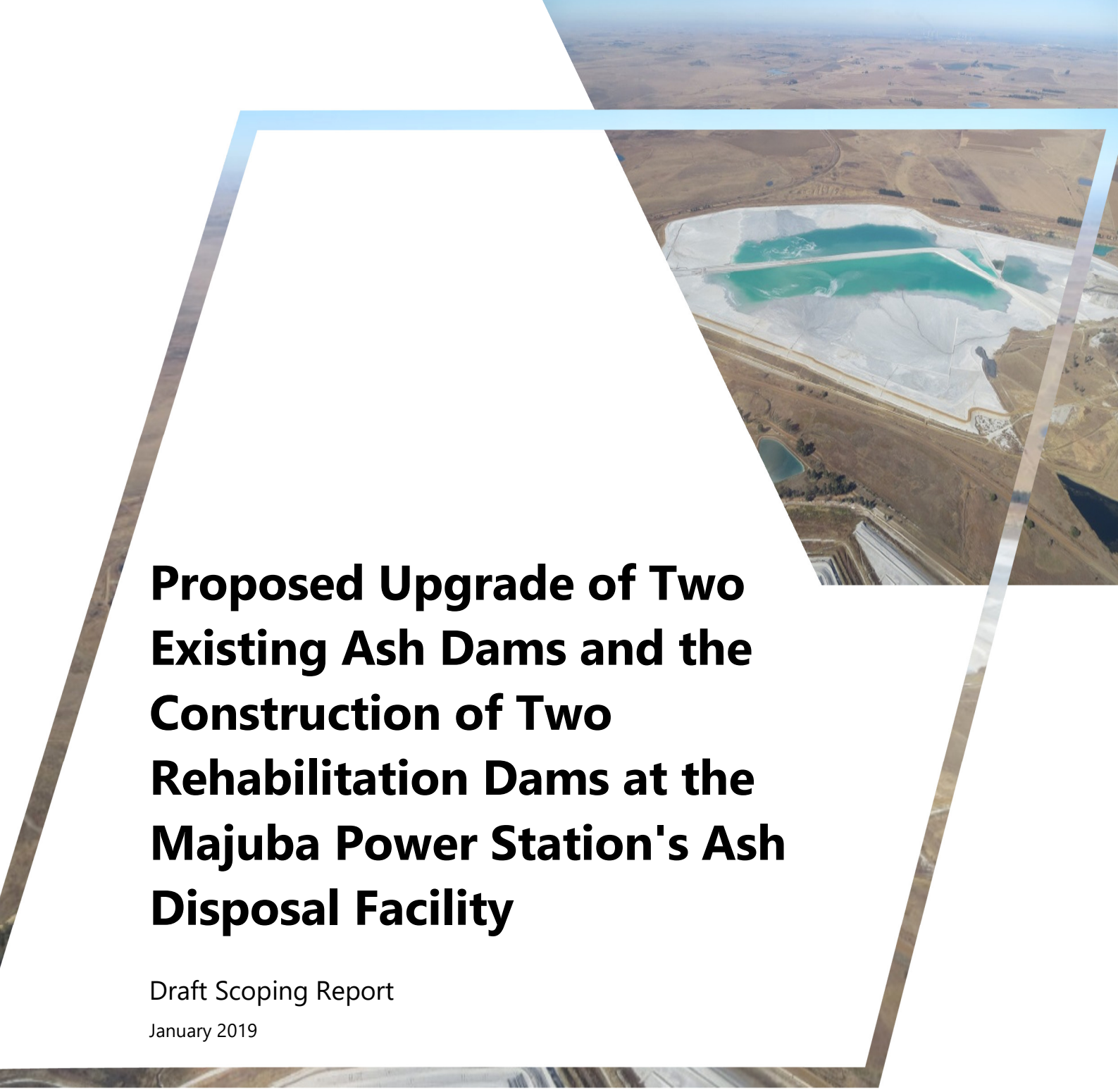

Proposed Upgrade of Two Existing Ash Dams and the Construction of Two Rehabilitation Dams at the Majuba Power Station's Ash Disposal Facility

Draft Scoping Report

January 2019

31 Allen Drive
Loevenstein
Cape Town 7530
South Africa

C00800-Draft Scoping Report

www.**advisian**.com

Advisian
WorleyParsons Group

Synopsis

Advisian, a WorleyParsons (Pty) Ltd Group Company, was appointed by ESKOM Holdings SOC Limited, as an independent environmental consultant to facilitate the Scoping and Environmental Impact Reporting (S&EIR) process for Proposed Upgrade of Two Existing Ash Dams and the Construction of Two Rehabilitation Dams at the Majuba Power Station's Ash Disposal Facility (ADF).

These dams are used for the purposes of storm water management at the ADF area. The required environmental authorisation will assist in ensuring compliance to environmental legislation and protection to the environment. These authorisations include an integrated Environmental Authorisation (IEA) in terms of the National Environmental Management Act, 1998 (NEMA) and National Environmental Management Waste Act, 2008 (NEM: WA). In terms of the 2014 Environmental Impact Assessment (EIA) Regulations (as amended), the "One Environmental System" prescribes an integrated application process for the above-mentioned authorisations/permits, which will be undertaken in the form of a full Scoping and Environmental Impact Assessment process.

A specialist team has been appointed to assess the potential impact of the proposed development on the natural, cultural and socio-economic environment of the affected project site and its surroundings. The preliminary impacts have been discussed in this report, including the baseline receiving environment it may impact on.

A plan of study has been developed which sets out the approach of the environmental impact assessment, and associated application processes in accordance with the 2014 EIA Regulations, as amended. The plan of study has been included in Section 9 of this Scoping Report.

The public participation process will be conducted as outlined in the 2014 EIA Regulations, as amended in 2017. The Draft Scoping Report (DSR) will be made available for public and authority review for 30 days, from 1 March 2019, at the Amersfoort, Perdekop, Vukuzakhe, Volksrust Public Libraries, Majuba Power Station as well as the Advisian website. Thereafter, the Final Scoping Report (FSR) will be updated and submitted to the Department of Environmental Affairs (DEA) for decision-making and final approval. Upon the approval of the Scoping Phase, the Environmental Impact Reporting Phase will commence in terms of the 2014 EIA Regulations.

Disclaimer

Project No: C00800-Draft Scoping Report – Proposed Upgrade of Two Existing Ash Dams and the Construction of Two Rehabilitation Dams at the Majuba Power Station's Ash Disposal Facility: Draft Scoping Report

Rev	Description	Author	Review	Advisian Approval	Date
Rev1	Draft	 R.E. Jonas	 M. le Roux	 M. Herbert	January 2019
Rev2	Draft	 R.E. Jonas	 L. Hattingh	 M. Herbert	January 2019
Rev3	Desc3	Orig3	Review3	Approver3	AppDate3
Rev4	Desc4	Orig4	Review4	Approver4	AppDate4

Table of Contents

Table List

Figure List

Appendix List

Terminology

The following abbreviations are used in this report:

Abbreviations	Description
2014 EIA Regulations	2014 NEMA EIA Regulations, as amended in 2017
AEL	Atmospheric Emissions Licence
ADF	Ash Disposal Facility
BPEO	Best Practical Environmental Option
CBA	Critical Biodiversity Area
DEA	National Department of Environmental Affairs
DSR	Draft Scoping Report
DWS	Department of Water and Sanitation
EA	Environmental Authorisation
EAP	Environmental Assessment Practitioner
EIA	Environmental Impact Assessment
EIR	Environmental Impact Report/Reporting
EHS	Environmental Health and Safety
EMPr	Environmental Management Programme
FSR	Final Scoping Report
HIA	Heritage Impact Assessment
GNR	Government Notice Regulation
IEA	Integrated Environmental Authorisation
IAPs	Interested and Affected Parties
IEM	Integrated Environmental Management
IFC	International Finance Corporation
IUCN	International Union for Conservation of Nature
NEMA	National Environmental Management Act, Act 107 of 1998, as amended
NEM: AQA	National Environmental Management: Air Quality Act, Act 39 of 2004
NEM: BA	National Environmental Management: Biodiversity Act, Act 10 of 2004
NEM: WA	National Environmental Management: Waste Act, Act 58 of 2008

Abbreviations	Description
NHRA	National Heritage Resources Act, Act 25 of 1999
NID	Notice of Intent to Develop
NWA	National Water Act, Act 36 of 1999
PAEL	Provisional Atmospheric Emissions Licence
PCD	Pollution Control Dam
PoS for EIA	Plan of Study for Environmental Impact Assessment
PPP	Public Participation Process
RD	Rehabilitation Dams
SAHRA	South African Heritage Resources Agency
SCC	Species of Conservation Concern
S&EIR	Scoping and Environmental Impact Report
SPLUMA	Spatial Planning and Land Use Management Act, Act 16 of 2013
VIA	Visual Impact Assessment
WML	Waste Management Licence
WUL	Water Use Licence

1 INTRODUCTION

1.1 Purpose of this Report

The purpose of this Draft Scoping Report (DSR) is to provide stakeholders with an overview of the proposed construction of two (2) Rehabilitation Dams and upgrade of two (2) Existing Ash Dams for Majuba Power Station Ash Disposal Facility (ADF), hereafter referred to as the proposed development.

The DSR provides insight into the proposed development and identifies potential environmental and socio-economic impacts for review and comment by interested and affected parties (IAPs); this includes stakeholders and authorities alike. The foreseen IAP engagement process contributes in the identification of key issues and areas of concern to inform the Scoping and Environmental Impact Reporting (S&EIR) process.

