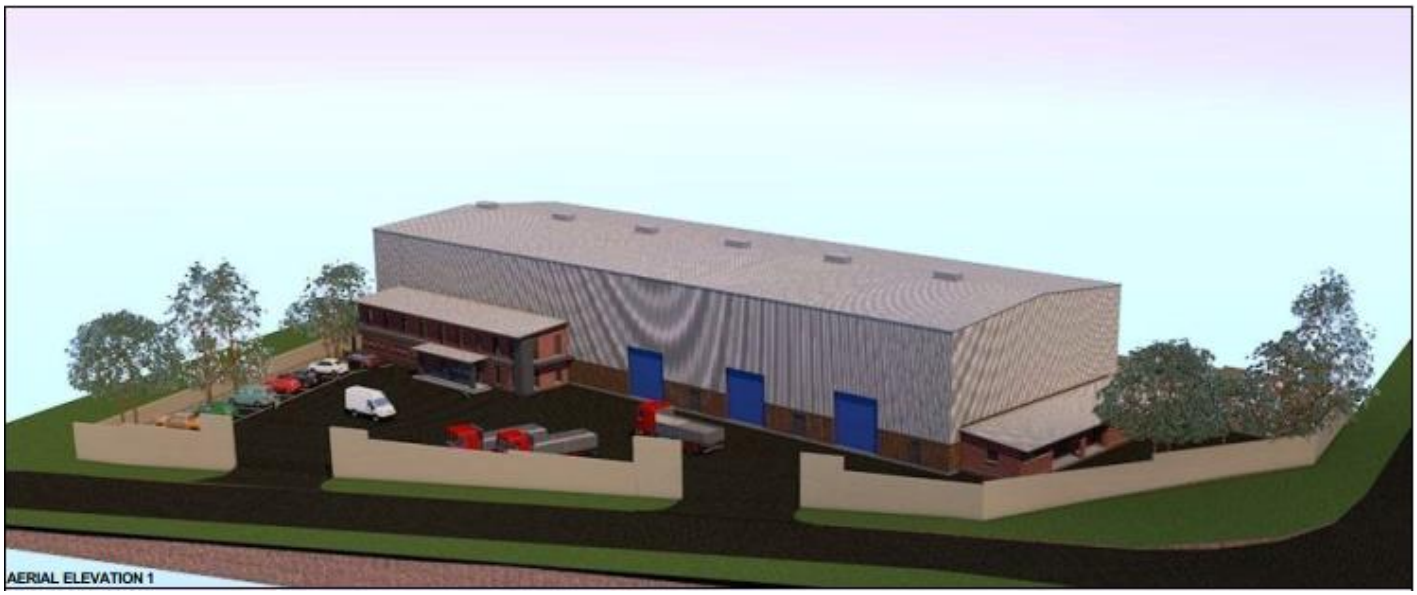
KZN EDTEA Reference Number: DC22/0002/2023

R-BAY PROPERTIES (PTY) LTD

PROPOSED CHEMICAL WAREHOUSE

Draft Environmental Impact Assessment Report



DC22/0002/2023: KZN/EIA/0001867/2023
JUNE 2023

PUBLIC

R-BAY PROPERTIES (PTY) LTD

PROPOSED CHEMICAL WAREHOUSE

Draft Environmental Impact Assessment Report

TYPE OF DOCUMENT (VERSION) PUBLIC

PROJECT NO. 41103633

OUR REF. NO. DC22/0002/2023: KZN/EIA/0001867/2023

DATE: JUNE 2023

WSP

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Abbreviation	Definition
CA	Competent Authority
CBA	Critical Biodiversity Area
CRR	Comments and Response Report
DFFE	Department of Forestry, Environment and Fisheries
DSR	Draft Scoping Report
EA	Environmental Authorisation
EAP	Environmental Assessment Practitioner
EDTEA	Economic Development, Tourism and Environmental Affairs
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
EMF	Environmental Management Framework
EMPr	Environmental Management Programme
FSR	Final Scoping Report
GNR	Government Notice Regulation
HIA	Heritage Impact Assessment
I&AP	Interested and Affected Party
IDP	Integrated Development Plan
KL	Kilo Litre
KZN	KwaZulu Natal
MAMSL	Metres Above Mean Sea Level
MHI	Major Hazardous Installation
NEMA	National Environmental Management Act
NEM: AQA	National Environmental Management: Air Quality Act
NEM:BA	National Environmental Management: Biodiversity Act

Abbreviation	Definition
NEM: WA	National Environmental Management: Waste Act
NFEPA	National Freshwater Ecosystem Priority Areas
NHRA	National Heritage Resource Act
QRA	Quantitative Risk Assessment
S&EIR	Scoping and Environmental Impact Reporting
SAHRA	South African Heritage Resources Agency
SAHRIS	South African Heritage Resources Information
SANBI	South African National Biodiversity Institute
SDF	Spatial Development Framework
SMS	Short Message Service
SoC	Species of Concern
ToR	Terms of Reference
WMA	Water Management Area

1 INTRODUCTION

WSP Group Africa (Pty) Ltd (WSP) was appointed by R-Bay Properties (Pty) Ltd (R-Bay), a subsidiary of the Richbay Group of Companies (Richbay) to undertake a Scoping and Environmental Impact Reporting (S&EIR) process for the proposed development of a chemical storage warehouse in Pietermaritzburg, KwaZulu Natal.

1.1 PURPOSE OF THIS REPORT

This Draft Environmental Impact Report (EIR) documents the process and findings of the impact assessment phase of the Scoping and Environmental Impact Reporting (S&EIR) process for the proposed chemical warehouse.

The Environmental Impact Assessment (EIA) process is an interdisciplinary procedure to ensure that environmental considerations are included in decisions regarding projects that may impact the environment. The process identifies potential environmental impacts associated with a proposed project and management actions required to either mitigate or avoid the negative impacts or to enhance the positive impacts associated with a proposed project. In the context of this report, the purpose of the S&EIR process is to inform decision-makers and the public of the environmental consequences of the proposed project.

This Draft EIR (this document) is a technical tool that identifies, predicts, and analyses impacts on the physical environment, as well as social, cultural, and health impacts. The report identifies alternatives and mitigation measures to reduce the environmental impact of the proposed project; and it also serves an important procedural role in the overall decision-making process by promoting transparency and public involvement.

1.2 BACKGROUND INFORMATION

R-Bay proposes to construct a chemical warehouse for the storage of dangerous goods with a maximum capacity of 2 000 m^3. The warehouse will be designed as a purpose-built chemical warehousing structure.

The project will entail the clearance of (potentially indigenous) vegetation on a site of 9 955 m^2, in Shortts Retreat (Mkondeni), Pietermaritzburg. The warehouse will be used as an importation hub where chemicals (already packed and palletized) will be offloaded from shipping containers, and stored, prior to dispatch to Richbay facilities throughout Southern Africa. The proposed site is adjacent to one of the existing Richbay production facilities and is required in the immediate vicinity to alleviate space constraints at the existing Richbay Pietermaritzburg site. The space constraints have been negatively affected by the increase in shipping challenges through the Durban Port. In addition, processed chemicals (already packed and palletized) will be stored prior to dispatch for international distribution. No processing or decanting will take place in the warehouse/s.

The chemicals that will be stored at the warehouse/s will include:

- Hydrochloric Acid.
- Acetic Acid.
- Sodium Hypochlorite.

- Sulphuric Acid.
- Caustic Soda (Solid).
- Caustic Soda Liquid.
- Phosphoric Acid.
- Nitric Acid.
- Sodium Metabisulphite (Solid).
- Formaldehyde.
- Ammonium 25%.
- Sodium Chlorite 25-31%

The majority (approximately 95%) of the chemicals that will be stored are NSF60 chemicals which is used in the treatment of drinking water.

1.3 KEY ROLE PLAYERS

1.3.1 PROJECT PROPONENT

R-Bay Properties (Pty) Ltd is the project proponent (Applicant) with regards to this application for the construction and operation of the chemical warehouse within the Msunduzi Local Municipality. **Table 1-1** provides the relevant details of the project proponent.

Table 1-1 – Details of Project Proponent

Proponent:	**R-Bay Properties (Pty) Ltd**
Contact Person:	Mr MF Klopper
Postal Address	PO Box 368 Richards Bay 3900
Telephone:	035 751 1702
Email:	martink@richbay.co.za

1.3.2 COMPETENT AUTHORITY

Section 24C(2)(a) of NEMA stipulates that the Minister of Forestry, Fisheries and the Environment (DFFE) ("the Minister") must be identified as the Competent Authority (CA) if the activity:

- Has implications for international environmental commitments or relations and where:
  - It is identified by the Minister by notice in the Gazette; or
  - It is an activity that takes place in an area protected by means of an international environmental instrument, other than:
    - A conservancy;
    - A protected natural environment;
    - A proclaimed private nature reserve;
    - A natural heritage site;

- The buffer zone or transitional area of a biosphere reserve, or
- The buffer zone or transitional area of a world heritage site.

The proposed warehouse is not associated with any of the above, the Minister will not act as the CA, therefore the KZN Department of Economic Development Tourism and Environmental Affairs (EDTEA) has been identified as the CA for the proposed project. The CA was confirmed during the pre-application meeting held on 14 July 2022. **Table 1-2** provides the relevant details of the CA on the project.

Table 1-2 – Competent Authority

Aspect	Competent Authority	Contact Details
Competent Authority: Environmental Authorisation	KZN EDTEA	Case Officer: Shawn Janneker Environmental Services Email: Shawn.Janneker@kznedtea.gov.za Tel: 033 247 1820

1.3.3 COMMENTING AUTHORITY

The commenting authorities for the project include but not limited to:

- Department of Water and Sanitation (DWS);
- Ezemvelo KZN Wildlife (EKZNWL);
- Department of Forestry, Fisheries and the Environment: Biodiversity Directorate (DFFE);
- KZN Department of Agriculture and Rural Development;
- Msunduzi Local Municipality;
- South African Heritage Resources Agency (SAHRA); and
- KZN Amafa and Research Institute.

Refer to the Stakeholder Engagement Report (SER) in **Appendix D** for a full list of commenting authorities.

1.3.4 ENVIRONMENTAL ASSESSMENT PRACTITIONER

WSP was appointed in the role of Independent Environmental Assessment Practitioner (EAP) to undertake the Scoping and EIA process for the proposed project. The Curriculum Vitae (CV) of the EAP is available in **Appendix A**. The EAP declaration of interest and undertaking is included in **Appendix B**. **Table 1-3** provides details the relevant contact details of the EAP.

Table 1-3 – Details of the EAP

EAP	WSP Group Africa (Pty) Ltd
Contact Person:	Patricia Nathaniel
Physical Address:	1st Floor, Pharos House, 70 Buckingham Terrace, Westville

EAP	WSP Group Africa (Pty) Ltd
	3629 South Africa
Telephone:	011 361 1398
Email:	Patricia.Nathaniel@wsp.com
EAP Qualifications:	▪ BSc (Hons) Environmental Management ▪ BSc (Geography)
EAPASA Registration Number:	EAPASA (2020/1120)

Statement of Independence

Neither WSP nor any of the authors of this Report have any material present or contingent interest in the outcome of this Report, nor do they have any business, financial, personal or other interest that could be reasonably regarded as being capable of affecting their independence. WSP has no beneficial interest in the outcome of the assessment.

1.3.5 SPECIALISTS

Specialist input was required in support of this application for EA. The details of the specialists are provided in **Table 1-4** below. The specialist studies are attached in **Appendix G** and their declarations in **Appendix C**.

Table 1-4 – Details of Specialists

Assessment	Name of Specialist	Company	Sections in Report	Specialist Report attached as
Soil and Agricultural Potential Assessment	Karen King	WSP	▪ Section 7.1.5 ▪ Section 8.3	**Appendix G.1**
Terrestrial and Aquatic Biodiversity	Aisling Dower	WSP	▪ Section 7.2.1 ▪ Section 8.4 ▪ Section 8.5	**Appendix G.2**
Desktop Geotechnical Assessment	Khuthadzo Bulala	WSP	▪ Section 1.6.7 ▪ Section7.1.4	**Appendix G.3**
Archaeological and Cultural Heritage letter of exemption	Professor AC Van Vollenhoven	Archaetnos Culture and Cultural Resource Consultants	▪ Section7.3.1 ▪ Section 8.6	**Appendix G.4**

Assessment	Name of Specialist	Company	Sections in Report	Specialist Report attached as
Desktop Palaeontological Impact Assessment	Professor Marion Bamford	Independent Specialist	▪ Section 7.3.2 ▪ Section 8.7 ▪ Section 10.3.4	**Appendix G.5**
MHI Risk Assessment	Samantha Kachikara	iSHEcon – Chemical Process Safety Engineers	▪ Section 7.3.5 ▪ Section 8.10	**Appendix G.6**
Stormwater Management Plan	Mbali Baloyi	WSP	▪ Section 7	**Appendix G.7**

1.4 ENVIRONMENTAL IMPACT ASSESSMENT TERMS OF REFERENCE

The Environmental Impact Assessment (EIA) Regulations (GNR 326), 2014 as amended, identifies the proposed R-Bay chemical warehouse as an activity being subject to an S&EIR process due to the applicability of the National Environmental Management Act (107 of 1998) EIA Regulations, 2014 as amended and the associated EIA Listing Notices 1, 2 and 3 (GNR 327, 325 and 324 as amended). In order for the project to proceed, it will require an Environmental Authorisation (EA) from the KZN EDTEA.

This EIR follows the Scoping Phase of the S&EIR process. The Scoping Phase conducted involved consultation with Interested and Affected Parties (I&APs) and compilation of the Plan of Study for the EIA (POS for EIA) which culminated in the submission of a Final Scoping Report to the KZN EDTEA on 16 February 2023.

The KZN EDTEA acceptance of the Final Scoping Report and authorisation to proceed with EIA was received in a letter dated 29 March 2023 (**Appendix D**).

As defined in Appendix 3 of GNR 326, as amended, the objective of the EIA Phase is to, through a consultative process:

- Determine the policy and legislative context within which the activity is located and document how the proposed activity complies with and responds to the policy and legislative context;
- Describe the need and desirability of the proposed activity, including the need and desirability of the activity in the context of the development footprint on the approved site as contemplated in the accepted Scoping Report;
- Identify the location of the development footprint within the approved site as contemplated in the accepted Scoping Report based on an impact and risk assessment process inclusive of cumulative impacts and a ranking process of all the identified development footprint alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects of the environment;
- Determine the—

- nature, significance, consequence, extent, duration and probability of the impacts occurring to inform identified preferred alternatives; and;
- degree to which these impacts—
  - can be reversed;
  - may cause irreplaceable loss of resources, and
  - can be avoided, managed or mitigated;

- Identify the most ideal location for the activity within the development footprint of the approved site as contemplated in the accepted scoping report based on the lowest level of environmental sensitivity identified during the assessment;
- Identify, assess, and rank the impacts the activity will impose on the development footprint on the approved site as contemplated in the accepted scoping report through the life of the activity;
- Identify suitable measures to avoid, manage or mitigate identified impacts; and
- Identify residual risks that need to be managed and monitored.

The Public Participation Process (PPP) is a requirement of the S&EIR process; it consists of a series of inclusive interactions aimed at providing stakeholders with opportunities to express their views, so that these can be considered and incorporated into the S&EIR decision-making process. Effective public participation requires the prior disclosure of relevant and adequate project information to enable stakeholders to understand the risks, impacts, and opportunities of the proposed project. The objectives of the PPP can be summarised as follows:

- Identify relevant individuals, organisations and communities who may be interested in or affected by the proposed project;
- Clearly outline the scope of the proposed project, including the scale and nature of the existing and proposed activities;
- Identify viable proposed project alternatives that will assist the relevant authorities in making an informed decision;
- Identify shortcomings and gaps in existing information;
- Identify key concerns, raised by Stakeholders that should be addressed in the subsequent specialist studies;
- Highlight the potential for environmental impacts, whether positive or negative; and
- To inform and provide the public with information and an understanding of the proposed project, issues and solutions.

1.5 ENVIRONMENTAL IMPACT REPORT STRUCTURE

As per the EIA Regulations 2014, as amended, Appendix 3 of GNR 326 identifies the legislated requirements that must be contained within An EIR for the CA to consider and come to a decision on the application. **Table 1-5** below details where the required information is located within this report.

Table 1-5 – Legislated Report Requirements as detailed in GNR 326

Appendix 1 of GNR 326	Description	Relevant Report Section
3(1) (a)	Details of the EAP who prepared the report and the expertise of the EAP, including a curriculum vitae	Section 1.3.4 and **Appendix A**
3(1) (b)	The location of the activity	Section 6.1
3(1) (c)	A plan which locates the proposed activity or activities applied for as well as associated structures and infrastructure at an appropriate scale	Section 6.1 **Appendix I**
3(1) (d)	A description of the scope of the proposed activity	Section 6.1
3(1) (e)	A description of the policy and legislative context within which the development is proposed	Section 2
3(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 location	Section 5
3(1) (g)	A motivation for the preferred site, activity and technology alternative	Section 6.6
3(1) (h)	A full description of the process followed to reach the proposed alternative within the site	Section 6.6
3(1) (i)	A full description of the process undertaken to identify, assess and rank the impacts the activity will impose on the preferred location through the life of the activity	Section 6.6
3(1) (j)	An assessment of each identified potentially significant impact and risk	Section 8
3(1) (k)	Where applicable, a summary of the findings and impact management measures identified in any specialist report complying with Appendix 6 to these Regulations and an indication as to how these findings and recommendations have been included in the final report	▪ Section 8 ▪ Section 10
3(1) (l)	An environmental impact statement	Section 10
3(1) (m)	Based on the assessment, and where applicable, impact management measures from specialist reports, the recording of the proposed impact management objectives, and the impact management outcomes for the development for inclusion in the Environmental Management Programme (EMPr).	Section 8 **Appendix H**
3(1) (n)	Any aspects which were conditional to the findings of the assessment either by the EAP or specialist which are to be included as conditions of authorisation.	Section 10.4

Appendix 1 of GNR 326	Description	Relevant Report Section
3(1) (o)	A description of any assumptions, uncertainties and gaps in knowledge which relate to the assessment and mitigation measures proposed	Section 1.6
3(1) (p)	A reasoned opinion as to whether the proposed activity should or should not be authorised, and if the opinion is that it should be authorised, any conditions that should be made in respect of that authorisation	Section 10.5
3(1) (q)	Where the proposed activity does not include operational aspects, the period for which the environmental authorisation is required, the date on which the activity will be conducted, and the post construction monitoring requirements finalised	N/A
3(1) (r)	An undertaking under oath or affirmation by the EAP	**Appendix B**
3(1) (s)	Where applicable, details of any financial provisions for the rehabilitation, closure, and ongoing post decommissioning management of negative environmental impacts	N/A
3(1) (t)	Any specific information that may be required by the competent authority	N/A
3(1) (u)	Any other matters required in terms of section 24(4)(a) and (b) of the Act	N/A

1.6 ASSUMPTIONS AND LIMITATIONS

1.6.1 GENERAL ASSUMPTIONS AND LIMITATIONS:

- The EAP hereby confirms that they have undertaken to obtain project information from the client that is deemed to be accurate and representative of the project;
- Site visits have been undertaken to better understand the project and ensure that the information provided by the client is correct, based on site conditions observed;
- The EAP hereby confirms their independence and understands the responsibility they hold in ensuring all comments received are accurately replicated and responded to within the EIA documentation;
- The comments received in response to the public participation process, will be representative of comments from the broader community; and
- Based on the Pre-Application meeting and subsequent minutes, the CA would not require additional specialist input, in order to make a decision regarding the application.

1.6.2 TERRESTRIAL BIODIVERSITY ASSESSMENT

Dedicated fauna surveys were not conducted, since these were not considered warranted due to the degraded nature of habitats within and surrounding the LSA, which

was considered to be of limited importance in terms of support of fauna species. An assessment of the suitability of habitats in the LSA to support faunal species of concern with potential to occur was conducted.

It is possible that certain flora taxa such as short-lived annuals, geophytes, cryptic species or dormant deciduous species, that are most readily visible or distinguishable when in leaf or flower, may have been apparent at different times in the wet/growing season and as such may have been overlooked during field visit.

1.6.3 AQUATIC COMPLIANCE STATEMENT

DATA USED FOR SPECIALIST ASSESSMENT

The Aquatic Biodiversity Species Compliance statement was prepared on the basis of the site sensitivity verification process undertaken in response to the national web-based screening report. The site sensitivity verification was completed via desktop analysis of available datasets, aerial imagery and the site visit conducted in December 2021.

The wetland survey was done in December 2021, which coincides with the wet season and as such maximised the opportunity for the detection and identification of flowering wetland plants, delineation using vegetation indicators, and assessment of ecological importance and sensitivity (EIS).

It is therefore considered that there are no sampling or information limitations pertaining to this Aquatic Biodiversity Species Compliance Statement and the recommendations contained in this report.

ASSUMPTIONS, UNCERTAINTIES, OR GAPS IN KNOWLEDGE

The aquatic biodiversity baseline description is qualitative and based on the available desktop information and findings of the December 2021 site visit. The recommended mitigation/management measures focus on the mitigation of potential impacts on aquatic ecosystem/species receptors that occur within 500 m of the proposed project infrastructure within the study area.

1.6.4 HERITAGE IMPACT ASSESSMENT

- There are no assumptions and limitations associated with the Soils and Agricultural Assessment.

1.6.5 SOILS AND AGRICULTURAL ASSESSMENT

- There are no assumptions and limitations associated with the Soils and Agricultural Assessment.

1.6.6 MAJOR HAZARD RISK ASSESSMENT

The calculation of risk is affected both by the consequence modelling and the frequency estimates.

The consequence modelling is well known and international software was used. Consequence modelling therefore does not contribute greatly to the uncertainty and sensitivity of the risks results. However, the following should be noted:

- Bunding/ curbing was assumed in the modelling calculations.

Frequency estimates, on the other hand, do contribute especially with scenarios that are not readily available in international databases. When calculating these, this assessment has generally erred on the side of caution.

Overall, on-site risks may be an order of magnitude higher or lower than shown above. Either way this will not change the fundamental conclusions of this assessment that the site is an MHI and that the risks are mostly acceptable. Any facility should always strive to ensure they have done everything reasonably practicable to reduce the risks, i.e. ALARP.

1.6.7 DESKTOP GEOTECHNICAL ASSESSMENT

- WSP did not perform a complete assessment of all possible conditions or circumstances that may exist at the site referenced in the Document. If a service is not expressly indicated, do not assume it has been provided. If a matter is not addressed, do not assume that any determination has been made by WSP in regard to it.
- Conditions may exist which were undetectable given the limited nature of the enquiry WSP was retained to undertake with respect to the site. Variations in conditions may occur between investigatory locations, and there may be special conditions pertaining to the site which have not been revealed by the investigation and which have not therefore been taken into account in the Document. Accordingly, additional studies and actions may be required.
- In addition, it is recognised that the passage of time affects the information and assessment provided in the Document. WSP's opinions are based upon information that existed at the time of the production of the Document. It is understood that the Services provided allowed WSP to form no more than an opinion of the actual conditions of the site at the time the site was visited and cannot be used to assess the effect of any subsequent changes in the quality of the site, or its surroundings, or any laws or regulations.
- Any assessments made in this Document are based on the conditions indicated from published sources and the investigation described. No warranty is included, either express or implied, that the actual conditions will conform exactly to the assessments contained in the Document.
- Where data supplied by the client or other external sources, including previous site investigation data, have been used, it has been assumed that the information is correct unless otherwise stated. No responsibility is accepted by WSP for incomplete or inaccurate data supplied by others.
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- Any use which a third party makes of this Document, or any reliance on or decisions to be made based on it, is the responsibility of such third parties. WSP accepts no responsibility for damages, if any, suffered by any third party because of decisions made or actions based on the Document.

1.6.8 DESKTOP PALAEONTOLOGY ASSESSMENT

Based on the geology of the area and the palaeontological record as we know it, it can be assumed that the formation and layout of the dolomites, sandstones, shales and sands are typical for the country and might contain trace fossils of invertebrates, but none has been reported from this site. The soils and sands of the Quaternary period would not preserve fossils.

1.6.9 STORMWATER MANAGEMENT PLAN

The following assumptions were made for the hydrologic and hydraulic input parameters:

Table 1-6 - Model Input Parameter

Parameter	Input used in model	Comment
Pervious/Impervious Surface	Paved catchments and roofs assumed 100 % impervious and vegetated areas assumed 95 % pervious	
Manning's N roughness coefficients for catchments	Asphalt paved areas: 0.011 Grass cover: 0.15 Corrugated iron roof: 0.024	
Soil Type and Infiltration Method	Sandy Loam, the Modified Green Ampt infiltration method was used as the infiltration method in the model with the following properties: Avg. Capillary Suction Head: 110.1 mm Hydraulic Conductivity: 21.8 mm/hr Initial Moisture content deficit: 0.358	The Green-Ampt method is a function of the soil suction head, porosity, hydraulic conductivity, and time used to estimate infiltration into the soil
Cross-sectional profile of channels evaluated	Trapezoidal	
Manning's roughness coefficients for diversion channels	Asphalt: 0.013 Concrete: 0.015	

Parameter	Input used in model	Comment
Flood type used in Model	South African SCS 24-hour Type 3	Based on the location of the site.
Design rainfall depth	185 mm	

2 GOVERNANCE FRAMEWORK

2.1 NATIONAL LEGAL AND REGULATORY FRAMEWORK

The South African regulatory framework establishes well-defined requirements and standards for environmental and social management of industrial and civil infrastructure developments. Different authorities at both national and regional levels carry out environmental protection functions. The applicable legislation and policies are shown in **Table 2-1.**

Table 2-1 – Applicable National Legislation[1]

Legislation	Description of Legislation and Applicability
The Constitution of South Africa (No. 108 of 1996)	The Constitution cannot manage environmental resources as a stand-alone piece of legislation hence additional legislation has been promulgated in order to manage the various spheres of both the social and natural environment. Each promulgated Act and associated Regulations are designed to focus on various industries or components of the environment to ensure that the objectives of the Constitution are effectively implemented and upheld in an on-going basis throughout the country. In terms of Section 7, a positive obligation is placed on the State to give effect to the environmental rights.
National Environmental Management Act (No. 107 of 1998)	In terms of Section 24(2) of the NEMA, the Minister may identify activities which may not commence without prior authorisation. The Minister thus published GNR 327 (Listing Notice 1), 325 (Listing Notice 2) and 324 (Listing Notice 3), as amended, listing activities that may not commence prior to authorisation. The regulations outlining the procedures required for authorisation are published in GNR 326 [2014 Environmental Impact Assessment Regulations (EIA)] (as amended). Listing Notice 1 identifies activities that require a Basic Assessment (BA) process to be undertaken, in terms of the EIA Regulations, prior to commencement of that activity. Listing Notice 2 identifies activities that require an S&EIR process to be undertaken, in terms of the EIA Regulations, prior to commencement of that activity. Listing Notice 3 identifies activities within specific areas that require a BA process to be undertaken, in terms of the EIA Regulations, prior to commencement of that activity. WSP undertook a legal review of the listed activities according to the proposed project description to conclude that the activities listed in this section are considered applicable to the development: A S&EIR process must be followed. An EA is required and has been applied for with the KZN EDTEA.

[1] It should be noted that all dimensions outlined in relation to Listing Notice 1, 2 and 3 are provisional and are subject to final design.

Legislation	Description of Legislation and Applicability
Listing Notice 2: GNR 325 The KwaZulu Natal EDTEA is the competent authority	***Activity 4*** *– The development and related operation of facilities or infrastructure, for the storage, or storage and handling of a dangerous good, where such storage occurs in containers with a combined capacity of more than 500 cubic metres.* **Description:** The proposed project involves the erection of a chemical warehouse with a maximum storage capacity of 2000 m^3 of chemicals. Proposed chemicals to be stored: ▪ Hydrochloric Acid ▪ Acetic Acid ▪ Sodium Hypochlorite ▪ Sulphuric Acid ▪ Caustic Soda (Solid) ▪ Caustic Soda Liquid ▪ Phosphoric Acid ▪ Nitric Acid ▪ Sodium Metabisulphite (Solid) ▪ Formaldehyde ▪ Ammonium 25% ▪ Sodium Chlorite 25-31%
Listing Notice 3: GNR 324 The KwaZulu Natal EDTEA is the competent authority	***Activity –12(d)(v)*** *- The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan.* *d. KwaZulu-Natal* *v. Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans* **Description:** The project will entail the clearance of (potentially indigenous) vegetation on a site of 9 955 m^2 within a critical biodiversity area, in Shortts Retreat (Mkondeni), Pietermaritzburg.
National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004)	The National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004) (NEM:BA) was promulgated in June 2004 within the framework of the NEMA to provide for the management and conservation of national biodiversity. The NEM:BA's primary aims are for the protection of species and ecosystems that warrant national protection, the sustainable use of indigenous biological resources, the fair and equitable sharing of benefits arising from bioprospecting involving indigenous biological resources. In addition, the NEM:BA provides for the establishment and functions of a South African National Biodiversity Institute (SANBI). SANBI was established by the NEM:BA with the primary purpose of reporting on the status of the country's biodiversity and conservation status of all listed threatened or protected species and ecosystems. Critical biodiversity areas (CBAs) are areas of high biodiversity value which are usually at risk of being lost and usually identified as

Legislation	Description of Legislation and Applicability
	important in meeting biodiversity targets, except for Critically Endangered Ecosystems or Critical Linkages. CBAs in the Province can be divided into two sub-categories: ■ Irreplaceable (parts of the site are within this sub-category), and ■ Optimal (northern parts of the site are within this sub-category). Based on the Ezemvelo KZN Wildlife 2014, uMgungundlovu District Municipality Biodiversity Sector Plan, the development falls within an irreplaceable CBA. This is defined as areas that are considered critical for meeting biodiversity targets and thresholds, and which requires to ensue persistence of viable populations of species and functional ecosystems. There are also some Ecological Support Area (ESA) Local and Landscape corridors demarcated adjacent to the site. Terrestrial ecology studies will be undertaken during the EIA phase to inform the assessment of impacts and will include flora surveys of the project footprint to determine the presence of flora species of concern (SoC). The Conservation of Agricultural Resources Act (No. 43 of 1983) (CARA) Regulations with regards to alien and invasive species have been superseded by the National Environmental Management: Biodiversity Act, 2004 (Act no. 10 of 2004) – Alien and Invasive Species (AIS) Regulations which became law on 1 October 2014. Specific management measures for the control of alien and invasive plants will be included in the Environmental Management Programme (EMPr).
The National Heritage Resources Act (No. 25 Of 1999)	The National Heritage Resource Act (Act No. 25 of 1999) (NHRA) serves to protect national and provincial heritage resources across South Africa. The NHRA provides for the protection of all archaeological and palaeontological sites, the conservation and care of cemeteries and graves by the South African Heritage Resources Agency (SAHRA), and lists activities that require any person who intends to undertake to notify the responsible heritage resources agency and furnish details regarding the location, nature, and extent of the proposed development. Part 2 of the NHRA details specific activities that require a Heritage Impact Assessment (HIA) that will need to be approved by SAHRA. Parts of Section 35, 36 and 38 apply to the proposed project, principally: Section– 35 (4) - No person may, without a permit issued by the responsible heritage resources authority- ■ destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or palaeontological site or any meteorite; ■ destroy, damage, excavate, remove from its original position, collect or own any archaeological or palaeontological material or object or any meteorite. ■ Section 38 (1) Subject to the provisions of subsections (7), (8) and (9), any person who intends to undertake a development categorised as- ■ any development or other activity which will change the character of a site— (i) exceeding 5 000 m^2 in extent, must at the very earliest stages of initiating such a development, notify the

Legislation	Description of Legislation and Applicability
	responsible heritage resources authority and furnish it with details regarding the location, nature and extent of the proposed development. In terms of Section 38(8), approval from the heritage authority is not required if an evaluation of the impact of such development on heritage resources is required in terms of any other legislation (such as NEMA), provided that the consenting authority ensures that the evaluation of impacts fulfils the requirements of the relevant heritage resources authority in terms of Section 38(3) and any comments and recommendations of the relevant resources authority with regard to such development have been taken into account prior to the granting of the consent. However, should heritage resources of significance be affected by the proposed project, a permit is required to be obtained prior to disturbing or destroying such resources as per the requirements of Section 48 of the NHRA, and the SAHRA Permit Regulations (GN R668). The heritage specialist recommended that a HIA not be undertaken for the project area due to the existing conditions on the site. The request for exemption from a HIA is included in **Appendix G.5.** The EIA for the project will be loaded onto the SAHRIS portal for comment by SAHRA.
Occupational Health and Safety Act (No. 85 –f 1993) - *Major Hazard Installation Regulations, GNR 692*	Definitions in the regulations state that a Major Hazard Installation (MHI) is an installation where a substance is stored that is listed in Schedule A of the General Machinery regulations of the Occupational Health and Safety Act and the quantity exceeds those stipulated. It is an installation where a substance is produced, processed, used, handled or stored in such a form and quantity that it has the potential to cause a major incident. A Major Incident is an event or occurrence of catastrophic proportions resulting from the use of plant and machinery, or from activities at a workplace.
SANS 1–61:2018 - *Major Hazard Installation - Risk Assessments*	The regulation requires that a risk assessment be carried out by a Department of Labour Approved Inspection Authority (AIA). For this installation a Quantitative Risk Assessment is required and is aligned with the standards for Major Hazard Installation Risk Assessments. Risk is made up of two components: ▪ The probability of a certain magnitude of hazardous event occurring. ▪ The severity of the consequences of the hazardous event. A risk assessment is, therefore, typically comprised of the following aspects: ▪ Identification of the likely hazards expected to be associated with the operation of the installation; ▪ Quantification of the hazards in terms of their likely frequency and magnitude; ▪ Determination of the consequences of the hazards and their severity, should these occur;

Legislation	Description of Legislation and Applicability
	▪ Estimating the risk and comparing this with certain acceptability criteria.
SANS 10–28:2012 - *The identification and classification of dangerous goods for transport by road and rail modes*	SANS 10228 covers the identification of dangerous goods that are capable of posing a significant risk to health and safety or to property and the environment. Dangerous goods are classified in nine classes and three packing groups in accordance with the United Nation. This code forms part of the requirements for assessing the dangerous goods aspect under the MHI regulations.
SANS 10–34:2019 - *Globally Harmonized System of classification and labelling of chemicals (GHS)*	SANS 10234 covers the harmonized criteria for the classification of hazardous substances and mixtures, including waste, for their safe transport, use at the workplace or in the home according to their health, environmental and physical hazards. This code forms part of the requirements for assessing the dangerous goods aspect under the MHI regulations.
SANS 10263-0:2010 – *The warehousing of dangerous goods*	SANS 10263-0 covers the warehousing of dangerous goods and covers aspects relating to storage considerations, key responsibilities, warehouse construction, fire protection measures, firefighting, warehouse organization and technology, safe operating procedures, housekeeping, Health Safety and Environmental requirements, Security and emergency planning.

2.2 POLICIES AND PLANS

Table 2-2 summarised key policies and plans as an outline of the governance framework for the project.

Table 2-2 – Applicable Regional Policies and Plans

Applicable Policy	Description of Policy
National Development Plan	The National Development Plan aims to eliminate poverty and reduce inequality by 2030. The NDP identifies a number of enabling milestones. Of relevance to the proposed development the NDP refers to the need to produce sufficient energy to support industry at competitive prices and ensure access for poor households, while reducing carbon emissions per unit of power by about one-third. In this regard the infrastructure is not just essential for faster economic growth and higher employment. It also promotes inclusive growth, providing citizens with the means to improve their own lives and boost their incomes. Infrastructure is essential to development. Chapter 3, Economy and Employment, identifies some of the structural challenges specific to South Africa, including an energy constraint that will act as a cap on growth and on options for industrialisation. The NDP notes that from an environmental perspective South Africa faces several related challenges. The reduction of greenhouse gas emissions and shift to a green low-carbon economy, is one of these challenges.

