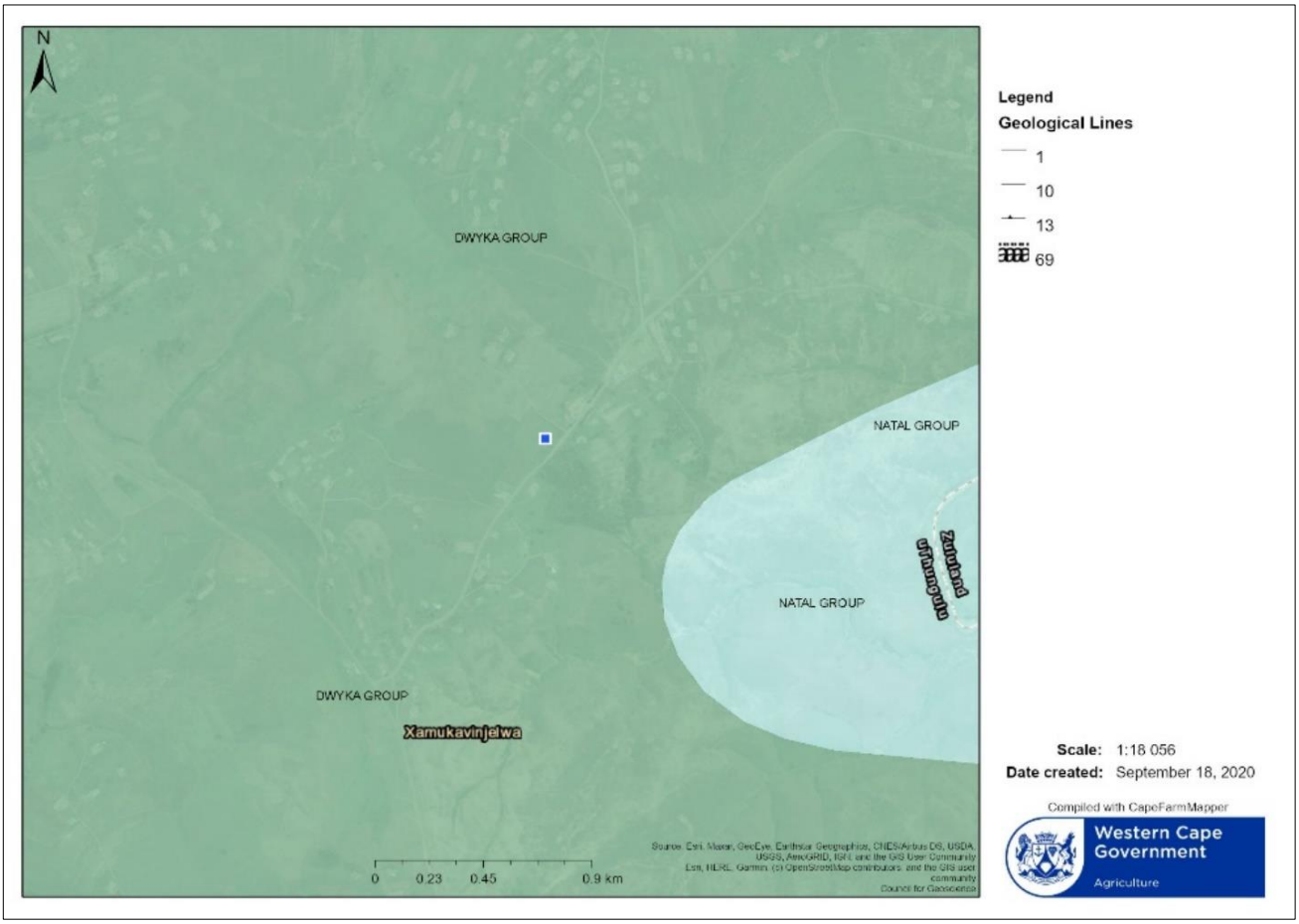


Figure N4: Local geology showing site (blue polygon) situated in Dwyka Group.