The goal of scoping is to prioritise and focus the planning and assessment of the potential issues that may be identified as significant.

1.2 Description of the Proposed Activity

Majuba Power Station is a six (6) unit coal fired power plant situated within Mpumalanga (with a capacity to generate 4 110MW of energy). **Refer to Figure 1 and Figure 2.**

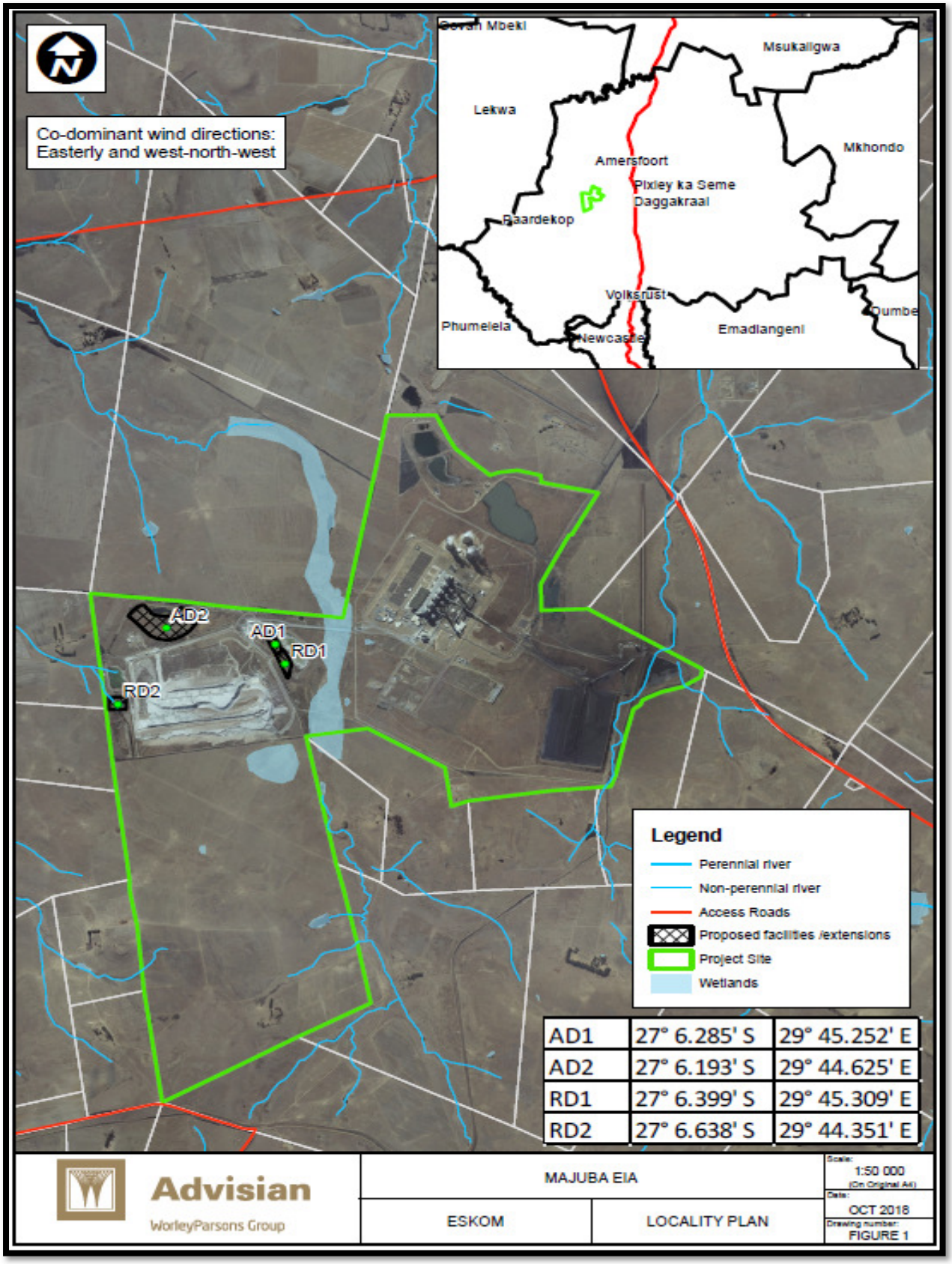

Figure 1: Project Site Locality Map

Figure 2: Ash Dam Upgrade Site

An Environmental Impact Assessment (EIA) process was previously undertaken for the continuous ADF and an Integrated Environmental Authorisation (DEA reference number 14/12/16/3/3/3/53) received from the National Department of Environmental Affairs (DEA).

A change in the scope of work during the detailed engineering design for the ADF, **requires two new Rehabilitation Dams (RD) and upgrade of the two existing ash dams (AD)** as per the specifications

shown in **Table 1** below. The Rehabilitation and Ash Dams will be utilised for stormwater management within the larger ADF area.

Table 1: Ash and rehabilitation dams' specifications

PCD description	PCD current status	Current Dam wall height	New/increased dam height (Max height)*	Surface footprint change	Final footprint size	Final Volume / Storage Capacity
Ash Dam 1* (AD1)	Existing	Compartment wall=not existing Dam wall=5m	Compartment wall = 7.6 m* (new) Dam wall= 2m (increase)	Existing=± 110 000m^2 Decrease by= 69 500 m^2	40 500m^2	150 000m^3
Rehabilitation Dam 1* (RD1)	New			New size= 80 000 m^2	80 000m^2	240 000 m^3
Ash Dam 2 (AD2)	Existing	3.1 m	1.7 m *	Existing= 95 000 m^2 Increase by= 65 000 m^2	160 000m^2	390 000 m^3
Rehabilitation Dam 2 (RD2)	New	N/A	4.85 m *	New reduced size= 19 300 m^2	19 300 m^2	65 000m^3

**Note this is the maximum embankment height to the downstream toe.*

Presented in **Table 2** below are the surface areas required for the proposed Ash and Rehabilitation Dams. It will comprise a total combined surface area of more than 20ha which necessitates that a Scoping & EIR Process under the National Environmental Management Act, Act 107 of 1998, as amended (NEMA) be followed.

Table 2: Ash and Rehabilitation Dam Footprint

Facility Description	Surface footprint change (m^2)
Ash Dam 1	Existing = 110 000 m^2 Decrease = 69 500 m^2 Final area required **40 500 m^2**
Ash Dam 2	Existing = 95 000 m^2 Increase = 65 000 m^2 Final area required **160 000 m^2**
New Rehabilitation Dam 1	Final area required **80 000 m^2**
New Rehabilitation Dam 2	Final area required **19 300 m^2**

The above-mentioned activity will require an integrated environmental authorisation to be issued by the National DEA and the Department of Water and Sanitation (DWS) as the project will trigger certain listed activities in terms of the NEMA and NEM: Waste Act (NEM:WA) and the National Water Act (NWA). The legislation relevant to this project is discussed in detail in Section 2 of this report.

1.2.1 Description of the property

The following table highlights the properties affected by the proposed development. All landowners potentially affected by the development are included in the **Table 3** below, including the associated Surveyor General (SG) Codes for the respective property (Farm 263).

Table 3: Properties affected by the proposed linear development

Farm Name/Erf No.	21-digit SG Code	Landowner
Farm 263	T0HS00000000026300000	Eskom Holdings SOC Limited

1.3 Project Team Details

1.3.1 Applicant Details

In the following section, the details of the applicant are listed. This is the applicant/proponent who will be legally responsible for the integrated environmental authorisation.

Table 4: Applicant Details

Project Proponent	Eskom Holdings SOC Limited
Contact Person:	Deidre Herbst
Postal Address:	PO Box 1091, Johannesburg, 2000
Telephone:	011 800 3501
Fax:	086 660 6092
Email:	deidre.herbst@eskom.co.za

Table 5: Details for the Majuba Power Station

Project Proponent	Majuba Power Station
Contact Person:	Tebogo Lekalakala (Power Station Manager)
Postal Address:	Private Bag 9001, Volksrust, 2470
Telephone:	017 799 2100
Fax:	017 799 2145
Email:	lekalaT@eskom.co.za

1.3.2 Environmental Assessment Practitioner Details

In terms of the NEMA 2014 EIA Regulations, the applicant must appoint an independent Environmental Assessment Practitioner (EAP) to undertake the environmental assessment of an activity regulated in terms of the aforementioned Act. In this regard Eskom has appointed Advisian to undertake the EIA for the proposed development in accordance with the 2014 EIA Regulations.

Table 6: Details of EAP and the relevant representative

EAP	WorleyParsons RSA (Pty) Ltd, t/a Advisian
Contact Person:	Marinda le Roux
Physical Address:	31 Allen Drive, Loevenstein, Bellville, 7530
Postal Address:	PO Box 398, Bellville, 7535
Telephone:	(010) 593 3936
Email:	MarindaLeRoux.Advisian@outlook.com

The following table summarises the expertise of the main Advisian team members. Curriculum Vitae of the EAP Team Members and relevant qualifications have been included in Appendix B.