Applicable Policy	Description of Policy
	In terms of implementation the NDP identifies three phases. The first two are of specific relevance to the proposed project. The first phase (2012–2017) notes that ensuring the supply of energy and water is reliable and sufficient for a growing economy. The second phase (2018–2023) involves building on the first phase to lay the foundations for more intensive improvements in productivity. The provision of affordable and reliable energy is a key requirement for this to take place. Chapter 4, Economic infrastructure, notes that economic infrastructure provides the foundation for social and economic development. In this regard South Africa must invest in a strong network of economic infrastructure designed to support the country's medium- and long-term economic and social objectives. The plan envisages that, by 2030, South Africa will have an energy sector that promotes: ▪ Economic growth and development through adequate investment in energy infrastructure. The sector should provide reliable and efficient energy service at competitive rates, while supporting economic growth through job creation. ▪ Environmental sustainability through efforts to reduce pollution and mitigate the effects of climate change. More specifically, South Africa should have adequate supply security in electricity and in liquid fuels, such that economic activity, transport, and welfare are not disrupted. The plan sets out steps that aim to ensure that, in 20 years, South Africa's energy system looks very different to the current situation. In this regard coal will contribute proportionately less to primary-energy needs, while gas and renewable energy resources, will play a much larger role.
New Growth Path	Government released the New Economic Growth Path Framework on 23 November 2010. The aim of the framework is to enhance growth, employment creation and equity. The policy's principal target is to create five million jobs over the next 10 years and reflects government's commitment to prioritising employment creation in all economic policies. The framework identifies strategies that will enable South Africa to grow in a more equitable and inclusive manner while attaining South Africa's developmental agenda. Central to the New Growth Path is a massive investment in infrastructure as a critical driver of jobs across the economy. In this regard the framework identifies investments in five key areas namely: energy, transport, communication, water, and housing.
National Protected Area Expansion Strategy, 2010	The National Protected Area Expansion Strategy 2010 (NPAES) areas were identified through a systematic biodiversity planning process. They present the best opportunities for meeting the ecosystem-specific protected area targets set in the NPAES and were designed with strong emphasis on climate change resilience and requirements for protecting freshwater ecosystems. These areas should not be seen as future boundaries of protected areas, as in many cases only a portion of a particular focus area would be required to meet the

Applicable Policy	Description of Policy
	protected area targets set in the NPAES. They are also not a replacement for fine scale planning which may identify a range of different priority sites based on local requirements, constraints and opportunities (NPAES, 2010). According to the NPAES (2016) dataset, the project area falls within a Priority Focus Area, which is of high importance for biodiversity because it is considered a high priority for protected area expansion.

2.3 PROVINCIAL AND MUNICIPAL LEGAL AND REGULATORY FRAMEWORK

Table 2-3 – Provincial Plans

Applicable Plan	Description of Plan
Msunduzi Integrated Development Plan (2021/22)	The main purpose of the Integrated Development Plan (IDP) is to foster more appropriate service delivery by providing the framework for economic and social development within the municipality. In doing so it contributes towards eradicating the development legacy of the past, operationalises the notion of developmental local government and foster a culture of co-operative governance amongst the three spheres. Integrated development planning is a process whereby municipalities prepare strategic development plans for a five-year period. IDPs are the main platform through which sustainable provision of service delivery could be achieved. They intend to promote co-ordination between local, provincial and national government. Once adopted by Council, these plans should inform planning, decision making, budgeting, land management, promotion of local economic development, and institutional transformation in a consultative systematic and strategic manner. Msunduzi's municipal visions is "A safe, vibrant city in which to live, learn, raise a family, work, play and do business", with its mission "To ensure that the Municipality functions effectively and in a sustainable manner in order to deliver services of excellence to the community" This will be achieved by meeting the goals of the six strategic city-wide outcomes, together with their related objectives as defined below: ▪ A well-serviced city; • Water and sanitation delivery; • Energy supply provision; • Implementation of waste management; ▪ An accessible, connected city; • Roads construction and maintenance; • Transport management; • Human settlement development • Telecommunications connectivity;

Applicable Plan	Description of Plan
	• Social infrastructure distribution; ▪ A clean, green city; • Renewable energy supplies; • Public open space creation; • Urban renewal and greening promotion; ▪ A friendly, safe city; • Social cohesion; • Safety and security; ▪ An economically prosperous city; • Job creation; ▪ A financially viable and well-governed city; • Financial viability and good governance.
Msunduzi Spatial Development Framework (2022)	The main purpose of the Spatial Development Framework (SDF) to influence the overall spatial distribution of current and future land use in a municipality in order to restructure and transform the city to be more compact, productive, inclusive and sustainable. It assists the municipality in realising its vision by spatially articulating the vision and informing the municipality's IDP as well as the Land Use Planning By-Law. An SDF "must include the provision of basic guidelines for a land use management system for the Municipality." The Municipality's strategic location has supported the establishment of a very strong industrial base. Mkondeni is the primary industrial node in the Msunduzi Municipality. With the emergence of industrial nodes along the N3 at Camperdown (the Mkhambathini Municipality), Cato Ridge and Hammersdale (eThekwini), the locational importance and the role the Msunduzi Municipality could play in the regional context has become more pronounced. The N3 Corridor Development Plan locates the city as part of the KZN Industrial and Logistics Hub highlighting the significance of manufacturing and industrial sectors located along the N3 between Pinetown / New Germany and Pietermaritzburg for the regional economy. The plan proposes that existing industrial nodes within Pietermaritzburg be further developed and enhanced i.e., industrial areas Mason's Mill & Pentrich be explored, and Mkondeni expanded to the south and east. The proposed site is located within the Mkondeni area which is earmarked for industrial activities (**Figure 2-1**). In addition, the site is situated in a developable area (**Figure 2-2**). A desirable location for industries and industrial development is where a concentration exists. It should be close to and accessible to labour markets, sources of materials (in terms of type, quantity and delivery costs) and product markets. The sites must be accessible from main transport routes (savings on transport, increased labour market, accessibility of product and visibility), while a location near rail facilities or an airport, would be an asset. In particular, the N3 corridor that runs through the municipality and is near the CBD is ideal to provide opportunities for industrial

Applicable Plan	Description of Plan
	development. These opportunities could then be located in proximity to a national transportation route, along the SIP 2 corridor connecting the Durban Harbour and major markets within Gauteng and offer high visibility to industries. Spatial planning and land use management systems must promote the principles of socio-economic and environmental sustainability. Biodiversity areas and other environmental sensitive areas near Ncwadi in Ward 39 and along the Msunduzi River (between Pietermaritzburg and Scottsville) and Mkhondeni Spruit (between Ashburton and Mkondeni) must be considered. The SDF notes that the site is within an area that is earmarked for industrial expansion, however, the sustainability of projects must also be considered. The S&EIR process are thus aligned to this requirement and the socio-economic and environmental sustainability are considered.
Msunduzi Single Land Use Scheme (2022)	The scheme applies to all the areas within the jurisdiction of the Msunduzi Municipality as reflected in the associated Scheme map (MSU/SLUS/01/21). The purpose of this Scheme is to guide and manage development within the Municipality in accordance with the vision, strategies and policies of the IDP and associated SDF in order to promote sustainable development. Furthermore, the scheme is used to determine development rights and parameters in the Municipality. The extent and location of the various land use zones shall be as set out on the adopted Single Land Use Scheme Map. Within each zone, there are restrictions with regard to the use of land and the erection and use of buildings. Based on **Figure 2-3**, the site is situated within a SEDi Lap Industrial Development Zone. The proposed development will likely be classified as a General Industry and will either be Permissible (A) or Consent (B). Town Planning approvals will form a separate application (if required) from the S&EIR process.
Msunduzi Integrated Environmental Management Plan (IEMP) (2017)	The Msunduzi Municipality acknowledges that, development must be economically and socially sustainable, however it is also imperative that the development challenges facing Msunduzi be addressed in an environmentally sustainable manner. To overcome the imbalance of providing much needed service delivery, adequate housing, promoting commercial and industrial development, reducing unemployment while simultaneously protecting and conserving the environment. The Msunduzi Municipality has a responsibility towards the well being of the City which includes the protection of its residents and its ecological infrastructure with associated ecosystem goods and services. The Msunduzi Municipalities 2030 Vision lists a 'clean, green city' as one of its 6 strategic priority city-wide outcomes. The main outcome of this priority is: "*By 2030 Msunduzi is a city protecting our natural environment, our native plants and animal habitats, limiting pollution, greening the city and using our natural resources such as water, wisely. The clean,*

Applicable Plan	Description of Plan
	green city, harnesses our renewable energy supply, public open space creation project and urban renewal and greening programme to those ends. Msunduzi conserves its natural assets while still meeting the demand for more housing, more roads and more services to accommodate our increasing population." Further to this strategic priority is "Communities benefit from a linked public open space network providing for a range of sporting, cultural and recreational uses with a 2030 target of facilities within the public, open and green space network being within a 15 minute (walking or cycling) to 100% of residents."
Environmental Management Framework (EMF)	The purpose of the greater Msunduzi EMF project is to provide for informed decision making and a framework against which plans, programs and policies can be assessed in the future. Based on the EMF the following characteristics are applicable to the site (**Figure 2-4**): ▪ Agriculturally the site is suitable for development. ▪ Air quality the site is sensitive. ▪ Biodiversity there are developmental constraints. ▪ The site is situated outside a flood zone. ▪ The site is situated outside heritage zones. ▪ The water quality is seriously modified. ▪ There is a very high level of service provision. The characteristics of the site have been confirmed by the specialist studies included in **Appendix G.**
By-Laws	There are numerous by-laws in the Msunduzi Municipality that may be applicable to the project, including but not limited to: ▪ Electricity Supply Bylaws. ▪ Fire Brigade Bylaws. ▪ Fire Prevention and Flammable Liquids & Substances Bylaws. ▪ Spatial Planning and Land Use Management Bylaws. ▪ Waste Management Bylaws.

Additional permits and Authorisations **Table 2-4** outlines the additional permits and authorisations required for the proposed development, as well as the relevant Competent Authorities responsible.

2.3.1 ADDITIONAL PERMITS AND AUTHORISATIONS

Table 2-4 – Additional Permits and Authorisations required for the proposed development

Permits / Authorisation	Legislation	Relevant Authority	Status
Section 38 (8) for the review of environmental documents	Section 38 (1) & (8) of the NHRA	SAHRA	Submitted (CaseID: 20361)

Permits / Authorisation	Legislation	Relevant Authority	Status
Permits for removal or destruction of nationally protected plant species	NEM:BA	DFFE	If required, permits will be obtained prior to the commencement of construction.

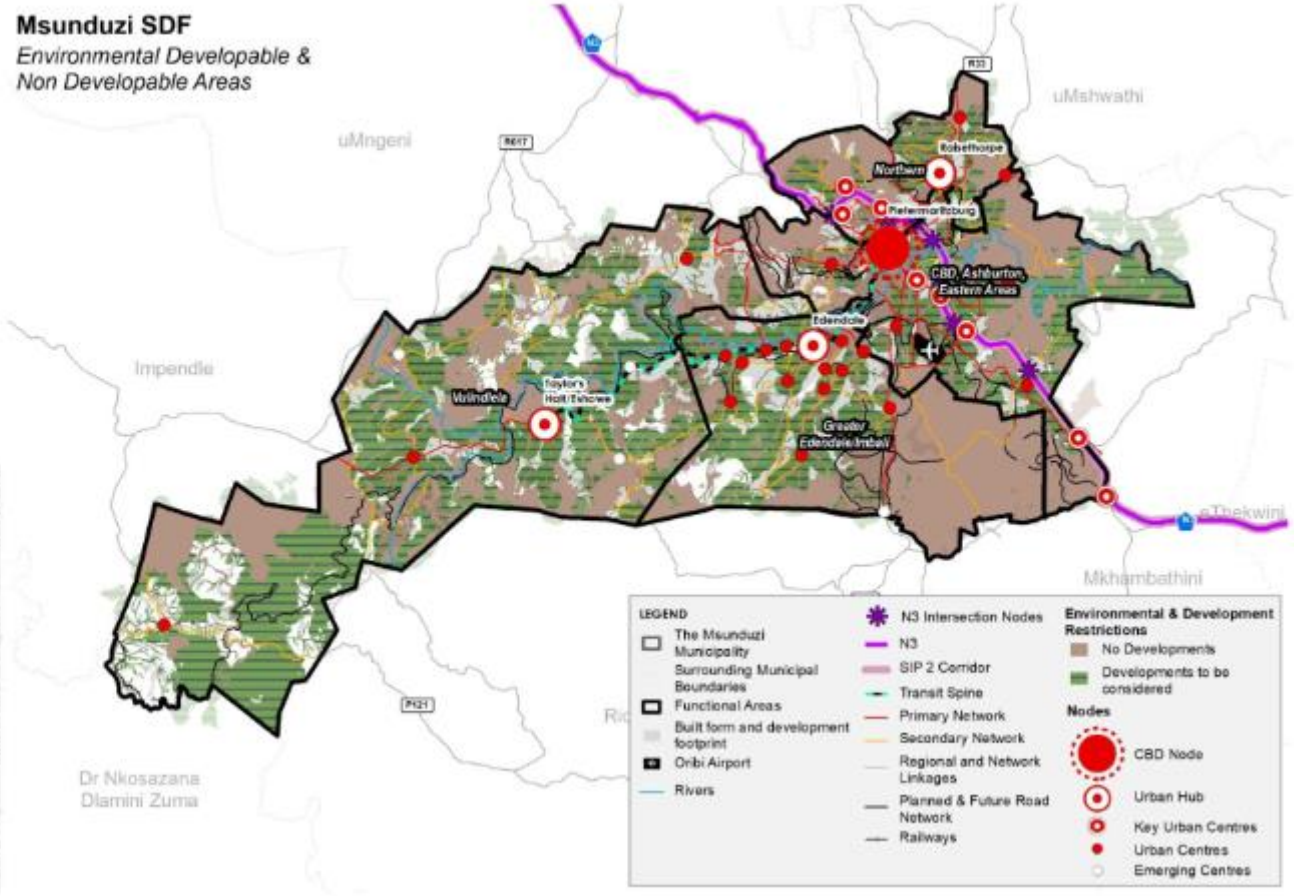


Figure 2-1 - Msunduzi Environmental developable and non-developable areas

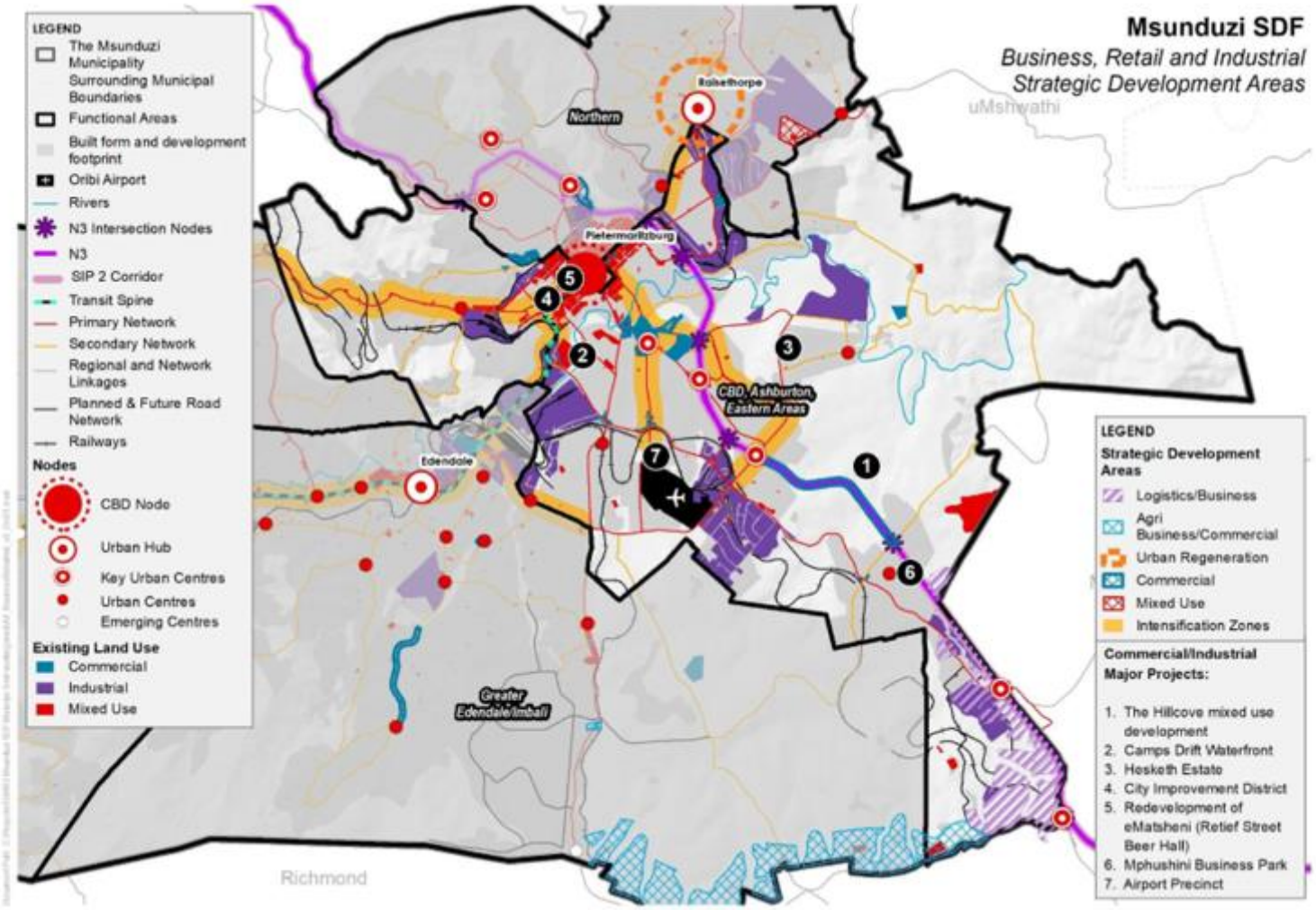


Figure 2-2 - Msunduzi Functiona– Area 1 - Business, retail and industrial Strategic Development Areas and major projects

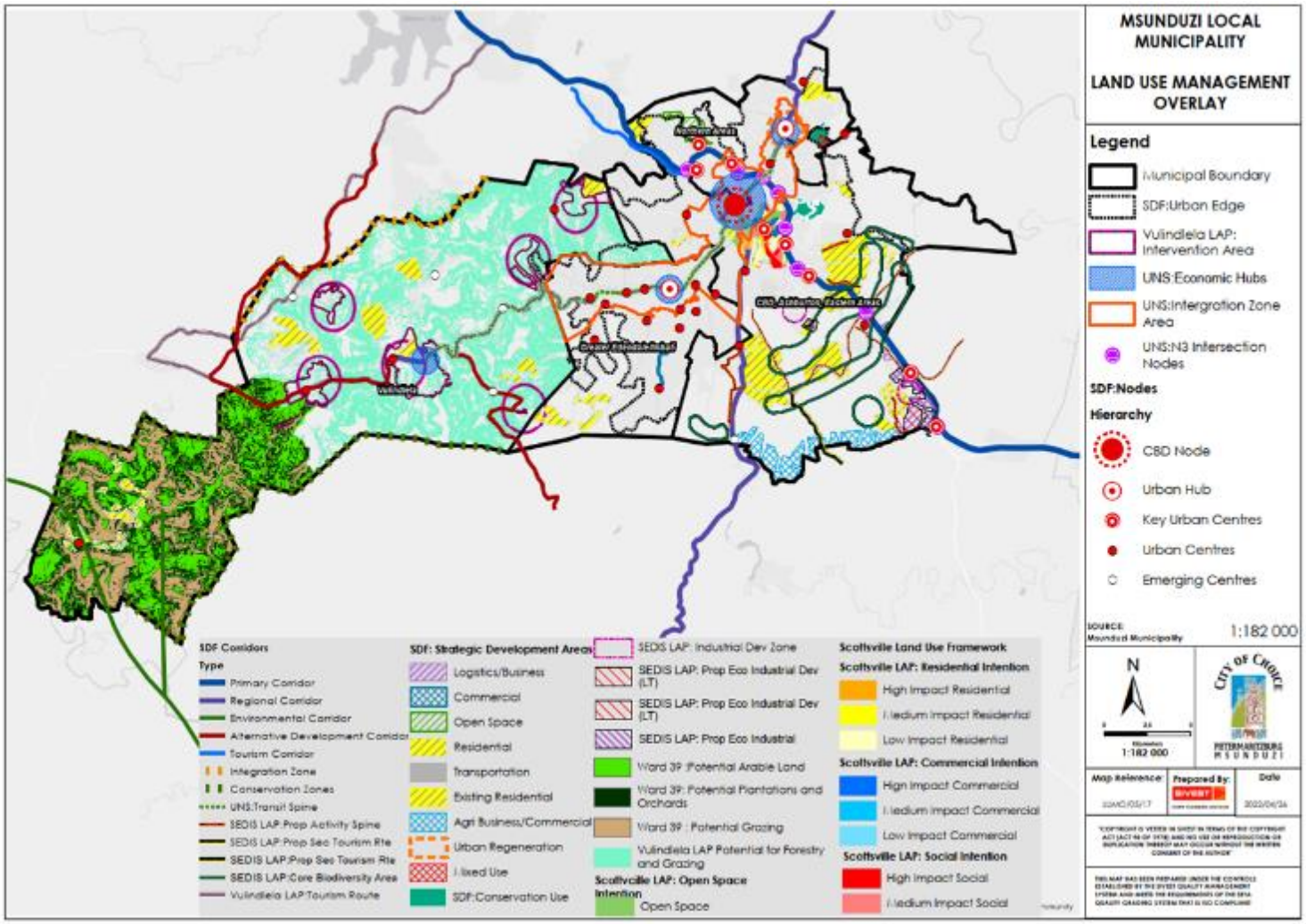


Figure 2-3 - Msunduzi Land Use Management Scheme

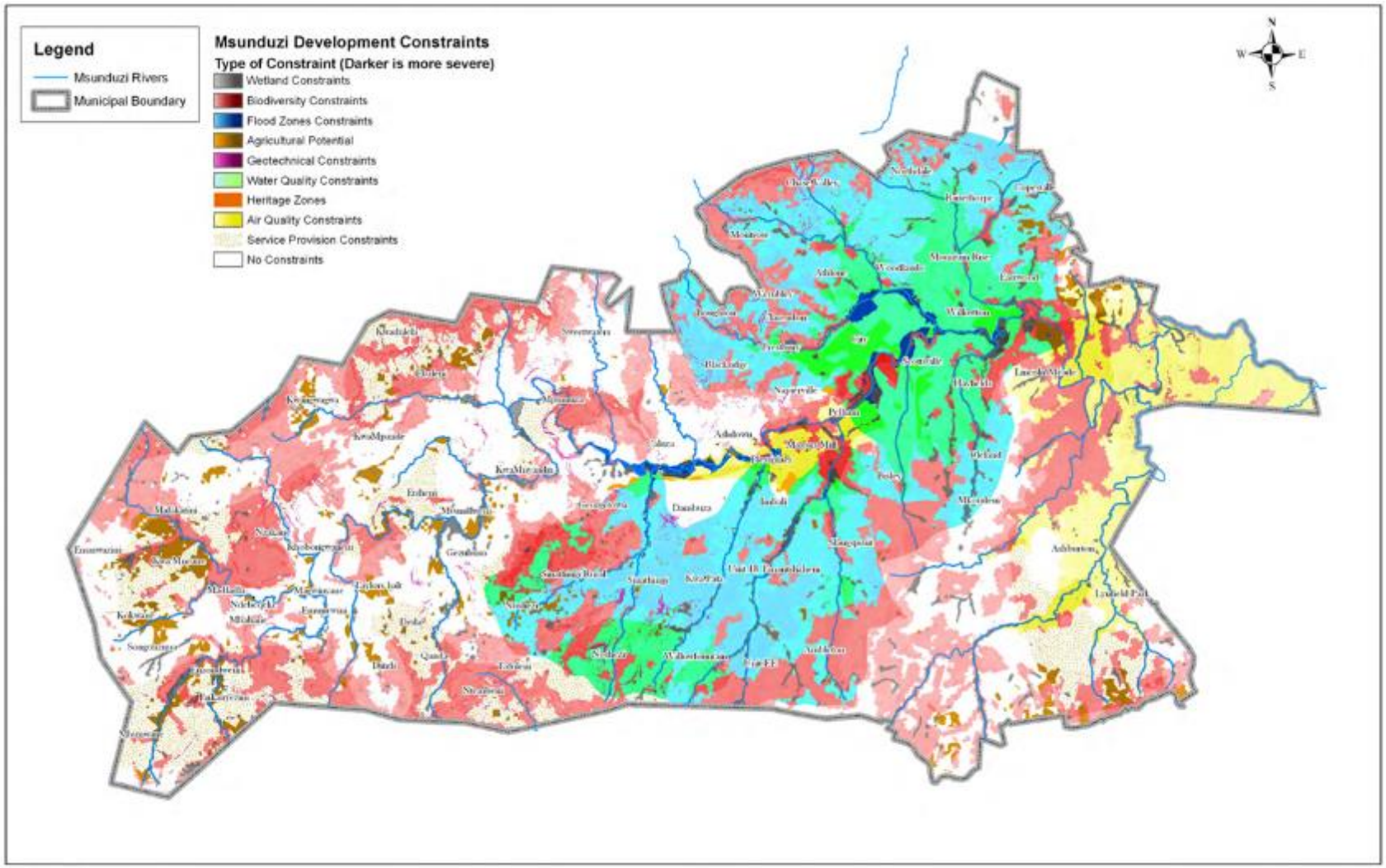


Figure 2-4 - Msunduzi EMF Consolidated Environmental Attributes

3 SCOPING PHASE SUMMARY

3.1 APPLICATION FOR ENVIRONMENTAL AUTHORISATION

The pre-application phase consisted of a virtual pre-application meeting held on 14 July 2022 with KZN EDTEA, R-Bay and WSP to discuss the environmental processes and permits required for the proposed chemical warehouse. The minutes of the meeting are included in **Appendix D.**

The application phase consisted of the completion of the application form by the EAP and the Applicant as well as the subsequent submission and registration of the application for EA with KZN EDTEA. The application form accompanied by the Draft Scoping Report (DSR) was compiled and submitted to the KZN EDTEA on 13 December 2022. The KZN EDTEA accepted the application on 13 January 2023 and issued the reference number DC22/0002/2023: The minutes of the meeting are included in Appendix F.KZN/EIA/0001867 to this application. This reference number will appear on all official correspondence with the authorities and the public regarding the proposed project.

A copy of the acknowledgement of receipt of the application is included in **Appendix D.**

3.2 AUTHORITY CONSULTATION

The authority consultation for the project commenced with a pre-application meeting on 14 July 2022 with the KZN EDTEA. The minutes of the meeting are included in **Appendix D**. In addition, WSP notified the commenting authorities of the proposed project via a notification letter, these included:

- DWS;
- EKZNWL;
- DFFE: Biodiversity Directorate;
- KZN Department of Agriculture and Rural Development;
- Msunduzi Local Municipality;
- South African Heritage Resources Agency (SAHRA); and
- KZN Amafa and Research Institute.

WSP did not receive any comment on the DSR from the KZN EDTEA except the acknowledgement of receipt of the application received on 13 January 2023. Comments on the FSR was received on 29 March 2023. The comments and responses have been outlined in **Table 3-1** and included in the SER (**Appendix D**).

Table 3-1 – Communication received from EDTEA on the proposed project

Comment	Response
The application for environmental authorization for the abovementioned activity, submitted in terms of the requirements of regulation 6(1) of	Noted

<table>
<tr><th>Comment</th><th>Response</th></tr>
<tr><td>the EIA Regulations, 2014, was received by this Department on 13 December 2022. This application complies with the EIA Regulations 2014 and has been accepted</td><td></td></tr>
<tr><td>Please note that this application has been registered on the National Environmental Authorization System (NEAS), According to NEAS the final report due date is 02 February 2023. Kindly note that it is ultimately the responsibility of the applicant to manually verify the due date with assistance from the district office. In terms of regulation 45 of the EIA Regulations 2014, an application lapses if the applicant fails to meet any of the prescribed timeframes (unless an extension has been granted in terms of regulation 3(7).</td><td>It is the EAPs understanding that the period of 15 December to 5 January, as prescribed in Regulation 3(2) of the NEMA EIA Regulations, 2014 (as amended) also applies to the calculation of the number of days pertaining to the submission of the Final Scoping Report. As a result, the public review period was extended with 22 days from 15 December 2022 to 5 January 2023, and as such, based on the EAPs calculations (as per below), the final Scoping Report is due on 17 February 2023.

<table><tr><td></td><td>Legislated Days</td><td>Timeframe</td></tr><tr><td>Application Submitted</td><td></td><td>13-Dec-22</td></tr><tr><td>Annual Shut Down Period (Regulation 3(2))</td><td>22</td><td>15 December to 5 January</td></tr><tr><td>Final Scoping Report Submission</td><td>44</td><td>17-Feb-23</td></tr></table></td></tr>
<tr><td>Please quote the above-mentioned reference number for this application in all future correspondence.</td><td>Noted.

The reference number has been included on the Final Scoping Report and will be included in all future correspondence.</td></tr>
<tr><td>You are reminded that the activity/ies applied for may not commence prior to an environmental authorization being granted by this Department.</td><td>Noted.

The applicant has been advised that the activities may not commence prior to authorisation being granted.</td></tr>
<tr><td>Enquiries regarding this application may be directed to the Assistant Manager: Impact Assessment: Mr. Shawn Janneker: Tel No: 033 347 1820: uMgungundlovu District Office.</td><td>Noted.

All enquiries will be directed to Mr. Shawn Janneker</td></tr>
<tr><td>The Final Scoping Report (FSR) for the abovementioned activity, submitted in terms of the requirements of Regulation 21(1) of the Environmental Impact Assessment (EIA) Regulations,</td><td>Noted.</td></tr>
</table>

Comment	Response
2014 (as amended), was received by the Department of Economic Development, Tourism and Environmental Affairs (herein referred to as “this Department”) on 16 February 2023.	
This Department has reviewed the FSR and it complies with the requirements in terms of Regulation 22 (a) of the EIA Regulations, 2014 (as amended). The FSR is accepted with the following conditions to be addressed in the Environmental Impact Assessment Report (EIAr):	Noted.
All specified activities triggered must be referred to as per the wording of the relevant Government Notice and not as GNR 983, 985 i.e. instead GNR 325 and 324.	As requested, we have updated the wording to reflect the 2017 Regulations.
Layout plans and drawing designs for the proposed activity must form part of the Draft EIA Report as indicated in the report. The Layout Plan must be signed by the appointed registered Engineer.	The Layout Plan (signed by the registered Engineer) has been attached to the Draft EIAR.
All specialist studies undertaken must meet the requirements of Appendix 6 of the EIA Regulations, 2014 (as amended) and the final EIAr must meet the requirements of Appendix 3 of the EIA Regulations, 2014 (as amended).	All specialist studies meet the requirements of Appendix 6 of the EIA Regulations, 2014 (as amended). The Final EIAR was compiled in terms of the requirements of Appendix 3 of the EIA Regulations, 2014 (as amended).
This Department looks forward to the submission of the final EIAr (inclusive of the 30 day public participation period) that meets the above requirements within 106 days of acceptance of the Scoping Report. As such, the final EIAr is expected to be submitted to this Department for review by 17 July 2023.	Noted. The Final EIAR will be submitted to the EDTEA by 17 July 2023.
Please note that the activities applied for may not commence (including site preparation and	Noted.

Comment	Response
other action on the site) prior to an Environmental Authorisation being granted by this Department.	The applicant has been advised that the activities may not commence prior to authorisation being granted.
All enquiries regarding this application may be directed to Mr. Sphelele Makhwasa.	All enquiries will be directed to Mr. Sphelele Makhwasa.

3.3 STAKEHOLDER CONSULTATION

Stakeholders were identified and will continue to be identified through several mechanisms. These include:

- Utilising existing databases from other projects in the area;
- Networking with local business owners, non-governmental agencies, community-based organisations, and local council representatives;
- Field work in and around the project area;
- Advertising in the press;
- Placement of community notices;
- Completed comment sheets; and
- Attendance registers at meetings.

All stakeholders identified to date have been registered on the project stakeholder database. The EAP endeavoured to ensure that individuals/organisations from referrals and networking were notified of the proposed project. Stakeholders were identified at the horizontal (geographical) and vertical extent (organisations level). A list of stakeholders captured in the project database is included in the SER (**Appendix D**).

All concerns, comments, viewpoints and questions (collectively referred to as 'issues') received to date have been documented and responded to the SER included in **Appendix D**.

Table 3-2 provides a breakdown of stakeholders currently registered on the database.

Table 3-2 – Breakdown of stakeholders currently registered on the database

Representative Sector	Further Explanation	No. of Stakeholders
Government Departments	All tiers of government, namely, national, provincial, local government and parastatal organisations including: ▪ EDTEA ▪ DFFE: Biodiversity ▪ EKZNWL ▪ Ezemvelo ▪ Msunduzi Local Municipality ▪ SAHRA/AMAFA ▪ DWS	22

Representative Sector	Further Explanation	No. of Stakeholders
	▪ Department of Agriculture and Rural Development ▪ Department of Cooperative Governance and Traditional Affairs ▪ Umgeni Water	
Neighbouring Landowners	I&APs adjacent to and surrounding the project site	23
Ward Councillors	Ward Councillors for wards 36, 27 and 38 in the Msunduzi Municipality	3
NGOs and Community Associations	These include rate payers associated and support groups	3
General Public	I&APs who registered during the notification period and provided comment during the process.	48

3.3.1 STAKEHOLDER NOTIFICATION

Direct Notification

Notification of the proposed project was issued to potential I&APs, via direct correspondence (i.e., site notices and e-mail) on 13 December 2022. Proof of the notification letter that was circulated and the site notices that were erected are included in the SER (**Appendix D**).

Newspaper Advertisements

In accordance with GNR 326 41(2)(c) of Chapter 6, an advert was placed in one local newspaper. The purpose of the advertisement was to notify the public about the proposed project and to invite them to register as stakeholders. A copy of the advert is included in **Appendix D**. The relevant scoping phase advertisement date is listed in **Table 3-3** below.

Table 3-3 – Advertisement publication dates

Newspaper	Publication Date	Language
Maritzburg Sun Local Newspaper	9 December 2022	English and isiZulu

3.3.2 DRAFT SCOPING REPORT AVAILABILITY

The DSR was available for public review from 13 December 2022 to 7 February 2023 (extended by the legislated shut down period) at the Msunduzi Library and was also made available on the WSP website (https://www.wsp.com/en-za/services/public-documents). Subsequently the Scoping Report was finalised and submitted to the KZN

EDTEA on 16 February 2023. The submission of the FSR was within 44 days of receipt of the application by the KZN EDTEA as required by GNR 326.

3.3.3 FINAL SCOPING REPORT AVAILABILITY

The FSR was made available for public review from 20 February to 24 March 2024 (extended by the public holidays) on the WSP website (https://www.wsp.com/en-za/services/public-documents).

The approval of the FSR and the plan of study for the environmental impact assessment was received in a letter dated 29 March 2023 and is included in **Appendix D.**

3.4 SCOPING STUDY FINDINGS

The scoping phase identified a number of impacts associated with the proposed chemical warehouse. The findings of the preliminary significance ratings undertaken during the scoping phase for the construction phase and operational phase are included in the **Table 3-4** and **Table 3-5**. The impacts with a significance of medium or higher were further assessed in the EIA phase.