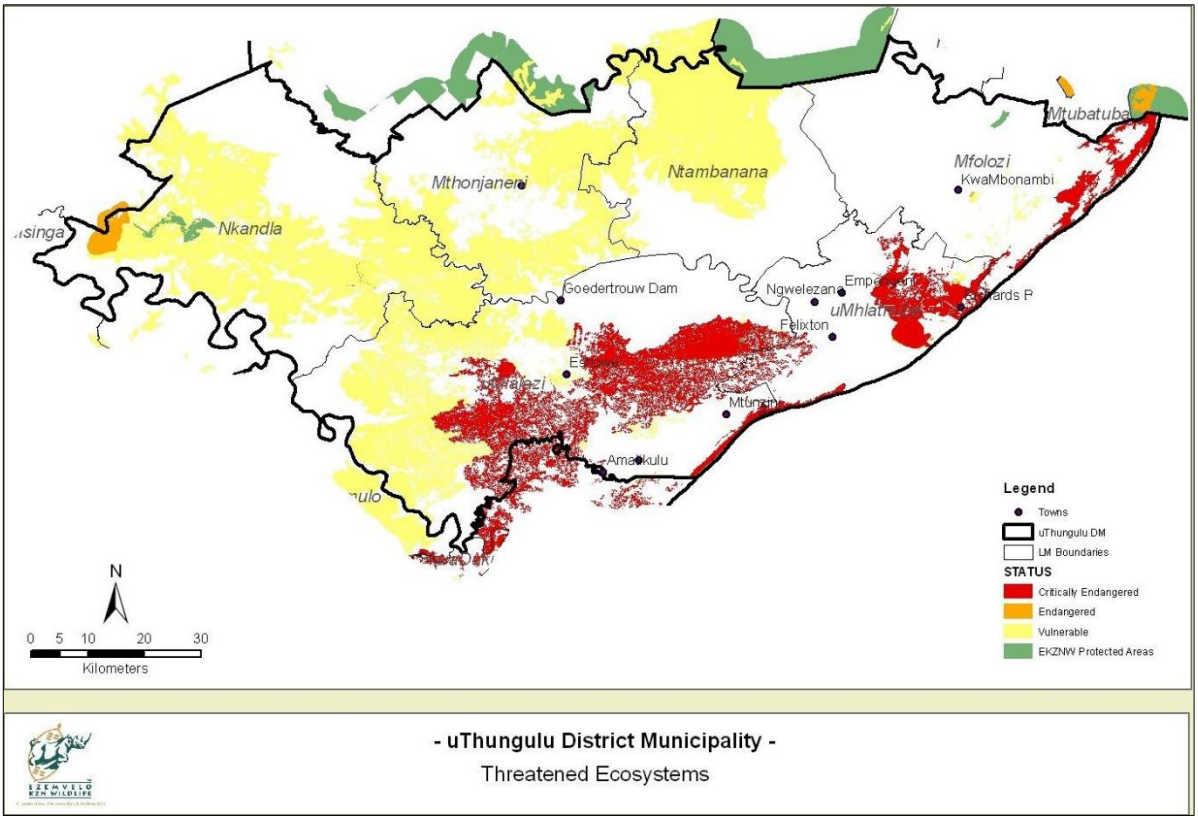


Figure N5: KCDM (formerly uThungulu) Threatended ecosystems (Source: uThungulu 2014 BSP).

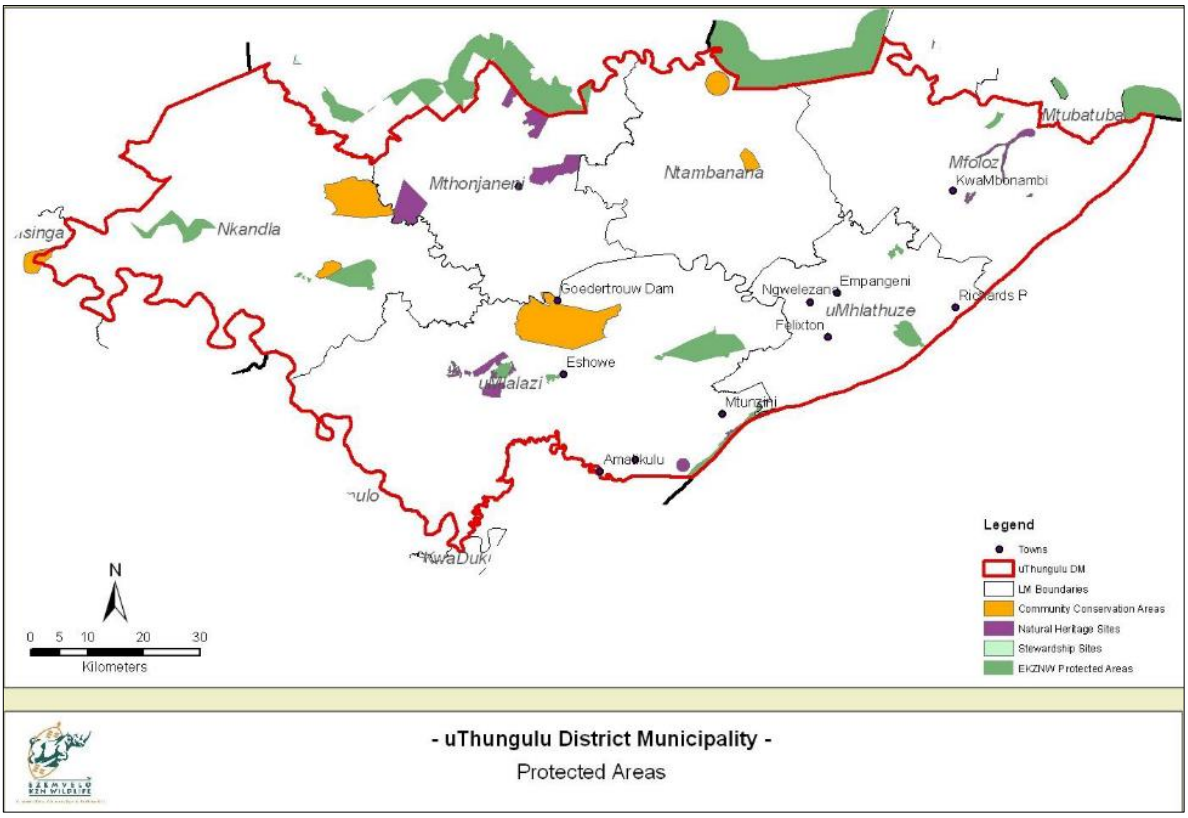


Figure N6: KCDM Protected areas and other conservation areas (Source: uThungulu 2014 BSP).