Table 7: EAP Team Members

Michelle Herbert	Project Director
	Michelle is a Senior Environmental Scientist and Project Manager in the fields of public and resource infrastructure, as well as nuclear and waste management in South Africa. Her environmental management experience focuses on the successful management and execution of various environmental authorization processes, waste management, water use license applications and environmental management programs as required by environmental legislation for proposed and existing developments. These developments vary from linear activities such as road and pipeline projects to waste-to- energy, hydrocarbon and nuclear projects. These projects include public participation and sub-consultant management. As an environmental project manager, she has the experience to integrate environmental and engineering practices to ensure a holistic approach to project strategy development, planning and risk analysis, and the execution of projects. As an environmental project manager, she was employed full-time to provide environmental advisory support and project manage various environmental projects at the Koeberg Nuclear Power Station (Eskom SOC Holdings Limited). These projects vary from the sand and dredging management, development of the Koeberg Nature Reserve Management Plan to managing EIAs for spent nuclear fuel facilities and post-Fukushima upgrades. Her role is now part-time overseeing the projects.
Relevant Years of Experience	12 years
Qualifications	BSc (Honours) (Environmental Sciences and Development), North-West University, 2009. BSc (Biology), North-West University, 2004.

Michelle Herbert	Project Director
Professional Registration / Memberships	Associate Member: Water Institute of South Africa (24284) (31/03/2010); International Association of Impact Assessments South Africa (IAIAsa) (3885); and Project Management Professional Certification: Project Management Institute – (2168469)

Ryan Jonas	Project Manager / EAP
	Ryan is an Environmental Scientist with specialisation in the environmental science and management field with regard to projects within the mining and major infrastructure development sectors. He has obtained excellent working experience in compliance monitoring and preparation of environmental reports and authorisation applications in terms of NEMA, 1998; MPRDA, 2002; NEM: WA, 2008, NEM: AQA, 2004, and NWA, 1998. Ryan is also a registered Professional Natural Scientist (in the Environmental Science category) Registration no: 400159/15
Relevant Years of Experience	12 years
Highest Qualification	MSc (Environmental Science)
Professional Registration	Professional Natural Scientist (in the Environmental Science category) Registration no: 400159/15

Liezel Hattingh	Assistant EAP
	Liezel is an Environmental Consultant with experience gained in performing and supporting Basic Assessments; Environmental Impact Assessments; Environmental Compliance Monitoring and Auditing; and Environmental Feasibility Studies. Her experience includes the compilation of Environmental Management Plans for various projects; as well as Water Use License Applications. Liezel has been an onsite Environmental Compliance Officer (ECO) for more than two years on the Construction of the Metolong Downstream Conveyance System – Primary pipeline to Maseru, as well as the secondary pipeline to Teyateyaneng, Lesotho. Her experience includes public participation under the National Environmental Management Act (NEMA) 107 of 1998, as amended, for various environmental authorisation processes.
Relevant Years of Experience	10 years
Highest Qualification	BSc in Environmental Science
Professional Registration	Member: International Association for Impact Assessment South Africa

Rian Kuffner	GIS
	Rian is a GIS Professional with experience in the fields of Engineering and Environmental Services and Town and Regional Planning. He has extensive experience in various engineering and environmental related projects, where he has been responsible for data capturing, modelling, spatial analysis, remote sensing, map production, managing of spatial data and report writing. He has also gained experience in the town and regional planning sector, being responsible for the compilation of spatial and attribute data and preparation of plans for projects such as spatial development frameworks (SDF's), structure plans and zoning schemes For the past couple of years, he has also been involved in projects in the water services sector, assisting with the compilation of Audit and Development Reports for various municipalities in the Western Cape He has been involved with projects for private clients, government departments and municipalities and has often been the principle contact between clients, sub-consultants and his company.
Relevant Years of Experience	13 years
Highest Qualification	BA (Hons) GIS (Analysis and Decision Making), University of Stellenbosch, 2003. BA (Sport Science), University of Stellenbosch, 2002
Professional Registration	Member: Geo-Information Society of South Africa (Kuffner) (15/01/2005)

Marinda le Roux	Environmental Assessment Practitioner (Peer Reviewer)
	Marinda is a certified Environmental Assessment Practitioner (EAP) who holds a Master's degree in Town and Regional planning and has 20+ years of experience within the field of environmental management. Her fields of specialisation are environmental assessment and land use advice; project management and co-ordination of environmental projects. Involvement includes integration of specialist scientific studies and assessment of developments via feasibility studies, Basic Assessments and full EIAs. Marinda is experienced in project management of BAs and EIA's for electricity infrastructure, roads and stormwater projects and private developments such as filling stations, Section 24G applications, farm expansions and rezoning. Projects are located in the Western Cape, Mpumalanga, Limpopo, Northern Cape, KZN, North West and Gauteng Provinces, and she has international experience of Impact Assessments and Strategic Planning in Uganda, Ethiopia and Mozambique.
Relevant Years of Experience	22 years
Highest Qualification	MTRP (Town and Regional Planning), University of the Free State, 1992
Professional Registration	Certified Environmental Practitioner, Registered Town and Regional Planner

1.3.3 Competent Authority/ies

In terms of the 2014 EIA Regulations, the relevant competent authorities responsible for the review and authorisation of the integrated environmental authorisation is the Department of Environmental Affairs and Department of Water & Sanitation.

1.4 Structure of this Report

The DSR has been compiled meticulously and independently, and includes the following:

Section	Description
Section 1	Provides an introduction to and description of the proposed development, details of the project team and the applicant representatives.
Section 2	Provides a synopsis of the legal framework applicable to the proposed development, as well as the guidance documents which informed the S&EIR process.
Section 3	Describes the baseline biophysical and socio-economic conditions of the proposed development area.
Section 4	Indicates the environmental investigation methodology applied during the Scoping phase.
Section 5	Details the public participation process to be undertaken for the proposed development.
Section 6	Defines the need and desirability of the proposed development.
Section 7	Provides information pertaining to the activities associated with the development.
Section 8	Identifies the potential environmental and socio-economic impacts associated with the proposed development.
Section 9	Defines the Plan of Study for the EIR phase of the proposed development.
Section 10	Proposed Way Forward
Section 11	Letter of Undertaking for the EAP

In addition, the DSR has been compiled in accordance with the 2014 EIA regulatory requirements. The specific regulatory requirements have been listed below and denote the relevant corresponding sections within this report.

Table 8: 2014 EIA Legislative Requirements

EIA Regulations	Description	Reference in the report
Appendix 2: 2(a)	Details of the EAP, Curriculum Vitae and relevant expertise.	Section 0 and Appendix B
Appendix 2: 2(b)	Location and description of the property/ies on which the activity is to be undertaken including – i. 21-digit surveyor general (SG) code of each cadastral land parcel; ii. Physical address and farm name; iii. Where the above is not available, provide the coordinates of the boundary of the property/ies.	Section 1.2.1.

EIA Regulations	Description	Reference in the report
Appendix 2: 2(c)	A plan of the proposed activities applied for at an appropriate scale.	Section 1.2 and Figure 1 & 2
Appendix 2: 2(d)	Description of the scope of the proposed activity, including – i. all listed and specified activities triggered; ii. a description of the activities to be undertaken that includes associated structures and infrastructure.	Section 2.2 and 1.2
Appendix 2: 2(e)	Description of the legal framework within which the development is proposed, including legislation; policies; plans; guidelines; spatial tools; and municipal development planning frameworks and instruments.	Section 2
Appendix 2: 2(f)	Description of the need and desirability of the proposed activity and the desirability of the activity in the proposed location.	Section 6
Appendix 2: 2(h)	Description of the scoping process followed to reach the EIA Phase of the project.	Section 4.3
Appendix 2: 2(h)(i)	Details of the alternatives considered.	Section 7.2
Appendix 2: 2(h)(ii)	Details of the public participation process undertaken in terms of regulation 41 of the Regulations, including copies of the supporting documents and inputs.	Section 5
Appendix 2: 2(h)(iii)	A summary of the issues raised by interested and affected parties, and an indication of the manner in which the issues were incorporated, or the reasons for not including them.	Will be assessed and included in as an Appendix in the EIAR
Appendix 2: 2(h)(iv)	List the environmental attributes associated with the alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects.	Section 3
Appendix 2: 2(h)(v)	List the impacts and risks identified for each alternative, including the nature, significance, consequence, extent, duration and probability of the impacts, including the degree to which these impacts can be reversed, may cause irreplaceable loss of resources and can be avoided, managed or mitigated.	Section 8. Impact assessment to be provided in the EIAR.
Appendix 2: 2(h)(vi)	The methodology used in determining and ranking the nature, significance, consequences, extent, duration and probability of potential environmental impacts and risks associated with the alternatives.	Section 9.2.2
Appendix 2: 2(h)(vii)	Positive and negative impacts that the proposed activity and alternatives will have on the environment and on the community that may be affected focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects.	Section 8
Appendix 2: 2(h)(viii)	Possible mitigation measures that could be applied and level of residual risk.	Will be assessed and included in the EIAR
Appendix 2: 2(h)(ix)	The outcome of the site selection matrix.	N/A