Table 3-4 – Construction Phase Impacts

Aspect	Impact	Nature	Probability	Consequence	Significance (Before Mitigation)	Further Assessment Required
Air Quality	Dust Emissions	Negative	3	1	**Low**	**No**
Noise and Vibrations	Noise and Vibration Emissions	Negative	3	1	**Low**	**No**
Topography, & Geology	Constructability	Negative	3	1	**Low**	**Yes**
Soils, Land Capability and Agricultural Potential	Erosion and sedimentation	Negative	4	3	**High**	**Yes**
	Change in surface profile	Negative	4	3	**High**	
	Change in land use	Negative	4	3	**High**	
	Change in land capability	Negative	4	3	**High**	

Aspect	Impact	Nature	Probability	Consequence	Significance (Before Mitigation)	Further Assessment Required
	Soil contamination	Negative	4	3	High	
Surface water	Changes in water flow regime	Negative	2	2	Low	No
	Changes in sediment volume	Negative	2	2	Low	
	Introduction and spread of alien vegetation	Negative	2	2	Low	
	Loss and disturbance of watercourse habitat and fringe vegetation	Negative	2	2	Low	
	Changes in water quality due to pollution	Negative	2	2	Low	
	Loss of aquatic biota	Negative	2	2	Low	
Groundwater	Ground Contamination	Negative	3	1	Low	No
Terrestrial Biodiversity	Direct loss and disturbance of habitat and associated flora Species of Conservation Concern	Negative	4	3	High	Yes

Aspect	Impact	Nature	Probability	Consequence	Significance (Before Mitigation)	Further Assessment Required
	Establishment And Spread of Alien Invasive Species	Negative	4	3	High	
	Loss And Fragmentation of Faunal Habitats	Negative	4	3	High	
	Injury and mortality of faunal species of conservation concern	Negative	4	3	High	
Aquatic Biodiversity	Indirect Loss of Wetland Habitat	Negative	2	2	Low	Yes
	Establishment and Spread of Alien Invasive Species	Negative	2	2	Low	
	Catchment Land Use Changes and Activities	Negative	2	2	Low	
Heritage and Cultural Resources	Disturbance to known Cultural Resources	Negative	2	2	Low	Yes
	Chance Find of Cultural Resources	Negative	2	2	Low	
Palaeontology	Chance Find of Palaeontolo	Negative	2	2	Low	Yes

Aspect	Impact	Nature	Probability	Consequence	Significance (Before Mitigation)	Further Assessment Required
	gical resources					
Traffic	Increased traffic generation around the study area by construction vehicles	Negative	3	1	**Low**	**No**
	Deterioration of the surrounding road network due to an increase of traffic around the site	Negative	2	1	**Very low**	
	Transportation of abnormal loads during the construction phase	Negative	3	1	**Low**	
Socio-Economic	Creation of local employment, training, and business opportunities	Positive	2	3	**Medium**	**No**
	Impact of construction workers on local communities	Negative	2	1	**Very low**	
	Nuisance impacts associated with	Negative	3	1	**Low**	

Aspect	Impact	Nature	Probability	Consequence	Significance (Before Mitigation)	Further Assessment Required
	construction related activities					
Climate Change	Greenhouse Gas Emissions	Negative	2	1	**Very Low**	**No**

Table 3-5 – Operational Phase Impacts

Aspect	Impact	Nature	Probability	Consequence	Significance (Before Mitigation)	Further Assessment Required
Noise and Vibrations	Noise Emissions	Negative	1	1	**Very low**	**No**
Soils, Land Capability and Agricultural Potential	Erosion and sedimentation	Negative	2	2	**Low**	**Yes**
	Soil contamination	Negative	2	2	**Low**	
Surface Water	Changes in water flow regime	Negative	2	2	**Low**	**No**
	Changes in sediment entering and existing the system	Negative	2	2	**Low**	
	Introduction and spread of alien vegetation	Negative	2	2	**Low**	
	Loss and disturbance of watercourse habitat and	Negative	2	2	**Low**	

Aspect	Impact	Nature	Probability	Consequence	Significance (Before Mitigation)	Further Assessment Required
	fringe vegetation					
	Changes in water quality due to pollution	Negative	2	2	**Low**	
	Loss of aquatic biota	Negative	2	2	**Low**	
Terrestrial Biodiversity	Loss And Fragmentation of Faunal Habitats	Negative	2	2	**Low**	**Yes**
	Injury and mortality of faunal species of conservation concern	Negative	2	2	**Low**	
	Spread of Alien and Invasive Species	Negative	2	2	**Low**	
Aquatic Biodiversity	Water quality deterioration and contamination of wetland soils	Negative	2	2	**Low**	**Yes**
	Erosion	Negative	2	2	**Low**	
	Establishment and Spread of Alien Invasive Species	Negative	2	2	**Low**	
Social	Creation of employment and business opportunities	Positive	3	3	**Medium**	**No**

Aspect	Impact	Nature	Probability	Consequence	Significance (Before Mitigation)	Further Assessment Required
	Visual impact and impact on sense of place	Negative	1	1	**Very low**	

4 EIA PHASE METHODOLOGY

4.1 DETAILED ENVIRONMENTAL ASSESSMENT

4.1.1 SPECIALIST STUDIES

Specialist studies were undertaken during the EIA phase to consider and assess environmental impacts associated with the proposed project. The outcomes of these studies are included in the relevant reports contained in **Appendix G**. The table below provides a list of the Specialist Studies that have been undertaken.

Table 4-1 – Details of Specialists

Specialist Field	Specialist Name	Company
Soil and Agricultural Potential Assessment	Karen King	WSP
Terrestrial Biodiversity	Aisling Dower	WSP
Wetland Assessment	Aisling Dower	WSP
Archaeological and Cultural Heritage letter of exemption	Professor AC Van Vollenhoven	Archaetnos Culture and Cultural Resource Consultants
MHI Risk Assessment	Samantha Kachikara	iSHEcon – Chemical Process Safety Engineers
Desktop Palaeontological Impact Assessment	Professor Marion Bamford	Independent Specialist
Conceptual Stormwater Management Plan	Mbali Baloyi	WSP

4.2 IMPACT ASSESSMENT METHODOLOGY

The EIR uses a methodological framework developed by WSP to meet the combined requirements of International Best Practice and NEMA 2014 EIA Regulations (GNR 326), as amended.

As required by the EIA Regulations, 2014 as amended, the determination and assessment of impacts will be based on the following criteria:

- Nature of the Impact
- Significance of the Impact
- Consequence of the Impact
- Extent of the impact
- Duration of the Impact
- Probability if the impact
- Degree to which the impact:
  - can be reversed;

- may cause irreplaceable loss of resources; and
- can be avoided, managed or mitigated.

Following international best practice, additional criteria have been included to determine the significant effects. These include the consideration of the following:

- Magnitude: to what extent environmental resources are going to be affected;
- Sensitivity of the resource or receptor (rated as high, medium and low) by considering the importance of the receiving environment (international, national, regional, district and local), rarity of the receiving environment, benefits or services provided by the environmental resources and perception of the resource or receptor); and
- Severity of the impact, measured by the importance of the consequences of change (high, medium, low, negligible) by considering inter alia magnitude, duration, intensity, likelihood, frequency and reversibility of the change.

It should be noted that the definitions given are for guidance only, and not all the definitions will apply to all of the environmental receptors and resources being assessed. Impact significance was assessed with and without mitigation measures in place.

4.2.1 METHODOLOGY

The assessment of impacts and mitigation evaluates the likely extent and significance of the potential impacts on identified receptors and resources against defined assessment criteria, to develop and describe measures that will be taken to avoid, minimise or compensate for any adverse environmental impacts, to enhance positive impacts, and to report the significance of residual impacts that occur following mitigation.

The key objectives of the risk assessment methodology are to identify any additional potential environmental issues and associated impacts likely to arise from the proposed project, and to propose a significance ranking. Issues / aspects will be reviewed and ranked against a series of significance criteria to identify and record interactions between activities and aspects, and resources and receptors to provide a detailed discussion of impacts. The assessment considers direct, indirect, secondary as well as cumulative impacts.

A standard risk assessment methodology is used for the ranking of the identified environmental impacts pre-and post-mitigation (i.e., residual impact). The significance of environmental aspects is determined and ranked by considering the criteria presented in **Table 4-2.**

Table 4-2 – Impact Assessment Criteria and Scoring System

Criteria	Score 1	Score 2	Score 3	Score 4	Score 5
Impact Magnitude (M) The degree of alteration of the affected	Very low: No impact on processes	Low: Slight impact on processes	Medium: Processes continue but in a modified way	High: Processes temporarily cease	Very High: Permanent cessation of processes

Criteria	Score 1	Score 2	Score 3	Score 4	Score 5
environmental receptor					
Impact Extent (E) The geographical extent of the impact on a given environmental receptor	Site: Site only	Local: Inside activity area	Regional: Outside activity area	National: National scope or level	International: Across borders or boundaries
Impact Reversibility (R) The ability of the environmental receptor to rehabilitate or restore after the activity has caused environmental change	Reversible: Recovery without rehabilitation		Recoverable: Recovery with rehabilitation		Irreversible: Not possible despite action
Impact Duration (D) The length of permanence of the impact on the environmental receptor	Immediate: On impact	Short term: 0-5 years	Medium term: 5-15 years	Long term: Project life	Permanent: Indefinite
Probability of Occurrence (P) The likelihood of an impact occurring in the absence of pertinent environmental management measures or mitigation	Improbable	Low Probability	Probable	Highly Probability	Definite
Significance (S) is determined by combining the above criteria in the following formula:	$[S = (E + D + R + M) \times P]$ $Significance = (Extent + Duration + Reversibility + Magnitude) \times Probability$				
Impact Significance Rating					
Total Score	**4 to 15**	**16 to 30**	**31 to 60**	**61 to 80**	**81 to 100**

Criteria	Score 1	Score 2	Score 3	Score 4	Score 5
Environmental Significance Rating (Negative (-))	Very low	Low	Moderate	High	Very High
Environmental Significance Rating (Positive (+))	Very low	Low	Moderate	High	Very High

4.2.2 IMPACT MITIGATION

The impact significance without mitigation measures will be assessed with the design controls in place. Impacts without mitigation measures in place are not representative of the proposed projects' actual extent of impact and are included to facilitate understanding of how and why mitigation measures were identified. The residual impact is what remains following the application of mitigation and management measures and is thus the final level of impact associated with the development. Residual impacts also serve as the focus of management and monitoring activities during project implementation to verify that actual impacts are the same as those predicted in this report.

The mitigation measures chosen are based on the mitigation sequence/hierarchy which allows for consideration of five (5) different levels, which include avoid/prevent, minimise, rehabilitate/restore, offset and no-go in that order. The idea is that when project impacts are considered, the first option should be to avoid or prevent the impacts from occurring in the first place if possible, however, this is not always feasible. If this is not attainable, the impacts can be allowed, however they must be minimised as far as possible by considering reducing the footprint of the development for example so that little damage is encountered. If impacts are unavoidable, the next goal is to rehabilitate or restore the areas impacted back to their original form after project completion. Offsets are then considered if all the other measures described above fail to remedy high/significant residual negative impacts. If no offsets can be achieved on a potential impact, which results in full destruction of any ecosystem for example, the no-go option is considered so that another activity or location is considered in place of the original plan.

The mitigation sequence/hierarchy is shown in **Figure 4-1** below.

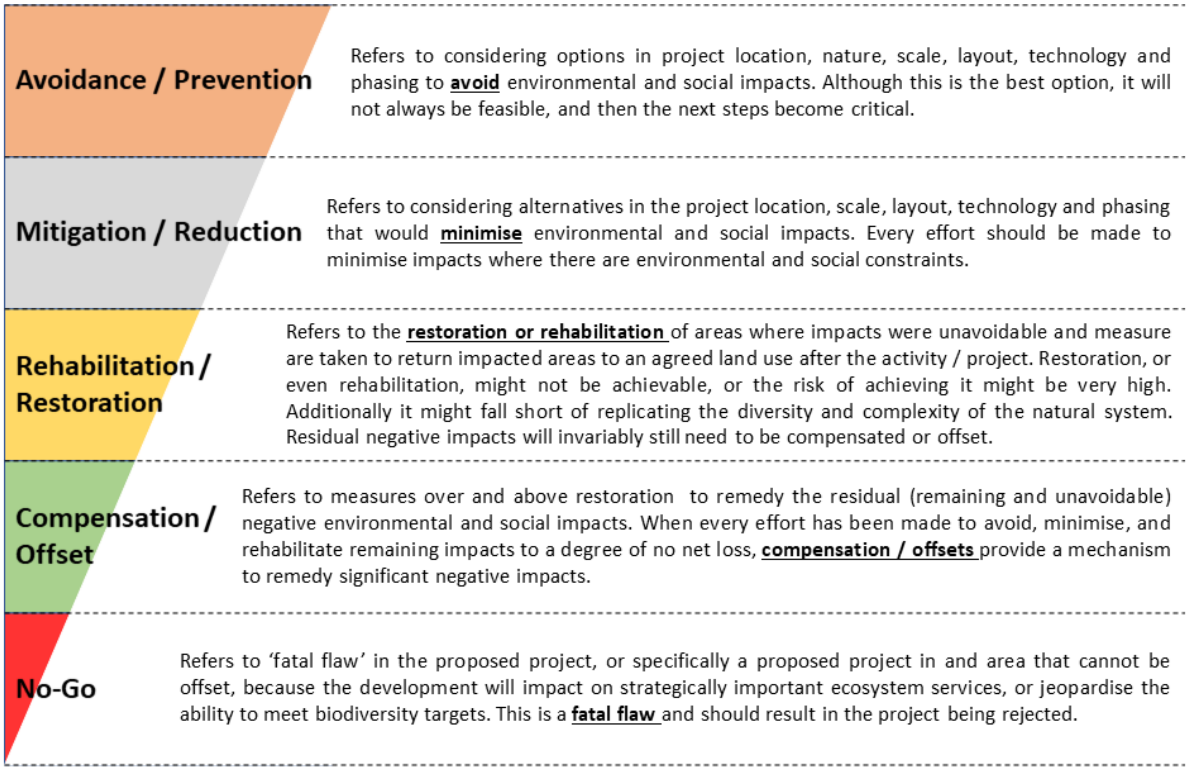


Figure 4-1 - Mitigation Sequence/Hierarchy

4.3 STAKEHOLDER ENGAGEMENT

Stakeholder engagement (PPP) is a requirement of the S&EIR process. It consists of a series of inclusive and culturally appropriate interactions aimed at providing stakeholders with opportunities to express their views, so that these can be considered and incorporated into the S&EIR decision-making process. Effective engagement requires the prior disclosure of relevant and adequate project information to enable stakeholders to understand the risks, impacts, and opportunities of the proposed project. The objectives of the stakeholder engagement process can be summarised as follows:

- Identify relevant individuals, organisations and communities who may be interested in or affected by the proposed project;
- Clearly outline the scope of the proposed project, including the scale and nature of the existing and proposed activities;
- Identify viable proposed project alternatives that will assist the relevant authorities in making an informed decision;
- Identify shortcomings and gaps in existing information;
- Identify key concerns, raised by Stakeholders that should be addressed in the specialist studies;
- Highlight the potential for environmental impacts, whether positive or negative; and
- To inform and provide the public with information and an understanding of the proposed project, issues, and solutions.

A SER (**Appendix D**) has been compiled and included in the Draft EIR detailing the projects' compliance with Chapter 6 of the NEMA EIA Regulations 2014, as amended.

4.3.1 STAKEHOLDER AND AUTHORITY CONSULTATION

There will continue to be ongoing communication between WSP and stakeholders throughout the S&EIR process. These interactions include the following:

- A letter will be sent out to all registered stakeholders providing them with an update of the proposed project once the final scoping report has been approved;
- Interactions with stakeholders will be recorded in the comment and response report;
- Feedback to stakeholders will take place both individually and collectively; and
- Written responses (email, faxes or letters) will be provided to stakeholders acknowledging issues and
- information requested (dependent on availability).
- As per the GNR 326, particular attention will be paid to landowners, and neighbouring communities, specifically where literacy levels and language barriers may be an issue.

4.3.2 PUBLIC REVIEW

The Draft EIR will be placed on public review for a period of 30 days from 13 June 2023 and 14 July 2023, at the following public places:

- Msunduzi Municipal Library (Bessie Head Library), Pietermaritzburg;
- Alexandra Municipal Library, Pietermaritzburg; and
- WSP website (https://www.wsp.com/en-ZA/services/public-documents).

All registered stakeholders and authorising/commenting state departments will be notified of the public review period as well as the locations of the draft EIR via email and SMS.

4.3.3 COMMENTS AND RESPONSES REPORT

All concerns, comments, viewpoints and questions (collectively referred to as 'issues') will continue to be documented and responded to adequately in the Comment and Response Report. The Comment and Response Report records the following:

- List of all issues raised;
- Record of who raised the issues;
- Record of where the issues were raised;
- Record of the date on which the issue was raised; and
- Response to the issues.

The updated Comment and Response Report has been included in the SER in **Appendix D**.

4.3.4 SUBMISSION AND DECISION MAKING

The EAP must submit the final EIR to the competent authority within 106 days of the acceptance of the Scoping Report. Once submitted, the delegated CA (i.e., the KZN EDTEA) will be allocated 107 days to review the final EIR in order to either grant or refuse and environmental authorisation. delegated competent authority must issue their decision within this specified timeframe.

4.3.5 NOTIFICATION OF EA

All stakeholders will receive a letter at the end of the process notifying them of the authority's decision, thanking them for their contributions, and explaining the appeals procedure as outlined in the National Appeal Regulations, 2014 (GNR 993 of 2014).

4.4 DFFE WEB-BASED ENVIRONMENTAL SCREENING TOOL

DFFE has developed the National Web-based Environmental Screening Tool in order to flag areas of potential environmental sensitivity related to a site as well as a development footprint and produces the screening report required in terms of regulation 16 (1)(v) of the EIA Regulations (2014, as amended). *The Notice of the requirement to submit a report generated by the national web-based environmental screening tool in terms of section 24(5)(h) of the NEMA, 1998 (Act No 107 of 1998) and regulation 16(1)(b)(v) of the EIA regulations, 2014, as amended (GN 960 of July 2019)* states that the submission of a report generated from the national web-based environmental screening tool, as contemplated in Regulation 16(1)(b)(v) of the EIA Regulations, 2014, published under Government Notice No. R326 in Government Gazette No. 38282 of 4 December 2014, as amended, is compulsory when submitting an application for environmental authorisation in terms of regulation 19 and regulation 21 of the EIA Regulations, 2014 (as amended) as of 04 October 2019.

The Screening Report generated by the National Web-based Environmental Screening Tool contains a summary of any development incentives, restrictions, exclusions or prohibitions that apply to the proposed development footprint as well as the most environmentally sensitive features on the footprint based on the footprint sensitivity screening results for the application classification that was selected.

A screening report for the proposed project was generated on 24 May 2022 and is attached as **Appendix F**. The Screening Report for the project identified various sensitivities for the site. The report also generated a list of specialist assessments that should form part of the BA Process based on the development type and the environmental sensitivity of the site. Assessment Protocols in the report provide minimum information to be included in a specialist report to facilitate decision-making.

Table 4-3 below provides a summary of the sensitivities identified for the development footprint.

Table 4-3 – Sensitivities identified in the DFFE Screening Report

Theme	Very High Sensitivity	High Sensitivity	Medium Sensitivity	Low Sensitivity
Agriculture Theme		X		
Animal Species Theme			X	
Aquatic Biodiversity Theme				X
Archaeological and Cultural Heritage Theme				X

Theme	Very High Sensitivity	High Sensitivity	Medium Sensitivity	Low Sensitivity
Civil Aviation Theme		X		
Defence Theme				X
Palaeontology Theme			X	
Plant Species Theme			X	
Terrestrial Biodiversity Theme	X			

Based on information gathered through a desktop study and site assessment, not all of the identified sensitivities apply to the site in its current state. The table that follow serve to:

- Verify land use and sensitivities identified in the Screening Tool Report (as indicated above);
- Provide motivation and evidence of either the verified or different use of the land and environmental sensitivity; and
- Confirm / refute the need for the various specialist inputs recommended in terms of the Screening Tool Report.

Based on the selected classification, and the environmental sensitivities of the proposed development footprint, the following list of specialist assessments have been identified for inclusion in the assessment report as determined by the screening tool:

- Archaeological and Cultural Heritage Site Verification;
- Palaeontology Site Verification;
- Terrestrial Biodiversity Impact Assessment (including plant and animal species theme);
- Wetland and Aquatic Compliance Statement; and
- Soil and Agricultural Potential Assessment.

Additionally based on other environmental sensitivities and the hazardous nature of the proposed chemicals stored at the warehouse, the following studies will he conducted:

- Conceptual Stormwater Management Plan;
- MHI Assessment; and
- Desktop Geotechnical Assessment.

4.4.1 SITE SENSITIVITY VERIFICATION

Based on information gathered through a desktop study and site assessment, not all of the identified sensitivities apply to the site in its current state. The table that follow serve to:

- Verify land use and sensitivities identified in the Screening Tool Report (as indicated above);
- Provide motivation and evidence of either the verified or different use of the land and environmental sensitivity; and

- Confirm / refute the need for the various specialist inputs recommended in terms of the Screening Tool Report.

The report recognises that "it is the responsibility of the EAP to confirm this list and to motivate in the assessment report, the reason for not including any of the identified specialist study including the provision of photographic evidence of the footprint situation."

The specialist studies required for the Proposed Project, as identified by the DFFE Screening Tool are included in

Table 4-4**.** The table also identifies the specialist studies commissioned and provides motivation for specialist studies not commissioned.

Table 4-4 - Specialist Studies identified by the DFFE Screening Tool

Specialist Study Identified	Specialist Study Undertaken	Motivation
Agricultural and Soils Assessment (**Appendix G.1**)	Yes	Land capability is indicated to be Moderate-High sensitivity. The site is however located in an industrial zoned area, with surrounding industrial land uses. The site is currently not formally used and is populated by grasses, small trees and termite mounds. Google Earth imagery shows that the site has not been formally used in the past 40 years. Over the past 40 years informal paths have been created by people traversing the site, assumedly using the open plot of land as a shortcut. In 2016 an informal driving path was created in the western section of the site. There was no evidence of planned future activities at the site, nor was there evidence of any current, planned or previous agricultural use being made of the site. Due to the high rating of agricultural sensitivity a Soils and Agricultural Potential Assessment was undertaken.
Archaeological and Cultural Heritage Impact Assessment	Yes	The Archaeological and Cultural Heritage is identified as low sensitivity. However, the proposed site is larger than 5 000m^2 and an Archaeological and Cultural Heritage Exemption Letter was compiled.
Palaeontological Impact Assessment (**Appendix G.6**)	Yes	The Screening Tool Report identifies the site as having a medium palaeontological sensitivity. As per the SAHRIS Paleo Sensitivity Map the site is considered to have a moderate sensitivity 'desktop study is required'. As such, a Desktop Palaeontology Impact Assessment was undertaken.
Terrestrial Biodiversity and Aquatic Impact Assessment	Yes	The Terrestrial Biodiversity is identified as very high sensitivity due to the presence of a critical biodiversity area 1 and falling within the Protected Areas Expansion Strategy.

Specialist Study Identified	Specialist Study Undertaken	Motivation
(including plant and animals' theme) (**Appendix G.3**)		The site is currently not formally used and houses grasses, small trees and termite mounds. Due to the presence of vegetation and potentials of animal species, a Terrestrial Biodiversity Assessment was undertaken.
Aquatic Biodiversity Compliance Statement (**Appendix G.3**)	Yes	The Aquatic Biodiversity Theme for the study area is rated 'as low sensitivity, however due the National Freshwater Ecosystem Priority Areas (NFEPA) wetland (Sub-Escarpment Savanna Channelled valley-bottom wetland) adjacent to the study area a Wetland Assessment was undertaken.
Hydrology Assessment	No	The site falls within U20J quaternary catchment in the Mvoti - Umzimkulu Water Management Area (WMA) 11. The uMnsunduze River lies approximately 5 km to the northeast and Mpushini River 4.2 km to the south of the proposed site. The Mkondeni Spruit is situated approximately 300m to the east from the site, however there are various infrastructure, roads and industries between the site and the Spruit. A Hydrology Assessment is therefore not deemed necessary.
Noise Impact Assessment	No	The site is located in an industrial zoned area, with surrounding industrial land uses. All operations will take place within closed warehouse structures. Significant noise impacts are therefore not expected as a result of the tank installation. A Noise Impact Assessment is therefore not deemed necessary.
Traffic Impact Assessment	No	The facility is accessible directly from Balhambra Crescent via the existing road network. The construction of the warehouse will not result in a discernible increase in traffic to and from the site. Considering the industrial nature of the area, and as no significant negative traffic impacts are expected (approximately 10 additional trucks during a week), a Traffic Impact is not deemed necessary.
Geotechnical Assessment (**Appendix G.4**)	Yes	The site is underlain by the Pietermaritzburg formation, of the Ecca Group and Karro sequence, which is characterised by Dark-grey shales, siltstone and subordinate sandstone. Intrusive rock forms are from the Jurassic era and characterised by Dolerite (2930 Durban, 1:250 000 Geological series). The site is underlain by Shale.

Specialist Study Identified	Specialist Study Undertaken	Motivation
		In order to confirm the stability of the site, a Desktop Geotechnical Assessment will be undertaken.
Socio-Economic Assessment	No	The positive and negative socio-economic impacts of the warehouse are considered to be minor. It is not deemed necessary that a Socio-Economic Assessment be undertaken for the project.

Specialist assessments were conducted in accordance with the Procedures for the Assessment and Minimum Criteria for Reporting on identified Environmental Themes, which were promulgated in Government Notice No. 320 of 20 March 2020 and in Government Notice No. 1150 of 30 October 2020 (i.e. "the Protocols"), or Appendix 6 of the EIA Regulations, depending on which legislation apply to the assessment under consideration. A summary of the DFFE Screening Tool, the applicable legislation as well as the specialist sensitivity verification are detailed in **Table 4-5** below. The site verification process is discussed in the section below.

Table 4-5 - Assessment Protocols and Site Sensitivity Verifications

Specialist Assessment	Assessment Protocol	DFFE Screening Tool Sensitivity	Specialist Sensitivity Verification	Assessed in Section 8 of this Report
Agricultural and Soils Assessment	Protocol for the specialist assessment and minimum report content requirements for environmental impacts on agricultural resources	High Sensitivity	Medium - Low Sensitivity	Yes
Animal Species Assessment	Protocol for the specialist assessment and minimum report content requirements for environmental impacts on terrestrial plant species	Medium Sensitivity	Low Sensitivity	Yes
Aquatic Biodiversity Assessment	Protocol for the specialist assessment (Compliance Statement) and minimum report content requirements for environmental impacts on aquatic biodiversity	Low Sensitivity	Low Sensitivity	Yes
Archaeological and Cultural Heritage	Site Sensitivity Verification	Low Sensitivity	Low Sensitivity	Yes

Specialist Assessment	Assessment Protocol	DFFE Screening Tool Sensitivity	Specialist Sensitivity Verification	Assessed in Section 8 of this Report
	Requirements where a specialist Assessment is required but no Specific Assessment Protocol has been prescribed			
Civil Aviation Theme	No specialist assessment protocol identified by the Screening Tool	High Sensitivity	Low Sensitivity (as verified by the EAP)	No
Relative Defence Theme	No specialist assessment protocol identified by the Screening Tool	Low Sensitivity	Low Sensitivity (as verified by the EAP)	No
Palaeontology Impact Assessment	Site Sensitivity Verification Requirements where a specialist Assessment is required but no Specific Assessment Protocol has been prescribed	Medium Sensitivity	Low Sensitivity	Yes
Terrestrial Biodiversity Assessment	Protocol for the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on Terrestrial Biodiversity	Very High Sensitivity	Very High Sensitivity	Yes
Plant Species Assessment	Protocol for the specialist assessment and minimum report content requirements for environmental impacts on terrestrial plant species	Medium Sensitivity	Low Sensitivity	Yes
Hydrology	Site sensitivity verification requirements where a specialist assessment is required but no specific assessment protocol has been prescribed	No Sensitivity Identified	Low Sensitivity (as verified by the EAP)	No
Noise Compliance Statement	Protocol for specialist assessment and minimum report content	No Sensitivity Identified	Low Sensitivity (as verified by the EAP)	Yes (only general impacts relating to

Specialist Assessment	Assessment Protocol	DFFE Screening Tool Sensitivity	Specialist Sensitivity Verification	Assessed in Section 8 of this Report
	requirements for noise impacts			construction and operation)
Traffic	Site sensitivity verification requirements where a specialist assessment is required but no specific assessment protocol has been prescribed	No Sensitivity Identified	Low Sensitivity (as verified by the EAP)	Yes (only general impacts relating to construction and operation)
Geotechnical	Site sensitivity verification requirements where a specialist assessment is required but no specific assessment protocol has been prescribed	No Sensitivity Identified	Low Sensitivity (as verified by the EAP)	Yes
Socio-economic	Site sensitivity verification requirements where a specialist Assessment is required but no specific assessment protocol has Been prescribed	No Sensitivity Identified	Low Sensitivity (as verified by the EAP)	Yes

5 NEED AND DESIRABILITY OF THE PROJECT

The DEA&DP Guideline (2013) states that the essential aim of need and desirability is to determine the suitability (i.e., is the activity proposed in the right location for the suggested land-use/activity) and timing (i.e. is it the right time to develop a given activity) of the development. Therefore, need and desirability addresses whether the development is being proposed at the right time and in the right place. Similarly, the 'Best Practicable Environmental Option' (BPEO) as defined in NEMA is *"the option that provides the most benefit and causes the least damage to the environment as a whole, at a cost acceptable to society, in the long term as well as in the short term."*

Richbay have various chemical manufacturing plants situated across Southern Africa and produce a variety of commercial and industrial chemical products for the South Africa and international market.

Due to the Port of Durban becoming progressively unstable and unreliable, as well as international shipping schedules being hampered by various geopolitical matters, the receiving of imported chemicals required by the various processing plants have become erratic and therefore place a bottleneck on delivering the final product to the South African market. In addition, exporting to international markets has become backlogged and Richbay no longer has sufficient capacity to store the raw products or manufactures product. As such the warehouse is required to cater for additional storage in order for backlogs in shipping not hamper the ongoing operation of the Richbay facilities or supply to markets.

The proposed warehouse will therefore act as a buffer to receive the imported chemicals, ensure packaging is adequate, quality checks conducted, and a small volume of stock will be available at the warehouse. The products will therefore be readily available for their chemical manufacturing facilities.

Richbay has also grown in volume throughput (has been in existence since 1978) and it has now become necessary to construct a warehouse that can store and distribute their products between the branches and specifically near the Pietermaritzburg branch. This need combined with the export/import product buffering as a direct result of the global shipping constraints are elevating the necessity of such a warehouse.

Based on the above the activity required to be undertaken is a warehouse for the storage of dangerous goods near the existing Richbay facility in Pietermaritzburg. The proposed site is adjacent to the existing facility and situated within an industrial area. There are some biophysical constraints, and these will be assessed by specialists in the EIA Phase. The site is less than 1 hectare, and two layout alternatives are being considered, however the impacts will remain the same as this is within the same assessed footprint.

The Needs and Desirability Guidelines, in terms of the Environmental Impact Assessment Regulations, Government Notice 792 of 2012, as amended, highlights the need to consider how the proposed project may impact ecosystems and biological diversity; pollution; and renewable and non-renewable resources. It should also consider how the development may affect or promote justifiable economic and social development. The Need and Desirability is assessed in the table below.

Table 5-1 – Need and Desirability Assessment

PART 1 - NEED	
Is the land use associated with the activity being applied for considered within the timeframe intended by the existing approved SDF agreed to be the relevant environmental authority? Should the development, or if applicable, expansion of the town/area concerned in terms of this land use occurs here at this point in time?	Based on the SDF, the site is located within the Mkondeni area which is earmarked for industrial activities in addition the site is situated in a developable area. The site is situated within a SEDi Lap Industrial Development Zone.
Does the community/area need the activity and the associated land use concerned? This refers to the strategic as well as local level.	The Municipality's strategic location has supported the establishment of a very strong industrial base. Mkondeni is the primary industrial node in the Msunduzi Municipality. With the emergence of industrial nodes along the N3 at Camperdown (the Mkhambathini Municipality), Cato Ridge and Hammersdale (eThekwini), the locational importance and the role the Msunduzi Municipality could play in the regional context has become more pronounced. The N3 Corridor Development Plan locates the city as part of the KZN Industrial and Logistics Hub highlighting the significance of manufacturing and industrial sectors located along the N3 between Pinetown / New Germany and Pietermaritzburg for the regional economy. The plan proposes that existing industrial nodes within Pietermaritzburg be further developed and enhanced i.e., industrial areas Mason's Mill & Pentrich be explored, and Mkondeni expanded to the south and east. The proposed site is located within the Mkondeni area which is earmarked for industrial activities, in addition the site is situated in a developable area.
Are the necessary services with adequate capacity currently available (at the time of application) or must additional capacity be created to cater for the development? Is this development provided for in the infrastructure planning of the municipality, and if not what will the implication be on the infrastructure planning of the municipality (priority and placement of the services and opportunity cost)?	The site is situated in an area that has existing service delivery by the municipality. Minimal additional electricity and water will be required. R-Bay will also investigate sustainable construction alternatives to reduce reliance on electricity and water.
Is the project part of a national programme to address an issue of national concern or importance?	The proposed project does not form part of a national programme. However, it does form

	part of the supply of chemicals needed for the purification of drinking water.
PART 2 - DESIRABILITY	
Is the development the best practicable environmental option for this land/site?	The site is currently not formally used and is occupied by grasses, small trees and termite mounds. Google Earth imagery shows that the site has not been formally used in the past 40 years. Over the past 40 years, informal paths have been created by people traversing the site, assumedly using the open plot of land as a shortcut. In 2016, an informal driving path was created in the western section of the site. There was no evidence of planned future activities at the site, nor was there evidence of any current, planned or previous agricultural use being made of the site. The site is situated in an industrial area and will fit with the characteristics of the surrounding area.
Would the approval of this application compromise the integrity of the existing approved and credible IDP and SDF as agreed to by the relevant authorities?	No, the project is aligned with the SDF and IDP of the Msunduzi Municipality.
Would the approval of this application compromise the integrity of the existing environmental management priorities for the area (e.g. as defined in EMFs), and if so, can it be justified in terms of sustainability considerations?	The Msunduzi Municipality assessed the proposed development against the EMF and the below was noted: ▪ High Water Quality Constraints: Appropriate and adequate stormwater management measures must be put in place to address excess runoff from increased hardened surface and its potential cumulative impact on the wetland system near the project site. ▪ High Air Quality Constraints: Adequate dust suppression measures must be put into place and emissions licences must be sought where applicable. ▪ The site does not have any environmental constraints within the project site. The specialist studies to be undertaken during the EIA Phase will assess the potential impacts and provide recommendations to be included in the EMPr.
Do location factors favour this land use at this place? (this relates to the contextualization of the proposed land use on this site within its broader context).	The preferred location was chosen based on the following factors:

	▪ The property is owned by R-Bay and therefore no further landowner consent is required. ▪ The proposed location is within an industrial area and the Erf is zoned as industrial therefore is a compatible land use for the site. ▪ The proposed location is approximately 2.5 km from the N3, allowing for a favourable transport route between major cities. ▪ The site is adjacent to one of the existing Richbay production facilities, and is required in the immediate vicinity in order to alleviate space constraints at the existing Richbay Pietermaritzburg site. Based on the SDF and Msunduzi Single Land Use Scheme the site is situated in a developable area and an industrial zone.
How will the activity of the land use associated with the activity being applied for, impact on sensitive natural and cultural areas (built and rural/natural environment)?	▪ The Msunduzi Municipality assessed the proposed development against the EMF and the below was noted: ▪ High Water Quality Constraints: Appropriate and adequate stormwater management measures must be put in place to address excess runoff from increased hardened surface and its potential cumulative impact on the wetland system near the project site. ▪ High Air Quality Constraints: Adequate dust suppression measures must be put into place and emissions licences must be sought where applicable. ▪ The site does not have any environmental constraints within the project site. The specialist studies undertaken during the EIA Phase assessed the potential impacts and provided recommendations to be included in the EMPr.
How will the development impact on people's health and well-being? (E.g. In terms of noise, odours, visual character and sense of place, etc.)?	Based on the impact significant screening, the impacts will range from very low to high without mitigation measures. The specialist studies undertaken during the EIA Phase assessed the potential impacts and provided recommendations to be included in the EMPr. The findings of this S&EIR process and associated Specialist studies conclude that there are no fatal flaws associated with the proposed development. Negative environmental impacts associated with the proposed R-Bay Chemical Warehouse can

	be mitigated to acceptable levels. It is therefore the opinion of the EAP that the project can proceed, and that all the listed mitigation measures and recommendations are considered by the KZN EDTEA.
Will the proposed activity or the land use associated with the activity being applied for, result in unacceptable opportunity costs?	No.
Will the proposed land use result in unacceptable cumulative impacts?	There will be no unacceptable cumulative impacts. Cumulative impacts have been assessed during the EIA Phase.

6 PROJECT DESCRIPTION

This section provides a description of the location of the project area and the details associated with each phase of the proposed project. The description encompasses the activities to be undertaken during the construction and operational phases as well as the consideration for site accessibility, water demand, supply, storage, and site waste management. This section also considers the need and desirability of the project in accordance with Appendix 1 of GNR 326.

6.1 LOCATION OF THE PROPOSED PROJECT

The proposed chemical warehouse will be located on Erf 2306 and 2307, Shortts Retreat (Mkondeni), Pietermaritzburg, KwaZulu Natal Province, which is designated as an industrial zone as per the Msunduzi IDP (2021/22). The proposed site is accessed via the R103 (Regional Road) or the N3 (National Road), with R103 approximately 1,3 km southwest of the facility and the N3 approximately 2,3 km southwest of the facility and covers an area of approximately 9 955 m^2 of which approximately 2 500 m^2 will be used for the development of the proposed chemical warehouse. Various urban roads are required to access the warehouse which lies on Balhambra Crescent, accessed from Yarborough Road to the east of the warehouse.

The regional locality of the site is depicted in **Figure 6-1** and a zoomed locality is provided in **Figure 7-2**.

Table 6-1 below indicates the cadastral information of the site and **Table 6-2** includes the co-ordinates of the site.