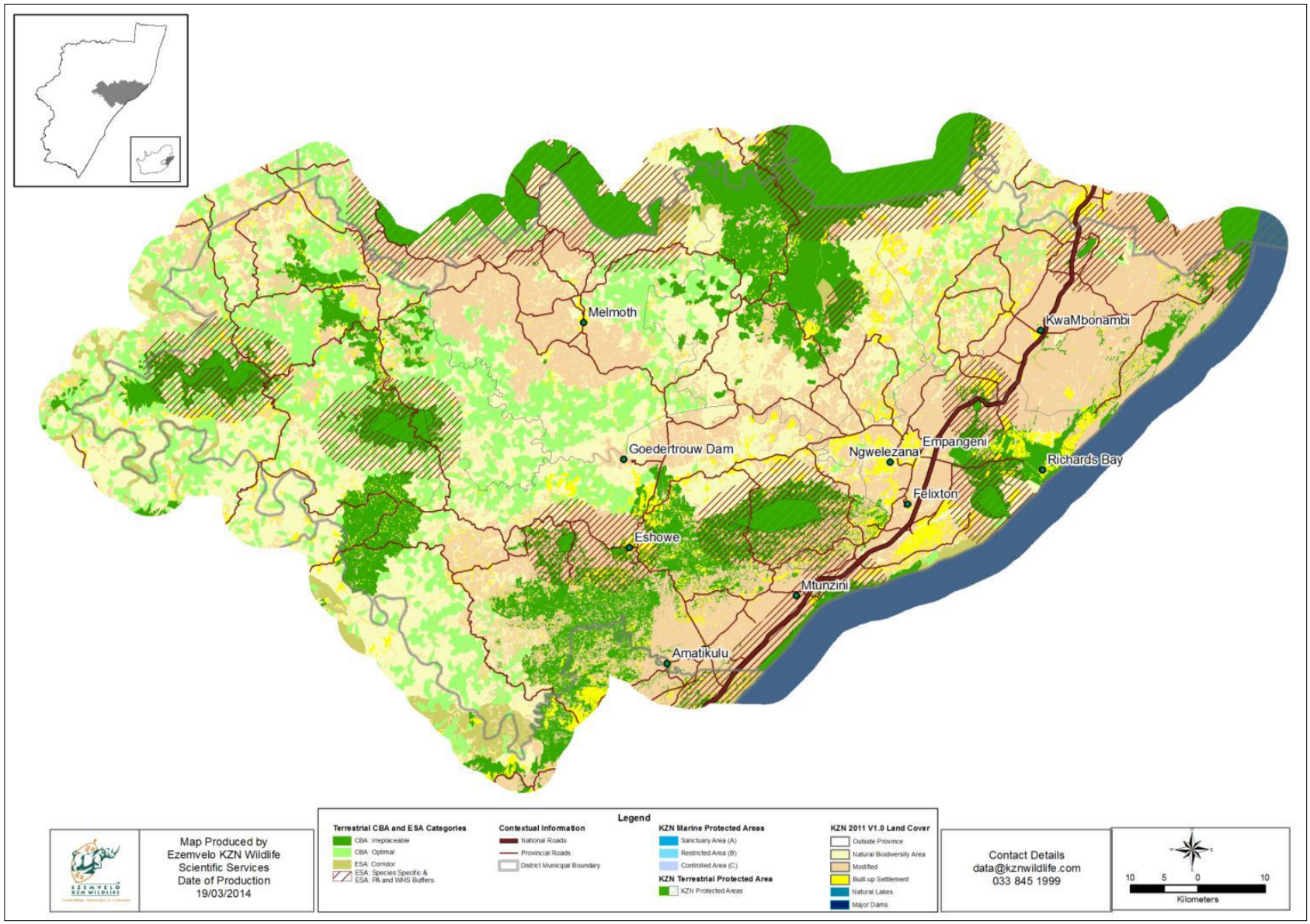


Figure N7: KCDM Terrestrial CBAs and ESAs (Source: uThungulu 2014 BSP).