EIA Regulations	Description	Reference in the report
Appendix 2: 2(h)(x)	If no alternatives, including alternative locations for the activity, were investigated, the motivation for not considering such.	Section 7.2.1
Appendix 2: 2(h)(xi)	A concluding statement indicating the preferred alternative, including the preferred location of the activity.	Section 7.2.1
Appendix 2: 2(i)	Plan of Study for EIA.	Section 9
Appendix 2: 2(i)(i)	Description of the alternatives considered and assessed within the preferred site including the option of not proceeding with the activity	Section 7.2
Appendix 2: 2(i)(ii)	Description of the aspects assessed as part of the EIA process.	Section 9.2
Appendix 2: 2(i)(iii)	Aspects to be assessed by specialists.	Section 8
Appendix 2: 2(i)(iv)	Description of the proposed method of assessing the environmental aspects, including a description of the proposed method of assessing the environmental aspects including aspects to be assessed by specialists.	Section 9.2
Appendix 2: 2(i)(v)	Description of the proposed method of assessing duration and significance.	Section 9.2.2.2 & 9.2.2.3
Appendix 2: 2(i)(vi)	An indication of the stages at which the competent authority will be consulted.	Section 4.3.2 & 4.4.3
Appendix 2: 2(i)(vii)	Particulars of the public participation process that will be conducted during the EIA process.	Section 5
Appendix 2: 2(i)(viii)	Description of the tasks that will be undertaken as part of the EIA process.	Section 5
Appendix 2: 2(i)(ix)	Identify suitable measures to avoid, reverse, mitigate or manage identified impacts and to determine the extent of the residual risks that need to be managed and monitored.	Will be included in the EIAR
Appendix 2: 2(j)	An undertaking under oath or affirmation by the EAP in relation to the correctness of the information provided in the report, the inclusion of comments and inputs from stakeholders and interested and affected parties and any information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by interested or affected parties.	Section 11
Appendix 2: 2(k)	An undertaking under oath or affirmation by the EAP in relation to the level of agreement between the EAP and interested and affected parties on the plan of study for undertaking the environmental impact assessment	Section 11
Appendix 2: 2(l)	Any specific information required by the competent authority.	N/A
Appendix 2: 2(m)	Any other matters required in terms of Sections 24 (4)(a) and (b) of NEMA.	N/A

1.5 Assumptions and Limitations

The DSR has been prepared for the purposes as outlined in the proposal prepared by Advisian for the scope of work as presented by the client. In addition, the following assumptions and limitations apply to this report:

- All information regarding the proposed development and its associated infrastructure was provided by the applicant/proponent. This includes the project description, infrastructure layout information, motivation and alternatives considered;
- Where data supplied by applicant/proponent or other specialist consultants, has been used, it has been assumed that the information is correct unless otherwise stated. No responsibility is accepted by Advisian for incomplete or inaccurate data supplied by external parties;
- It is Advisian's professional opinion that the adopted predictive methods are sufficient and adequate for rating the significance of the impacts during the EIR phase; and
- The information and data included in the DSR is based upon information that existed at the time of the compilation of this report.

2 LEGAL FRAMEWORK

2.1 Introduction

This section provides a high-level overview of environmental legislation, policies and plans, which have relevance to this proposed development.

2.2 Applicable Legislation

2.2.1 The Constitution of the Republic of South Africa (Act 108 of 1996)

The Constitution of South Africa (Act No. 108 of 1996) was first adopted by the Constitutional Assembly on 8 May 1996. This Constitution represents the collective wisdom of the South African people and has been arrived at by general agreement, through an extensive public participation process. This is the supreme law in South Africa and no other law or government action can overrule the Constitution or be in conflict with it. The Constitution defines the provisions for environmental protection, the roles of the different spheres of government (national, provincial and local), the need for co-operative governance and the mechanisms for co-operative governance.

The following Constitutional rights as per the Bill of Rights have reference to this proposed development.

Section 24 of the Constitution States that:

> *"Everyone has the right-*
>
> *a) to an environment that is not harmful to their health or well-being; and*
>
> *b) to have the environment protected, for the benefit of present and future generations, through reasonable legislature and other measures that-*
>
> *(i) prevent pollution and ecological degradation;*
>
> *(ii) promote conservation; and*
>
> *(iii) secure ecological sustainable development and use of natural resources while promoting justifiable economic and social development."*

Section 32 of the Constitution States that:

1) *"Everyone has the right of access to*
   (a) *any information held by the State; and*
   (b) *any information that is held by another person and that is required for the exercise or protection of any rights.*

Section 33 of the Constitution States that:

1) *"Everyone has the right to administrative action that is lawful, reasonable and procedurally fair."*

In addition, the Constitution has placed an obligation on the legislature to enact and give effect to these rights, by providing for reasonable legislative and other measures. In response to this obligation various additional statutes have been promulgated in order to manage the various impacts within the realm and objective of the Constitution, these are briefly discussed below.

2.2.2 National Environmental Management Act, as amended (Act 107 of 1998) (NEMA)

The NEMA is the overarching framework Act for environmental management in South Africa. NEMA includes provisions which must be considered in order to give effect to the principles of integrated environmental management. These provisions are contained in Section 2 of the Act and will be considered during the EIA process.

Chapter 5 of the NEMA is related to Integrated Environmental Management (IEM), it sets out the general objectives (Section 23) and procedures for IEM and focuses on promoting the use of appropriate environmental tools, such as EIA's (Section 24).

Furthermore, in terms of Section 24(2) of the Act the Minister may identify activities which may have detrimental impact on the receiving environment and may not commence without prior authorisation. The Minister thus published Listing Notice 1, 2 and 3 (i.e. GNR 327, 324 and 325) under Sections 24(2), 24(5), 24D and 44 of the Act, these have been reviewed to assess its relevance in terms of the proposed development.

The following listed activities have been triggered for the proposed **ash dam upgrade project** in terms of the 2014 EIA Regulations (as amended):

Activity No(s):	Relevant Activity as set out in Listing Notice 1 (GN No. 327)	Describe the portion of the proposed project to which the applicable listed activity relates
12	The development of (i) dams or weirs, where the dam or weir, including infrastructure and water surface area, exceeds 100 square metres; or (ii) infrastructure or structures with a physical footprint of 100 square metres or more; where such development occurs (c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse.	From desktop studies, the RD 1 will be situated within 32m of a non-perennial watercourse. The proposed ash dams will have a footprint of more than 100 m^2: RD1 – 80 000 m^2 RD2 – 19 300 m^2
63	The expansion of facilities or infrastructure for the transfer of water from and to or between any combination of the following— (i) water catchments; (ii) water treatment works; or (iii) impoundments; where the capacity will be increased by 50 000 cubic metres or more per day but excluding water treatment works where water is treated for drinking purposes.	Applicable to all ash and rehabilitation dams as there may be a need to transfer water from one dam to the other in some cases. A pumphouse will be used if one dam is full and pump the overflow to another dam. It may be required to upgrade pipe size and motor sizes due to the increase in volume in the dams.
66	The expansion of a dam where (i) the highest part of the dam wall, as measured from the outside toe of the wall to the highest part of the wall, was originally 5 metres or higher and where the height of the wall is increased by 2,5 metres or more; or (ii) where the high-water mark of the dam will be increased with 10 hectares or more	AD 1 has a current maximum wall height of 5m, and the proposed compartment wall height will be 7.6m, which separates the Ash Dam from the Rehabilitation Dam
Activity No(s):	**Relevant Activity as set out in Listing Notice 2 (GN No. 325)**	**Describe the portion of the proposed project to which the applicable listed activity relates**
6	"The development of facilities or infrastructure for any process or activity which requires a permit or license or an amended permit or license in terms of national or provincial legislation governing the generation or release of emissions, pollution or effluent".	Development of two new Rehabilitation Dams and the upgrade of the two existing ash dams for the Majuba Power Station continuous ADF.
16	The development of a dam where the highest part of the dam wall, as measured from the outside toe of the wall to the highest part of the wall, is 5 metres or higher or where the high-water mark of the dam covers an area of 10 hectares or more.	RD 1 wall height will be a maximum of 7 m, whilst the compartment wall will be a maximum height of 7.6 m. AD 1 dam wall height will be increased from 5 to 7 m in height.

In terms of the listed activities above, the integrated environmental authorisation application will require that a full **Scoping and Environmental Impact Reporting** (S&EIR) process be undertaken.

In addition, as of 08 December 2014, the Ministers responsible for Environmental Affairs, Mineral Resources and Water and Sanitation have agreed on a "One Environmental System". Whereby all environmental related aspects will be regulated through one processing and decision-making system, this being the NEMA EIA process.

2.2.3 National Management: Waste Act No 59 of 2008 (NEM: WA)

Reasonable measures to avoid the generation of waste and the minimization of the toxicity and amounts of waste generated and also to reduce, recycle and recover waste. Waste must be disposed of in an environmentally sound manner. It must not cause a nuisance through noises, odour or visual impacts

The following listed activities may apply to the proposed **ash dam upgrade project**:

Category A: **Activity 13**: The expansion of a waste management activity listed in Category A or B of this Schedule which does not trigger an additional waste management activity in terms of this Schedule
The existing ash dam capacity at Majuba Power Station will be expanded by construction of two Rehabilitation Dams and two ash dams. The proposed ash dams will have a capacity of:
RD 1 – 240 000 m^2 RD 2 – 65 000 m^2 *AD 1 – 150 000 m^2 AD 2 – 390 000 m^2*
Category B Activity 7 The disposal of any quantity of hazardous waste to land.
The proposed dams will contain water that qualifies as Hazardous Waste in terms of the legislation.
Category B. **Activity 1:** Storage of hazardous waste in lagoons excluding storage of effluent, wastewater or sewage. The construction of a facility for a waste management activity listed in Category B of this Schedule (not in isolation to associated waste management activity).
The proposed dams will contain water that qualifies as Hazardous Waste in terms of the legislation. Hazardous waste from the ADF will be disposed of on the ash dump of general waste at any one time, excluding the storage of waste in the proposed ash dams/lagoons

The process to amend the existing Waste Management Licence for the ADF will be confirmed with the DEA: Waste Management Directorate.