Table 6-1 –Cadastral Information of the Site

Details required as per GNR 326 ANNEX 1 (3)	DETAIL
21 Digit Surveyor General Code of each Cadastral Land Parcel	N0FT02110000230600000 N0FT02110000229100000
Physical Address and Farm Name	Erf 2306 and 2307, Shortts Retreat (Mkondeni)
Land use Zoning	Industrial
Municipality	Msunduzi Metropolitan Municipality
Ward	36

Table 6-2 – Coordinate Points of the Cadastral Land Parcel

Point	Latitude	Longitude
		
Corner 1	29°39'39.14"S	30°24'49.56"E
Corner 2	29°39'38.14"S	30°24'51.84"E
Corner 3	29°39'38.40"S	30°24'52.04"E
Corner 4	29°39'41.76"S	30°24'52.33"E
Corner 5	29°39'41.98"S	30°24'51.63"E
Corner 6	29°39'41.74"S	30°24'50.93"E
Centre Point	29°39'39.93"S	30°24'51.24"E

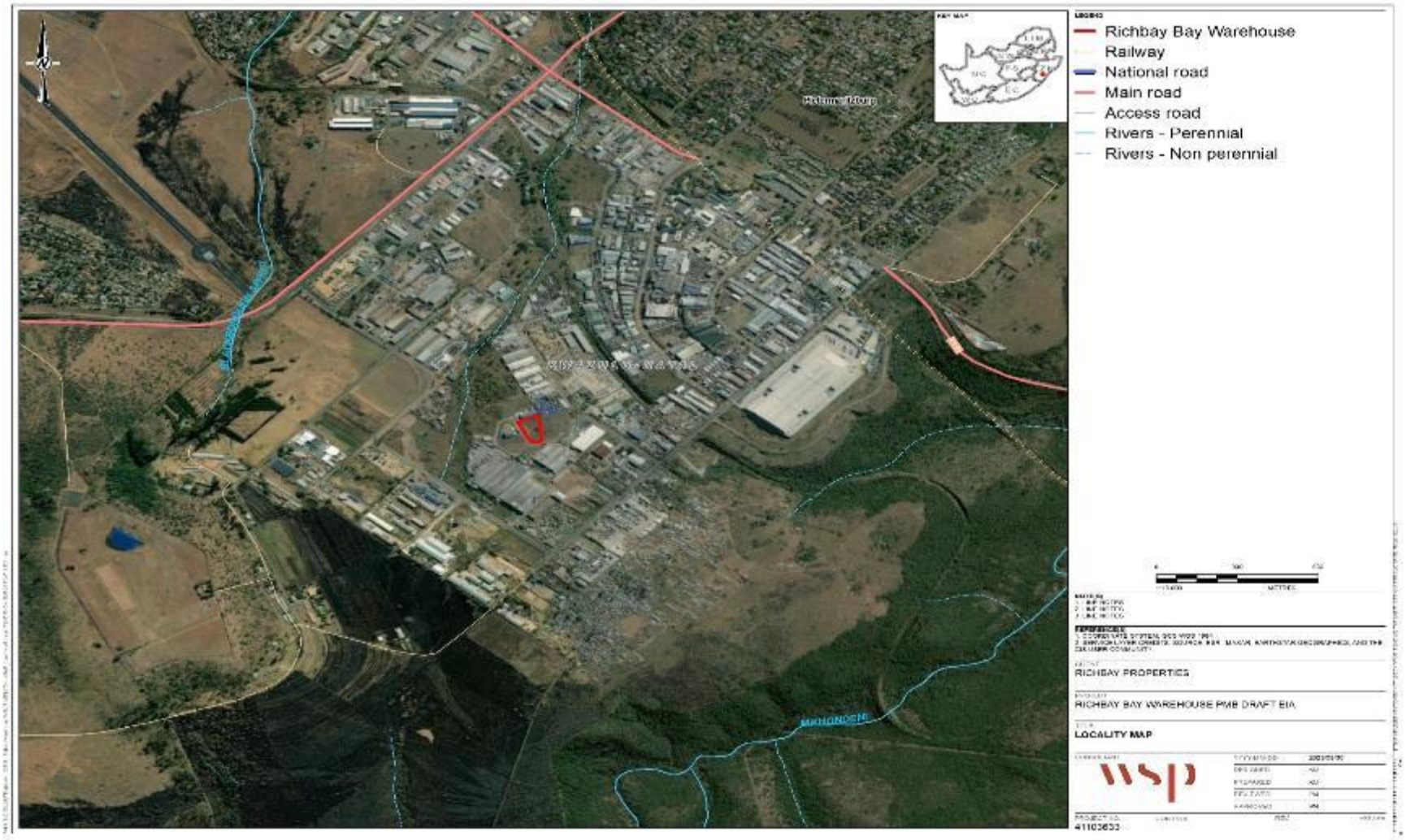


Figure 6-1 - Locality map of the proposed warehouse

Figure 6-2 - Location of the proposed chemical warehouse sited within Erf 2306 and 2307, Shortts Retreat, Pietermaritzburg

6.2 SITE STATUS

Photographs of the proposed project site are provided in **Figure 6-3 - Landscape of the proposed development area (March 2022**)

and **Figure 6-4**. In addition, historic aerial imagery of Erf 2306 and 2307 is provided in **Table 6-3**.

Table 6-3 - Historical Aerial Imagery of Erf 2306 and 2307, Shortts Retreat, Pietermaritzburg, KwaZulu Natal Province (Google Earth)

September 2006

February 2010

June 2018

August 2022 - Subsequent to the initial site visit, the neighbouring land owner commenced with construction of a facility, and has placed their stockpiles on Erf 2306 and 2307

Figure 6-3 - Landscape of the proposed development area (March 2022)

Figure 6-4 - Current landscape of the proposed development area (January 2023)

6.3 PROPOSED PROJECT COMPONENTS AND PROCESSES

The chemicals will be stored inside a warehouse/s covering an area of approximately 2 500 m^2(as per the layout plan attached in **Appendix I**). **Table 6-4** below provides a description of the chemicals that are proposed to be stored at the warehouse.

Table 6-4 - Description of chemicals to be stored at the proposed warehouse

Mixture Name	Container Type	Container Volume (m^3)	Quantity Containers (Maximum)	Total Maximum Capacity (m^3)
Hydrochloric Acid	HDPE	0.25	6000	1500
Acetic Acid	HDPE	0.25	200	50
Sodium Hypochlorite	HDPE	0.25	200	50
Sulphuric Acid	HDPE	0.25	200	50

Mixture Name	Container Type	Container Volume (m^3)	Quantity Containers (Maximum)	Total Maximum Capacity (m^3)
Caustic Soda (Solid)	PP	0.025	8000	200
Caustic Soda Liquid	HDPE	0.25	200	50
Phosphoric Acid	HDPE	0.25	80	20
Nitric Acid	HDPE	0.25	100	25
Sodium Metabisulphite (Solid)	PP	0.025	100	2.5

In addition to the warehouse, there will be ancillary services, including:

- An administration building;
- A structure housing a canteen and changing rooms;
- Loading/off-loading bays;
- Security controlled entrance and exit; and
- Parking bays.

The proposed layout is indicated in **Figure 6-6** and an architectural rendering of the proposed warehouse is provided in **Figure 6-5** below.

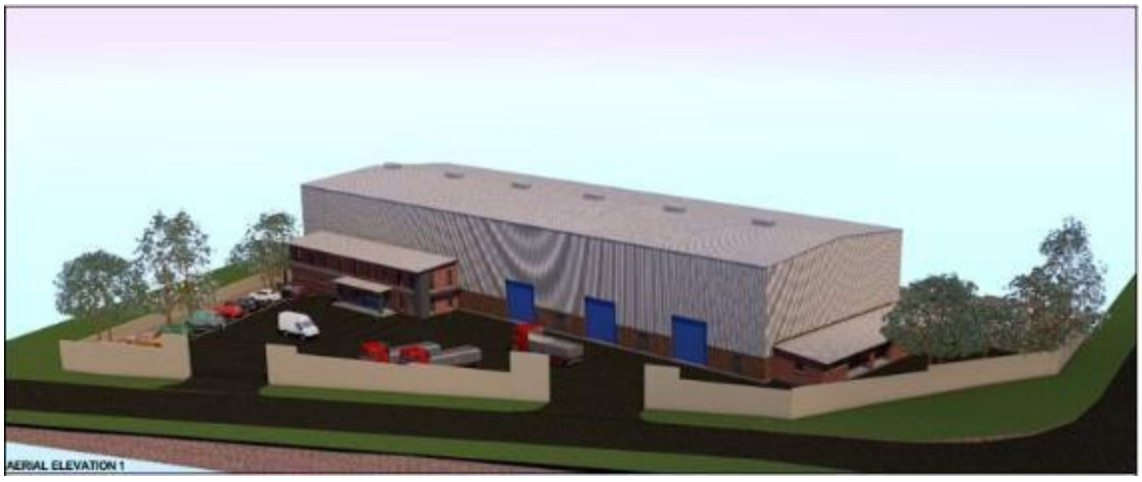


Figure 6-5 - Architectural Rendering of the Proposed Chemical Warehouse

Figure 6-6 - Proposed layout of the Chemical Warehouse

6.4 PLANT AND PROCESS DESCRIPTION

The new proposed warehousing will be used as an importation hub where the chemicals in drums and IBCs, will be offloaded from shipping containers, and stored, prior to dispatch to the Richbay Chemical Plants throughout Southern Africa. No decanting will take place in the warehouse. The diagram in **Figure 6-7** shows a basic overview of the proposed operations.

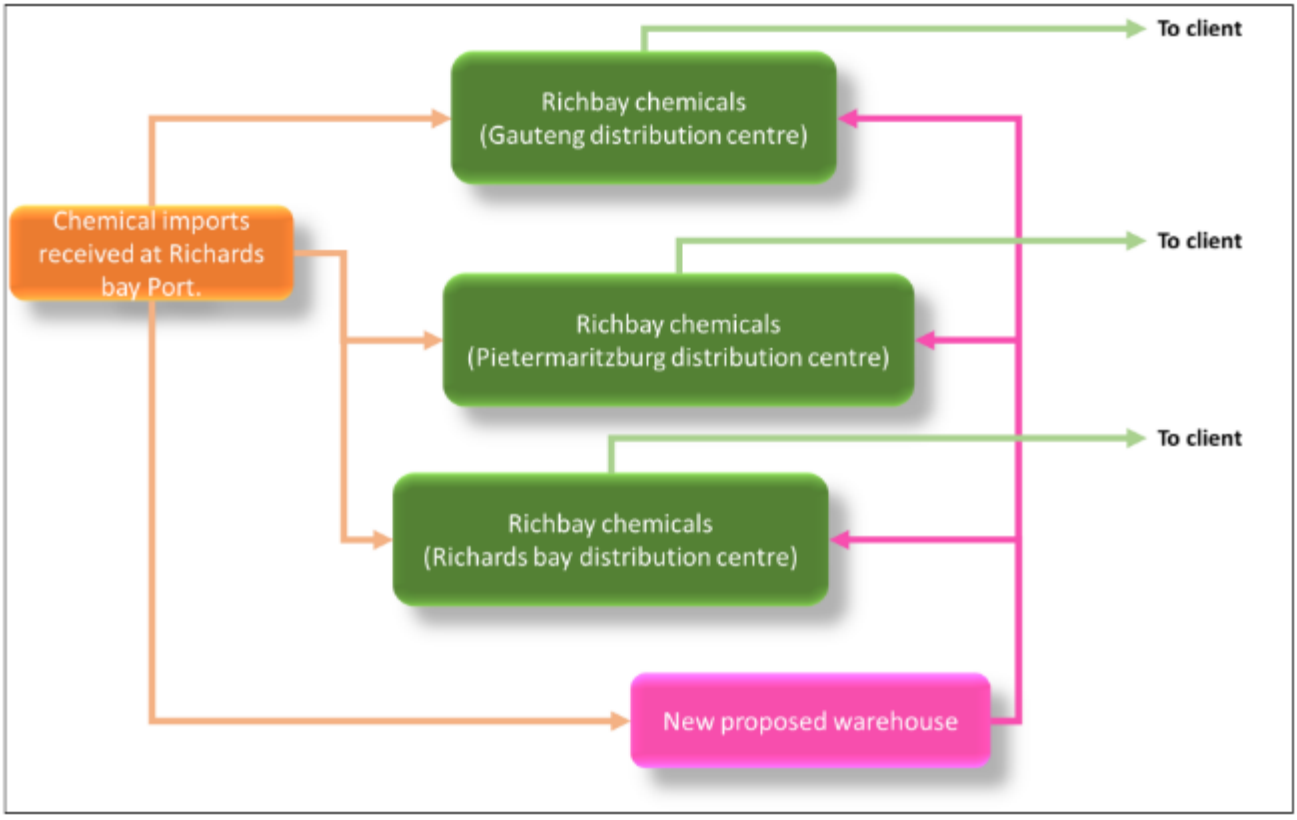


Figure 6-7 - Basic Overview of Proposed Operations

6.5 PROPOSED PROJECT DEVELOPMENT ACTIVITIES

6.5.1 CONSTRUCTION PHASE

The construction process will follow industry standard methods and techniques. Key activities associated with the construction phase are described in **Table 6-5**.

Table 6-5 – Construction Activities

Activity	Description
Establishment of an access road	Access to the proposed warehouse site will be via the existing road network therefore no additional access roads are required.
Site preparation and establishment	Site establishment will include clearing of vegetation and any bulk earthworks that may be required.

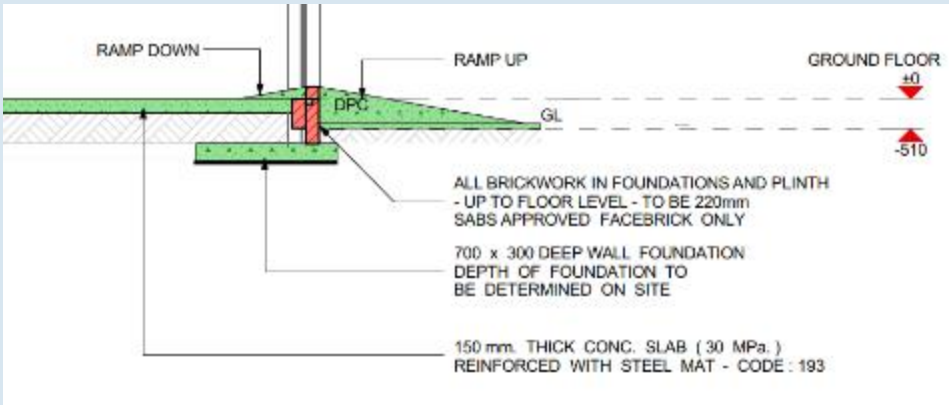
Activity	Description
Transport of components and equipment to site	All construction material, machinery and equipment (i.e. graders, excavators, trucks, cement mixers etc.) will be transported to site utilising the national, regional and local road network. Larger components (may be defined as abnormal loads in terms of the Road Traffic Act (No. 29 of 1989). In such cases a permit may be required for the transportation of these loads on public roads. The project will require approximately 1 or 2 trucks per day during the construction phase.
Establishment of a laydown area on site	Construction materials, machinery and equipment will be kept at relevant laydown and/or storage areas. Laydown areas (site camps) of approximately up to 0.25 ha have been proposed. The laydown area will limit potential environmental impacts associated with the construction phase by limiting the extent of the activities to one designated area.
Construction of the warehouse	The construction of the warehouse will consist of the following material: ▪ Steel strusses ▪ Roof Sheeting ▪ Sheeting for side cladding ▪ Cement ▪ Reinforced mat
Establishment of ancillary infrastructure	Ancillary infrastructure will include a workshop, storage areas, office, and a temporary laydown area for contractor's equipment.
Rehabilitation	Once all construction is completed on site and all equipment and machinery has been removed from the site, the site will be rehabilitated.

6.5.2 OPERATIONAL PHASE

During operation the key activities will include the storage of chemicals inside the warehouse. Key activities associated with the construction phase are described in Table 6-5.

Table 6-6 - Operational Phase Activities

Activity	Description
Transport of chemicals	Access to the proposed warehouse site will be via the existing road network therefore no additional access roads are required. It is anticipated that there will be approximately 10 additional trucks required per week during the operational phase to deliver the chemicals to the warehouse.
Loading and offloading of material	The material will be offloaded / loaded from trucks inside the warehouse and no chemicals will be handled outside the warehouse.
Storage of material	The chemicals will be stored inside a warehouse/s. All chemicals will be handled in sealed containers. In addition, the inside of the warehouse will be bunded with a lined hardstanding (as per **Figure 6-8**).

Activity	Description
	 **Figure 6-8 - Bunding and Lined Hardstanding**

6.5.3 DECOMMISSIONING PHASE

The decommissioning phase will include activities similar to that of the construction phase as indicated in **Table 6-5**.

6.6 PROJECT ALTERNATIVES

The EIA Regulations of 2014 (as amended) require that the S&EIR process must identify and describe alternatives to the proposed activity that were considered, or motivation for not considering alternatives. Different types or categories of alternatives could be considered including different locations, technology types, and project layouts.

6.6.1 SITE ALTERNATIVES

The proposed chemical warehouse will be located on Erf 2306 and 2307, Shortts Retreat, Pietermaritzburg, KwaZulu Natal Province, which falls within a designated industrial zone i.e., Mkondeni as per the Msunduzi IDP (2021/22). This is the only site alternative considered for the proposed warehouse, the details of the location of the warehouse are illustrated in **Section 6.1.**

The current condition of the land is that of open grasslands and scattered shrubs/trees, and surrounded by various storage warehouses, a medical treatment facility, waste treatment facility and chemicals companies. The vacant land portion to the northeast of the site is being developed to include small warehousing.

The project site coordinates are indicated in above **Section 6.1.**

Environmental sensitivities associated with the preferred site are indicated in

Table 4-3 and the Screening assessment included in **Appendix F.**

The preferred location as described in this chapter was chosen based on the following factors:

- **Land ownership -** The property is owned by R-Bay and therefore the economic cost of acquiring land within an industrial complex for purposes of the warehouse, is eliminated.
- **Land availability -** The availability of land is a key feasibility criterion in the site selection process. The proposed site is of a suitable land size for the proposed development.
- **Zoning** - The proposed location is within an industrial area and the Erf is zoned as industrial.

- **Accessibility -** The proposed location is approximately 2.5 km from the N3, allowing for a favourable transport route between major cities.
- **Strategic Location and Municipal Planning** - The site is adjacent to one of the existing Richbay production facilities and is required in the immediate vicinity to alleviate space constraints at the existing Richbay Pietermaritzburg site.Based on the SDF and Msunduzi Single Land Use Scheme, the site is situated in a developable area and an industrial zone.

Therefore, no further alternative locations were assessed, however alternative warehouse layouts were assessed as described below.

6.6.2 LAYOUT ALTERNATIVES

There are currently two alternative layouts considered in this EIA, namely:

- 1 Single warehouse structure (preferred alternative).
- 2 Warehouse structures.

The location of the project infrastructure (i.e., layout) (**Figure 6-5**) was determined based on initial environmental and technical screening which considered the infrastructure locations feasible from a constructability perspective. This included several key aspects including environmental constraints and opportunities, topography, terrain and financial implications. The proposed warehouse footprint is approximately 2 500 m^2 (subject to finalisation based on technical and environmental requirements).

The preliminary layout (**Figure 6-5**), inclusive of the various project infrastructure, has been updated and refined following input from the various specialist studies during the Scoping Phase and R-Bay properties. It should be noted that the impacts for Layout Alternative 1 and Layout Alternative 2 will be the same and as such a comparative assessment was not undertaken.

6.6.3 NO-GO ALTERNATIVE

The no-go alternative is the option of not undertaking the proposed project and the continuation of the status quo. The following negative impacts would result:

- There will be no economic boost in the region which would have fed into the industrial sector.
- The anticipated job and skills development opportunities and employment the project presents will not be generated.
- There may be a decrease in the availability of commercial and industrial chemicals in the South African market.
- Due to the shortage of NSF60 (chemicals used in the purification of drinking water) there will be an impact on the supply to drinking water treatment plants relying on these chemicals to operate.
- R-Bay will not be able to supply their existing clients with the products they require.

Although the no-go alternative sees the continuation of the status quo and leads to missed opportunities, there are positive impacts it provides. These include:

- All negative impacts discussed in **Section 8** of this report are avoided.

7 BASELINE ENVIRONMENT

The following chapter presents an overview of the biophysical and socio-economic environment in which the proposed project is located. It is important to gain an understanding of the project area and its surroundings, as it will provide for a better understanding of the receiving environment in which the project is being considered.

The description of the baseline environment is essential in that it represents the conditions of the environment before the construction of the proposed project (i.e., the current, or status quo, environment) against which environmental impacts of the proposed Project can be assessed and future changes monitored.

The area has previously been studied to some extent and is recorded in various sources. Consequently, some components of the baseline have been generated based on literature review. However, where appropriate, baseline information has been supplemented or generated by specialists appointed to undertake baseline and impact assessments for the proposed project.

The following characteristics of the receiving environment for the proposed project area are described in the table below.

Table 7-1 – Characteristics of the receiving environment

Receiving Environment	Characteristics
Physical	▪ Climate ▪ Topography ▪ Geology ▪ Soils and Agricultural Potential ▪ Surface Water
Biological	▪ Vegetation ▪ Habitats ▪ Biodiversity Conservation Plans ▪ Proposed Protected Areas ▪ Plant Species ▪ Animal Species ▪ Avifauna
Social and Economic	▪ Heritage ▪ Palaeontology ▪ Land use ▪ Transport ▪ Visual Character ▪ Socio-Economic
Health & Safety	▪ Chemicals or Hazards

7.1 PHYSICAL ENVIRONMENT

7.1.1 CLIMATE AND METEOROLOGY

The city of Pietermaritzburg (Msunduzi Municipality) is located in a hollow formed by the valleys of the Msunduzi River and its tributaries. The local climate of Msunudzi is influenced by the area's topography, the northern and western areas are located in higher altitude areas and receive colder temperatures and more rainfall than areas at the south and east. During colder nights, the cold, dense air settles in the city bowl (creating an atmospheric inversion layer), trapping in pollutants emanating from the entire municipality. The local industrial area is situated within the inversion layer, thus further enhancing short-terms peaks of atmospheric pollutants.

The Koppen Climate Classification subtype for this climate is "Cfb". (Temperate Climate). The warmest months on average is January and February with a mean daily maximum temperature of 26°C. The coolest month on average is July, with a mean daily minimum temperature of 18°C. On average the driest month is in June, which receives approximately 11 mm, whilst the wettest month is October, and receives approximately 87 mm of rainfall.

Figure 7-1 depict the average monthly temperatures and average monthly precipitation, for Pietermaritzburg, KwaZulu Natal.

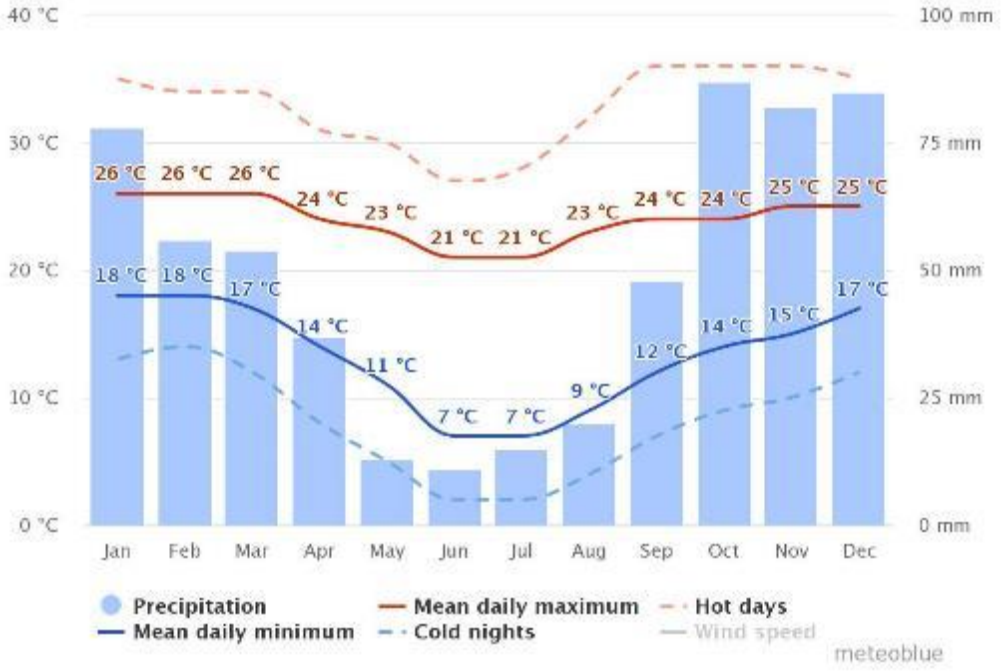


Figure 7-1 – Average temperatures and precipitation for Pietermaritzburg (Source: meteoblue.com as per September 2022)

7.1.2 LOCAL WIND FIELD

Winds affect the horizontal dispersion of air pollutants away from their source. Wind roses graphically indicate the frequency of speed classes and directions of the wind at a location. The directional spoke on a wind rose represents wind originating from that direction and the number of directional sectors can be modified. Each directional branch is divided into segments of darker green colour,

representative of different wind speeds. For example, **Figure 7-2** indicates 16 wind directions with varying shades of green segments, representing the various wind speeds for that specific direction.

The dominant wind directions for the Msunduzi Municipality emanate from the easterly and south-east and north-easterly directions. The predominant wind direction for the area blows from the east-north-east, generating winds > 1 km/h for 384 h/year; winds > 5 km/h for 607 h/year; winds > 12 km/h for 160 h/year, and winds > 19 km/h for 6 h/year. The predominant wind speeds for the area range between 5 to 19 km/h.

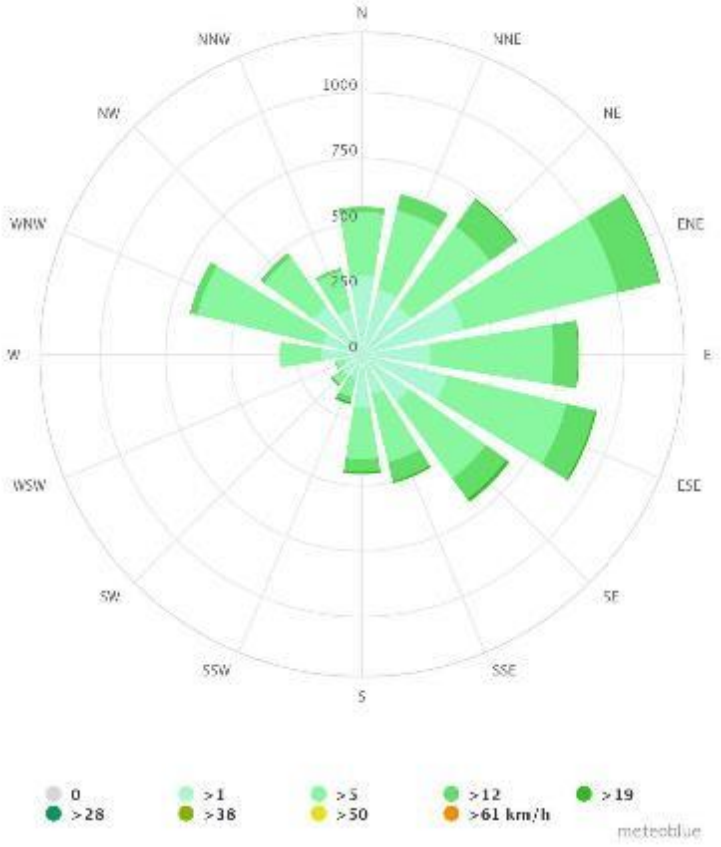


Figure 7-2 – Pietermaritzburg Wind Rose (Source: meteoblue.com as per September 2022)

7.1.3 TOPOGRAPHY

The following is extracted from surveying undertaken by BooteLand Surevyors.

The proposed project area is approximately 9 955 m^2, and is approximately 788 m above mean sea level (mamsl) at the north of the site, with a gradual up-slope to 792.5 m to the south of the site. the elevation between east to west of the site is fairly flat and does not change in mamsl.

The majority of the soil on site is covered by tufts of grass, interspersed by small trees and rocks. A man-made path covers a portion of the site, as does some builder's rubble.

There are no topographical limitations associated with the proposed development of the site.

7.1.4 GEOLOGY

The following is extracted from the Geotechnical Study compiled by WSP (April 2023) and included as ***Appendix G.4.***

According to the published 1:250 000 geological map (Sheet 2930 Durban), the study area is underlain by rocks of the Pietermaritzburg Formation (Pp), Ecca Group of the Karoo Supergroup. This Pietermaritzburg Formation comprises dark grey shale, siltstone and subordinate sandstone. The Ecca Group have been extensively intruded by dolerite both in the form of large sills, or sheets, and as dykes.

An excerpt of the published geological map showing the project area is presented the **Figure 7-3** below.

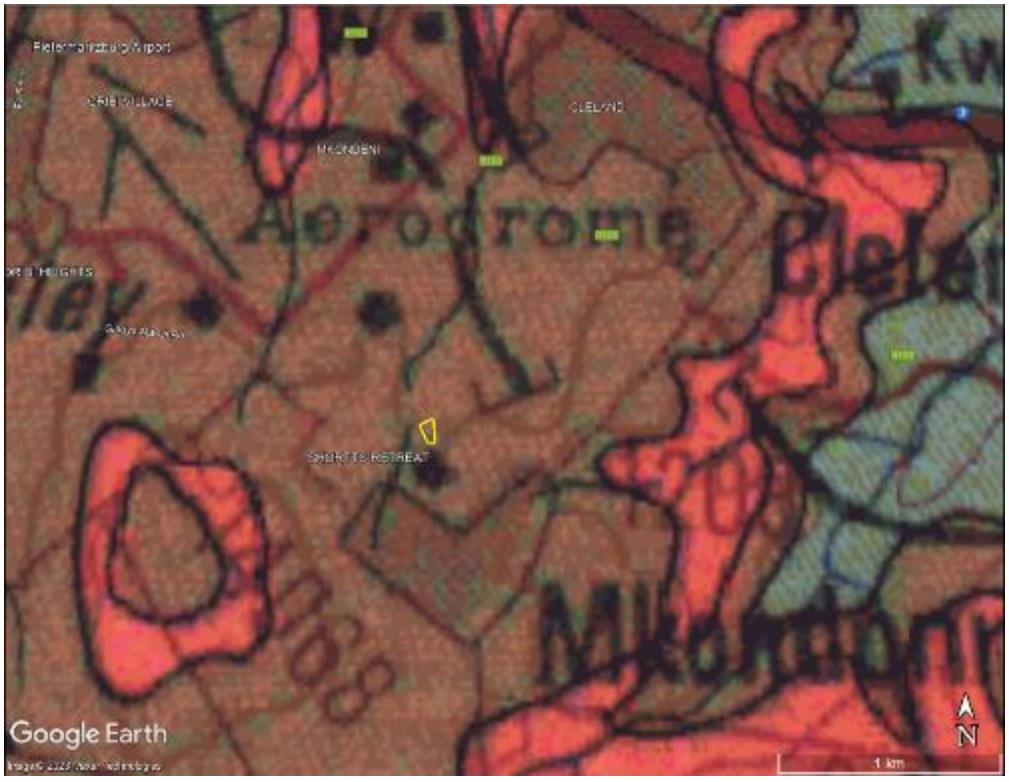


Figure 7-3 – Geological map of the project area

7.1.4.1 Engineering Geology of the Pietermaritzburg Shale

Generally, the Pietermaritzburg shale weathers to dark grey and brown cohesive soils with a considerable thickness developing in valleys. The residual soil is clayey with high plasticity and is often compressible and potentially expansive. Expansive soils are those materials that exhibit volume change with a change in moisture content. These materials “shrink” when the moisture content decreases and “heave” or “expand” when the moisture content increases. Where the residual clay profile is thinly developed, it is recommended that the material should be stripped. Where thickly developed, the structural design needs to take cognizance of the potential expansiveness and compressibility of this material.

The residual shale on the adjacent site is described as “clayey gravel. Therefore, a small percentage of clay is expected in relation to gravel. Although this material should be less expansive that material

with a greater percentage of clay and less coarse material, testing should be undertaken to determine this. Shale rock and excavated shale rock, which presents as a gravel, often deteriorate on exposure. Although shale material can be considered for use in construction, the potential for deterioration needs to be pre-determined in the laboratory.

Pietermaritzburg shales can be unstable in slope faces and tend to exhibit a regional dip of 3º-15º usually in an easterly direction. Slope instability may occur when sliding occurs on bedding planes which are inclined sufficiently. In general, sliding instability occurs if cuttings are made in a direction roughly parallel to the strike of dipping layers. Ingress of water into layers and the resulting high pore-water pressure play a major role in sliding failures.

7.1.5 SOILS AND AGRICULTURAL POTENTIAL

The following is extracted from the Soils and Agricultural Potential Assessment compiled by WSP (February 2022) and included as ***Appendix G.1.***

7.1.5.1 Soil form identification and classification

Two soil forms were identified within the project area namely Witbank and Clovelly. These have been classified according to the South African taxonomic system. Witbank soils vary widely in appearance, can be found in any environment, and have in common that their properties are strongly affected by human interference. The specialist concluded that it is very likely that the Witbank soils identified on site were Clovelly soils before being affected by human interference.

The Clovelly soil type was identified across most of the site – and the only natural soil identified. The Clovelly soil form is characterised by an Orthic A horizon over a yellow brown apedal B horizon over unspecified material and falls into the South African Oxidic soil group. These soils develop as oxides of iron accumulate through weathering and colour the soils - uniformly if the conditions are well drained and aerated such as at the study site. These are yellow-brown, weathered soils whose colours result from an accumulation of metal oxides, particularly iron and aluminium. The yellow colour is imparted by goethite and signifies conditions that are warm, dry, and not significantly affected by organic matter. An apedal horizon is typically deep (although this was difficult to establish at the site owing to the soil hardness) and well-drained as the soil is devoid of macrostructure (has no soil peds).

Figure 7-4 – Images of the soil types identified at the site, Clovelly (left) and Witbank (right)

7.1.5.2 Soil Capability Analysis

Land capability is the inherent capacity of land to be productive under sustained use and specific management methods. The land capability of an area is the combination of the inherent soil properties and the climatic conditions as well as other landscape properties, such as slope and drainage patterns that may have resulted in the development of wetlands, as an example.

Using the South African soil classification guidelines (Scotney et al., 1987), the land capability of the Clovelly soil was established as Land Capability Group 'Arable Soils' and Land Capability Class III, as they have 'Moderate Limitations and a Some Erosion Hazards' and can be used for (in order of increased intensity of use) 'Wildlife, Forestry, Light Grazing, Moderate Grazing, Intensive Grazing and Light Cultivation and Moderate Cultivation'.

In the context of this site the Clovellys are very hard soils, limiting their cultivation capacity. They also have a very thin topsoil and would need significant conditioning. Using the Alternative Capability Assessment system, the Capability Class for Agriculture remains fair with moderate limitations to the proposed use. These limitations include a lack of depth and organic matter. Using this system, the capability class for foundation building is good with slight limitations to the proposed use. The soils are not shrink-swell clays, not organic soils and are not poorly graded.

7.1.6 5. HYDROLOGY

The site falls within U20J quaternary catchment in the Mvoti - Umzimkulu Water Management Area (WMA) 11, and, with a catchment area of 687 km^2. Mean annual precipitation is approximately 840 mm, whilst mean annual evaporation is approximately 1200 mm. The uMnsunduze River lies approximately 5 km to the northeast and Mpushini River 4.2 km to the south of the proposed site.

Urban flood hazard for uMgungundlovu District Municipality is classified as very low. This means that there is a chance of less than 1% that potentially damaging and life-threatening river floods occur in the coming 10 years (return period of c. 1 in 1000 years). River flood hazard is classified as very low. This means that there is a chance of less than 1% that potentially damaging and life-threatening river floods occur in the coming 10 years (www.thinkhazard.org).

7.1.7 GROUNDWATER

Groundwater depth is anticipated to be 20 to 30 meters below ground level (bgl). Localised flow is anticipated to be generally towards the north of the proposed site. The underlying natural geology represents a minor aquifer, moderately yielding system of variable water quality with a mean annual recharge of 75 - 110mm. The aquifer is classified as having a moderate vulnerability to contamination and has a medium susceptibility to anthropogenic activities. Electrical conductivity is 0 – 70 mS/m and TDS is <200 mg/L.

7.2 BIOLOGICAL ENVIRONMENT

7.2.1 TERRESTRIAL BIODIVERSITY

The following is extracted from the Terrestrial Biodiversity Assessment compiled by WSP (May 2023) and included as ***Appendix G.3.***

The LSA is situated in an industrial park, characterised by degraded grassland (**Figure 7-5**) and bounded by industrial development to the north and east, and a tarred road to the west and south. A degraded wetland system occurs further to the west of the tarred road. The LSA has become

degraded as a result of overgrazing by cattle, dumping and burning, leaving a remnant patchy cover of disturbed grassland, interspersed by occasional *Acacia* sp. trees and stands of invasive species.