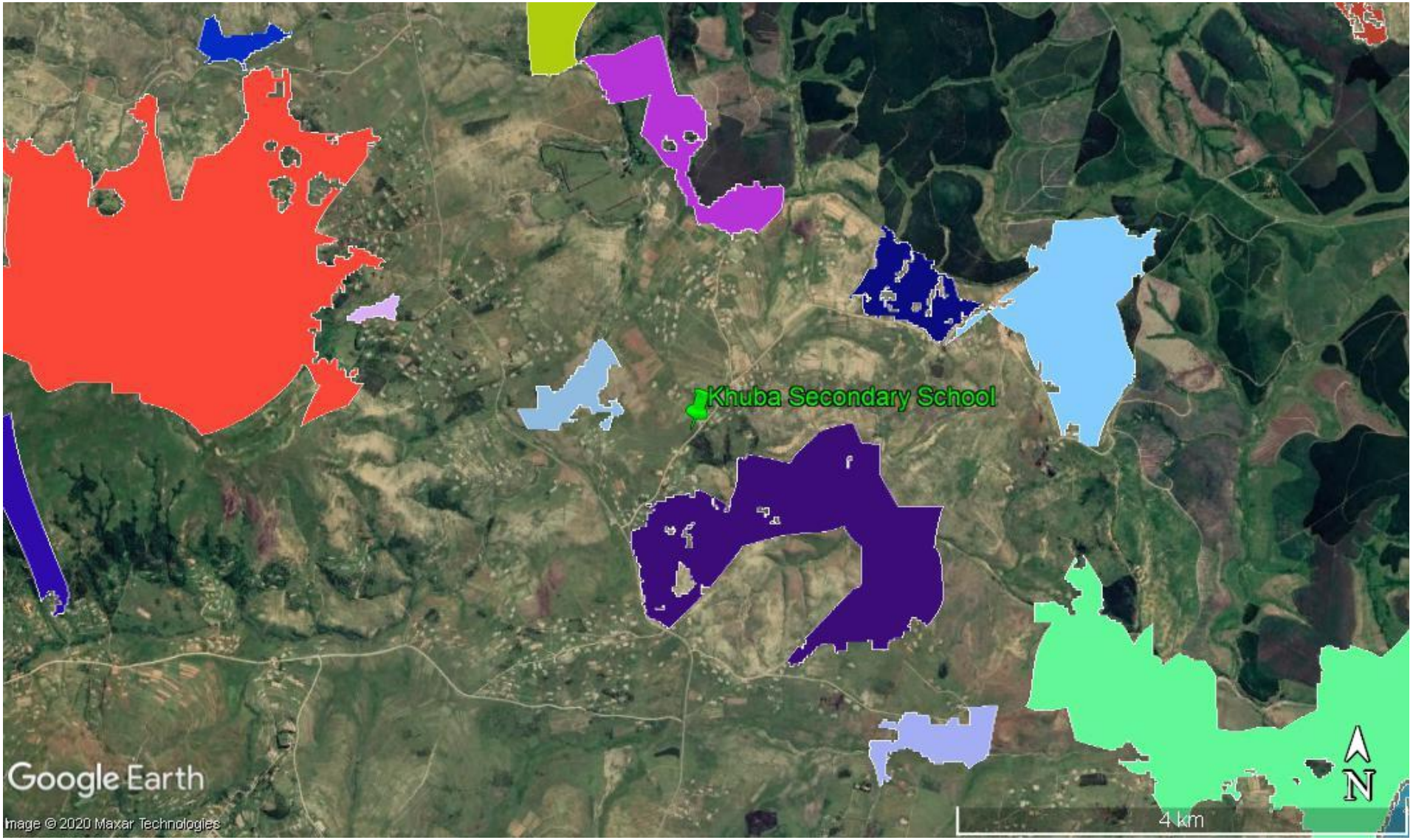


Figure N8: The site footprint is not situated within any CBAs which are shown in coloured shading on the map (*Source*: EKZNW, 2014).