2.2.4 National Water Act (Act 36 of 1998) (NWA)

The proposed ash dam upgrade project may require a **Water Use Licence Application** (WULA) for the following Section 21 Water Uses:

- 21 (c): impeding or diverting the flow of water in a watercourse;
- 21(i): Altering the bed, banks, course or characteristics of a watercourse;
- 21 (f): discharging waste or water containing waste into a water resource through a pipe, canal, sewer, sea outfall or other conduit; and
- 21 (g): disposing of waste in a manner which may detrimentally impact on a water resource.

2.2.5 WULA is been applied for separately outside the EIA scope. National Environmental Management: Biodiversity Act (Act 10 of 2004) (NEM:BA)

Sections 52(1)(a) and 56(1) of the NEM:BA state that the Minister may publish national lists of species and ecosystems, respectively, that are threatened or are in need of protection. A list of species that are threatened or are in need of protection was published in GNR 151 (dated, 23 February 2007), with GNR 152 (dated, 23 February 2007) detailing the regulations relating to such species. These regulations are imposed where restricted activities involve specimens of listed threatened or protected species. GNR 152 defines the requirements of permitting and the process related thereto.

An aquatic and terrestrial **ecological assessment** considering the presence of any floral and faunal species of concern on the Ash and Rehabilitation Dam sites will be undertaken.

2.2.6 National Heritage Resources Act (Act 25 of 1999) (NHRA)

Section 34 and 38 of the NHRA detail specific activities that may require that a **heritage impact assessment** be completed for the Ash and Rehabilitation Dams site.

The heritage activities identified as potentially applicable for the proposed development are as follows

- 1(a): *"The construction of a road, wall, power line, pipeline, canal or other similar form of linear development or barrier exceeding 300 m in length"*; and
- 1(c): *"Any development or other activity which will change the character of a site:*
  - *exceeding 5 000 m^2 in extent; or*
  - *involving three or more existing erven or subdivisions."*
- 1(d): *"The re-zoning of a site exceeding 10 000 m^2 in extent"*;
- 2: *"Any development of the site where "development" means any physical intervention, excavation, or actions, other than those caused by natural forces, which results in a change to the nature, appearance or physical nature of a place, or influences its stability and future well-being, including*:
  - *Construction, alteration, demolition, removal or change of use of a place or a structure at a place; or*
  - *Carrying out any works on or over or under a place; or*
  - *Any change to the natural or existing condition or topography of land; or*
  - *Any removal or destruction of trees, or removal of vegetation or topsoil".*

Section 48(2) requires a permit from the SAHRA to perform such actions at such time and subject to such terms, conditions and restrictions or directions as may be specified in the permit.

2.3 Guidance Documents

The Department of Environmental Affairs (DEA) have drafted an Integrated Environmental Management Information Series (latest draft dated 2006), which comprised of 23 information documents. The documents were drafted as sources of information about concepts and approaches to Integrated Environmental Management (IEM). The IEM is a key instrument of NEMA and provides the overarching framework for the integration of environmental assessment and management principles into environmental decision-making. The aim of the information series is to provide general guidance on techniques, tools and processes for environmental assessment and management. The information documents which are of relevance to this proposed development are listed as follows:

- Information Series 1: Screening;
- Information Series 2: Scoping;
- Information Series 3: Stakeholder Engagement;
- Information Series 4: Specialist Studies;
- Information Series 5: Impact Significance;
- Information Series 7: Cumulative Effects Assessment;
- Information Series 11: Criteria for determining Alternatives in EIA;
- Information Series 12: Environmental Management Plans/Programmes; and
- Information Series 13: Review in Environmental Impact Assessment.

2.3.1 Local Municipal Integrated Development Plan

The municipal Integrated Development Plan (IDP) provides an overall framework for developments within municipal jurisdiction. The Majuba Power Station and Ash and Rehabilitation Dams site fall within the Pixley ka Seme Local Municipality IDP.

3 RECEIVING BASELINE ENVIRONMENT

3.1 Introduction

This section provides a general description of the receiving environment in which the proposed development will be located. The purpose of this section is to provide a description of the baseline environment in which the proposed infrastructure will exist and operate. Potential sensitive issues/areas are also identified which need to be considered when conducting the EIA and designing the various components of the project (particularly the pipeline routing).

3.2 Biophysical Environment

3.2.1 Climate

The Majuba Power Station area is characterised by moderate summer rainfall with an average rainfall of 658 mm per annum. Mean temperatures reach a maximum during December/January of 37.6 and a minimum in June/July of -1.6.

The winds in the region are usually north-westerly and reach their maximum speed in the afternoon. During thunderstorms, strong and gusty south-westerly winds are common but short in duration. Local thunderstorms and showers are responsible for majority of the summer precipitation.

3.2.2 Rainfall

The study area falls within a summer rainfall region, with over 85% of the annual rainfall occurring during the October to March period. Between October 2011 and March 2012, monthly rainfall ranged between 21 and 128 mm. Figure 3 shows the monthly rainfall for the Majuba Power Station experienced during the period August 2011 to July 2012.

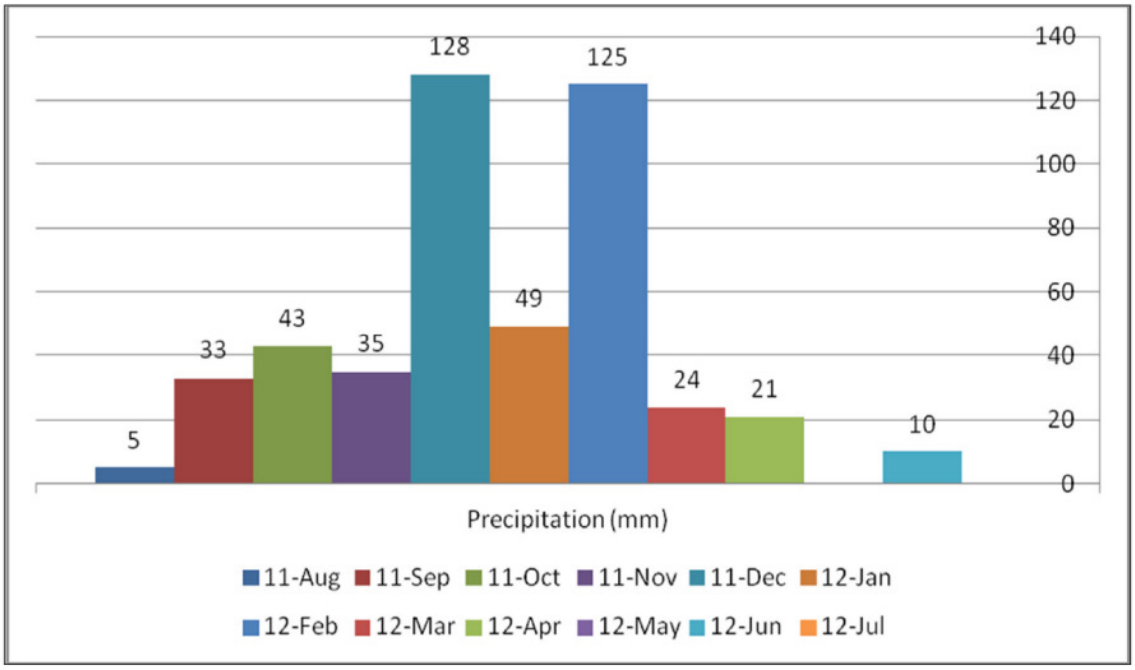

Figure 3: Monthly rainfall as measured at Majuba Power Station (mm/annum) for period August 2011 - July 2012

3.2.3 Temperature

Based on the measured data at Eskom's Majuba monitoring station for the period 2009- 2011. Average daily maximum temperatures range from 34.6°C in December to 22.8°C in July, with daily minimums ranging from 14.6°C in January to 2.6°C in June (**Figure 4**)

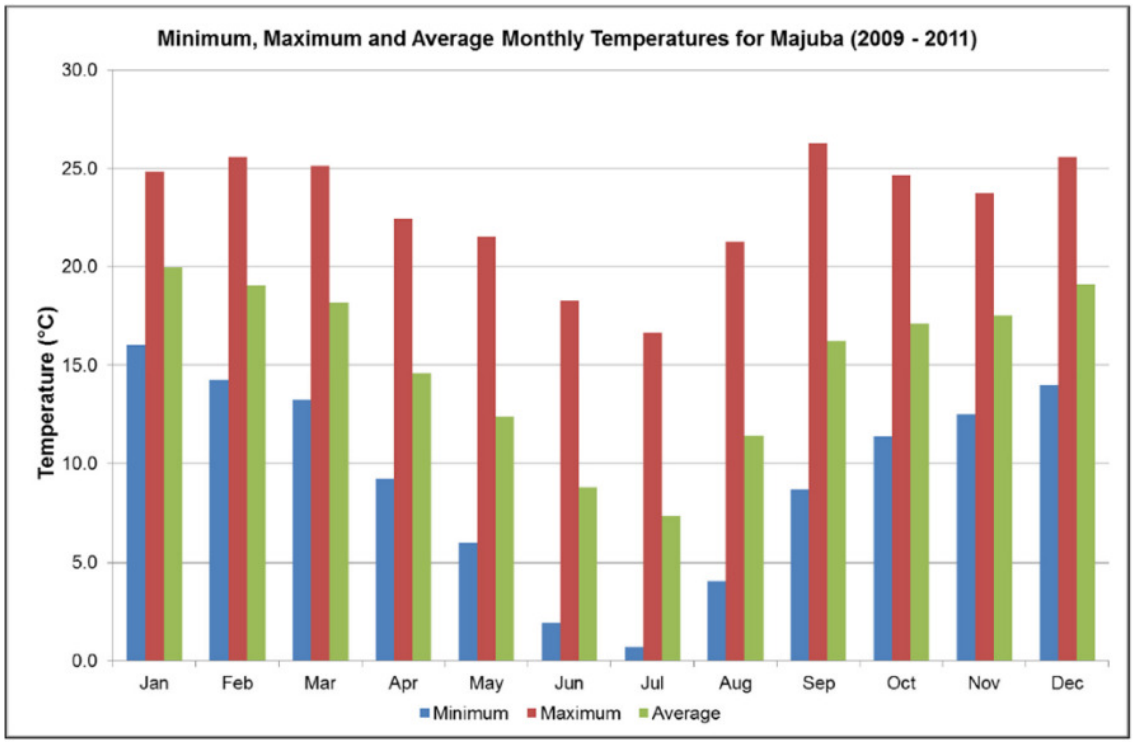

Figure 4: Average monthly maximum, minimum and mean temperatures for Majuba Power Station