Figure 7-5 - Landscape of the proposed development area (March 2022)

Regional Terrestrial Biodiversity Context

Vegetation Types and Threatened Ecosystems

The LSA is located within the KwaZulu-Natal Hinterland Thornveld vegetation type (SVs 3) (**Figure 7-9**), which is scattered at altitudes of 450-900 m in the valleys of the Mpisi, Mvoti, Umgeni, Mlazi, Lufafa and Mtungwane rivers (Mucina and Rutherford, 2011). The vegetation is characterised by open thornveld dominated by Acacia species including *A. robusta, A. natalita, A. nilotica*, with other trees including *Combretum mole, Ziziphus mucronata, Brachylena elliptica, Cussonia spicata, Erythrina latissima, Aloe marlothi* subsp. *marlothii* and *Euphorbia ingens* also potentially occurring. The endemic succulent Aloe pruinosa occurs in this vegetation type. Although considered Vulnerable by Mucina and Rutherford, this vegetation type doesn't feature on the National List of Ecosystems that are Threatened (DFFE, 2022) and the LSA is situated outside the mapped extent of remaining areas (SANBI, 2021) – which are considered Least Concern (**Figure 7-10**).

TERRESTRIAL CRITICAL BIODIVERSITY AREAS

Based on the Ezemvelo KZN Wildlife 2014, uMgungundlovu District Municipality Biodiversity Sector Plan, the proposed development falls within an area mapped as CBA irreplaceable on the KZN Biodiversity Sector Plan (2016) (**Figure 7-6**). CBA 'irreplaceable' areas that are considered critical for meeting biodiversity targets and thresholds, and which requires to ensue persistence of viable populations of species and functional ecosystems. The Ecological Support Area (ESA) 'Mkhondeni Local Corridor' occurs to the south of the site, which is known to include habitat for millipedes and molluscs (EKZN Wildlife, 2023).

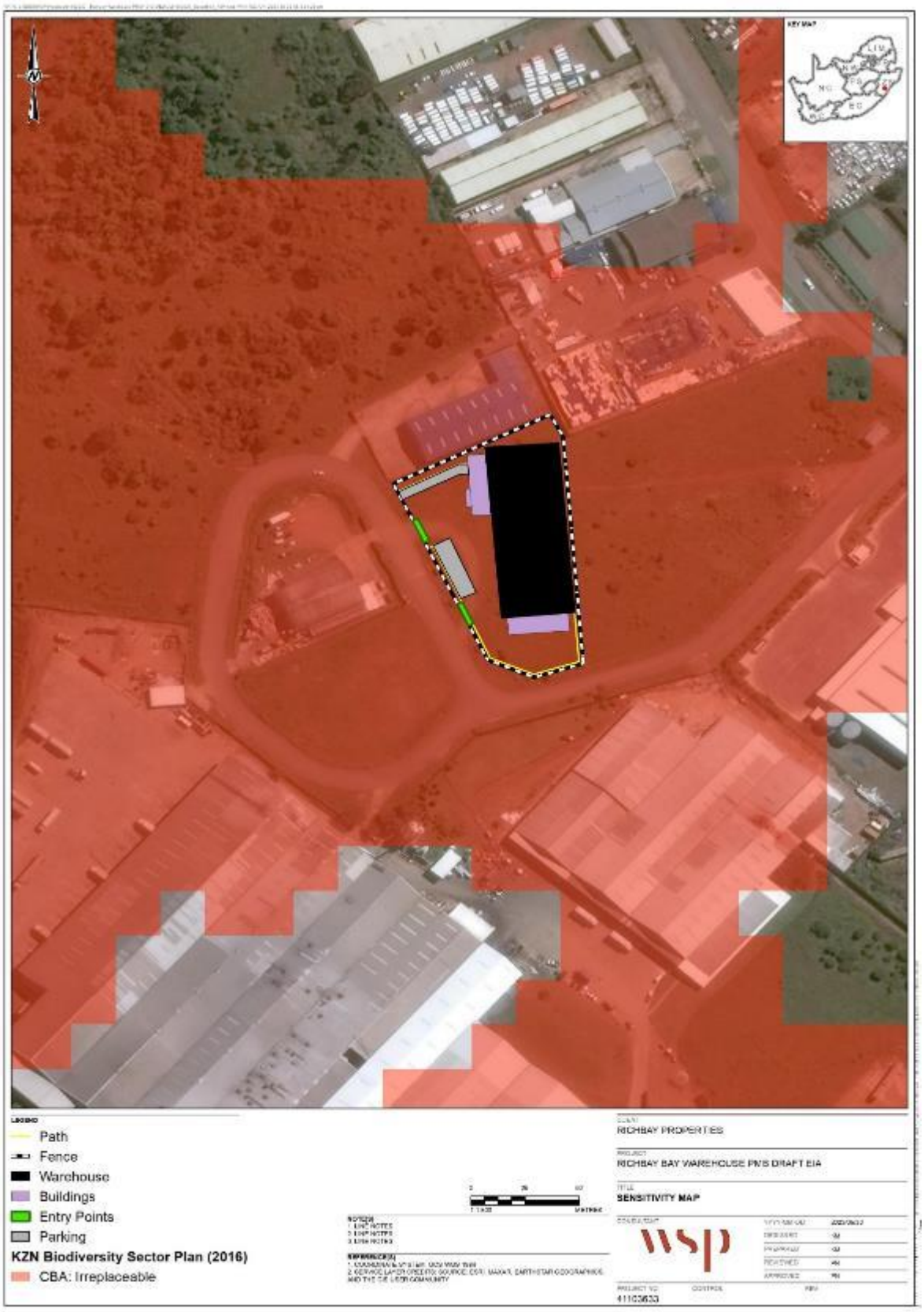


Figure 7-6 - KZN Biodiversity Sector Plan (2016)

PROTECTED AREAS, AND PRIORITY AREAS FOR PROTECTED AREA EXPANSION

The nearest protected area to the LSA is the Mpushini Protected Environment, which occurs in scattered patches > 5 km to the east of the LSA (**Figure 7-11**).

The LSA falls within an area mapped as a 'Priority Focus Area' of the NPAES (**Figure 7-12**), which aligns with the CBA Irreplaceable area mapped as part of the KZN Biodiversity Sector Plan (**Figure 7-6**).

Indigenous Forests

No forest habitat occurs in the LSA. Some scattered mature indigenous tree species including paperback thorn (*Vachellia sieberiana var woodii*), broadpod robust thorn (*Vachellia robusta*) and scented-pod acacia (*Vachellia nilotica*) occur in the LSA.

Site Specific Terrestrial Biodiversity

The LSA is situated in the suburbs of Pietermaritzberg, in an industrial zone characterised by warehouses and hardstanding. The terrestrial ecology baseline situation encountered during the site visit conducted in December 2021 is described in the sections that follow.

Vegetation and Flora

A single vegetation community was identified in the LSA during the field survey – disturbed grassland (**Figure 7-9**). Although degraded, this grassland continues to perform ecological functions including support of indigenous trees and flora species.

The vegetation structure of this community is low open grassland, featuring grass species including Tristachya leucothrix, Themeda triandra, Sporobolus pyramidalis, Brachiaria deflexa, Alloteropsis semialata, Melinis repens, and Eragrostis curvula occurring, which are indicative of relatively natural, although over-grazed conditions. Occasional indigenous trees are scattered through the LSA, including paperback thorn (Vachellia sieberiana var woodii), broadpod robust thorn (Vachellia robusta) and scented-pod acacia (Vachellia nilotica), the shrub blunt-leaved currant (Searsia cf. rehmanniana) and sickle bush (Dichrostachys cinerea).

Forbs recorded in this vegetation community consist largely of exotic species including *Verbena rigida, Verbena aristigera, Argemone ochroleuca, Datura strumarium* and *Tagetes minuta*, with indigenous Asteraceae and *Gomphocarpus* sp. also evident.

Other observed indigenous species include *Ledebouria ovatifolia*, and a maculate aloe (Aloe sp.) (**Figure 7-7**).

Figure 7-7 - *Ledebouria ovatifolia* and Aloe sp.

It is noted that in the intervening time since conducting the site visit in 2021, and finalisation of this report in 2023, the LSA has been severely impacted through the dumping of spoil heaps generated through earthworks on the adjacent development site to the east.

Declared Alien Invasive Species

Six NEMBA declared Alien and Invasive Species (AIS) were recorded in the LSA during the field survey (**Table 7-2**). Most AIS occur in heavily disturbed areas such as roadsides and dumping grounds. Without management, these species are expected to colonise adjacent habitats, competing with, and ultimately replacing, indigenous vegetation and flora.

Table 7-2 – Declared AIS recorded in LSA

Scientific name	Common name	Growth form	NEMBA Category
Lantana camara	West Indian lantana	Shrub	1b
Leucaena leucocephala	River tamarind	Tree	2
Melia azedarach	Seringa	Tree	1b/3
Senna didymobotrya	Peanut butter cassia	Tree/shrub	1b
Solanum mauritianum	Bugweed	Tree/shrub	1b
Tipuana tipu	Tipu tree	Tree	3

Fauna

No evidence of important foraging or breeding habitat for fauna was detected on site during the survey, although it is likely that the scattered trees on site provide nesting habitat for local bird populations. Since the potential presence of three mammal and one reptile species of concern was highlighted in the National Web-based Environmental Screening Tool, and the potential presence of invertebrate

species of concern (molluscs, millipedes) highlighted by Ezemvelo KZN Wildlife at scoping, these are discussed in the sections that follow.

Mammals

The potential presence of rough-haired golden mole (*C. villosus*), tree hyrax (*D. arboreus*), orebi (*O. ourebi ourebi*), and an unnamed sensitive deer species in the LSA was highlighted by the screening tool. No evidence of the presence of these species was observed during the site visit, and the habitat on site was considered unsuitable for their support.

Herpetofauna

The potential presence of Natal hinge-backed tortoise (*K. natalensis*) was highlighted by the screening tool, due to the LSA's overlap with the known distribution of this species. It prefers dry rocky habitat in thornveld, valley bushveld, dry thicket or bushveld savanna at elevations between 50 and 1,200 m (Hofmeyr and Boycott, 2017) and as such could potentially occur in the LSA which supported degraded grassland at baseline. In ideal habitat conditions, it has an estimated density of one individual per two hectares (R.C. Boycott pers. obs, in Hofmeyr and Boycott, 2017), however, it is considered is doubtful if viable populations exist outside reserves due to habitat degradation (Hofmeyr and Boycott, 2017). The likelihood of the presence of this species in the LSA is therefore considered low, and no evidence of its presence were detected during the survey.

Invertebrates

Approximately 234 species and subspecies of millipede are known from KwaZulu-Natal, many of which are considered endemic (Armstrong and Hamer, 2015). The heavily over-grazed and trampled condition of the LSA does not lend itself to the support of millipede species which typically rely on the presence of relatively undisturbed soil conditions, uncompacted soil and leaf litter as suitable habitat.

The terrestrial site conditions are unsuitable for the support of mollusc species of concern, since these typically rely on undisturbed natural habitats for their survival, and as is the case for millipedes, the heavily over-grazed and trampled condition of the LSA renders the on-site habitat unsuitable for the support of significant or diverse mollusc populations.

Existing Impacts and Drivers of Change

The LSA is characterised by disturbed grassland. Existing drivers of change in the proposed development site include grazing by cattle, dumping of litter/rubble (**Figure 7-8**) and presence of alien and invasive species, which have resulted in disturbance of the natural vegetation community and habitat loss. Nevertheless, at baseline (2021) the LSA supported indigenous tree and succulent species, and as such was considered natural habitat, although heavily degraded.

Figure 7-8 – Cattle grazing, dumping

It is noted that in the intervening time since conducting the site visit in 2021, and finalisation of this report in 2023, the LSA has been severely impacted through the dumping of spoil heaps generated through earthworks on the adjacent development site to the east.

Site Ecological Importance

The results of the SEI assessment are summarised as follows:

- Conservation Importance (CI) = Low, since SCC and range-restricted species have not been confirmed on site, nor are they expected to occur, and less than 50% of the LSA contains natural habitat to support SCC.
- Functional Integrity (FI) = Low, since the LSA is > 1 ha, with almost no habitat connectivity, low rehabilitation potential and several significant current negative ecological impacts (e.g. heavy overgrazing, dumping, burning, AIS proliferation (at baseline)).
  - The Biodiversity Importance (BI = FI + CI) is therefore considered Low.
- Receptor Resilience (RR) = High, since it is considered that the degraded grassland of the LSA could recover relatively quickly (5-10 years) to restore >75% of the original species composition and functionality of the receptor functionality, since many of the indigenous species observed at baseline persisted in the LSA despite the presence of ongoing disturbance or impacts (e.g. overgrazing, fire, dumping), and have a high likelihood of returning once disturbance has been removed.
  - The baseline Site Ecological Importance (BI +RR) is therefore considered Medium – development activities of medium impact are considered acceptable, provided that impacts are minimised, and there are appropriate restoration activities.

Figure 7-9 - Vegetation Types

Figure 7-10 - Threatened ecosystems (NEMBA)

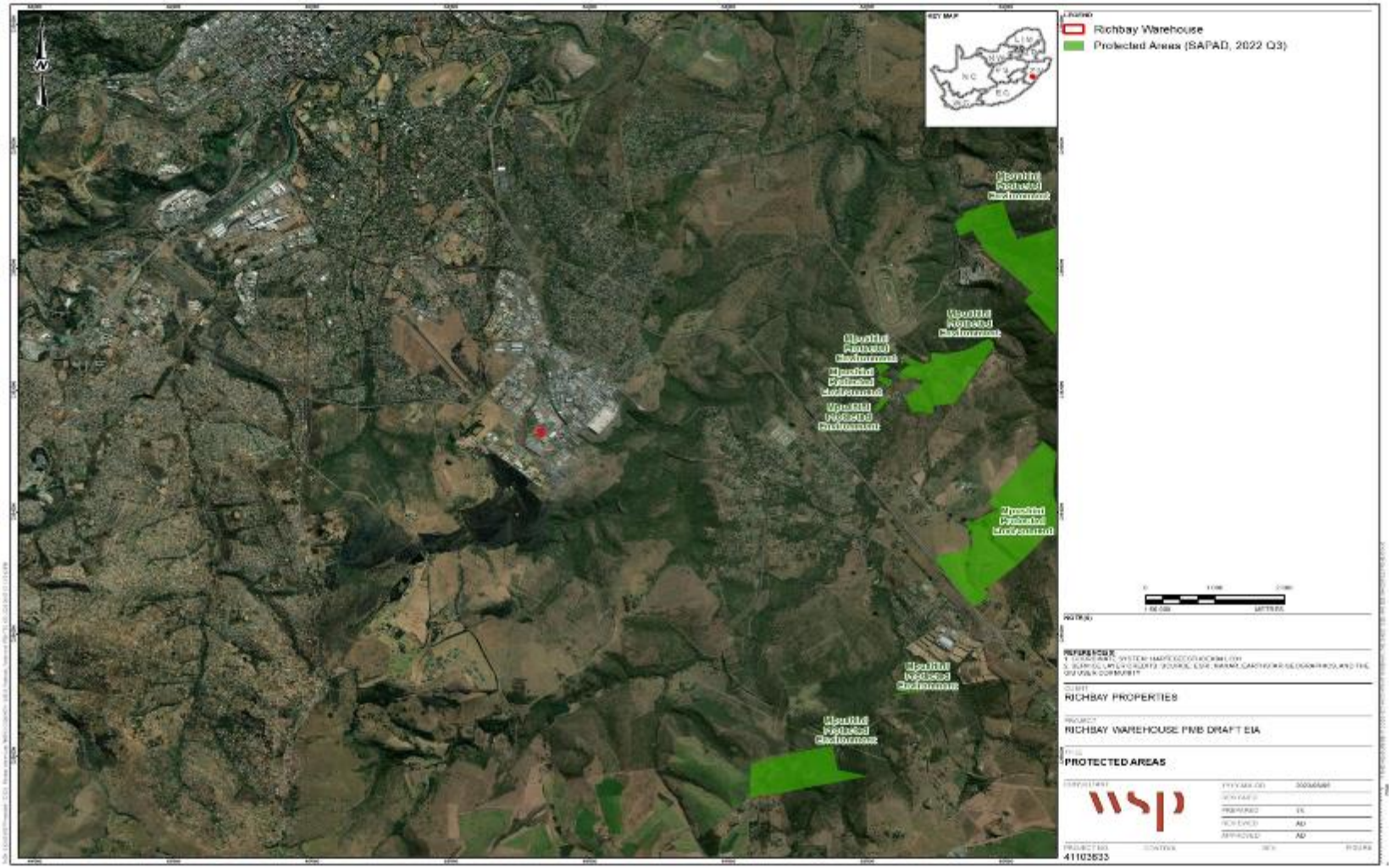


Figure 7-11 - Protected areas

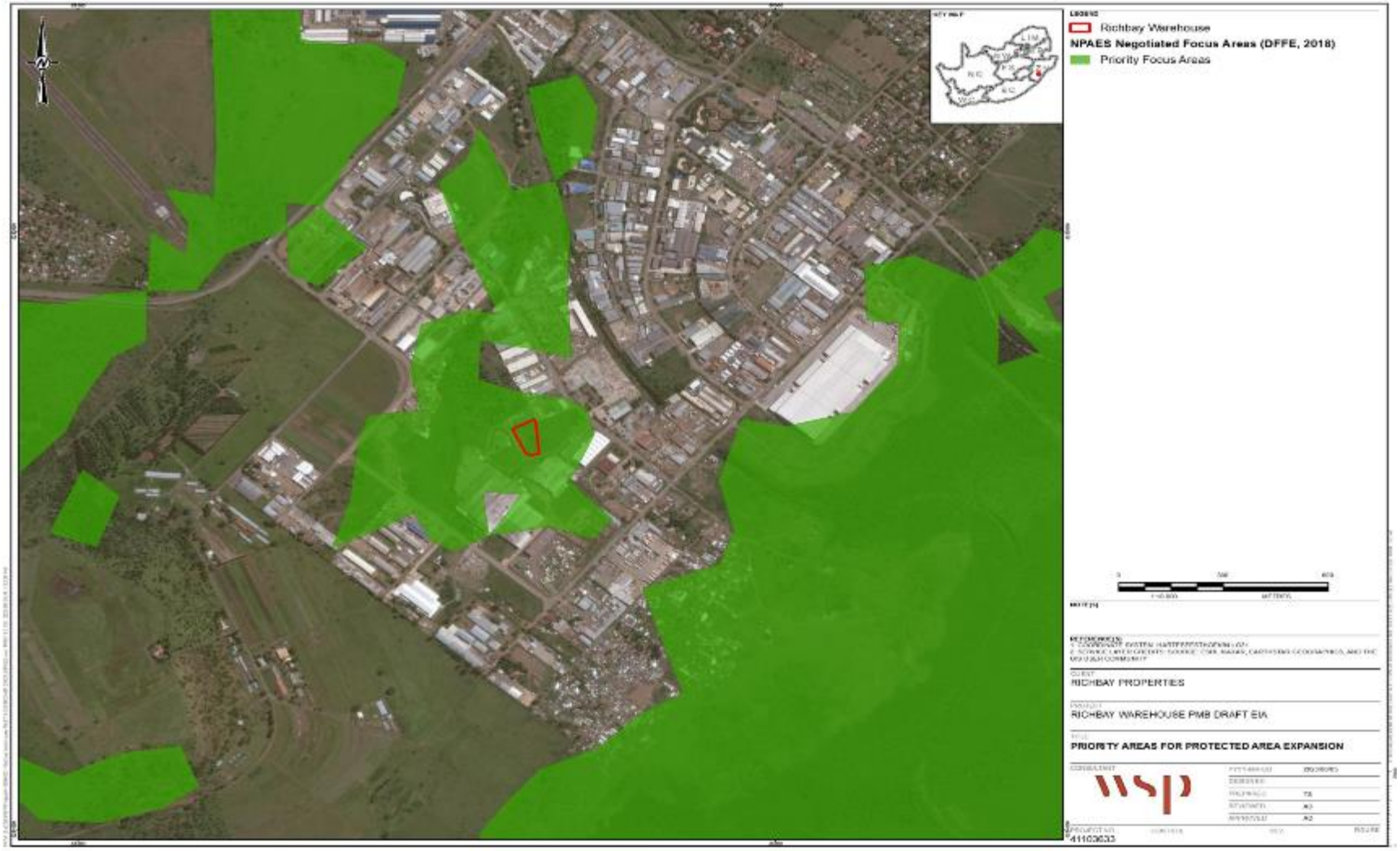


Figure 7-12 - Priority areas for protected area expansion

Figure 7-13 - Mapped vegetation communities

7.2.2 AQUATIC BIODIVERSITY

The following is extracted from the Aquatic Biodiversity Assessment compiled by WSP (May 2023) and included as ***Appendix G.3.***

Regional Aquatic Biodiversity

The site falls within U20J quaternary catchment in the Mvoti - Umzimkulu Water Management Area (WMA) 11, and, with a catchment area of 687 km^2. Mean annual precipitation is approximately 840 mm, whilst mean annual evaporation is approximately 1200 mm. The uMnsunduze River lies approximately 5 km to the northeast and Mpushini River 4.2 km to the south of the proposed site.

Aquatic critical biodiversity areas (CBAs) and Ecological Support Areas

The Study Area was compared to relevant available spatial biodiversity planning datasets, i.e. the KwaZulu Natal Biodiversity Sector Plan (2016) in order to assess the local and regional biodiversity context of the site. No specific aquatic CBAs occur in the LSA, although the LSA is mapped as a CBA1 due to the potential presence of millipede/mollusc SCC.

Strategic Water Source Areas (SWSAs)

No strategic water source areas (SWSAs) occur in the LSA – the nearest being the southern Drakensberg SWSA which is situated approx. 5 km northwest of the LSA (**Figure 7-14**).

Freshwater Ecosystem Priority Areas (FEPA) sub-catchments

The LSA does not coincide with any FEPA sub-catchments or features (**Figure 7-15**).

National wetland map version 5

The South African National Wetland Map version 5 (NWM5) portrays the most up-to-date spatial data for the extent and types of estuarine and inland aquatic (freshwater) ecosystems of South Africa (Van Deventer *et al.*, 2019). The proposed development footprint in relation to wetlands mapped as part of the National Wetland Map 5 project is illustrated on **Figure 7-16**. Since a seep wetland is indicated within 500 m of the proposed development, the key objective of the wetland baseline data gathering studies was to define the extent and condition of this (and other) wetland habitat in the study area.

Wetland Delineation and Classification

No wetlands occur within the site, however, a single hillslope seep wetland of 3.89 ha situated approximately 150 m to the west of the proposed development (**Figure 7-17**) was delineated. The wetland is separated from the proposed development via the existing tarred access road, and wasteland that is currently heavily overgrazed by cattle, and used for dumping of building rubble etc.

Present Ecological Status (PES)

The hillslope seep to the west of the site exists in a landscape that is characterised by industrial activities and livestock grazing, which have resulted in degradation of the wetland habitat. Building rubble was observed in the wetland, as well as areas of excavation, possible abstraction boreholes, and exotic weed species. The PES of the wetland was assessed as being Seriously Modified (PES E) (**Table 7-3**).

Table 7-3 – Wetland PES

Final (adjusted) Scores				
PES Assessment	Hydrology	Geomorphology	Water Quality	Vegetation
Impact Score	7.1	6.3	6.5	7.0
PES Score (%)	29%	37%	35%	30%
Ecological Category	**E**	**E**	**E**	**E**
Trajectory of change	↓	↓	→	↓
Confidence (revised results)	High	High	High	High
Combined Impact Score	6.9			
Combined PES Score (%)	31%			
Combined Ecological Category	**E**			
Hectare Equivalents	1.2 Ha			

Ecological importance and Sensitivity

The EIS of the wetland was considered to be Low/marginal, that is, not being ecologically important or sensitive at an scale, largely as a result of its seriously modified condition, and reduced role in biodiversity support and ecosystem service supply.

Table 7-4 – Wetland ecological importance and sensitivity

Hillslope seep	Importance
Ecological importance & sensitivity	1.7
Hydro-functional importance	1.1
Direct human benefits	0.1
Overall Importance and Sensitivity Score	**1.7**
Overall Importance and Sensitivity Category	**D**

Buffer Zones

Buffer zones for the wetland were calculated using the DWS buffer zone tool for the determination of aquatic impact buffers and setback requirements for wetland ecosystems. The calculated buffers for the hillslope seep wetland are set out in **Table 7-5**.

Table 7-5 – Buffer zone determination

Phase	Required buffer (m from wetland edge)
Construction phase	15
Operation phase	24
Final aquatic impact buffer requirement	24

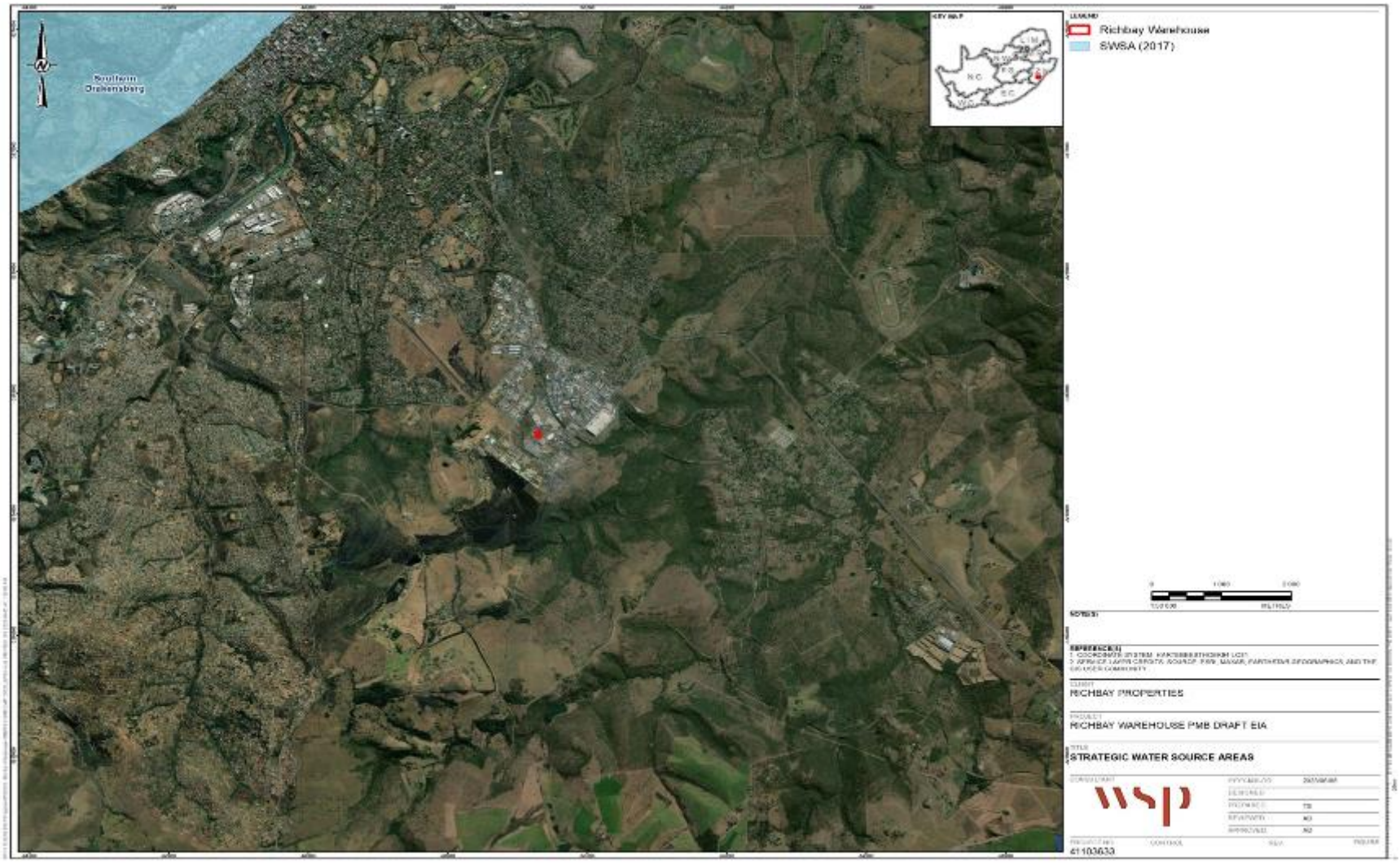


Figure 7-14 - Strategic water resource areas

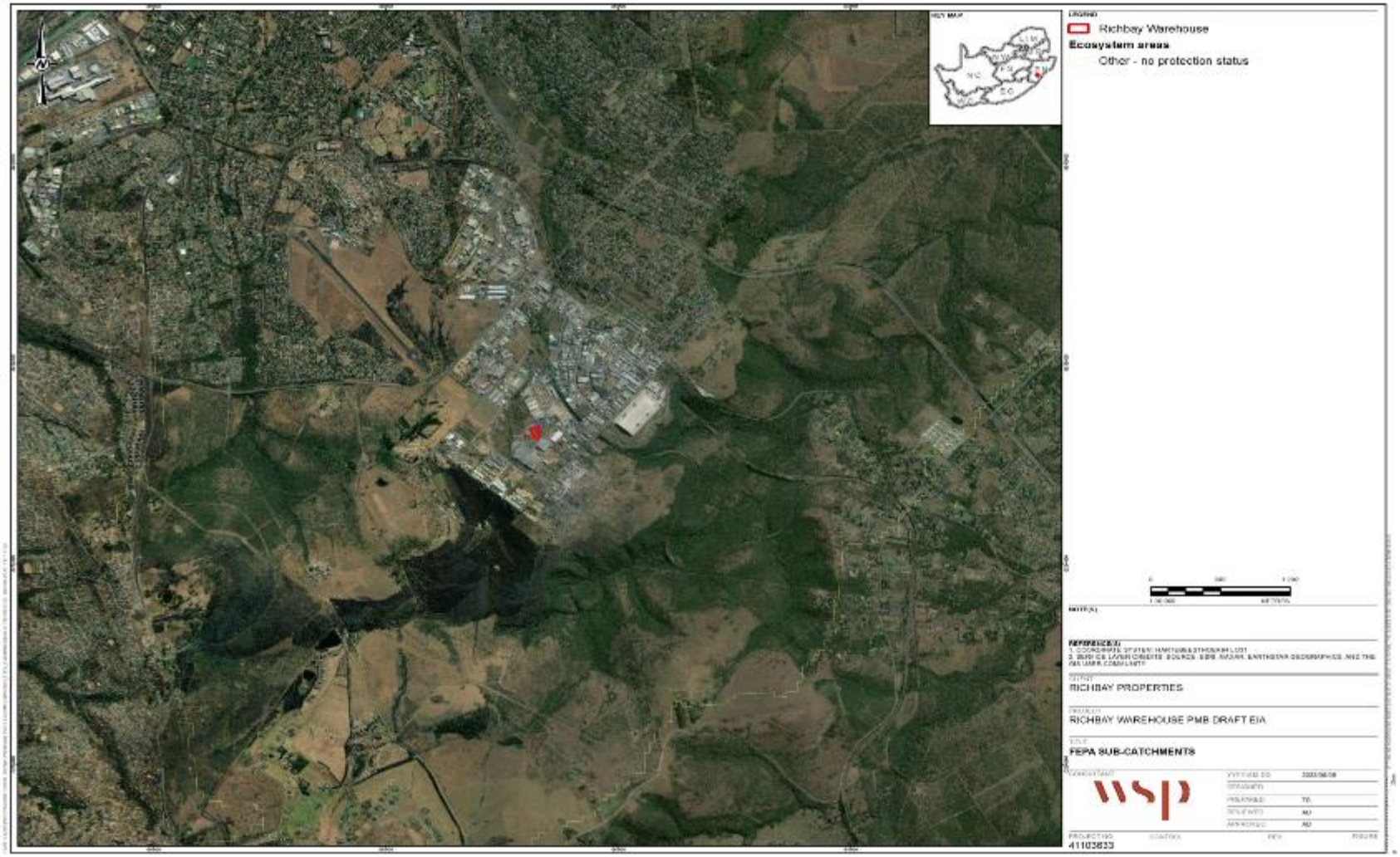


Figure 7-15 - FEPA subcatchments/features

Figure 7-16 - National Wetland map 5

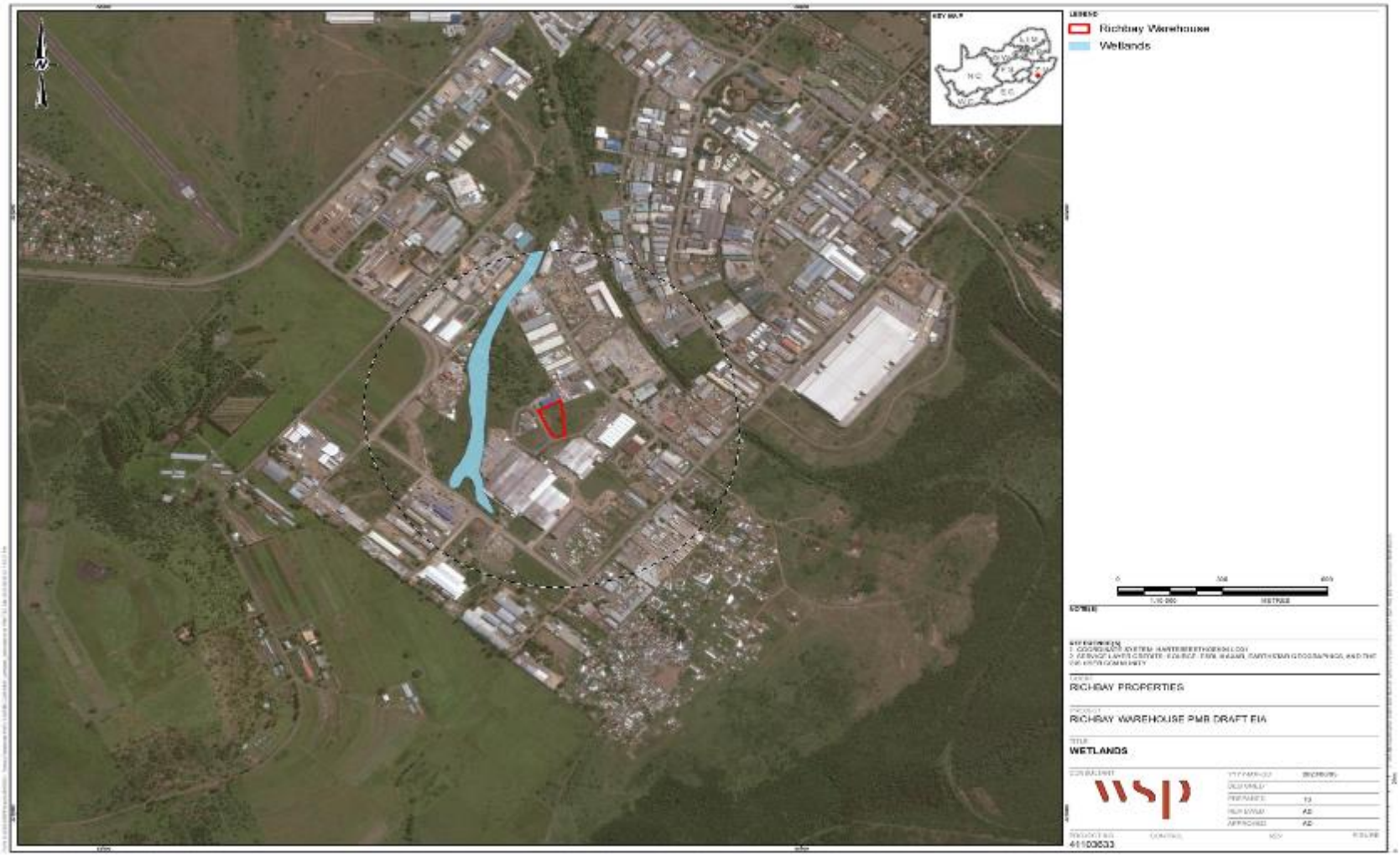


Figure 7-17 - Wetland delineation

7.3 SOCIAL AND ECONOMIC ENVIRONMENT

7.3.1 ARCHAEOLOGICAL AND CULTURAL HERITAGE

Archaetnos, 2023 undertook a desktop review of the site. The specialist found that:

- The study of Google Earth indicates that the site has been entirely disturbed by former agricultural activities.
- The site lies within a disturbed industrial setting.
- There are no buildings on site.
- There is no natural vegetation on site and the vegetation cover consists of pioneer species such as grasses and sickle bush.
- It is believed to be low risk areas for the location of heritage sites.

In light of these factors, the chances of finding any heritage related features are believed to be slim, if any. Therefore, the specialist compiled a letter requesting the exemption from a HIA.

7.3.2 PALAEONTOLOGY

The following is extracted from the Desktop Palaeontological Assessment compiled by Professor Marion Bamford (March 2023) as ***Appendix G.5.***

The project lies in the southeastern margin of the Karoo Basin where the early Karoo sediments unconformably overlie the Natal Group rocks. The Karoo Supergroup rocks cover a very large proportion of South Africa and extend from the northeast (east of Pretoria) to the southwest and across to almost the KwaZulu Natal south coast. It is bounded along the southern margin by the Cape Fold Belt and along the northern margin by the much older Transvaal Supergroup rocks. Representing some 120 million years (300 – 183Ma), the Karoo Supergroup rocks have preserved a diversity of fossil plants, insects, vertebrates and invertebrates.