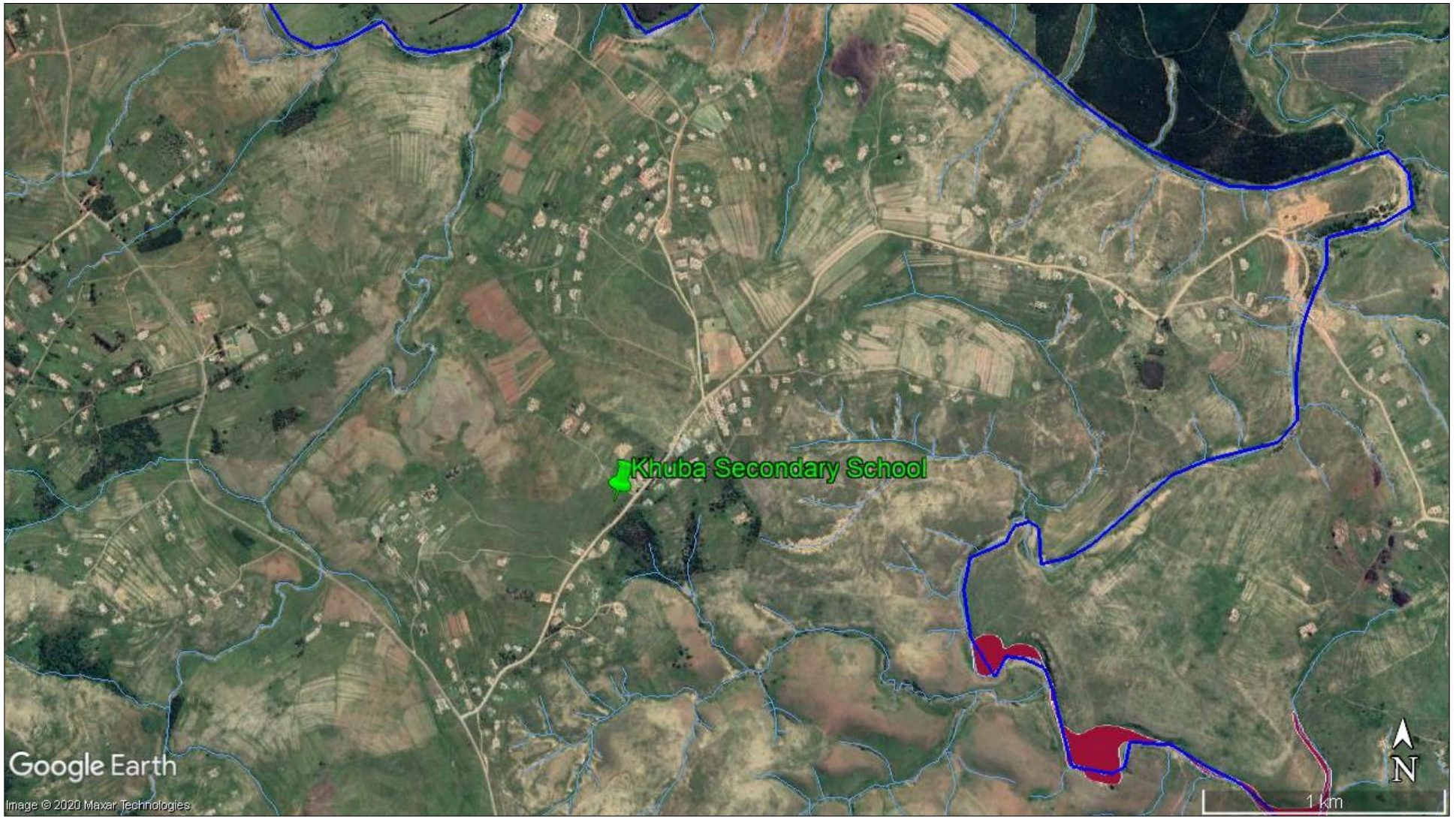
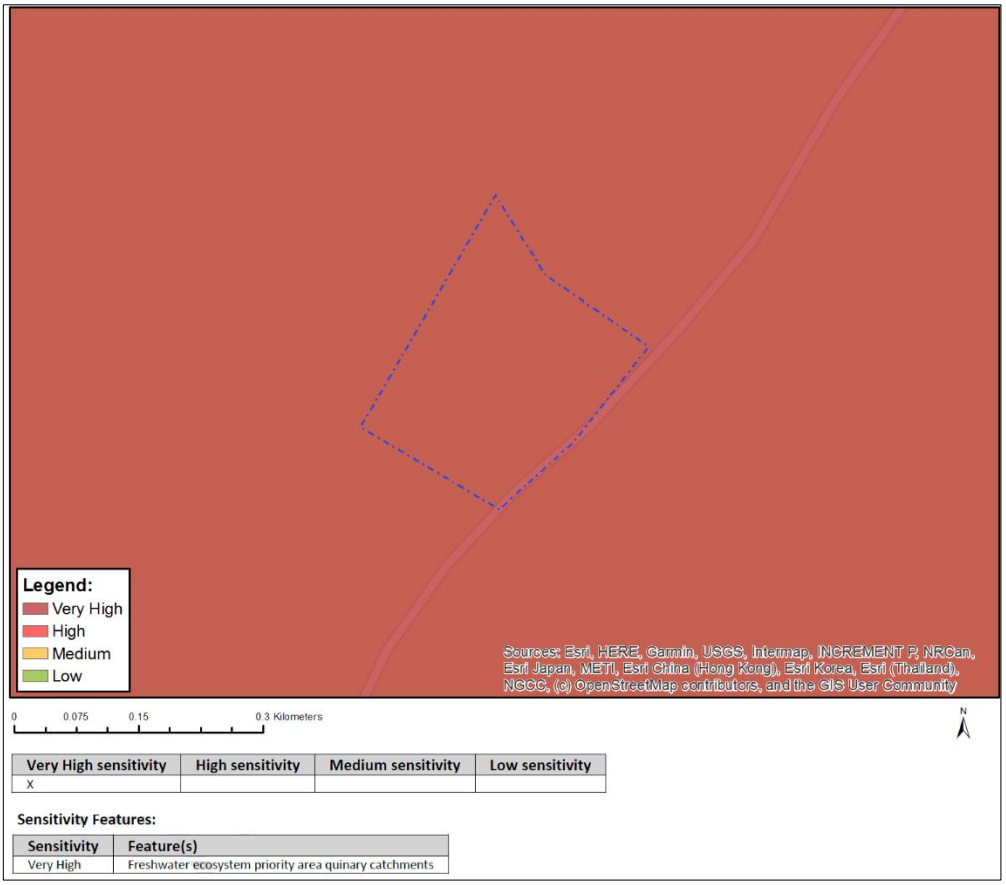


Figure N9: Freshwater resources (watercourses and wetlands) in relation to the proposed school. None occur on the site footprint. (*Source*: Google Earth).