3.2.3.1 Wind

The prevailing wind direction is recorded as being co-dominant, with both easterly and west north-westerly winds. **Figure 5** shows the period, day-time and night-time wind roses for the Majuba Power Station.

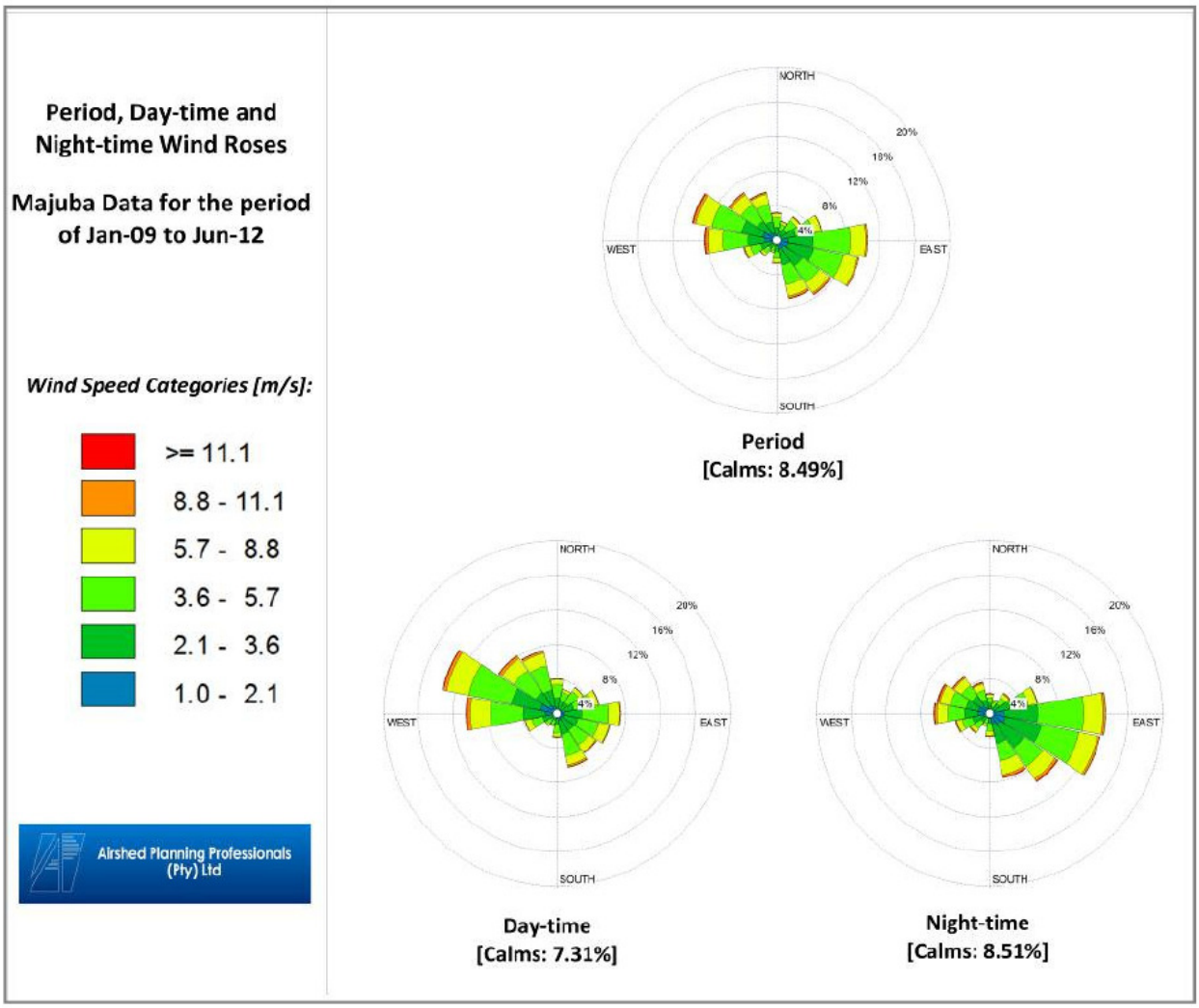

Figure 5: Average monthly maximum, minimum and mean temperatures for Majuba Power Station

3.2.4 Geology and Land use

Majuba Power Station lies on the north-eastern rim of the Great Karoo Basin which comprises predominantly sediments of the Karoo Supergroup. The Karoo dolerite have intruded these sediments along planes of weakness and form a large part of the Karoo rocks in the area.

The Karoo sediments that underlie the site belong to the Volksrust Formation (Ecca Group). The sediments consist of light to dark bluish grey micaceous mudrocks and shales with subordinate and intercalated siltstone/sandstone. Over much of the Karoo basin, the sedimentary rocks are horizontally bedded or have very gentle dips. Sandstones comprise a large portion of the Karoo sediments and are generally closely intercalated with the mudrocks and siltstones. The intruding dolerites dykes and still comprised dark-coloured, crystalline, igneous basaltic rocks weathering as prominent ridges or hills.

The geology of the study area is shown in **Figure 6**.

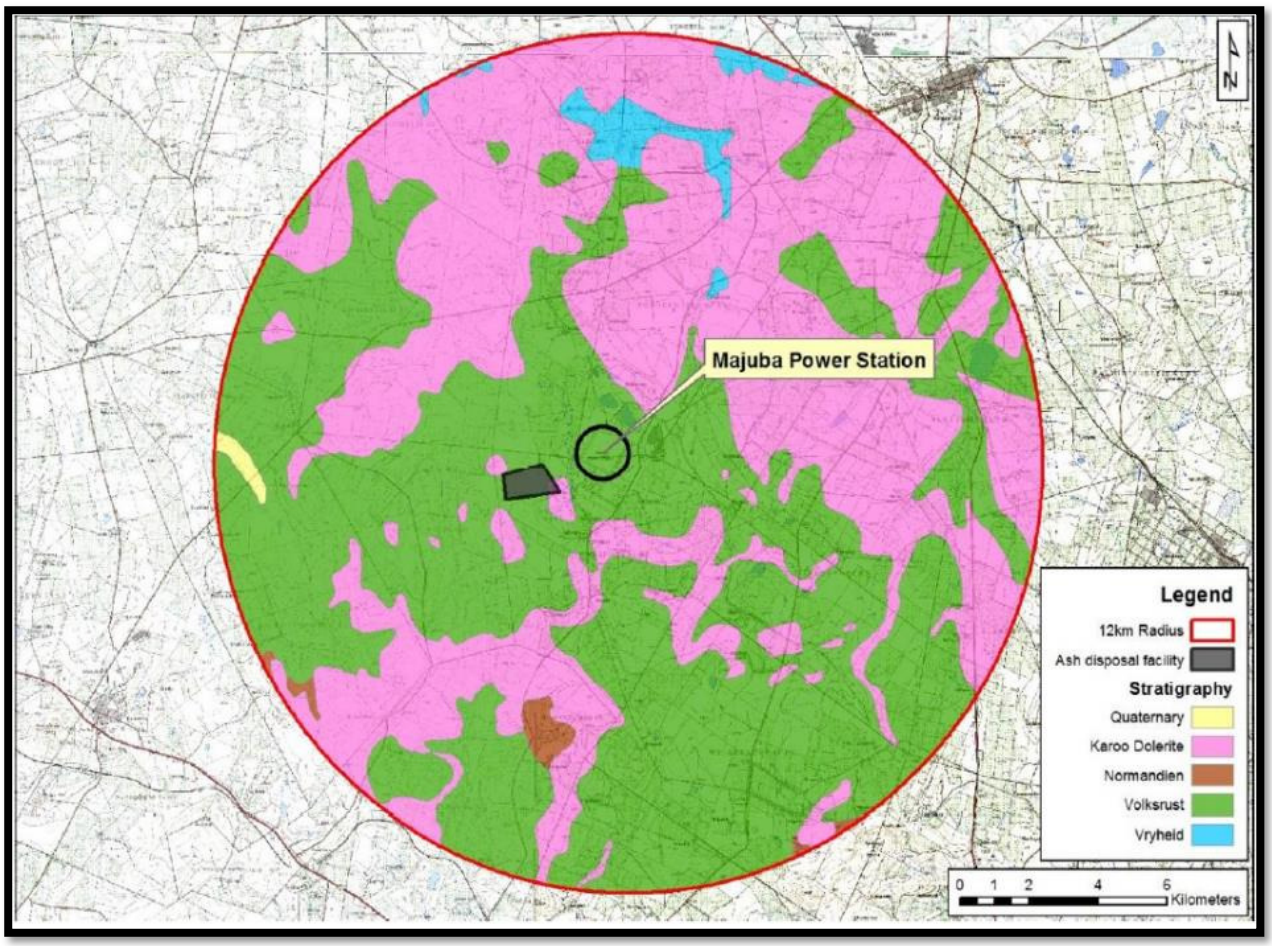

Figure 6: Geology of the study area

Land cover categories for the study area are presented in **Figure 7.** For the purpose of this assessment, land cover is loosely categorised into classes that represent natural habitat and categories that contribute to habitat degradation and transformation on a local or regional scale.