During the Carboniferous Period South Africa was part of the huge continental landmass known as Gondwanaland and it was positioned over the South Pole. As a result, there were several ice sheets that formed and melted, and covered most of South Africa (Visser, 1986, 1989; Isbell et al., 2012). Gradual melting of the ice as the continental mass moved northwards and the earth warmed, formed fine-grained sediments in the large inland sea. These are the oldest rocks in the system and are exposed around the outer part of the ancient Karoo Basin and are known as the Dwyka Group. They comprise tillites, diamictites, mudstones, siltstones and sandstones that were deposited as the basin filled. This group has been divided into two formations with Elandsvlei Formation occurring throughout the basin and the upper Mbizane Formation occurring only in the Free State and KwaZulu Natal (Johnson et al., 2006).

Overlying the Dwyka Group rocks are rocks of the Ecca Group that are Early Permian in age. There are eleven formations recognised in this group but they do not all extend throughout the Karoo Basin. In the west and central part are the following formations, from base upwards: Prince Albert Formation, Whitehill Formation, Collingham Formation, Laingsburg / Ripon Formations, Tierberg / Fort Brown Formations, and Waterford Formation. In the Free State and KwaZulu Natal, from the base upwards are the Pietermaritzburg Formation, Vryheid Formation and the Volksrust Formation. All of these sediments have varying proportions of sandstones, mudstones, shales and siltstones and represent shallow to deep water settings, deltas, rivers, streams and overbank depositional environments.

Overlying the Ecca Group are the rocks of the Beaufort Group that has been divided into the lower Adelaide Subgroup for the Upper Permian strata, and the Tarkastad Subgroup for the Early to Middle Triassic strata. As with the older Karoo sediments, the formations vary across the Karoo Basin. Beaufort and Stormberg Groups complete the Karoo sequence but are not present in this region.

Large exposures of Jurassic dolerite dykes occur throughout the area. These intruded through the Karoo sediments around 183 million years ago at about the same time as the Drakensberg basaltic eruption.

The site for development is in the Pietermaritzburg Formation. The specialist confirmed that based on experience and the lack of any previously recorded fossils from the area, it is extremely unlikely that any fossils would be preserved in the Pietermaritzburg Formation or the soils of the Quaternary. There is a very small chance that fossils may occur below ground in the shales of the early Permian Pietermaritzburg Formation.

The palaeontological sensitivity of the area under consideration is presented in **Figure 7-18**.

Figure 7-18 - SAHRIS palaeosensitivity map for the site for the proposed R-Bay Chemicals warehouse shown by the yellow outline. Background colours indicate the following degrees of sensitivity: red = very highly sensitive; orange/yellow = high; green = moderate; blue = low; grey = insignificant/zero.

7.3.3 LAND USE

The site is currently not formally used and houses grasses, small trees and termite mounds. Google Earth imagery indicates that the site has not been formally used in the past 40 years. Over the past

40 years informal paths have been created by people traversing the site, assumedly using the open plot of land as a shortcut. In 2016 informal driving path was created in the western section of the site. There was no evidence of planned future activities at the site, nor was there evidence of any current, planned or previous agricultural use being made of the site.

7.3.4 SOCIO-ECONOMIC

7.3.4.1 Geographics

The Msunduzi Municipality is the second biggest metropolitan in the province of KwaZulu Natal. It is situated adjacent to the N3 and approximately 70 km north of eThekwini, allowing for a major trade route between the biggest Port in Africa and the wealthiest city in Africa (Johannesburg). It location allows access to the Ports of Durban and Richards Bay, and major airports such King Shaka Internal and OR Tambo international. Therefore, allowing neighbouring towns and communities access to improve their economic growth.

The Msunduzi Municipality is located within the District Municipality of uMgungundlovu. The Municipality is boarded to the north by Mshwathi Municipality, to the east by Mkhambathini Municipality, to the south by Richmond Municipality, and to the west by Impendle and Umgeni Municipalities.

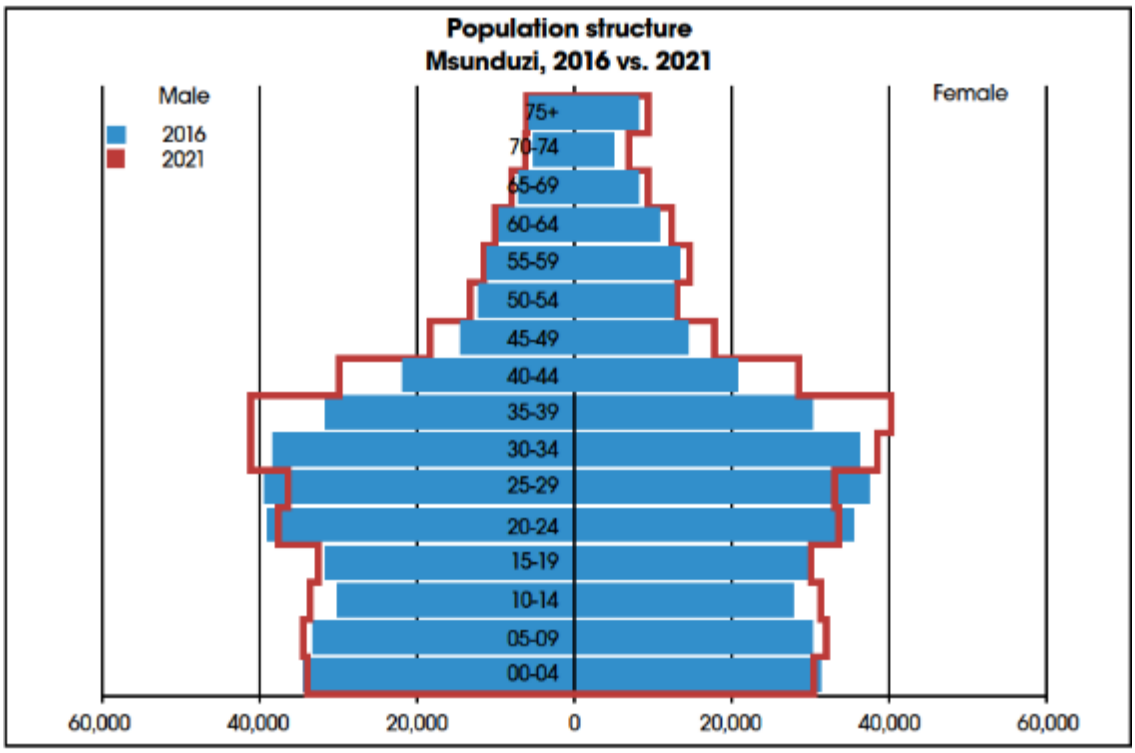
The Msunduzi Municipality forms part of the national Strategic Integrated Projects (SIPs), as part of the Durban Free State-Gauteng Logistics Industrial Corridor (SIP 2) and is the economic powerhouse of the District Municipality, attracting high rates of migration due to economic opportunities within the area.

7.3.4.2 Demographics

The overview of the demographic profile of the municipality indicates that the population of Msunduzi has been on an incline, having risen from 552 801 people in 2011 to 618 536 people in 2011 to 682 000 people in 2016. This rise puts greater pressure on the service delivery priorities of the municipality, which includes the provision of adequate housing. In correlation with the increase of population the number of households and household density has also increased. The number of households has increased from 135 311 households in 2001 to 164 625 households in 2011 to 181 584 households in 2016, while household density has risen from 213hh/km^2 in 2001 to 260hh/km^2 in 2011 to 286hh/km^2 in 2016. This is a positive indication that the municipality continues towards the aim of providing adequate households for all its citizens in line with its growing population.

7.3.4.3 Population Structure

As depicted on the pyramid below, the Municipality has a high number of young people between 20 and 34 (31.4%). In 2016, the female population for the 20 to 34 years age group amounts to 15.6% of the total female population while the male population group for the same age amounts to 15.7% of the total male population. The Municipality has a high number of young people. About 70% of the population is below the age of 34 years.



Source: IHS Markit Regional explorer version 1070

Figure 7-19 – Population Structure of the Msunduzi Municipality

7.3.4.4 Economic Profile

In 2016, Msunduzi employed 216 000 people which is 65.88% of the total employment in uMgungundlovu District Municipality (327 000), 8.23% of total employment in KwaZulu-Natal Province (2.62 million), and 1.38% of the total employment of 15.7 million in South Africa. Employment within Msunduzi increased annually at an average rate of 2.61% from 2006 to 2016.

The Msunduzi Local Municipality average annual employment growth rate of 2.61% exceeds the average annual labour force growth rate of 1.47% resulting in unemployment decreasing from 30.70% in 2006 to 22.27% in 2016 in the local municipality.

Msunduzi has a 60,0% labour force participation rate and 41.2% labour absorption rate with 39,9% of the population employed. Each household earns approximately R6 773 per month with 37,6% of households earning low income.

Figure 7-20 indicates the unemployment and employment rates between 2006 and 2016.

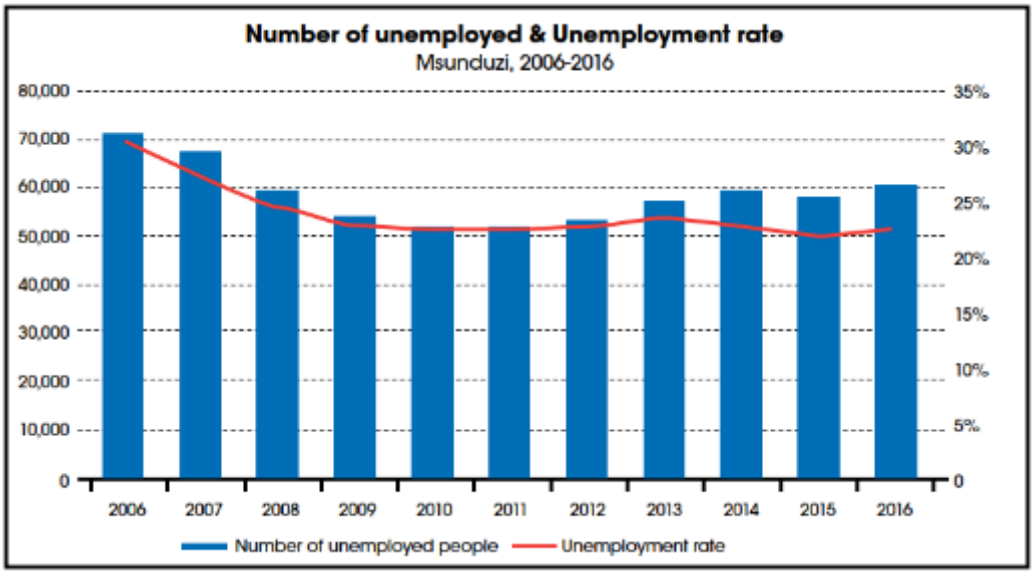


Figure 7-20 – Unemployment and employment rates between 2006 and 2016

7.3.5 HEALTH AND SAFETY

The following is extracted from the Major Hazard Installation compiled by Ishecon (March 2023) as ***Appendix G.6.***

R-Bay is a chemical distribution company in South Africa. The company imports chemicals in 1000L (Intermediate Bulk Containers (IBCs) and 200L drums through the Richards Bay port, and bulk breaks at their distribution centres in Richards Bay, Pietermaritzburg and Gauteng into smaller Polycans for clients. Due to the current import delays and challenges, Richbay chemicals is proposing to build a warehouse to be used as buffer storage for the imported chemicals. The warehouse will be able to supply its distribution centres with the chemicals to ensure the business keeps running.

The chemicals that will be stored at the R-Bay warehouse will be 500t hydrochloric acid, 150t sulphuric acid, 20t phosphoric acid, 20t Nitric acid, 30t sodium hypochlorite, 100t sodium hydroxide solution, 3t formaldehyde, 15t ammonium solution, 5t acetic acid, 15t sodium chlorite and 5t sodium metabisulphite powder, 150t sodium hydroxide flakes.

Ishecon was contracted by WSP Africa to carry out a Major Hazard Installation risk assessment for the proposed facility. Due to the presence of certain hazardous materials, their associated offsite effects and the fact that some may be stored in IBCs (not drums) thereby exceeding the 2022 MHI Regulation Threshold, the R-Bay Properties Pietermaritzburg site should as a precaution be classified as a Low-Level Major Hazard Establishment.

8 ENVIRONMENTAL IMPACT ASSESSMENT

The EIA phase of the S&EIR process has determined potential impacts associated with the proposed R-Bay Chemicals Warehouse in Pietermaritzburg. The anticipated environmental and social impacts have been identified and assessed by the various specialists according to the phases of the project's development. For the purpose of this project, these phases have been generically defined below.

Construction Phase:

The construction phase includes the preparatory works/activities typically associated with the creation of surface infrastructure and structures. The activities most relevant to this phase include:

- Site clearance;
- Topsoil stripping;
- Cut and fill activities associated with site preparation (if required); and
- Construction of the surface infrastructure and structures.

Operational Phase:

- The operational phase includes the daily activities associated with the storage of chemicals at the warehouse.

Decommissioning Phase:

- The decommissioning phase includes the activities associated with the removal/dismantling of machinery/equipment/infrastructure/structures no longer necessary to the operation.
- The impact assessment findings outlined in this section represent a summary of the detailed specialist findings/assessments contained in the relevant specialist reports (Appendix H).
- The impacts below have been assessed according to environmental categories.

8.1 AIR QUALITY

8.1.1 CONSTRUCTION PHASE

Emissions during construction are associated with land clearing, drilling, and blasting, ground excavation, cut and fill operations and the movement of construction vehicles. Pollutants associated with construction activities are typically Total Suspended Particulates (TSP), PM_{10} and $PM_{2.5}$ with lesser contributions of CO, NO_2, SO_2 and C_6H_6 from vehicle exhausts.

PM refers to solid or liquid particles suspended in the air. PM varies in size from particles that are only visible under an electron microscope to soot or smoke particles that are visible to the human eye. Particles can be classified by their aerodynamic properties into coarse particles, PM_{10} (particulate matter with an aerodynamic diameter of less than 10 µm) and fine particles, $PM_{2.5}$ (particulate matter with an aerodynamic diameter of less than 2.5 µm). In addition to reduced visibility, particulate air pollution poses health risks associated with the respiratory system.

Construction activity is a source of dust emissions that can have a significant but transient impact on local air quality. The amount of dust emitted from construction operations depends on the area of land being worked, the proportion of land lying exposed at any time, the clearing and dozing equipment used, the number and type of vehicles on temporary roads, and the duration of the construction phase.

Although the increased dust and emissions from construction activities may not significantly impact air quality, increased dust can be a nuisance to the nearby receptors and site workers. Considering

the temporary nature of construction and the nature of the proposed activities, impact on air quality is anticipated to be moderate. With the implementation of appropriate control measures, the impact on sensitive receptors will be reduced to be low.

The potential impact on air quality during construction is indicated in **Table 8-1**.

Table 8-1 – Impact on ambient air quality during construction

Potential Impact: Impact on air quality during construction	Magnitude	Extent	Reversibility	Duration	Probability	Significance		Character
Without Mitigation	2	2	1	2	5	**35**	**Moderate**	(-)
With Mitigation	1	2	1	2	5	**30**	**Low**	(-)
Mitigation and Management Measures	▪ Limit the duration of the construction phase to as short a timeframe as possible. ▪ Where possible, minimise the area under construction. ▪ Make use of wet suppression techniques to minimise dust entrainment during periods of high wind speeds. ▪ Where possible, minimise speed limits. ▪ Dust-reducing mitigation measures must be put in place and must be strictly adhered to, for all roads and soil/material stockpiles especially. This includes wetting of exposed soft soil surfaces and not conducting activities during high wind periods which will increase the likelihood of dust being generated; ▪ All stockpiles (if any) must be restricted to designated areas and may not exceed a height of two (2) metres. ▪ Ensure that all vehicles, machines and equipment are adequately maintained to minimise emissions. ▪ It is recommended that the clearing of vegetation from the site should be selective, be kept to the minimum feasible area, and be undertaken just before construction so as to minimise erosion and dust potential. ▪ All materials transported to, or from, site must be transported in such a manner that they do not fly or fall off the vehicle. This may necessitate covering or wetting friable materials. ▪ No burning of waste, such as plastic bags, cement bags and litter is permitted. ▪ Once construction is complete, initiate rehabilitation (e.g., re-vegetation) procedures to reduce wind speed across exposed surfaces.							

8.1.2 OPERATIONAL PHASE

Dust and emission generation applicable to the operational phase of proposed project is expected to occur as a result of the movement of vehicles to the site. However, this is expected to have minimal impact on the ambient air quality.

All chemicals will be stored in sealed containers inside the warehouse building with no decanting taking place. As such there will be no fumes generated from the chemicals. Furthermore, the Msunduzi Local Municipality confirmed that an Air Emissions License will not be required for the project.

Operational phase air quality impacts are not considered further.

8.1.3 DECOMMISSIONING PHASE

The impacts associated with the decommissioning phase will be the same as that of the construction phase.

8.2 NOISE AND VIBRATION

8.2.1 CONSTRUCTION PHASE

Various construction activities (construction of laydown areas, the hard standing areas, excavation and concreting of foundations and the erection of the warehouse and other infrastructure) taking place simultaneously during the day will likely increase ambient sound levels due to air-borne noises. It is proposed that construction activities will only take place during the day and no night time construction will take place.

Table 8-2 – Increase in daytime ambient sound levels

Potential Impact: Impact on ambient sound levels during construction	**Magnitude**	**Extent**	**Reversibility**	**Duration**	**Probability**	**Significance**		**Character**
Without Mitigation	3	2	1	2	2	**16**	**Low**	(-)
With Mitigation	2	2	1	2	2	**16**	**Low**	(-)
Mitigation and Management Measures	▪ The significance of the noise impact is low for daytime construction activities and no additional mitigation is recommended.							

8.2.2 OPERATIONAL PHASE

The proposed activities at the warehouse will not contribute significantly to an increase in the ambient noise levels, the impact is expected to be negligible therefore operational phase noise and vibration impacts are not considered further.

8.2.3 DECOMMISSIONING PHASE

The impacts associated with the decommissioning phase will be the same as that of the construction phase.

8.3 SOIL AND AGRICULTURE

8.3.1 CONSTRUCTION PHASE

This phase refers to the period when the proposed infrastructure is built/installed. This phase has the largest direct impact on soils and land capability. This phase includes site preparation prior to

construction activities, involving vehicular movement (transportation of construction materials) and the removal of vegetation within the development footprint and associated disturbances to soil, and access to the site. Site preparation is followed by installation of warehouses and the building of a parking area, leading to stockpiling and exposure of loose soils, as well as movement of construction equipment and personnel within the project area.

The following potential impacts were considered on soils and land capability within the project area.

8.3.1.1 Soil erosion and sedimentation

Clearing of vegetation, movement of vehicles, mobile plant and equipment, as well as earthworks required for establishment of structures is very likely to result in increased loose material being exposed. As mentioned, the soil is apedal, so devoid of macrostructure, making erosion more likely than it would be on well-structured soils.

As there is a watercourse in the vicinity of the site (but not within 100m of the site), the potential impact of sedimentation is linked to that of erosion. Although the magnitude and extent of erosion and sedimentation are likely to be limited if the recommended mitigation measures are properly implemented, some erosion is likely when clearing an area and erosion and sedimentation are not easily reversible. Mitigation should focus on limiting earthworks and vehicle movement to demarcated areas, as well as limiting the duration of the construction activities where possible. Soil stripping should be undertaken in the dry season and silt fences erected if unexpected weather washes loose soil into the relatively nearby watercourse.

Table 8-3 – Soil erosion and sedimentation

Potential Impact: Increased erosion and sedimentation	Magnitude	Extent	Reversibility	Duration	Probability	Significance		Character
Without Mitigation	3	2	5	5	5	**75**	High	(-)
With Mitigation	1	1	3	2	3	**21**	Low	(-)
Mitigation and Management Measures	▪ Limit earthworks and vehicle movement to demarcated paths and areas. ▪ Limit the duration of construction activities where possible, especially those involving earthwork / excavations. ▪ Access roads associated with the development should have gradients or surface treatment to limit erosion, and road drainage systems should be accounted for. ▪ Removal of vegetation must be avoided until such time as soil stripping is required and similarly exposed surfaces and soil stockpiles should be re-vegetated or stabilised as soon as is practically possible. ▪ A storm water management plan should be designed for the site and adhered-to. ▪ During periods of strong winds, stockpiles should be covered with appropriate material (e.g. cloth, tarpaulin).							

	▪ Soil stripping should be undertaken in the dry season and silt fences erected if unexpected weather washes loose soil into the relatively nearby watercourse.

8.3.1.2 Change in surface profile

A change in the surface profile is inevitable with earthworks, typically permanent in duration, definite and cannot be easily mitigated against. Having said this, the site is already very flat, so the surface profile will not be changed to a large extent. Even though the magnitude of the impact is small, within the context of the impact assessment rating methodology the calculated significance is a 'high' negative. Despite this, it is the specialist's opinion that the significance of this change in surface profile in the context of this project is 'moderate'. For this reason, the alternative impact assessment system was also applied to this potential impact as presented in the table below.

As seen below, the alternative system shows pre- and post-mitigation significance as a negative 'moderate'. This is as a result of the magnitude of the change in surface profile being considered very low as the processes underway at the site do not provide important community functions or habitat in this highly modified environment.

Table 8-4 – Change in surface profile

Potential Impact: Change in surface profile	Magnitude	Extent	Reversibility	Duration	Probability	Significance		Character
Without Mitigation	4	2	5	5	5	**80**	High	(-)
With Mitigation	4	2	3	4	5	65	High	(-)
Mitigation and Management Measures	▪ When the site is decommissioned, the surface profile thereof can be altered to more closely resemble its current profile through earthworks.							

Table 8-5 – Change in surface profile using the alternative system

Potential Impact: Earthworks required for establishment of support structures, as well as establishment of access tracks, will result in the change of surface profile within the project area.	Magnitude	Extent	Reversibility	Duration	Probability	Significance		Character
Without Mitigation	4	2	5	5	5	**60**	Moderate	(-)
With Mitigation	4	2	3	4	5	**45**	Moderate	(-)
Mitigation and Management Measures	▪ N/A							

8.3.1.3 Change in land use

Clearance of vegetation on site and establishment of infrastructure will result in a change of land use within the project area, which will continue through construction and operation. The land currently houses grasses, small trees and termite mounds. The proposed project will result in a change in land use to host warehouses and a parking area, so there will be a change, even though the land is not formally being used currently. The degree of alteration is very high (i.e., complete change in land use), the change will definitely take place and will be irreversible for the duration of the project life (i.e., the impact will take place in the construction phase but will remain as long as the project infrastructure is in place).

Even though the extent is small, within the context of the impact assessment rating methodology the calculated significance is a 'high' negative. With implementation of mitigation measures that include limited disturbance and removal of vegetation, the impact remains 'high'. It is however the specialist's opinion that the significance of this change in land use is moderate, as the current land use is very limited. For this reason, the alternative impact assessment system was also applied to this potential impact.

Table 8-6 – Change in land use

Potential Impact: Change in land use	**Magnitude**	**Extent**	**Reversibility**	**Duration**	**Probability**	**Significance**		**Character**
Without Mitigation	5	2	5	4	5	**80**	High	(-)
With Mitigation	4	2	3	4	5	65	High	(-)
Mitigation and Management Measures	▪ Limit earthworks and vehicle movement to demarcated paths and areas. ▪ Limit removal of vegetation to demarcated areas only. ▪ Rehabilitate disturbed areas around the warehouses and parking area as soon as practicable following disturbance thereof.							

As seen below, the alternative system shows pre- and post-mitigation significance as a negative 'moderate'. This is as a result of the magnitude of the change in the land use being considered very low as the site currently houses grass, small trees, rocks and termite mounds, none of which provide any people with livelihoods or vulnerable species with habitat.

Table 8-7 – Change in land use using the alternative system

Potential Impact: Change in land use	Magnitude	Extent	Reversibility	Duration	Probability	Significance		Character
Without Mitigation	5	2	5	4	5	**55**	Moderate	(-)
With Mitigation	4	2	3	4	5	**45**	Moderate	(-)
Mitigation and Management Measures	▪ N/A							

8.3.1.4 Change in land capability

The movement of mobile plant / equipment is very likely to result in compaction, disturbance and possible sterilization of soils and associated change in land capability. The degree of alteration is high (i.e., loss of land capability) the change will definitely take place and will be irreversible for the duration of the project life (i.e., the impact will take place in the construction phase but will remain as long as the project infrastructure is in place).

Even though the extent is small, within the context of the impact assessment rating methodology the calculated significance is a 'high' negative. With implementation of mitigation measures that include limited disturbance to the area surrounding the site, avoidance of materials that will sterilize the soils and removal of vegetation in the area immediately surrounding the proposed warehouses and parking area, the impact becomes 'moderate'. Further to this, the soil will need to be ripped and conditioned post-decommissioning to make it moderately arable again.

Table 8-8 – Change in land capability

Potential Impact: Change in land capability	Magnitude	Extent	Reversibility	Duration	Probability	Significance		Character
Without Mitigation	3	1	5	4	5	**65**	High	(-)
With Mitigation	1	1	3	4	3	**27**	Low	(-)
Mitigation and Management Measures	▪ Limit earthworks and vehicle movement to demarcated paths and areas. ▪ Limit removal of vegetation to demarcated areas only. ▪ Avoid materials that sterilize the soil. ▪ Soil to be ripped and conditioned post-decommissioning.							

8.3.1.5 Soil contamination

Movement of vehicles and plant / equipment on site could result in leaks, spills of hazardous materials, such as fuels, oils, chemicals, and so forth. Contaminated soil is expensive to rehabilitate and contamination entering the soils of the project area infiltrate into the ground as well as migrate from site during rainfall events. With the implementation of mitigation measures, the probability and duration of the impact can be reduced, thereby reducing the potential impact from a 'high' negative to 'low'.

Table 8-9 – Soil contamination

Potential Impact: Soil contamination	Magnitude	Extent	Reversibility	Duration	Probability	Significance		Character
Without Mitigation	3	3	3	5	5	70	High	(-)
With Mitigation	3	1	3	2	2	27	Low	(-)
Mitigation and Management Measures	▪ On-site vehicles should be well-maintained. ▪ Drip trays should be placed under stationary vehicles / plant. ▪ On-site pollutants/hazardous materials should be contained in a bunded area and on an impermeable surface. ▪ Ensure proper control of dangerous substances entering the site. ▪ Adequate disposal facilities should be provided. ▪ A non-polluting environment should be enforced.							

8.3.2 OPERATIONAL PHASE

This phase refers to the period of operation of the warehouses and parking area (i.e. following commissioning through project life). As indicated above, the identified impacts to soil take place during the construction phase but the impact is felt throughout the operation phase. The potential impacts to focus on during the operation phase are Soil Contamination and Sedimentation, and Erosion.

8.3.2.1 Erosion and sedimentation

Ongoing erosion and consequent sedimentation throughout the operational phase of the project should be monitored and mitigated against. As mentioned, the soil is apedal, so devoid of macrostructure, making erosion more likely than it would be on well-structured soils. As there is a watercourse in the vicinity of the site, the potential impact of sedimentation is linked to that of erosion.

Mitigation should focus on erosion monitoring, vegetation of any bare areas on site, and correct implementation of an operational-phase Storm Water Management Plan.

Table 8-10 – Erosion and Sedimentation

Potential Impact: Soil erosion and sedimentation	Magnitude	Extent	Reversibility	Duration	Probability	Significance		Character
Without Mitigation	2	2	5	5	5	70	High	(-)
With Mitigation	1	1	3	2	2	14	Low	(-)
Mitigation and Management Measures	▪ The site should be monitored for signs of erosion continually. ▪ Bare areas should be kept well vegetated. ▪ An operational-phase storm water management plan should be designed for the site and adhered-to.							

8.3.2.2 Soil contamination

Everyday movement of vehicles and employees once the development is operational will likely lead to some soil contamination. As the site will be a chemical storage warehouse, the likelihood of chemical spills is high. Again, the operational phase Storm Water Management Plan should be adhered to, especially to prevent chemical spills, and petrol and oil spills in the carpark area from entering the soils and the watercourses. With the implementation of mitigation measures, the probability and duration of the impact can be reduced, thereby reducing the potential impact from a 'high' negative to 'low'.

Table 8-11 – Soil contamination

Potential Impact: Soil contamination	Magnitude	Extent	Reversibility	Duration	Probability	Significance		Character
Without Mitigation	5	3	3	5	5	80	High	(-)
With Mitigation	3	1	3	2	3	24	Low	(-)
Mitigation and Management Measures	▪ Chemicals should be stored in fully enclosed areas and the car park area should be covered. Both should be on ▪ impermeable hardstanding. ▪ Hardstanding should be monitored for cracks. ▪ If chemicals are kept outside of the enclosed area temporarily, this area should be on hardstanding and bunded. ▪ Ensure proper control of substances entering the site. ▪ Adequate disposal facilities should be provided, and ▪ A non-polluting environment should be enforced.							

8.3.3 DECOMMISSIONING PHASE

The decommissioning phase will be similar to the construction phase as large vehicles will be on site and earth will be moved. Erosion and Sedimentation, and Soil Contamination are the most likely negative impacts. If the site is decommissioned properly, the changes in surface profile, land use and land capability will be positive so as to return the land to vegetated open space.

Mitigation should focus again on limiting earthworks and vehicle movement to demarcated paths and areas, as well as limiting the duration of the construction activities where possible.

8.3.3.1 Erosion and sedimentation

Table 8-12 – Erosion and sedimentation

Potential Impact: Erosion and sedimentation	Magnitude	Extent	Reversibility	Duration	Probability	Significance		Character
Without Mitigation	3	2	5	5	5	75	High	(-)
With Mitigation	1	1	3	2	3	21	Low	(-)
Mitigation and Management Measures	▪ Limit earthworks and vehicle movement to demarcated paths and areas. ▪ Limit the duration of deconstruction activities where possible. ▪ Access roads associated with decommissioning should have gradients or surface treatment to limit erosion, and road drainage systems should be accounted for. ▪ Exposed surfaces should be re-vegetated or stabilised as soon as is practically possible. ▪ A decommissioning-specific storm water management plan should be designed for the site and adhered-to.							

8.3.3.2 Soil contamination

Movement of vehicles and plant / equipment on site could result in leaks, spills of hazardous materials, such as fuels, oils, chemicals, and so forth. Contaminated soil is expensive to rehabilitate and contamination entering the soils of the project area infiltrate into the ground as well as migrate from site during rainfall events. With the implementation of mitigation measures, the probability and duration of the impact can be reduced, thereby reducing the potential impact from a 'high' negative to 'low'.

Table 8-13 – Soil contamination

Potential Impact: Soil contamination	Magnitude	Extent	Reversibility	Duration	Probability	Significance		Character
Without Mitigation	3	3	3	5	5	70	High	(-)
With Mitigation	3	1	3	2	2	18	Low	(-)
Mitigation and Management Measures	▪ On-site vehicles should be well-maintained. ▪ Drip trays should be placed under stationary vehicles / plant. ▪ On-site pollutants/hazardous materials should be contained in a bunded area and on an impermeable surface. ▪ Ensure proper control of dangerous substances entering the site. ▪ Adequate disposal facilities should be provided. ▪ A non-polluting environment should be enforced.							

8.4 TERRESTRIAL BIODIVERSITY

8.4.1 CONSTRUCTION PHASE

8.4.1.1 Direct loss and disturbance of degraded grassland habitat

The development of the warehouse facility will result in the direct loss of degraded grassland habitat due to clearance of vegetation, soil removal, and replacement with buildings and concrete hardstanding. The impact prior to mitigation is considered to be of low magnitude, given the degraded nature, moderate SEI and small extent (approx. 0.5 ha) of the affected area, and the fact the loss will be irreversible and permanent, resulting in an overall impact of Moderate significance.

The application of the recommended mitigation measures (Section 5.3) around minimisation of the warehouse footprint and restoration of adjoining vegetation communities (currently affected by spoil heaps from the adjacent facility) is predicted to result in a residual impact of Low significance.

Table 8-14 – Direct loss and disturbance of degraded grassland habitat

Potential Impact: Direct loss and disturbance of degraded grassland habitat	Magnitude	Extent	Reversibility	Duration	Probability	Significance		Character
Without Mitigation	3	1	5	5	3	42	Moderate	(-)
With Mitigation	2	1	3	5	2	22	Low	(-)

Mitigation and Management Measures	▪ Vegetation clearing should be restricted to the proposed Project infrastructure footprints only (i.e. warehouse, carparks, access roads only), with no clearing permitted outside of these areas. ▪ The footprints to be cleared should be clearly demarcated prior to construction to prevent unnecessary clearing outside of this area. ▪ Should invertebrate species of concern be indicated to be potentially present in the LSA once feedback from consultation with mollusc and millipede experts is received, specific surveys for these will be carried out prior to construction, to inform the need for the development of any additional mitigation measures for these species. ▪ Prior to the commencement of construction works, a dedicated vegetation and flora survey will be carried out to identify any indigenous plant or tree species that can be preserved for use in rehabilitation activities, and map the locations of AIS so that these can be managed before they are inadvertently spread via earthworks during construction. ▪ As appropriate, barrier/fences should be erected to prevent fauna gaining access to construction and operational areas where they have a high probability of being killed or injured. ▪ A low-speed limit (recommended 20 km/h in areas of highest risk e.g. where roads are located near riparian/wetland habitat) should be enforced within the LSA to reduce the risk of potential wildlife collisions. ▪ The handling, poisoning or killing of fauna by construction workers, warehouse staff and contractors must be strictly prohibited. ▪ Following completion of construction, all litter, building rubble, etc. must be removed and disposed of at an appropriate site. ▪ Any areas that were cleared of topsoil must be revegetated and the site left in a safe, stable and environmentally friendly condition. ▪ Soils should be replaced around excavated/disturbed areas in the correct order, i.e. subsoils at the bottom, top soils on the top. ▪ If any indigenous plant species were removed from the site prior to construction, these should be replanted, with locations for planting to be specified, and planting overseen by a ecologist or botanist. ▪ Any remaining areas of bare soils must be overseeded with an appropriate grass seed mix including a binding creeping grass and a nurse species selected for its rapid growth properties to provide stability to the disturbed soils. If necessary, seeded areas should be further stabilised with a biodegradable (jute) mesh that is pegged in place. The seed mixture should be manually sown over the prepared soils. ▪ Any imported plants used for revegetation purposes should consist of native grassland/thornveld species.

	▪ Deep watering immediately after installation of the sods/sowing seeds on bare soil areas will be required to promote the rooting of the sods back into the soils below, and/or the germination of the sown seeds. Manual watering should be done twice-weekly for at least four weeks, and every week thereafter for the duration of the dry season.

8.4.1.2 Establishment and spread of alien and invasive plant species

Disturbances caused by earth works during construction will facilitate the spread of alien invasive species that are already established in the LSA. Alien plant infestations can spread exponentially, suppressing or replacing indigenous vegetation, which could result in the impairment of ecosystem functioning and loss of biodiversity, and could also compromise vegetation restoration efforts subsequent to completion of construction.

Development of a site AIS management plan to mitigate and prevent AIS spread during construction and operation is expected to reduce the probability of the impact occurring, resulting in a residual impact of Low significance.

Table 8-15 – Establishment and spread of alien and invasive plant species

Potential Impact: Establishment and spread of alien and invasive plant species	Magnitude	Extent	Reversibility	Duration	Probability	Significance		Character
Without Mitigation	2	1	3	4	4	**40**	Moderate	(-)
With Mitigation	2	1	3	4	2	**20**	Low	(-)
Mitigation and Management Measures	▪ An alien invasive species control programme must be developed, or any existing AIS management programmes expanded, to include the active control of alien invasive species that may establish/spread as a result of proposed Project activities. ▪ Alien and invasive species management to be prioritised for the following alien and invasive species control areas: • Areas where vegetation cover is disturbed. • Areas where soils imported from external sources are applied. • All rehabilitated areas. • Areas within the development area that are already invaded by alien species. • Road fringes.							

8.4.1.3 Injury and mortality of faunal species

The bulk earthworks involved in site development have the potential to injure/kill individual faunal species of concern that may be present in the study area. In particular, this impact could affect small

mammals and reptile species that are ground-dwelling and relatively slow moving, and as such are vulnerable to heavy machinery movements and site clearance activities. The bulk earthworks and associated heavy machinery activity could also affect breeding fauna (e.g. nesting birds) through sensory disturbances which may reduce the quality/desirability of the currently established breeding sites/dens in nearby areas.