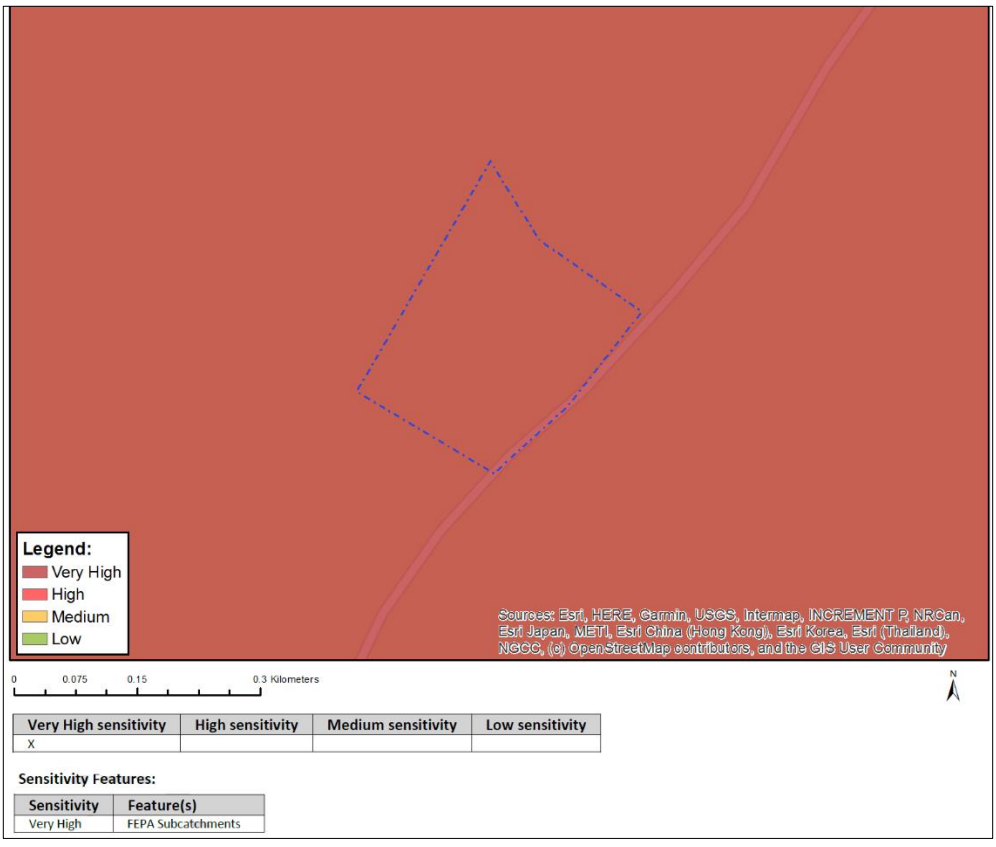


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
X			

Sensitivity Features:

Sensitivity	Feature(s)
Very High	Freshwater ecosystem priority area quinary catchments

Figure N10: High relative aquatic biodiversity (DFFE Screening tool).



Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
X			

Sensitivity Features:

Sensitivity	Feature(s)
Very High	FEPA Subcatchments

Figure N11: High relative terrestrial biodiversity (DFFE Screening tool).