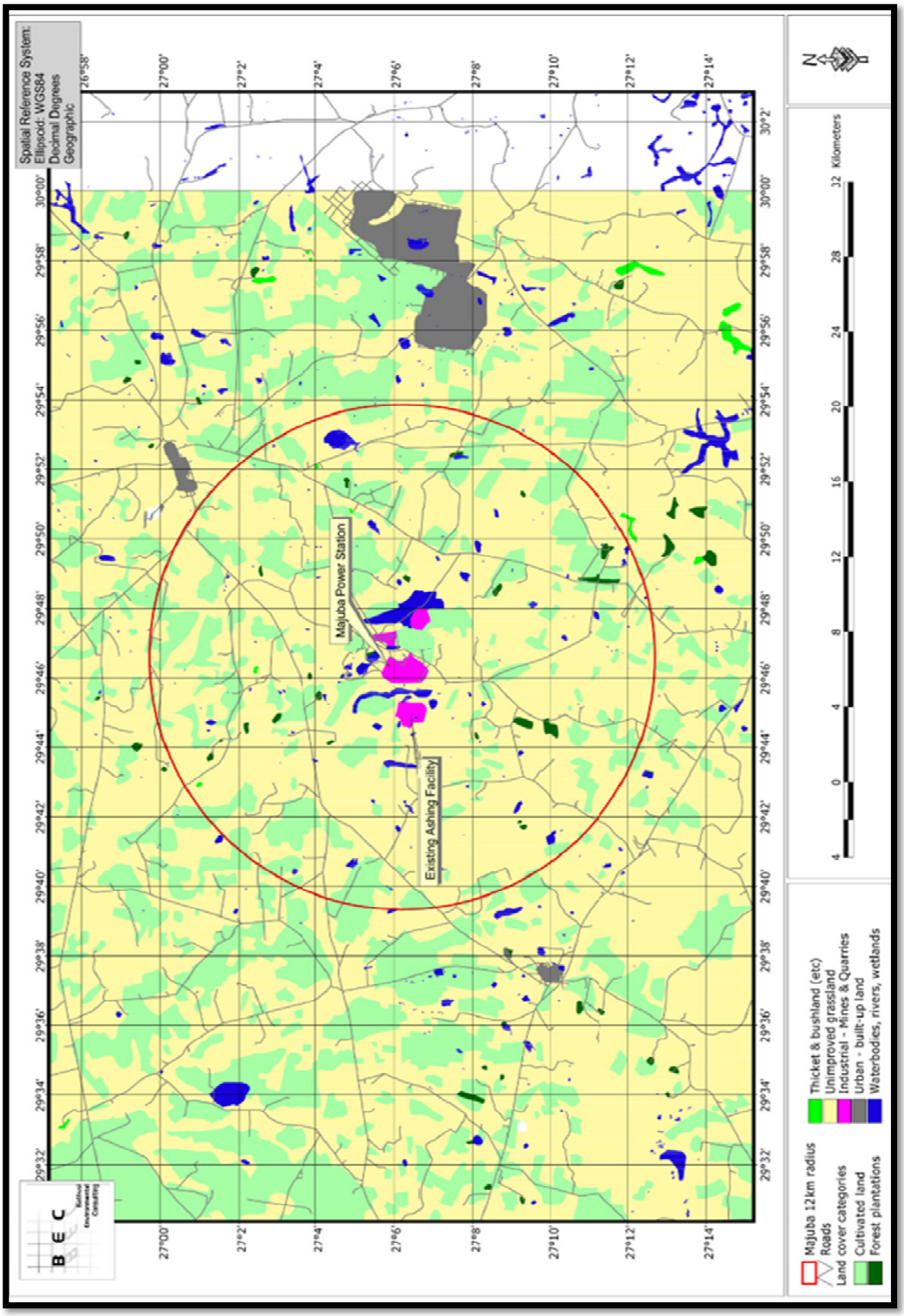

Figure 7: Land cover categories in the study area

The study area is situated within the Pixley Ka Seme Municipality, which comprises a total of 522,723ha. The BGIS (2007) assessment indicates that approximately 88% of the municipal area is currently considered untransformed. This figure is however regarded an overestimation of the true extent of remaining natural (pristine) grassland habitat in the region.

The majority of the study area is characterised by high levels of habitat transformation, isolation and habitat fragmentation, resulting from persistent increases in mining and agricultural activities, urban developments, linear infrastructure and poor management practices.

The effects of commercial agriculture (maize production), infestation by alien invasive trees and recent increase in mining activities are evident from the mosaical appearance of land cover in the immediate region. Other noteworthy land transformation effects result from mining, industrial and urban development. Road and railway infrastructure in the region caused a moderate level of habitat fragmentation and isolation.

3.2.5 Flora

Enviro-Insight CC completed a terrestrial ecological (flora) assessment on the 7th of November 2018. The field survey focused on a classification of the observed fauna and flora, habitats as well as the actual and potential presence of species of conservation concern (SCC) either classified as Threatened by the IUCN (2018) or protected by the NEM: BA. An analysis of the diversity and ecological integrity of the habitats present on site was also performed.

A literature review was also conducted as part of the desktop study to identify the potential habitats and flora SCC present within the study area. The Red List of South African Plants website (SANBI, 2018) was utilized to provide the most current account of the national status of flora. Relevant field guides and texts consulted for identification purposes in the field during the surveys included the following:

- Guide to grasses of Southern Africa (Van Oudtshoorn, 1999);
- Field Guide to the Wild Flowers of the Highveld (Van Wyk & Malan, 1998);
- Field guide to trees of southern Africa (Van Wyk & Van Wyk, 2013); and
- Problem plants and alien weeds of South Africa (Bromilow, 2010).
- The Vegetation of South Africa, Lesotho and Swaziland (Mucina & Rutherford, 2006); and
- Red List of South African Plants (Raimondo et al., 2009; SANBI, 2018).

The study area falls entirely within the Amersfoort Highveld Clay Grassland vegetation unit (represented in **Figure 8**).

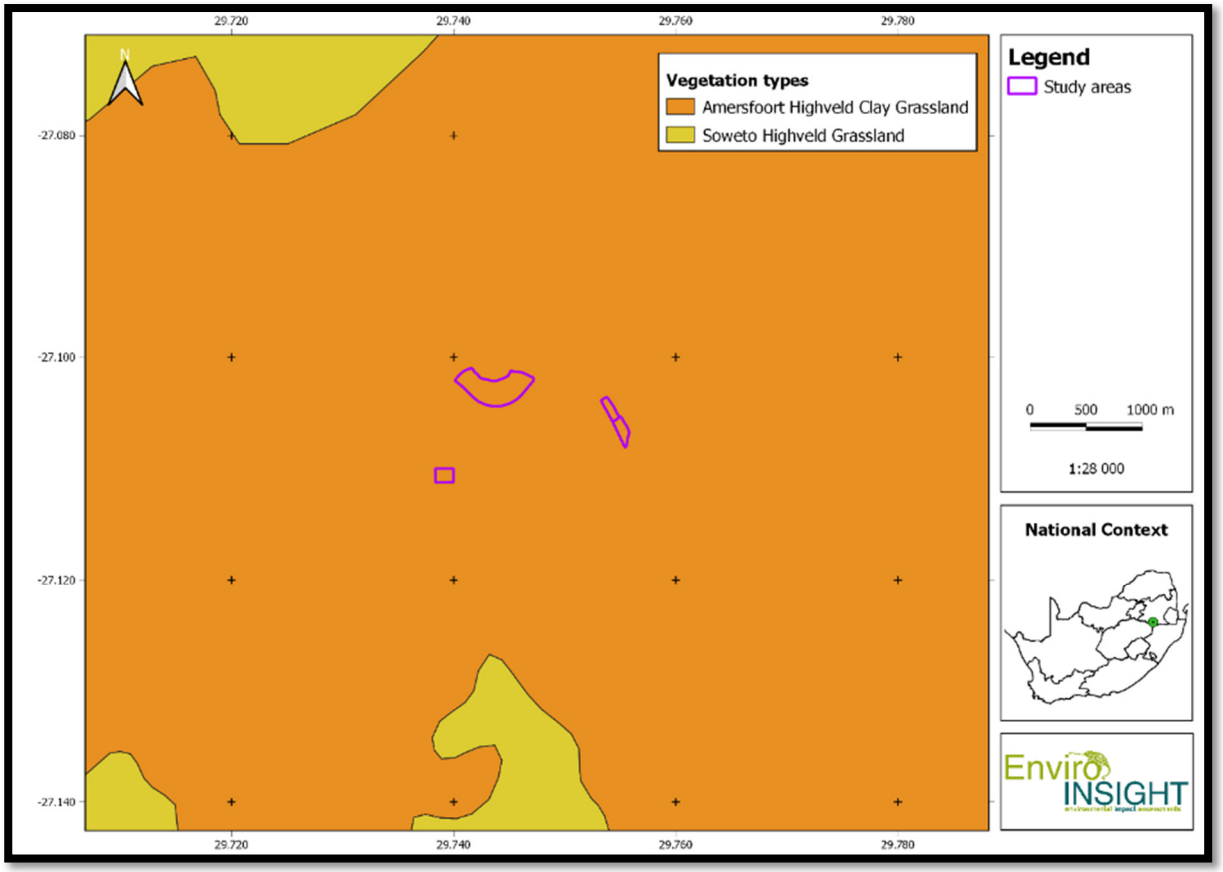

Figure 8: Regional vegetation types within the study area.