Without mitigation, the magnitude of the potential impact on fauna and the probability of occurrence of impacts on fauna are both expected to be Low due to the low suitability of the on-site habitats for fauna support, amounting to an impact of Low significance. Once mitigation measures are implemented, the magnitude and probability of the potential impact occurring can be further reduced, resulting in a residual impact of Very Low significance.

Table 8-16 – Injury and mortality of faunal species

Potential Impact: Injury and mortality of faunal species	Magnitude	Extent	Reversibility	Duration	Probability	Significance		Character
Without Mitigation	3	1	5	5	2	**28**	Low	(-)
With Mitigation	2	1	5	5	1	**13**	Very Low	(-)
Mitigation and Management Measures	▪ Employees and contractors should be made aware of the presence of, and rules regarding fauna through suitable induction training and on-site signage. ▪ Movement across the Project area should be facilitated by providing suitably sized gaps in fencing and/or culverts/passageways under roads for fauna.							

8.4.2 OPERATIONAL PHASE

Spread of alien and invasive plant species

The spread of alien invasive species in, and immediately adjacent to the Project site will continue to be an impact of concern during the operational phase. Areas of disturbance such as access roads are susceptible to the establishment of alien invasive species. Considering that at baseline, alien invasive species were already present, this impact could be of high magnitude, and extend to the local geographic scale. This impact is potentially of long term duration, ceasing with the decommissioning and rehabilitation of the Project site. Prior to the implementation of recommended measures, this impact will be of moderate impact significance; but can be reduced to a low impact significance following the implementation of the required mitigation measures.

Table 8-17 – Spread of alien and invasive plant species

Potential Impact: Spread of alien and invasive plant species	Magnitude	Extent	Reversibility	Duration	Probability	Significance		Character
Without Mitigation	3	2	3	4	3	**36**	Moderate	(-)
With Mitigation	2	1	3	4	3	**30**	Low	(-)
Mitigation and Management Measures	▪ An alien invasive species control programme must be developed, or any existing AIS management programmes expanded, to include the active control of alien invasive species that may establish/spread as a result of proposed Project activities. ▪ Alien and invasive species management to be prioritised for the following alien and invasive species control areas: • Areas where vegetation cover is disturbed. • Areas where soils imported from external sources are applied. • All rehabilitated areas. • Areas within the development area that are already invaded by alien species. • Road fringes.							

8.4.2.1 Loss and fragmentation of fauna habitat

Some fauna habitat will be permanently lost within the LSA due to the presence of the warehouse and associated hardstanding, which will interrupt habitat continuity particularly for smaller, less mobile fauna species, such as invertebrates and ground-dwelling mammals, if present. In addition, the presence of people and vehicles, site lighting at night, in the warehouse area are likely to further reduce the available area for fauna support due to anthropogenic disturbance. The magnitude of the potential impact is considered low, and the likelihood of the impact occurring is also considered low, since the LSA is already surrounded by industrial developments or roads, and as such is already isolated from nearby areas of natural habitat – resulting in an impact of low significance prior to mitigation. With the successful implementation of the recommended mitigation measures, it is anticipated that the potential magnitude and probability of the impact occurring can be further reduced.

Table 8-18 – Loss and fragmentation of fauna habitat

Potential Impact: Loss and fragmentation of fauna habitat	Magnitude	Extent	Reversibility	Duration	Probability	Significance		Character
Without Mitigation	2	1	5	5	2	**26**	High	(-)
With Mitigation	1	1	5	5	2	**24**	Low	(-)
Mitigation and Management Measures	▪ The presence of alien and invasive flora species should be documented prior to the commencement of the development of the infrastructure and rehabilitation activities, and the baseline case used as a benchmark against which the spread of these species can be monitored. Annual monitoring inspections should identify target areas for clearing and additional rehabilitation. ▪ The soils and vegetation at rehabilitated/revegetated areas should be inspected weekly for the first 2 months to ensure that germination and establishment are progressing as expected and that watering frequency is adequate. After that, inspections can be done monthly for the remainder of the year and then quarterly for a further 2 years. ▪ Invertebrate monitoring of restored vegetation following construction should be done to determine whether the restored habitats support milliped or mollusc species understood to be present in the nearby Mkhondeni Local Corridor' ESA. ▪ The Proponent's progress with the implementation of the required mitigation measures should be audited annually, to confirm that the mitigation measures have been effectively implemented on site, and to ensure that the measures are effective. In the case that the mitigation measure audits find that additional measures are necessary to manage risks to terrestrial habitats and species, these will be included in the site-wide environmental monitoring programme.						

8.4.3 DECOMMISSIONING PHASE

8.4.3.1 Spread of alien and invasive plant species

Site closure/rehabilitation activities as part of the decommissioning phase of the Project are likely to facilitate spread of invasive plant species, through frequent vehicular movements, earth moving works, and the creation of bare ground conditions ideal for the establishment of self-seeding, highly invasive plants.

The magnitude of the potential impacts is considered moderate, and the extent of impacts could be local as site closure/rehabilitation works could facilitate the spread of these species along the road network within the locality; spread of these species could also occur via wind and bird dispersal. The

duration of the impact is considered permanent, resulting in an impact of Moderate significance prior to mitigation; however, the impact can be reduced to one of Low significance with the implementation of the specified mitigation measures.

Table 8-19 – Spread of alien and invasive plant species

Potential Impact: Spread of alien and invasive plant species	Magnitude	Extent	Reversibility	Duration	Probability	Significance		Character
Without Mitigation	3	2	3	4	3	36	Moderate	(-)
With Mitigation	2	1	3	4	3	30	Low	(-)
Mitigation and Management Measures	▪ An alien invasive species control programme must be developed, or any existing AIS management programmes expanded, to include the active control of alien invasive species that may establish/spread as a result of proposed Project activities. ▪ Alien and invasive species management to be prioritised for the following alien and invasive species control areas: • Areas where vegetation cover is disturbed. • Areas where soils imported from external sources are applied. • All rehabilitated areas. • Areas within the development area that are already invaded by alien species. • Road fringes.							

8.5 AQUATIC BIODIVERSITY

Based on the findings of the Aquatic Impact Assessment, the study area is considered to be of low sensitivity for aquatic biodiversity, and the proposed development is cut off from downslope wetlands via the existing tarred road, and no significant impacts on aquatic biodiversity as a result of the proposed development are therefore anticipated.

8.5.1 CONSTRUCTION PHASE

8.5.1.1 Changes in sediment entering and exiting the system

Changing the amount of sediment entering water resource and associated change in turbidity (increasing or decreasing the amount). Construction activities will result in earthworks and soil disturbance as well as the removal of natural vegetation. This could result in the loss of topsoil, sedimentation of the watercourse and increase the turbidity of the water. Possible sources of the impacts include:

- Earthwork activities during construction
- Clearing of surface vegetation will expose the soils, which in rainy events would wash through the watercourse, causing sedimentation. In addition, indigenous vegetation communities are

unlikely to colonies eroded soils successfully and seeds from proximate alien invasive trees can spread easily into these eroded soil.

- Disturbance of soil surface
- Disturbance of slopes through creation of roads and tracks adjacent to the watercourse
- Erosion (e.g. gully formation, bank collapse)

Changes in sediment regimes of the aquatic ecosystem and its sub -catchment by for example sand movement, meandering river mouth /estuary, changing flooding or sedimentation patterns. The site is less than 1 ha and is cut off from the wetland system by a road, as such it is anticipated that there will be a negligible impact.

Table 8-20: Changes in sediment entering and exiting the system

Potential Impact: Changes in sediment entering and exiting the system	Magnitude	Extent	Reversibility	Duration	Probability	Significance		Character
Without Mitigation	1	1	1	2	2	10	Very Low	(-)
With Mitigation	1	1	1	2	2	10	Very Low	(-)
Mitigation and Management Measures	▪ Where development activities are located upslope from wetlands, effective stormwater management should be a priority during both construction and operational phase. This should be monitored as part of the EMP. ▪ Construction should be done in the dry season and completed by the wet season, so that appropriate water management systems are in place for stormwater management. ▪ A buffer of at least 24 m from the wetland edge must be retained for development (based on the Buffer Zone tool) – since the development boundary is approximately 150 m from the wetland edge, this will be easily achievable. ▪ Erosion control and protection measures installed as part of the construction of the project will be adapted for the specific area and situation where signs of erosion appear. ▪ Soil compacted in non-operational areas during construction activities should be ripped to break up the compacted soil surface and re-vegetated to aid infiltration and decrease run-off. ▪ Topsoil stockpiles to be re-vegetated with non-invasive vegetation, in order to stabilise the soil, aid infiltration and decrease run-off. ▪ The re-vegetation programme shall take cognisance of the climatic and seasonal conditions but should generally be undertaken annually starting in spring and early summer.							

	▪ Develop an alien and invasive plant management program to pro-actively strive towards the eradication and control of alien invasive species within the warehouse site, so that any project-induced spread to nearby areas is limited.

8.5.1.2 Changes in water quality due to pollution

Changes in water quality due to input of foreign materials i.e. due to increased sediment load, contamination by chemical and /or organic effluent, and /or eutrophication. During the construction phase a waste will be produced including sewerage, domestic waste, wash-water, used oils and grease, diesel or lubricant spills, etc. Waste generally contains pollutants and present a potential risk to the water and surrounding environment if not managed effectively. Oil and diesel spillages may occur during the construction phase which can contaminate surface water. Water quality deterioration often leads to modification of the species composition where sensitive species are lost and organisms tolerant to environmental changes dominate the community structure. The site is less than 1 ha and is cut off from the wetland system by a road, as such it is anticipated that there will be a negligible impact.

Table 8-21: Changes in water quality due to pollution

Potential Impact: Changes in water quality due to pollution	**Magnitude**	**Extent**	**Reversibility**	**Duration**	**Probability**	**Significance**		**Character**
Without Mitigation	1	1	1	2	2	10	Very Low	(-)
With Mitigation	1	1	1	2	2	10	Very Low	(-)
Mitigation and Management Measures	▪ Where development activities are located upslope from wetlands, effective stormwater management should be a priority during both construction and operational phase. This should be monitored as part of the EMP.							

8.5.2 OPERATIONAL PHASE

8.5.2.1 Changes in water quality due to pollution

Changes in water quality due to input of foreign materials i.e. due to increased sediment load, contamination by chemical and /or organic effluent, and /or eutrophication. During the operational phase chemicals will be stored at the site. Spillages of chemicals may result in pollutants entering the water systems downstream. Water quality deterioration often leads to modification of the species composition where sensitive species are lost and organisms tolerant to environmental changes dominate the community structure. The site is less than 1 ha and is cut off from the wetland system by a road, as such it is anticipated that there will be a negligible impact.

Table 8-22: Changes in water quality due to pollution

Potential Impact: Changes in water quality due to pollution	Magnitude	Extent	Reversibility	Duration	Probability	Significance		Character
Without Mitigation	1	1	1	2	2	10	Very Low	(-)
With Mitigation	1	1	1	2	2	10	Very Low	(-)
Mitigation and Management Measures	▪ Where development activities are located upslope from wetlands, effective stormwater management should be a priority during both construction and operational phase. This should be monitored as part of the EMP. ▪ A stormwater management plan should be implemented for the warehouse area, separating clean and dirty water and ensuring that only clean water reports to the receiving environment. ▪ Pollution prevention measures for the protection of wetlands, rivers and streams from contamination with hydrocarbons, sediments and other chemicals to be implemented. ▪ The implementation of the recommended mitigation measures via the site-wide EMPr should be monitored on a regular basis, to audit their efficacy in addressing potential impacts, so that adaptive management actions can be timeously undertaken as necessary, to ensure that potential impacts on the receiving environment are avoided/minimised.							

8.5.3 DECOMMISSIONING PHASE

The impacts associated with the decommissioning phase will be the same as that of the construction phase.

8.6 HERITAGE AND CULTURAL RESOURCES

An exemption letter was compiled by Archaetnos Culture and Cultural Resource Consultants, 2023. The letter provided a motivation for the exemption of a HIA based on the following:

- The study of Google Earth indicates that the site has been entirely disturbed by former agricultural activities.
- The site lies within a disturbed industrial setting.
- There are no buildings on site.
- There is no natural vegetation on site and the vegetation cover consists of pioneer species such as grasses and sickle bush.
- It is believed to be low risk areas for the location of heritage sites.

In light of these factors, the specialist confirmed that chances of finding any heritage related features are believed to be slim, if any. Therefore, impacts associated with culture and heritage are not considered further in this assessment.

The developer should however note that due to the nature of archaeological material, such sites, objects or features, as well as graves and burials may be uncovered during construction activities on site. In such a case work should cease immediately and an archaeologist should be contacted as a matter of urgency to assess such occurrences.

8.7 PALAEONTOLOGY

Based on the nature of the project, surface activities may impact upon the fossil heritage if preserved in the development footprint. The geological structures suggest that the rocks are the correct age to contain fossils, but they are deep water to shallow water deposits in an inland sea. However, the material to be excavated for foundations and amenities are disturbed soils and these do not preserve fossils. Since there is a very small chance that trace fossils from the Pietermaritzburg Formation may be disturbed a Fossil Chance Find Protocol has been added to this report. Taking account of the defined criteria, the potential impact to fossil heritage resources is extremely low.

8.7.1 CONSTRUCTION PHASE

Table 8-23 – Impacts to palaeontology

Potential Impact: Impacts to palaeontology	Magnitude	Extent	Reversibility	Duration	Probability	Significance		Character
Without Mitigation	1	1	1	2	1	**5**	Very Low	(-)
With Mitigation	1	1	1	2	1	**5**	Very Low	(-)
Mitigation and Management Measures	▪ It is extremely unlikely that any fossils would be found in the loose soils and sands that cover the area or in the Pietermaritzburg Fm deepwater shales that will be excavated. Nonetheless, a Fossil Chance Find Protocol should be added to the eventual EMPr.							

8.7.2 OPERATIONAL PHASE

The operational phase will not impact the palaeontology.

8.7.3 DECOMMISSIONING PHASE

The impacts associated with the decommissioning phase will be the same as that of the construction phase.

8.8 TRAFFIC

8.8.1 CONSTRUCTION PHASE

Due to the proposed location and nature of the project, the traffic related impacts are already being experienced in the vicinity of the site. The project will require approximately 1 or 2 trucks per day during the construction phase.

The following impacts were identified associated with the construction phase:

- Road Degradation
  - The impact of increased traffic volumes on the public roads will increase the potential for localised road network degradation within the study area(**Table 8-24**)**.**
- Dust
  - The larger the vehicle, the more dust is likely to be generated. This dust hinders the drivers wishing to over-take without a clear view for over-taking, resulting in drivers taking unnecessary chances, which could result in unfavourable consequences. The impact of increased traffic volumes on the unpaved public roads will generate dust (**Table 8-25**).
- Intersection Safety
  - The impact due to the increased traffic volumes at intersections will increase the potential risk of accidents at the intersections, resulting in serious injuries or even fatalities, especially at the intersection on the main roads, when vehicles from the site needing to cross over oncoming traffic (**Table 8-26**).

Table 8-24 – Impact of road degradation during the construction phase

Potential Impact: Road degradation	Magnitude	Extent	Reversibility	Duration	Probability	Significance		Character
Without Mitigation	2	3	1	1	2	**14**	Very Low	(-)
With Mitigation	1	2	1	1	2	**10**	Very Low	(-)
Mitigation and Management Measures	▪ R-Bay Chemicals will ensure that all transportation is undertaken in terms of the requirements of the National Road Traffic Act, 93 of 1996 (NRTA) and applicable South African National Standards (SANS). ▪ A photographic record of the road condition should be maintained throughout the various phases of the development/s. This provides an objective assessment and mitigates any subjective views from road users. ▪ Ensure that the roads are left in the same or better condition, post-construction. ▪ All remedial work or modifications to any of the public roads shall be done in consultation with and have the approval of the local road's authority (as is standard							

	practice, this will be finalised during and be a requirement of the municipal planning approval process. ▪ The developer shall ensure that the condition of the roads impacted by construction of the development is left in a similar or better state once the construction phase is complete.

Table 8-25 – Impact of dust during the construction phase

Potential Impact: Dust	Magnitude	Extent	Reversibility	Duration	Probability	Significance		Character
Without Mitigation	2	3	1	1	3	**21**	Low	(-)
With Mitigation	1	2	1	1	3	**15**	Very Low	(-)
Mitigation and Management Measures	▪ Reduce travel speed for construction vehicles on the gravel road to reduce dust. ▪ Dust suppression of the roads in the immediate vicinity of the site where feasible. ▪ No non-environmentally friendly suppressants may be used as this could result in the pollution of water sources.							

Table 8-26 – Impact of intersection safety during the construction phase

Potential Impact: Intersection safety	Magnitude	Extent	Reversibility	Duration	Probability	Significance		Character
Without Mitigation	2	3	1	1	3	**21**	Low	(-)
With Mitigation	1	2	1	1	3	**15**	Very Low	(-)
Mitigation and Management Measures	▪ Compile a Traffic Management Plan. ▪ Reduce speed at intersections and use appropriate traffic warning signs. ▪ Identify alternative routes where possible. ▪ Request the assistance of local law enforcement. ▪ Ensure that all construction vehicles are roadworthy, visible, adequately marked, and operated by an appropriately licenced operator. ▪ R-Bay will develop procedures for the transportation of all dangerous goods. ▪ -Bay Chemicals will ensure that all transportation is undertaken in terms of the requirements of the National Road Traffic Act, 93 of 1996 (NRTA) and applicable South African National Standards (SANS).							

8.8.2 OPERATIONAL PHASE

It is anticipated that there will be approximately 10 additional trucks required per week during the operational phase to deliver the chemicals to the warehouse. Based on the Municipal Spatial Development Framework, the N3 corridor that runs through the municipality is in close proximity to the CBD and is ideal to provide opportunities for industrial development. It provides the opportunity for future developments to be located in proximity to a national transportation route, along the SIP 2 corridor connecting the Durban Harbour and major markets within Gauteng and offer high visibility to industries.

Given the industrial nature of the site, it is likely that the impact on traffic during operation will be negligible therefore operational phase impacts associated with traffic have not been further assessed.

8.8.3 DECOMMISSIONING PHASE

The impacts associated with the decommissioning phase will be the same as that of the construction phase.

8.9 SOCIAL IMPACT ASSESSMENT

8.9.1 CONSTRUCTION PHASE

The construction phase of the project will extend over a period of approximately 12 months and create in the region of 25 employment opportunities (5 new skilled and 20 new unskilled). Members from the local communities in the area, would be in a position to qualify for most of the low skilled and semi-skilled employment opportunities. Most of these employment opportunities will accrue to Historically Disadvantaged (HD) members of the community.

Table 8-27 – Impact on regional employment and household income during the construction phase

Potential Impact: Regional employment and household income	Magnitude	Extent	Reversibility	Duration	Probability	Significance		Character
Without Mitigation	2	2	2	2	3	24	Low	(+)
With Mitigation	3	2	2	2	5	45	Moderate	(+)
Mitigation and Management Measures	▪ Using local sub-contractors where possible and requiring that contractors from outside the local area that tender also meet targets for how many locals are given employment. ▪ Where feasible, efforts should be made to employ local contactors that are compliant with Broad Based Black Economic Empowerment (BBBEE) criteria. ▪ The local authorities, community representatives, and organisations on the interested and affected party database should be informed of the final decision regarding the project and the potential job opportunities for locals and the employment procedures that the							

	proponent intends following for the construction phase of the project. ▪ Where feasible, training and skills development programmes for locals should be initiated prior to the initiation of the construction phase. ▪ The recruitment selection process should seek to promote gender equality and the employment of women wherever possible.

Table 8-28 – Impact of influx of people during the construction phase

Potential Impact: Influx of people	**Magnitude**	**Extent**	**Reversibility**	**Duration**	**Probability**	**Significance**		**Character**
Without Mitigation	1	3	1	2	4	28	Low	(-)
With Mitigation	1	2	1	2	3	18	Low	(-)
Mitigation and Management Measures	▪ A 'locals first' policy with regard to construction and operational labour needs. ▪ The community and surrounding businesses should be able to contact the site manager or his/her representative to report any issues which they may have. The site manager and his/her representative should be stationed within the area and should therefore be available on hand to deal with and address any concerns which may be raised. ▪ A complaints register should be available on site to any individual who may have a particular complaint with regards to the construction or operations processes. ▪ The applicant and the contractors should develop a Code of Conduct for the project. The code should identify what types of behaviour and activities by workers are not permitted in agreement with surrounding landowners and land managers. For example, access to land that is not part of the development will not be allowed.							

Table 8-29 – Impact on surrounding landowners during the construction phase

Potential Impact: Surrounding landowners	**Magnitude**	**Extent**	**Reversibility**	**Duration**	**Probability**	**Significance**		**Character**
Without Mitigation	1	3	1	2	4	28	Low	(-)
With Mitigation	1	2	1	2	3	18	Low	(-)

Mitigation and Management Measures	▪ No construction workers, with the exception of security personnel, should be allowed to stay on the site overnight. ▪ The surrounding landowners should be able to contact the site manager to report any issues which they may have. The site manager should be stationed within the area and should therefore be available on hand to deal with and address any concerns which may be raised. ▪ A complaints register should be available on site to any individual who may have a particular complaint with regards to the construction or operations processes. ▪ The applicant should develop a Code of Conduct for the project. The Code should identify what types of behaviour and activities by workers are not permitted in agreement with surrounding landowners and land managers. ▪ The movement of workers on and off the site should be closely managed and monitored by the contractors. In this regard the contractors should be responsible for making the necessary arrangements for transporting workers to and from site on a daily basis. ▪ The applicant should implement measures to assist and, if needed, fairly compensate affected surrounding landowners whereby damages to property as a result of construction activities.

8.9.2 OPERATIONAL PHASE

During the operational phase, in the region of 25 employment opportunities (10 new skilled and 15 new unskilled). There will only be day shift operations. Members from the local communities in the area, would be in a position to qualify for most of the low skilled and semi-skilled employment opportunities. Most of these employment opportunities will accrue to Historically Disadvantaged (HD) members of the community.

- The following impacts have been identified for the operational phase, as relevant for assessment based on the guidelines for socio-economic specialist inputs, the nature of the project, stakeholder inputs and the receiving environment:
- Impacts from expenditure on the operation of the project (**Table 8-30**); and
- Impacts on surrounding landowners and communities (**Table 8-31**).

Table 8-30 – Impact on regional employment and household income during the operational phase

Potential Impact: Regional employment and household income	**Magnitude**	**Extent**	**Reversibility**	**Duration**	**Probability**	**Significance**		**Character**
Without Mitigation	1	1	1	4	3	21	Low	(+)
With Mitigation	2	1	1	4	3	24	Low	(+)

Mitigation and Management Measures	▪ Using local sub-contractors where possible and requiring that contractors from outside the local area that tender also meet targets for how many locals are given employment. ▪ Exploring ways to enhance local community benefits with a focus on broad-based BEE and preferential procurement.

Table 8-31 – Impact on surrounding landowners during the operational phase

Potential Impact: Surrounding landowners and communities	Magnitude	Extent	Reversibility	Duration	Probability	Significance		Character
Without Mitigation	1	3	1	2	4	**28**	Low	(-)
With Mitigation	1	2	1	2	3	**18**	Low	(-)
Mitigation and Management Measures	▪ A complaints register should be available on site to any individual who may have a particular complaint with regards to the construction or operational processes. ▪ These are to be investigated and rectified in accordance with the appropriate operational policies associated with the proposed chemical warehouse.							

8.9.3 DECOMMISSIONING PHASE

Typically, the major social impacts associated with the decommissioning phase are linked to the loss of jobs and associated income. This has implications for the households who are directly affected, the communities within which they live, and the relevant local authorities. However, in the case of the proposed project, the decommissioning phase is likely to involve the disassembly and replacement of the existing structure if required. This is likely to take place in the 20 - 25 years post commissioning. The decommissioning phase is therefore likely to create additional, construction type jobs, as opposed to the jobs losses typically associated with decommissioning.

Table 8-32 – Impact on regional employment and household income during the decommissioning phase

Potential Impact: Regional employment and household income	Magnitude	Extent	Reversibility	Duration	Probability	Significance		Character
Without Mitigation	1	1	1	4	3	21	Low	(+)

With Mitigation	2	1	1	4	3	24	Low	(+)
Mitigation and Management Measures	▪ Using local sub-contractors where possible and requiring that contractors from outside the local area that tender also meet targets for how many locals are given employment. ▪ Exploring ways to enhance local community benefits with a focus on broad-based BEE and preferential procurement.							

8.10 HAZARDOUS SUBSTANCES AND POLLUTANTS

8.10.1 CONSTRUCTION PHASE

Potential exists for soil, groundwater and surface water contamination associated with potential releases of environmental contaminants and hazardous substances. Sources of pollutants and release mechanisms include:

- Leakages of hydrocarbons (diesel and oil) from construction vehicles and heavy machinery (e.g., excavators and bulldozers).
- Loss of containment and accidental spillage associated with storage and handling of hydrocarbons, chemicals, and concrete.

Runoff creates a preferential pathway and exposure of the above contaminants into the subsurface and water resources leading to a deterioration in water quality and secondary health impacts on aquatic ecosystems and water users.

Table 8-33 – Construction Impact of contaminants on soil, groundwater and surface water

Potential Impact: Impacts of contaminants on soil, groundwater and surface water	**Magnitude**	**Extent**	**Reversibility**	**Duration**	**Probability**	**Significance**		**Character**
Without Mitigation	3	2	3	2	3	**30**	**Low**	(-)
With Mitigation	3	2	3	2	2	**20**	**Low**	(-)
Mitigation and Management Measures	▪ Avoid identified sensitive areas (watercourses and associated buffers) as far as possible. ▪ Chemicals, hydrocarbon materials and hazardous substances maintained onsite must be managed in accordance with the Hazardous Substances Act (No. 15 of 1973) and its relevant regulations. ▪ All machinery and equipment should be inspected regularly for faults and possible leaks; these should be serviced off-site or in appropriately bunded areas. ▪ Drip trays or any form of oil absorbent material must be placed underneath vehicles/machinery and ▪ equipment when not in use. ▪ All contaminated soil shall be treated in situ or removed and be placed in containers.							

	▪ Provide secure storage for fuel, oil, chemicals and other waste materials to prevent contamination of stormwater runoff. ▪ Spill kits must be available at all locations where hazardous substances are stored, handled or used, and spills must be cleaned up immediately in accordance with an established protocol applicable to the material.

8.10.2 OPERATIONAL PHASE

8.10.2.1 Impacts of contaminants on soil, groundwater and surface water

Potential exists for soil, groundwater and surface water contamination associated with potential releases of small quantities of environmental contaminants and hazardous substances. Sources of pollutants and release mechanisms include:

- Leakages of hydrocarbons (diesel and oil) from construction vehicles and heavy machinery (e.g., excavators and bulldozers).
- Loss of containment and accidental spillage associated with storage and handling of hydrocarbons, chemicals, and concrete. The majority (approximately 95%) of the chemicals that will be stored are NSF60 chemicals which is used in the treatment of drinking water.

Runoff creates a preferential pathway and exposure of the above contaminants into the subsurface and water resources leading to a deterioration in water quality and secondary health impacts on aquatic ecosystems and water users.

Table 8-34 – Construction Impact of contaminants on soil, groundwater and surface water

Potential Impact: Impacts of contaminants on soil, groundwater and surface water	Magnitude	Extent	Reversibility	Duration	Probability	Significance		Character
Without Mitigation	3	2	3	2	3	**30**	**Low**	(-)
With Mitigation	3	2	3	2	2	**20**	**Low**	(-)
Mitigation and Management Measures	▪ Avoid identified sensitive areas (watercourses and associated buffers) as far as possible. ▪ Chemicals, hydrocarbon materials and hazardous substances maintained onsite must be managed in accordance with the Hazardous Substances Act (No. 15 of 1973) and its relevant regulations. ▪ All machinery and equipment should be inspected regularly for faults and possible leaks; these should be serviced off-site or in appropriately bunded areas. ▪ Drip trays or any form of oil absorbent material must be placed underneath vehicles/machinery and ▪ equipment when not in use. ▪ All contaminated soil shall be treated in situ or removed and be placed in containers.							

	▪ Provide secure storage for fuel, oil, chemicals and other waste materials to prevent contamination of stormwater runoff. ▪ Spill kits must be available at all locations where hazardous substances are stored, handled or used, and spills must be cleaned up immediately in accordance with an established protocol applicable to the material.

Health and Safety

A Major Hazard Installation Report has been compiled by Ishecon, 2023. The chemicals that will be stored at the R-Bay warehouse will be 500t hydrochloric acid, 150t sulphuric acid, 20t phosphoric acid, 20t Nitric acid, 30t sodium hypochlorite, 100t sodium hydroxide solution, 3t formaldehyde, 15t ammonium solution, 5t acetic acid, 15t sodium chlorite and 5t sodium metabisulphite powder, 150t sodium hydroxide flakes.

The nearby receptors are indicated in **Table 8-35**.

Table 8-35 - Nearby Receptors

Location	Details	Approximate Distance from proposed boundary (m)
Neighbouring industrial sites	Richbay chemicals Kingsley drinks Buhle waste management company Eco cycle waste management company Truda foods	<20m <20m <20m <20m 50m
Nearby MHIs and possible MHIs	None known	Na
Residential areas	Informal settlement Cleland Bisley	400m 1500m 1500m
Busy main roads, highways or rail lines	R103	1200
Sensitive receptors	None known	Na

Some hazardous chemicals, when mixed, may result in flammable, explosive or toxic effects. Sodium hypochlorite when mixed with acids will form toxic chlorine gas. R-Bay intends to have segregation of incompatible materials for any accidental mixes and a natural ventilation system in place. There will be no decanting at the warehouse, and this reduces the chances of having incompatible materials mixing.

The following materials within the R-Bay Properties Pietermaritzburg have the following impact distances:

Table 8-36 – Impact Distances

Installation	Worst Case Incident	Distance to 1% lethality
33% Hydrochloric acid	Catastrophic rupture – one pallet with four drums	200m
25% Ammonium hydroxide solution	Catastrophic rupture – one pallet with four drums	100m
60% Nitric acid	Catastrophic rupture – one pallet with four drums	35m
Acetic acid	Catastrophic rupture – one pallet with four drums	30m

There are no known other declared Major Hazard Installations in the vicinity. Domino effect range of worst-case events does not go offsite (35m), therefore offsite domino effects are not a possibility.

Risk levels to individuals near the facility can be summarised as follows:

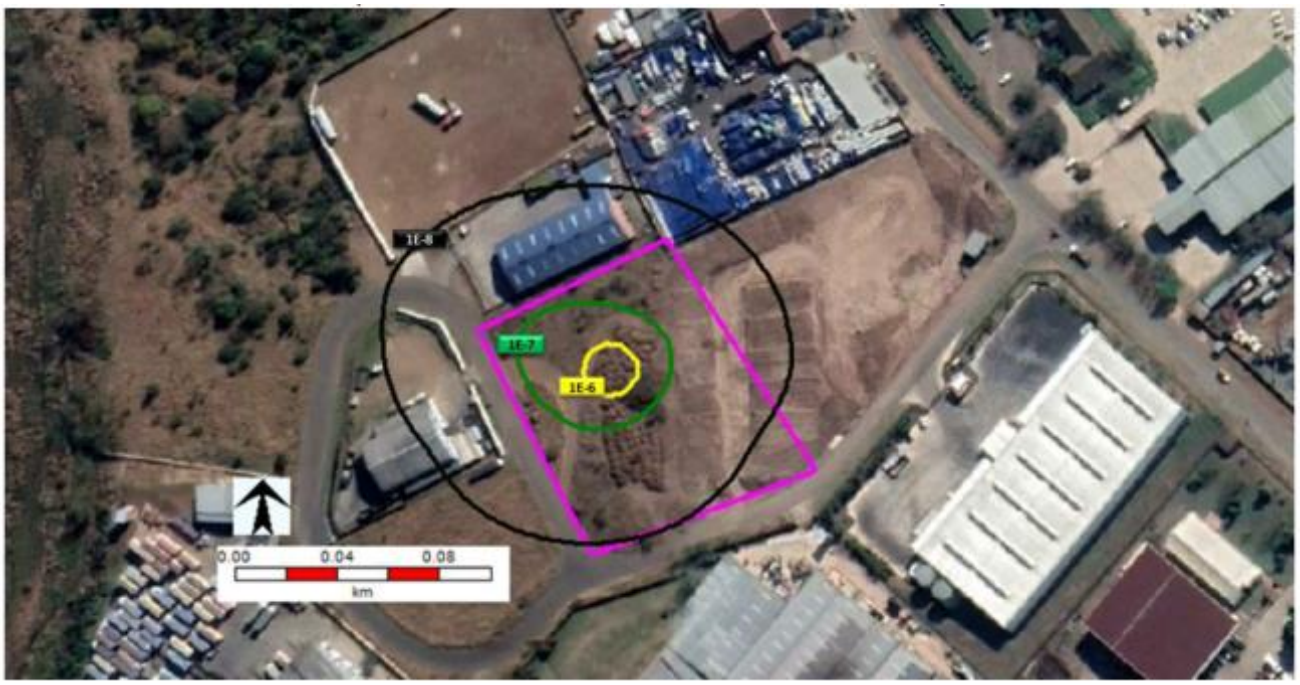


Figure 8-1 - Individual Risk Isopleths

Onsite risk (employee risk)

Acceptably low (i.e. Risk<1*10-5 deaths/person/year). Risk to employees is highest at the offloading area

Offsite risk at the site boundary (risk to neighbours)

Acceptably low (i.e. Risk<1*10-6 deaths/person/year). Risk to the public is highest at the site boundary with Buhle recycling.

Risk to the nearest residences/sensitive receptors

Broadly acceptable (i.e. Risk<1*10-6 deaths/person/year).

Risks are acceptably low beyond ±0m from the site boundary. Societal risks are acceptably low. The maximum number of fatalities for a worst-case scenario could be up to 12 persons. The likelihood of this is less than once in ten million years.

The worst case incidents are outlined in **Table 8-37**.

Table 8-37 - Worst Case Incidents

Material	Worst case Incident*	Distance of Lethal Effects (m)	Affecting Public
33% Hydrochloric acid	Catastrophic rupture – one pallet with four drums	200m	Only immediate industrial neighbours No Residential or vulnerable facilities
25% Ammonium hydroxide solution	Catastrophic rupture – one pallet with four drums	100m	Only immediate industrial neighbours No Residential or vulnerable facilities
60% Nitric acid	Catastrophic rupture – one pallet with four drums	35m	No
Acetic acid	Catastrophic rupture – one pallet with four drums	30m	No

*Note that the events listed above are not the only events that could cause offsite effects and therefore the sole reason for MHI classification. The events listed are merely the events with the farthest offsite effects.

The study concluded that Due to the presence of certain hazardous materials, their associated offsite effects and the fact that some may be stored in IBCs (not drums) thereby exceeding the 2022 MHI Regulation Threshold, the R-Bay Properties Pietermaritzburg site should as a precaution be classified as a Low-Level Major Hazard Establishment.

Table 8-38 – Exposure to chemicals during operation

Potential Impact: Toxic releases	Magnitude	Extent	Reversibility	Duration	Probability	Significance		Character
Without Mitigation	3	2	3	2	3	30	Low	(-)
With Mitigation	2	1	3	2	3	24	Low	(-)
Mitigation and Management Measures	**General:** ▪ Ensure that operators are well informed of the impacts of toxic releases that have been included in the MHI.							

	▪ The training programmes should enable them to understand how to respond after an incident i.e. emergency planning and training. ▪ Forklift drivers must be licenced and well trained to minimise the likelihood of forklift accidents when carrying toxic chemicals. ▪ A copy of this risk assessment should be available on the site at all times for inspection by the authorities. ▪ Consider having curbing with drain to sump/ collection pit in the chemical offloading area to reduce the impact of toxic release from spills after a drum / pallet with drums has ruptured while offloading. ▪ A spill management schedule must be in place to prevent any incompatible chemicals ending up in the same pit. ▪ Ensure product segregation as per SANS 10263. ▪ Ensure secondary containment as per SANS 10263 and the National Buildings Regulations. ▪ Ensure suitable ventilation through the warehouse. ▪ There are Emergency Procedures for the R-Bay group, and the plan must be revised to include the proposed project. ▪ Annual Emergency drills are required. ▪ A person must be appointed as responsible for the MHI.

Table 8-39 – Worst Case Incident

Potential Impact: Worst Case Incident	**Magnitude**	**Extent**	**Reversibility**	**Duration**	**Probability**	**Significance**		**Character**
Without Mitigation	5	3	5	5	4	72	High	(-)
With Mitigation	5	1	5	5	1	16	Low	(-)
Mitigation and Management Measures	▪ R-Bay properties should have segregation of incompatible materials for any accidental mixes and a natural ventilation system in place. ▪ There will be no decanting at the warehouse, and this reduces the chances of having incompatible materials mixing. ▪ Town Planning should be made aware of which areas could be affected, in order to manage the approval of new developments in the vicinity of this MHI. ▪ The bunding and liner inside the warehouse must be inspected annually and maintained. ▪ A person must be appointed as responsible for the MHI. ▪ A copy of this risk assessment should be available on the site at all times for inspection by the authorities.							