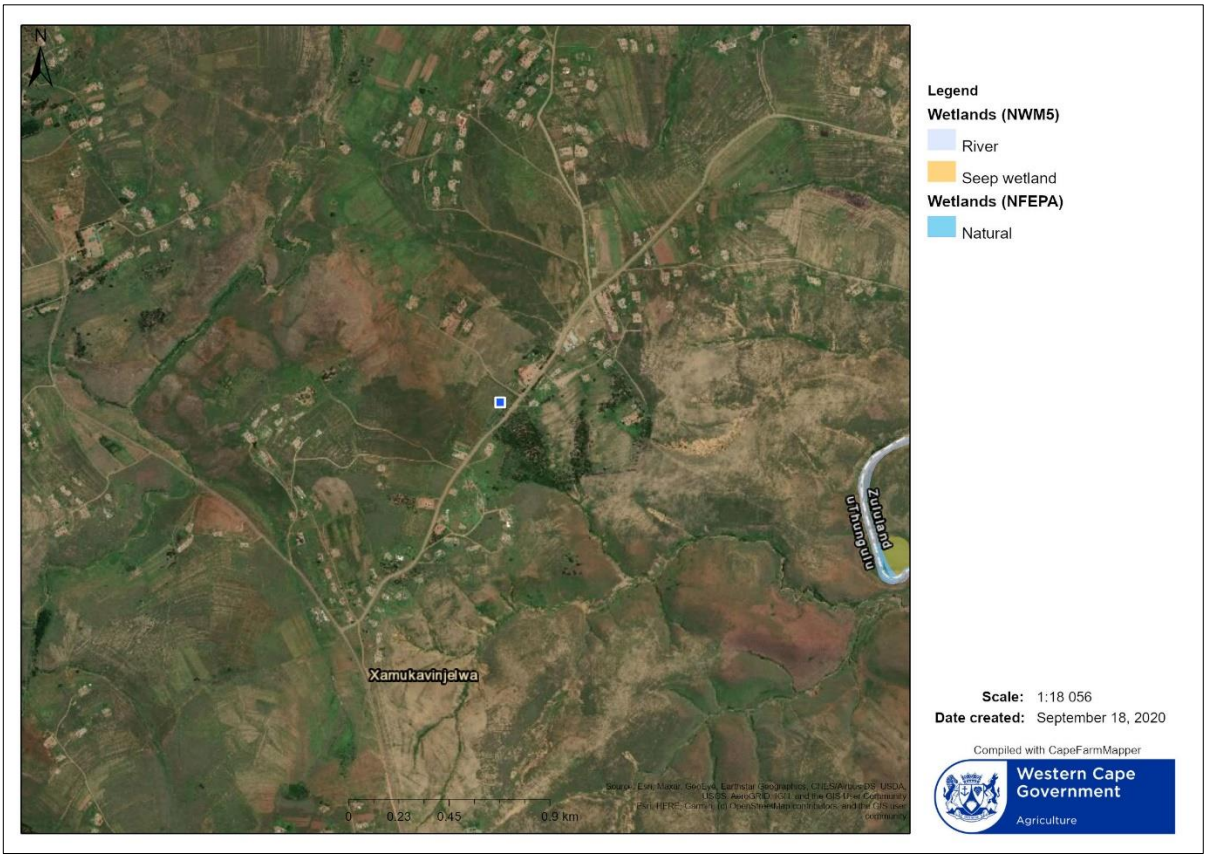


Figure N12: No watercourses occur a 500m from the site footprint. The Mhlathuze River is +/ 1.5km to the east.

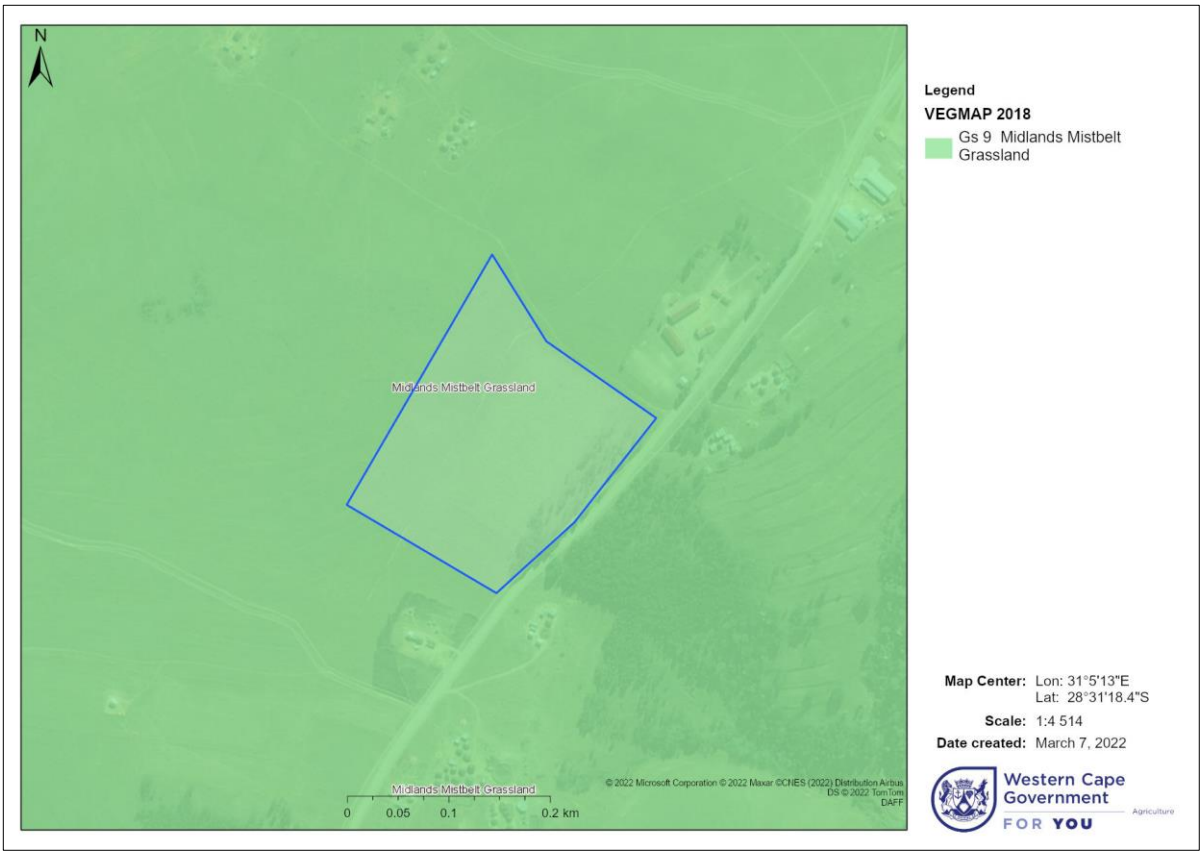


Figure N13: KZN vegetation type, the site footprint is situated in the Midlands Mistbelt Grassland (GS9).

SECTION O: LIST OF BAR APPENDICES AND ANNEXURES

The following BAR *Appendices* and *Annexures* form part of and should be read in conjunction with this final BAR document. Outstanding information will be compiled when the public participation process is complete and submitted with the final BAR.

APPENDICES		Confirm Appendix is attached (✓or **X**)
APPENDIX 1	BAR (this document)	✓
APPENDIX 2	EMPr	✓
APPENDIX 3	DFFE NATIONAL SCREENING TOOL REPORT	✓
APPENDIX 4	FRESHWATER BIODIVERSITY COMPLIANCE STATEMENT	✓
APPENDIX 5	TERRESTRIAL BIODIVERSITY COMPLIANCE STATEMENT	✓
APPENDIX 6	HERITAGE IMPACT ASSESSMENT REPORT	✓
APPENDIX 7	PALAEONTOLOGICAL IMPACT ASSESSMENT REPORT	✓
APPENDIX 8	PRELIMINARY GEOTECHNICAL ASSESSMENT	✓
APPENDIX 9	FINAL GEOTECHNICAL ASSESSMENT	✓
APPENDIX 10	TRAFFIC IMPACT ASSESSMENT	✓
APPENDIX 11	GROUNDWATER ASSESSMENT	✓
APPENDIX 12	COMBINED ENGINEER REPORT	✓
APPENDIX 13	KZN DOE ACCOMMODATION SCHEDULING MODEL	✓
APPENDIX 14	SITE DEVELOPMENT PLAN (SCHOOL LAYOUT PLAN)	✓
APPENDIX 15	PUBLIC PARTICIPATION (PP) REPORT (Includes comments and responses, email correspondence and proof of public participation)	

ANNEXURES		Confirm Annexure is attached (✓or **X)**
ANNEXURE 1A	EDTEA EA APPLICATION FORM	✓
ANNEXURE 1B	EDTEA LANDOWNER CONSENT FORM	✓
ANNEXURE 1C	EDTEA EAP DECLARATION FORM	✓
ANNEXURE 1D	CVs OF EAP AND SPECIALIST TEAM	✓
ANNEXURE 1E	EDTEA SPECIALIST DECLARATIONS OF INTEREST	✓
ANNEXURE 1F	LOCALITY MAPS	✓
ANNEXURE 2A	PRE-APPLICATION MEETING AGENDA	✓
ANNEXURE 2B	PRE-APPLICATION MEETING MINUTES	✓
ANNEXURE 2C	EDTEA ACKNOWLEDGEMENT LETTER	✓
ANNEXURE 3A	AUTHORITY AND STAKEHOLDER NOTIFICATION LETTER	✓
ANNEXURE 3B	STAKEHOLDER AND I&AP DATABASE	✓
ANNEXURE 3C	LAND OCCUPIER NOTIFICATION LETTER	✓
ANNEXURE 3D	LAND OCCUPIER NOTIFICATION LETTER DELIVERY REGISTER	
ANNEXURE 4A	BACKGROUND INFORMATION DOCUMENT (BID) - ENGLISH	✓
ANNEXURE 4B	BACKGROUND INFORMATION DOCUMENT (BID) - ISIZULU	✓
ANNEXURE 5	SITE PHOTOGRAPHS	✓
ANNEXURE 6A	REGISTRATION AND COMMENT FORM - ENGLISH	✓
ANNEXURE 6B	REGISTRATION AND COMMENT FORM - ISIZULU	✓
ANNEXURE 7	RETURNED REGISTRATION AND COMMENT FORMS	
ANNEXURE 8A	NEWSPAPER ADVERTISEMENT - ENGLISH	✓
ANNEXURE 8B	NEWSPAPER ADVERTISEMENT - ISIZULU	✓
ANNEXURE 9	LOCATIONS OF SITE NOTICES AND BAR FOR PUBLIC REVIEW	
ANNEXURE 10A	ENGLISH SITE NOTICEBOARD	✓
ANNEXURE 10B	ISIZULU SITE NOTICEBOARD	✓