	▪ Prior to commencement of construction, the relevant authorities (i.e. local Fire and Emergency services, Provincial Department of Employment and Labour and National Department of Labour) should be notified as per the requirements of regulation 4 of the MHI Regulations of 2022. R-Bay Properties should retain proof of notifications. See section 5.3.2. ▪ Prior to commencement of construction, public notifications should be undertaken as per the requirements of Regulation 4 of the MHI Regs of 2022. R-Bay Properties should retain proof of notifications. See section 5.3.2. ▪ R-Bay Pietermaritzburg should confirm that the local emergency services have an off-site emergency plan in place. ▪ This MHI facility should be reassessed 5-yearly, (i.e. due 2028), or earlier if major modifications are made, the installations are expanded, or a major incident occurs.

8.10.3 DECOMMISSIONING PHASE

The impacts associated with the decommissioning phase will be the same as that of the construction phase.

8.11 WASTE MANAGEMENT

8.11.1 CONSTRUCTION PHASE

The presence of construction workers has the potential to increase litter on site in the absence of adequate waste receptacles. This results in an unsightly working environment and possible entry into surrounding environment. Furthermore, waste materials may attract pest species / vectors into working areas leading to potential health implications for construction staff and community members.

Spoil material unsuitable for reuse as backfill and bedding material has the potential to disrupt land use and habitats if inappropriately manage or disposed illegally.

Waste generation (domestic waste, mixed industrial and metal waste) and a lack of appropriate separation, temporary storage and recycling (i.e., not aligned with the Waste Hierarchy) has the potential to result in unnecessary waste material to landfill.

Hazardous waste generation and inappropriate management and disposal has the potential to lead to contamination of soil, groundwater and surface water.

Table 8-40 – Impact of improper waste management during construction

Potential Impact: Improper waste management during construction	**Magnitude**	**Extent**	**Reversibility**	**Duration**	**Probability**	**Significance**		**Character**
Without Mitigation	3	3	3	2	4	**44**	Moderate	(-)

With Mitigation	2	2	2	2	2	**16**	Low	(-)
Mitigation and Management Measures	▪ Despite the modest volumes of waste anticipated to be generated by the project, recycling opportunities should be sought in order to reduce the volume of waste to landfill and harness commercial benefits for both the project team and local community. ▪ General waste (i.e., construction waste, building rubble, plastic, metal, excavated material, packaging material, paper and domestic waste etc.) generated during the construction phase should be stored in a designated area within suitable waste collection bins and skips (or similar). ▪ Provisions of suitable waste receptacles for temporary storage of hazardous waste (in compliance with Material Safety Data Sheets). ▪ Collection and disposal of hazardous waste at appropriately licences landfills and proof of disposal to be retained by contractors and facility operators. ▪ Bins/skips must be emptied regularly and collected by a licensed contractor for disposal at an appropriate, licensed facility. Bins/skips must not be allowed to overflow. ▪ Solid waste must be managed to avoid risk to local fauna and to avoid attracting animals to the site and to ensure containment and regular collection for disposal at a licenced landfill site. ▪ Maintain good housekeeping on site and minimise the generation of waste.							

Sanitation services are required to accommodate workers on site, contractor's yard and at site camps. Temporary ablution facilities (chemical toilets) are proposed to appropriately contain and treat waste for offsite disposal. The incorrect siting of chemical toilets (i.e., within close proximity to a watercourse or stream) and loss of containment could lead to pollution of the receiving environment (soil, groundwater and surface water), leading to secondary health impact to ecosystems and communities (ground and surface water users).

Sanitary waste, if not correctly contained, has the potential to enter surface water via runoff and increase organic matter loading in water systems.

Table 8-41 – Improper disposal of sanitation waste

Potential Impact: Improper disposal of sanitation waste	**Magnitude**	**Extent**	**Reversibility**	**Duration**	**Probability**	**Significance**		**Character**
Without Mitigation	3	3	3	2	4	**44**	Moderate	(-)
With Mitigation	2	2	2	2	2	**16**	Low	(-)

Mitigation and Management Measures	▪ Chemical toilet facilities are to be supplied and serviced by an approved contractor. ▪ Ablution facilities must be located in a specific area agreed to by the ECO prior to placement and must be located away from sensitive environments. ▪ Spillages must be prevented during cleaning or servicing. ▪ Ablution facilities must be effectively secured to prevent toppling or being wind-blown. ▪ Ablution facilities must be maintained in a hygienic state and serviced regularly.

8.11.2 OPERATIONAL PHASE

Table 8-42 – Impact of improper waste management during operation

Potential Impact: Improper waste management during operation	Magnitude	Extent	Reversibility	Duration	Probability	Significance		Character
Without Mitigation	2	2	3	4	4	**44**	Moderate	(-)
With Mitigation	1	2	3	4	2	**20**	Low	(-)
Mitigation and Management Measures	▪ Despite the modest volumes of waste anticipated to be generated by the project, recycling opportunities should be sought in order to reduce the volume of waste to landfill and harness commercial benefits for both the project team and local community. ▪ General waste generated during the operational phase should be stored in a designated area within suitable waste collection bins and skips (or similar). ▪ Provisions of suitable waste receptacles for storage of hazardous waste (in compliance with Material Safety Data Sheets). ▪ Collection and disposal of hazardous waste at appropriately licences landfills and proof of disposal to be retained by facility operators. ▪ Bins/skips must be emptied regularly and collected by a licensed contractor for disposal at an appropriate, licensed facility. Bins/skips must not be allowed to overflow.							

8.11.3 DECOMMISSIONING PHASE

The impacts associated with the decommissioning phase will be the same as that of the construction phase.

9 CUMULATIVE IMPACT ASSESSMENT

Although the objective of the NEMA: BA process is to undertake an impact and risk assessment process, inclusive of cumulative impacts, which is essential to assessing and managing the environmental and social impacts of projects, it may be insufficient for identifying and managing the incremental impacts on areas or resources used or directly affected by a given development from other existing, planned, or reasonably defined developments at the time the risks and impacts are identified.

IFC PS 1 recognizes that, in some instances, cumulative effects need to be considered in the identification and management of environmental and social impacts and risks. For private sector management of cumulative impacts, IFC considers good practice to be two pronged:

- Effective application of and adherence to the mitigation hierarchy in environmental and social management of the specific contributions by the project to the expected cumulative impacts; and
- Best efforts to engage in, enhance, and/or contribute to a multi-stakeholder, collaborative approach to implementing management actions that are beyond the capacity of an individual project proponent.

Even though Performance Standard 1 does not expressly require, or put the sole onus on, private sector clients to undertake a cumulative impact assessment (CIA), in paragraph 11 it states that the impact and risk identification process "*will take into account the findings and conclusions of related and applicable plans, studies, or assessments prepared by relevant government authorities or other parties that are directly related to the project and its area of influence" including "master economic development plans, country or regional plans, feasibility studies, alternatives analyses, and cumulative, regional, sectoral, or strategic environmental assessments where relevant*."

Cumulative impacts are those that result from the successive, incremental, and/or combined effects of an action, project, or activity when added to other existing, planned, and/or reasonably anticipated future ones. For practical reasons, the identification and management of cumulative impacts are limited to those effects generally recognized as important on the basis of scientific concerns and/or concerns of affected communities (IFC GPH).

Evaluation of potential cumulative impacts is an integral element of an impact assessment. In reference to the scope for an impact assessment, IFC's Performance Standards specify that "*Risks and impacts will be analysed in the context of the project's area of influence. This area of influence encompasses…areas potentially impacted by cumulative impacts from further planned development of the project, any existing project or condition, and other project-related developments that are realistically defined at the time the Social and Environmental Assessment is undertaken; and (iv) areas potentially affected by impacts from unplanned but predictable developments caused by the project that may occur later or at a different location.*" (IFC 2006).

A cumulative impact assessment is the process of (a) analysing the potential impacts and risks of proposed developments in the context of the potential effects of other human activities and natural environmental and social external drivers on the chosen Valued Environmental and Social Components (VECs) over time, and (b) proposing concrete measures to avoid, reduce, or mitigate such cumulative impacts and risk to the extent possible (IFC GPH).

Cumulative impacts with existing and planned facilities may occur during construction and operation of the proposed project. While one project may not have a significant negative impact on sensitive

resources or receptors, the collective impact of the projects may increase the severity of the potential impacts.

9.1 AIR QUALITY

Although the increased dust and emissions from construction activities may not significantly impact air quality, increased dust can be a nuisance to the nearby receptors and site workers. Considering the temporary nature of construction and the nature of the proposed activities, cumulative impact on air quality is anticipated to be low and of short duration. With the implementation of appropriate control measures, the impact on neighbouring sensitive receptors will be reduced further but is still assessed to be low.

The potential impact on air quality during construction is indicated in **Table 9-1.**

Table 9-1 – Impact on ambient air quality during construction

Potential Impact: Impact on air quality during construction	Magnitude	Extent	Reversibility	Duration	Probability	Significance		Character
Without Mitigation	2	2	1	2	5	**35**	**Moderate**	(-)
With Mitigation	1	2	1	2	5	**30**	**Low**	(-)
Mitigation and Management Measures	▪ All mitigation measures presented within the impact assessment section of this report must be implemented for the impact significance to be reduced to low for cumulative impacts.							

9.2 SOIL AND AGRICULTURE

The general area for which the proposed development is planned is light industrial. As the site is small and not within 100m of a watercourse, only the potential impacts of erosion and sedimentation, and contamination are likely to cumulatively add to those of surrounding industries, and only if mitigation and monitoring requirements are not undertaken adequately.

Table 9-2 – Cumulative Impact on Agricultural Potential

Potential Impact: Soil erosion, sedimentation and contamination	Magnitude	Extent	Reversibility	Duration	Probability	Significance		Character
Without Mitigation	3	2	5	5	5	75	High	(-)
With Mitigation	1	1	3	2	3	21	Low	(-)

Mitigation and Management Measures	▪ All mitigation measures presented within the impact assessment section of this report must be implemented for the impact significance to be reduced to low for cumulative impacts.

9.3 TERRESTRIAL BIODIVERSITY

Permanent loss of degraded grassland habitat as a result of the proposed development will contribute to cumulative impacts of loss in this locality, given the widespread transformation of the area to industrial use.

The application of the mitigation measures will reduce the Project's contribution to the regional-scale losses of this habitat, yet some residual impacts of low significance will remain. However, in the context of the recent transformation of the LSA through dumping of spoil by adjacent land users, revegetation of disturbed habitat within the LSA adjacent to the proposed infrastructure footprint presents an opportunity to restore some level of habitat connectivity and function at the site level, reducing the Project's contribution to cumulative impacts in the locality. These positive effects can be balanced against the residual impacts on grasslands in the regional context.

Table 9-3 – Cumulative Impact on Terrestrial Biodiversity

Potential Impact: Cumulative Impact on Terrestrial Biodiversity	Magnitude	Extent	Reversibility	Duration	Probability	Significance		Character
Without Mitigation	3	3	5	5	5	80	High	(-)
With Mitigation	3	3	5	5	3	48	Moderate	(-)
Mitigation and Management Measures	▪ All mitigation measures presented within the impact assessment section of this report must be implemented for the impact significance to be reduced to low for cumulative impacts.							

9.4 HERITAGE AND PALAEONTOLOGY

Cumulative impacts would occur through the construction, operation and decommissioning of many projects in the same area.

Table 9-4 – Cumulative impact to archaeological resources during the construction, operation and decommissioning phases

Potential Impact: Archaeological resources	Magnitude	Extent	Reversibility	Duration	Probability	Significance		Character
Without Mitigation	2	1	5	5	1	13	Very Low	(-)
With Mitigation	1	1	5	5	1	12	Very Low	(-)
Mitigation and Management Measures	▪ Implement the Chance Finds Protocol. ▪ Construction activities must cease upon discovery of any heritage or cultural resources. The heritage authority i.e., Amafa must be contacted immediately.							

9.5 SOCIAL

Assessment of cumulative impacts considered are:

- Impacts on regional employment and household income associated with project activities and expenditure (**Table 9-5**):
- Impacts associated primarily with the influx of people (**Table 9-6**):
- Impacts on surrounding landowners (
- Table 9-7):

Table 9-5 – Cumulative impact on regional employment and household income

Potential Impact: Regional employment and household income	Magnitude	Extent	Reversibility	Duration	Probability	Significance		Character
Without Mitigation	2	2	2	4	3	30	Low	(+)
With Mitigation	3	2	2	4	5	55	Moderate	(+)
Mitigation and Management Measures	▪ Setting targets for how much local labour should be used based on the needs of the applicant and the availability of existing skills and people that are willing to undergo training. Opportunities for the training of unskilled and skilled workers from local communities should be maximized, including those from adjacent farms who have indicated that they would like to benefit from the proposed project and its related opportunities. ▪ Using local sub-contractors where possible and requiring that contractors from outside the local area that tender also meet targets for how many locals are given employment.							

	▪ Exploring ways to enhance local community benefits with a focus on broad-based BEE and preferential procurement.

Table 9-6 – Cumulative impact of influx of people

Potential Impact: Influx of people	Magnitude	Extent	Reversibility	Duration	Probability	Significance		Character
Without Mitigation	1	3	1	2	4	28	Low	(-)
With Mitigation	1	2	1	2	3	18	Low	(-)
Mitigation and Management Measures	▪ A 'locals first' policy with regard to construction and operational labour needs. ▪ A complaints register should be available on site to any individual who may have a particular complaint with regards to the construction or operations processes. ▪ Close coordination with the municipality is required, including regular meetings.							

Table 9-7 – Cumulative impact of surrounding landowners

Potential Impact: Surrounding landowners and communities	Magnitude	Extent	Reversibility	Duration	Probability	Significance		Character
Without Mitigation	1	3	1	2	4	28	Low	(-)
With Mitigation	1	2	1	2	3	18	Low	(-)
Mitigation and Management Measures	▪ A complaints register should be available on site to any individual who may have a particular complaint with regards to the construction or operations processes.							

9.6 HAZARDOUS SUBSTANCES

Fires on site from acetic acid could cause failure of adjacent drums with toxic chemicals, which could escalate the event. Toxic events alone do not normally lead to direct domino failures. There are no known MHIs near the R-Bay Properties, in Pietermaritzburg site, and the domino impact zone as shown in **Figure 8-1** above is within the site boundary.

Table 9-8 – Worst Case Incident

Potential Impact: Worst Case Incident	Magnitude	Extent	Reversibility	Duration	Probability	Significance		Character
Without Mitigation	5	3	5	5	4	72	High	(-)
With Mitigation	5	1	5	5	1	16	Low	(-)
Mitigation and Management Measures	▪ R-Bay properties should have segregation of incompatible materials for any accidental mixes and a natural ventilation system in place. ▪ There will be no decanting at the warehouse, and this reduces the chances of having incompatible materials mixing. ▪ Town Planning should be made aware of which areas could be affected, in order to manage the approval of new developments in the vicinity of this MHI. ▪ The bunding and liner inside the warehouse must be inspected annually and maintained. ▪ A person must be appointed as responsible for the MHI. ▪ A copy of this risk assessment should be available on the site at all times for inspection by the authorities. ▪ Prior to commencement of construction, the relevant authorities (i.e. local Fire and Emergency services, Provincial Department of Employment and Labour and National Department of Labour) should be notified as per the requirements of regulation 4 of the MHI Regulations of 2022. R-Bay Properties should retain proof of notifications. See section 5.3.2. ▪ Prior to commencement of construction, public notifications should be undertaken as per the requirements of Regulation 4 of the MHI Regs of 2022. R-Bay Properties should retain proof of notifications. See section 5.3.2. ▪ R-Bay Pietermaritzburg should confirm that the local emergency services have an off-site emergency plan in place. ▪ This MHI facility should be reassessed 5-yearly, (i.e. due 2028), or earlier if major modifications are made, the installations are expanded, or a major incident occurs.							

10 ENVIRONMENTAL IMPACT STATEMENT

The essence of any impact assessment process is aimed at ensuring informed decision-making, environmental accountability, and to assist in achieving environmentally sound and sustainable development. In terms of NEMA, the commitment to sustainable development is evident in the provision that "development must be socially, environmentally and economically sustainable…. and requires the consideration of all relevant factors…". NEMA also imposes a duty of care, which places an obligation on any person who has caused, is causing, or is likely to cause damage to the environment to take reasonable steps to prevent such damage. In terms of NEMA's preventative principle, potentially negative impacts on the environment and on people's environmental rights (in terms of the Constitution of the Republic of South Africa, Act No. 108 of 1996) should be anticipated and prevented, and where they cannot be prevented altogether, they must be minimised and remedied in terms of "reasonable measures".

In assessing the environmental feasibility of the proposed construction of the proposed project, the requirements of all relevant legislation have been considered. The identification and development of appropriate mitigation measures that should be implemented to minimise potentially significant impacts associated with the project, has been informed by best practice principles, past experience, and the relevant legislation (where applicable).

The conclusions of this BA are the result of comprehensive assessments. These assessments were based on issues identified through the BA process and public participation undertaken to date. The BAR will be subject to public review, which will be undertaken according to the requirements of NEMA with every effort made to include representatives of all stakeholders within the process. The BAR will be updated and finalised taking into consideration all comments received during the public review period before being submitted to the CA for consideration.

10.1 IMPACT SUMMARY

All impacts associated with the proposed project can be reduced to a medium to low significance with the implementation of recommended mitigation measures as presented within this BAR and the associated specialist studies.

The table below is a summary of the impacts associated with the proposed project.

Table 10-1 – Summary of Impacts associated with the proposed project

Aspect	Impact Description	Character	Without Mitigation	With Mitigation
Construction Phase				
Air Quality	Impact on air quality during construction	Negative	**Moderate**	**Low**
Noise and Vibration	Impact on ambient sound levels during construction	Negative	**Low**	**Low**
Soil and Agriculture	Increased erosion and sedimentation	Negative	**High**	**Low**
	Change in surface profile (alternative system)	Negative	**Moderate**	**Moderate**

Aspect	Impact Description	Character	Without Mitigation	With Mitigation
	Change in land use (alternative system)	Negative	Moderate	Moderate
	Change in land capability	Negative	High	Low
	Soil Contamination	Negative	High	Low
Terrestrial Biodiversity	Direct loss and disturbance of degraded grassland habitat	Negative	Moderate	Low
	Establishment and spread of alien and invasive plant species	Negative	Moderate	Low
	Injury and mortality of faunal species	Negative	Low	Very Low
Aquatic Biodiversity	Changes in sediment entering and exiting the system	Negative	Very Low	Very Low
	Changes in water quality due to pollution	Negative	Very Low	Very Low
Palaeontology	Impacts to palaeontology	Negative	Very Low	Very Low
Traffic	Road degradation	Negative	Very Low	Very Low
	Dust	Negative	Low	Very Low
	Intersection safety	Negative	Low	Very Low
Social Impacts	Regional employment and household income	Positive	Low	Moderate
	Influx of people	Negative	Low	Low
	Surrounding landowners	Negative	Low	Low
Hazardous Substances and Pollutants	Impacts of contaminants on soil, groundwater and surface water	Negative	Low	Low
Waste Management	Improper waste management during construction	Negative	Moderate	Low
	Improper disposal of sanitation waste	Negative	Moderate	Low
Operational Phase				
Soil and Agriculture	Soil erosion and sedimentation	Negative	High	Low
	Soil contamination	Negative	High	Low
Terrestrial Biodiversity	Spread of alien and invasive plant species	Negative	Moderate	Low
	Loss and fragmentation of fauna habitat	Negative	Low	Low

Aspect	Impact Description	Character	Without Mitigation	With Mitigation
Aquatic Biodiversity	Changes in water quality due to pollution	Negative	Very Low	Very Low
Social Impacts	Regional employment and household income	Positive	Low	Low
	Surrounding landowners	Negative	Low	Low
Hazardous Substances and Pollutants	Impacts of contaminants on soil, groundwater and surface water	Negative	Low	Low
	Toxic releases	Negative	Low	Low
	Worst Case Incident	Negative	High	Low
Waste Management	Improper waste management during construction	Negative	Moderate	Low
Decommissioning Phase				
Soil and Agriculture	Soil erosion and sedimentation	Negative	High	Low
	Soil contamination	Negative	High	Low
Terrestrial Biodiversity	Spread of alien and invasive plant species	Negative	Moderate	Low
Social Impacts	Regional employment and household income	Positive	Low	Low

10.2 SITE SENSITIVITY

Table 10-2 and **Figure 10-1** illustrate the overall sensitivity of the site in relation to the proposed project, there were no no-go areas identified on the proposed site.

Table 10-2 - Environmental Sensitivities identified by specialists

Specialist study	Sensitivity Rating/Fatal Flaw Analysis
Soil and Agriculture	The soils identified at the site were Clovellys and Witbanks and the capability of the site was deemed to be Class III; Arable, and, despite Clovelly soils typically being considered good arable soils, is suitable only for Wildlife, Forestry, Light Grazing, Moderate Grazing, Intensive Grazing, Light Cultivation and Moderate Cultivation owing to its hardness and consequent lack of depth, and lack of topsoil. No fatal flaws are evident for the proposed project.
Aquatic Ecology	The study area is considered to be of low sensitivity for aquatic biodiversity, and the proposed development is cut off from downslope wetlands via

Specialist study	Sensitivity Rating/Fatal Flaw Analysis
	the existing tarred road, and no significant impacts on aquatic biodiversity as a result of the proposed development are therefore anticipated.
Terrestrial Ecology	Most of the study area consists of degraded grassland, and the site ecological importance of this habitat unit is rated low. Nevertheless, the National Web-based Environmental Screening Tool categorises the Terrestrial Biodiversity Theme for the study area as Very High Sensitivity. This is based on the stated presence of land designated as CBA1 and the presence of proposed priority areas for protected area expansion. It is noted however, that the study area itself was characterised as degraded grassland when baseline surveys took place in December 2021, and has since been completely transformed through dumping of spoil by developers involved in earthworks on a site adjacent to the LSA. Provided that the mitigation measures and monitoring requirements are adhered to, the Project may be authorised from a terrestrial ecosystems and biodiversity perspective.
Heritage	The site is very low in sensitivity and the specialist recommended the site be exempt from a HIA.
Palaeontology	The site is very low in sensitivity and the specialist recommended that a Chance Find Protocol be implemented.
MHI	Due to the presence of certain hazardous materials, their associated offsite effects and the fact that some may be stored in IBCs (not drums) thereby exceeding the 2022 MHI Regulation Threshold, the R-Bay Properties Pietermaritzburg site should as a precaution be classified as a Low Level Major Hazard Establishment.
Geotechnical	Based on the desktop study, the proposed site is suitable for the development of a warehouse.

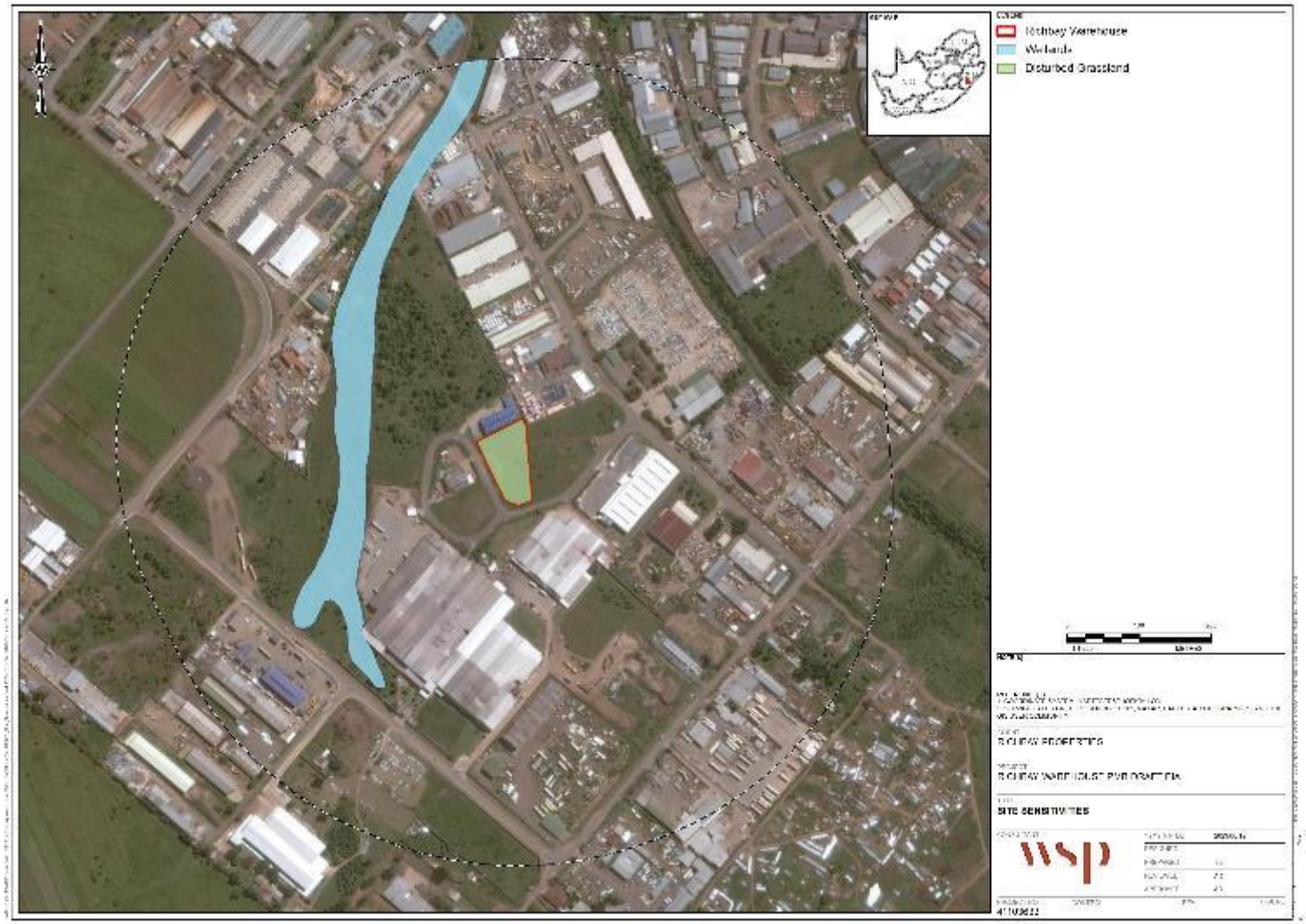


Figure 10-1 - Combined Sensitivity Map for the proposed warehouse

10.3 SPECIALIST CONCLUSIONS

10.3.1 SOILS AND AGRICULTURE

The proposed development area is currently largely unused and houses grasses, small trees and termite mounds. The soils identified at the site were Clovellys and Witbanks and the capability of the site was deemed to be Class III; Arable, and, despite Clovelly soils typically being considered good arable soils, is suitable only for Wildlife, Forestry, Light Grazing, Moderate Grazing, Intensive Grazing, Light Cultivation and Moderate Cultivation owing to its hardness and consequent lack of depth, and lack of topsoil.

The more easily mitigatable potential impacts identified to the soils at the site are contamination and erosion and sedimentation. Change in land capability and land use (only of the areas surrounding the warehouses and parking area) can be mitigated against to a limited extent. The inevitable changes in the surface profile as a result of the development cannot be mitigated against until after the site is decommissioned, but the surface profile of the site is already flat. Erosion and Sedimentation and Contamination are the only potential impacts identified in the operational and decommissioning phases and can be mitigated against if monitoring and management measures are strictly implemented and adhered to. Implementation of mitigation measures will be most important during the construction phase.

No fatal flaws are evident for the proposed project – so the 'no-go' scenario is not necessary - and mitigation measures, as described in this report, can be implemented to reduce the significance of the risk to an overall acceptable level, if implemented correctly with ongoing monitoring. It is the specialist's opinion that the potential risk to the soils environment as a result of the proposed development is acceptable and no soils-specific conditions need to be added to the authorisation as a result of this study.

10.3.2 TERRESTRIAL BIODIVERSITY

The study area is located in the KwaZulu-Natal Hinterland Thornveld vegetation type, which is not listed as threatened on the NEMBA Threatened Ecosystems (DFFE, 2022). According to the spatial delineations of the Kwazulu Natal Biodiversity Sector Plan, the study area is mapped as a CBA1.

Most of the study area consists of degraded grassland, and the site ecological importance of this habitat unit is rated low. Nevertheless, the National Web-based Environmental Screening Tool categorises the Terrestrial Biodiversity Theme for the study area as Very High Sensitivity. This is based on the stated presence of land designated as CBA1 and the presence of proposed priority areas for protected area expansion. It is noted however, that the study area itself was characterised as degraded grassland when baseline surveys took place in December 2021, and has since been completely transformed through dumping of spoil by developers involved in earthworks on a site adjacent to the LSA.

The proposed Project will have negative impacts on terrestrial habitats and species, primarily during the construction phase as a result of site clearance, topsoil removal and earthworks activities. These activities will have impacts such as permanently loss of approx. 0.5 ha of degraded grassland habitat, possible injury and mortality of SoC, as well as the spread of alien invasive species. These impacts are generally rated as having a moderate impact significance on the environment prior to mitigation measures, decreasing to a low impact significance following the successful implementation of the recommended mitigation measures. The revegetation/restoration of disturbed areas currently

transformed by spoil heaps presents an opportunity to enhance the biodiversity value of the site (and the area mapped as a CBA1), compared to its current (2023) condition. The monitoring of the spread and establishment of alien invasive species through the development and implementation of an AIS management plan is recommended and should be incorporated into the Project's authorised Environmental Management Programme (EMPr).

Provided that the mitigation measures and monitoring requirements are adhered to, the Project may be authorised from a terrestrial ecosystems and biodiversity perspective.

10.3.3 AQUATIC BIODIVERSITY

Notwithstanding the fact that the study area is considered to be of low sensitivity for aquatic biodiversity, and the proposed development is cut off from downslope wetlands via the existing tarred road, and no significant impacts on aquatic biodiversity as a result of the proposed development are therefore anticipated, impact mitigation and management measures are recommended to avoid/minimise potential impacts on the nearby wetland arising from the proposed warehouse development.

10.3.4 HERITAGE AND PALAEONTOLOGY

The heritage specialist concluded that the site is of Very Low sensitivity from a heritage perspective and should be exempt from a HIA.

Regarding palaeontology, based on experience and the lack of any previously recorded fossils from the area, it is extremely unlikely that any fossils would be preserved in the Pietermaritzburg Formation or the soils of the Quaternary. There is a very small chance that fossils may occur below ground in the shales of the early Permian Pietermaritzburg Formation so a Fossil Chance Find Protocol should be added to the EMPr. If fossils are found by the contractor, environmental officer or other responsible person once excavations have commenced then they should be rescued and a palaeontologist called to assess and collect a representative sample. The impact on the palaeontological heritage would be low so, as far as the palaeontology is concerned, the project should be authorised.

10.3.5 MHI ASSESSMENT

Due to the presence of certain hazardous materials, their associated offsite effects and the fact that some may be stored in IBCs (not drums) thereby exceeding the 2022 MHI Regulation Threshold, the R-Bay Properties Pietermaritzburg site should as a precaution be classified as a Low Level Major Hazard Establishment.

10.3.6 GEOTECHNICAL ASSESSMENT

The specialist concluded that based on the desk top study, the proposed site is suitable for the development of a warehouse.

10.4 RECOMMENDATIONS

The following key aspects are recommended to be included as conditions of authorisation:

- The mitigation measures included in the EMPr must be adhered to.
- The final EMPr must form part of all contractual documents with contractors during construction and operational phases of the project. Furthermore, a dedicated Environmental Control Officer (ECO) must be appointed to ensure compliance to all EA conditions and EMPr commitments throughout the construction phase.

- Appropriate permits in terms of the NEM: BA must be obtained before commencement of construction, if required.
- The Stormwater Management Plan must be submitted to the Msunduzi Municipality's Stormwater and Drainage Unit for approval.
- Building plans must be submitted, prior to any construction, for approval to the Msunduzi Municipality's Building Control and Signage Section.
- Msunduzi Municipality's Green Building Guideline Toolkit must be taken into consideration to ensure the sustainability and improved efficiency of the proposed building.
- Should rezoning be required, this needs to be undertaken prior to commencement with construction.
- A site walkover must be undertaken by a millipede and mollusc specialist prior to construction commencing, should invertebrate species of concern be indicated to be present, specific surveys for these will be carried out prior to construction, to inform the need for any additional mitigation measures.
- A geotechnical site investigation must be undertaken to provide detailed geotechnical information to inform the design of the proposed structures and the utilisation of the in-situ material, prior to construction
- The MHI Regulations of 2002 (regulation 3) requires that a person be appointed as responsible for the MHI.
- A copy of this risk assessment should be available on the site at all times for inspection by the authorities.
- Prior to commencement of construction, the relevant authorities (i.e. local Fire and Emergency services, Provincial Department of Employment and Labour and National Department of Labour) should be notified as per the requirements of regulation 4 of the MHI Regulations of 2022. R-Bay Properties should retain proof of notifications.
- Prior to commencement of construction, public notifications should be undertaken as per the requirements of Regulation 4 of the MHI Regs of 2022. R-Bay Properties should retain proof of notifications.
- R-Bay needs to ensure compliance with the requirements of regulation 15 of the 2022 MHI Regulations, e.g., the ERP plan needs to be signed off by the local authorities.
- R-Bay should confirm that the local emergency services have an off-site emergency plan in place.
- This MHI facility should be reassessed 5-yearly, (i.e., due 2028), or earlier if major modifications are made, the installations are expanded, or a major incident occurs.

10.5 IMPACT STATEMENT

The overall objective of the EIA is to provide sufficient information to enable informed decision-making by the authorities. This was undertaken through consideration of the proposed project components, identification of the aspects and sources of potential impacts and subsequent provision of mitigation measures.

In assessing the environmental feasibility of the R-Bay Chemical Warehouse, the requirements of all relevant legislation have been considered. The identification and development of appropriate management and mitigation measures that should be implemented in order to minimise potentially significant impacts associated with the project, has been informed by best practice principles, past experience and the relevant legislation (where applicable).

The EIA process has found that the proposed project will involve activities which will lead to a number of direct and indirect negative impacts on the biophysical and socio-economic environment. These impacts were found to vary in terms of their consequence and probability. Positive impacts are limited to the creation of employment opportunities.

Mitigation measures have been developed where applicable for the above aspects and are presented within the EMPr (**Appendix H**). The mitigation measures are necessary to ensure that the project is planned, constructed and operated in an environmentally responsible manner. It is imperative that all impact mitigation recommendations contained in the EMPr, of which the environmental impact assessment took cognisance, are legally enforced.

It is the opinion of WSP that the information contained in this document (read in conjunction with the EMPr) is sufficient for the KZN EDTEA to make an informed decision for the environmental authorisation being applied for in respect of this project. The findings of this S&EIR process and associated Specialist studies conclude that there are no fatal flaws associated with the proposed development. Negative environmental impacts associated with the proposed R-Bay Chemical Warehouse can be mitigated to acceptable levels. It is therefore the opinion of the EAP that the project can proceed, and that all the listed mitigation measures and recommendations are considered by the KZN EDTEA.

11 CONCLUSION

The overall objective of the EIA is to provide sufficient information to enable informed decision-making by the authorities. This was undertaken through consideration of the proposed project components, identification of the aspects and sources of potential impacts and subsequent provision of mitigation measures.

It is the opinion of WSP that the information contained in this document (read in conjunction the EMPr) is sufficient for KZN EDTEA to make an informed decision for the environmental authorisation being applied for in respect of the proposed chemical warehouse.

Mitigation measures have been developed, where applicable, for the above aspects and are presented within the EMPr. It is imperative that all impact mitigation recommendations contained in the EMPr, of which the environmental impact assessment took cognisance, are legally enforced.

Considering the findings of the respective studies, no fatal flaws were identified for the proposed Project. Should the avoidance and mitigation measures prescribed be implemented, the significance of the considered impacts for all negative aspects pertaining to the environmental aspects is expected to be acceptable. It is thus the opinion of the EAP that the project can proceed, and that all the prescribed mitigation measures and recommendations are considered by the issuing authority.

The Draft EIAR (this report) will be made available for public review from 13 June 2023 and 14 July 2023. All I&APs on the database (included in the SER (**Appendix D** of the EIR) will be notified of the release of the draft EIR, EMPr and specialist reports for a period of 30 days.

All issues and comments submitted to WSP during the public review period of the draft EIR will be incorporated in the CRR (**Appendix D** of the EIR (i.e. SER)). The Final EIR will be submitted to the KZN EDTEA, as the competent authority, for decision-making.

If you have any further enquiries, please feel free to contact:

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