The vegetation is described as undulating grassland plains, with localised patches of dolerite outcrops in certain areas. The landscape is typically comprised of short closed grassland cover consisting mainly of *Themeda triandra*, which is often severely grazed to form a short lawn. This vegetation unit is considered Vulnerable with the conservation target set at 27 % of which none is currently protected. Approximately 25 % of the vegetation type is transformed of which 22 % is through cultivation, while exotic *Acacia* species (Silver and Black Wattle) and *Salix babylonica* invade drainage lines (Mucina & Rutherford, 2006). Overgrazing has led to the invasion of *Seriphium plumosum* (bankrupt bush).

According to the Mpumalanga Terrestrial Biodiversity Conservation Plan) map (refer to **Figure 9**), the study area intersects both "Least Concern" and "No Natural Habitat Remaining" areas.

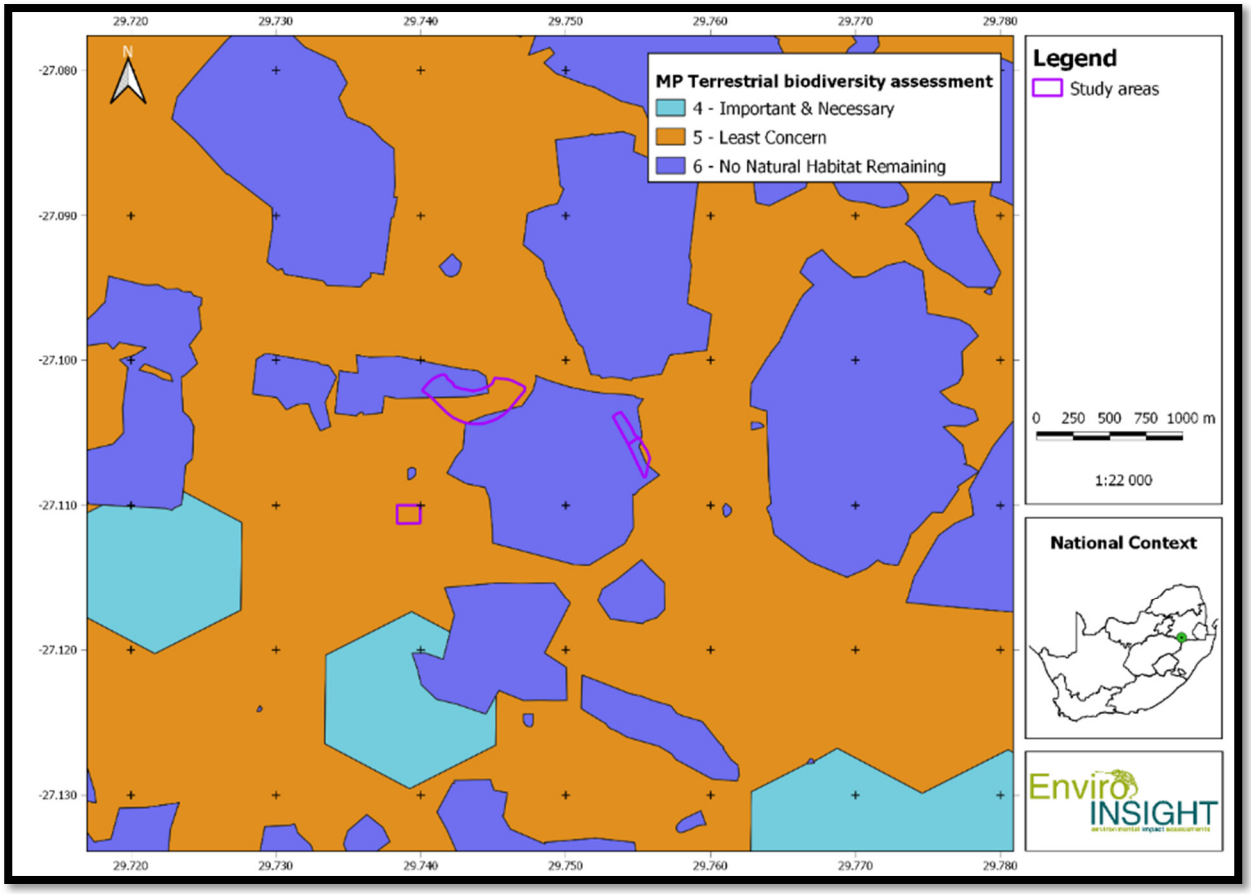

Figure 9: Study area in relation to Mpumalanga Terrestrial Biodiversity Conservation Plan.

Potential plant Species of Conservation Concern are indicated in **Table 9**.

Table 9: Potential plant Species of Conservation Concern

Species	Conservation status	Habitat description	Present on site
Aloe kniphofioides	Vulnerable – species threatened by habitat loss through transformation and degradation, particularly from open cast coal mining in southern Mpumalanga. Populations declining from poor recruitment due to loss of pollinators and inappropriate fire management (species dependent on fire for flowering)	Occurs in high altitude montane grasslands (Flowering period: July – March)	No
Aspidoglossum demissum	Vulnerable – this species is known from only four localities all occurring within the Wakkerstroom district (Mpumalanga). Grasslands are susceptible to heavy grazing	Near edges of sheetrock on mountain summits, growing approximately 2000 m in Wakkerstroom Montane Grassland (Flowering period: November – December)	Unlikely

Species	Conservation status	Habitat description	Present on site
Aspidoglossum xanthosphaerum	Vulnerable – Habitat threatened by wetland drainage for crop cultivation and by trampling/grazing from livestock	Associated with marshy sites at around1800 m (Flowering period: September – December)	Unlikely
Cyphia bolusii	Vulnerable – as a result of urban expansion, mining and alien plant invasion	Near rocky outcrops growing predominately on serpentine soils at altitudes 750 – 1700 m (Flowering period: September – March	No
Gladiolus robertsoniae	Near threatened – predominately from agriculture, but recently through intensive coal mining. In addition, overgrazing and trampling by cattle particularly in the Amersfoort area. Populations in Gauteng have declined through urban expansion	Moist highveld grasslands, wedged in rock crevices, mostly dolerite outcrops. (Flowering period: October – February)	No
Kniphofia typhoides	Near threatened – reports suggest extensive declines in populations from habitat loss to coal mining, overgrazing by cattle and urban expansion. In Mpumalanga, habitat loss is primarily mediated through alien plant invasion	Associated with low lying wetlands and seasonally wet areas in *Themeda triandra* dominant grasslands on heavy black clay soils, tends to disappear from degraded grasslands. (Flowering period: February – March)	Unlikely
Nerine platypetala	Vulnerable – habitat loss through extensive harvesting and land degradation	Found predominately in perennial marshes (Flowering period: September – February)	No
Stenostelma umbelluliferum	Near threatened – the habitat is potentially threatened by urban expansion and industrial development has led to the establishment of highly fragmented populations. Loss of habitat through the removal of topsoil associated with open-cast mining. Agriculture is also a threat because of the highly fertile soils in which this species occurs	Occurs in deep black turf, mainly near drainage lines on vertical soils with high clay content in grassland. Plants grow either in full sun or light shade. (Flowering period: September – March)	Unlikely

During the field survey no plants SCC were observed within the study area as no suitable habitat for these plant species is present within the proposed Ash and Rehabilitation Dams area.

3.2.6 Fauna

Enviro-Insight CC completed a terrestrial ecological (fauna) assessment on the 7th of November 2018. A rapid field survey was conducted within the regional vegetation type (Amersfoort Highveld Clay Grassland) from which a series of conclusions and subsequent recommendations were derived to inform the findings of the study.

The following databases, field guides and texts were consulted for the desktop and literature study and included the following:

- The online virtual museum facility of the Animal Demography Unit of the University of Cape Town (http://vmus.adu.org.za) was queried for the presence of mammal, reptile and amphibian SCC within the study area;
- Information relating to avifauna SCC was obtained from the Southern Africa Bird Atlas;
- Mammal SCC information was obtained from Child et al., (2017);
- Reptile SCC information was obtained from Bates et al., (2014); and
- Amphibian SCC information was obtained from Du Preez & Carruthers (2017).

Faunal SCC (which were observed or could potentially occur within the study area) are presented in **Table** 10.

Table 10: Potential Faunal Species of Conservation Concern

Species	Conservation status	Present on site
African Clawless Otter (*Aonyx capensis*)	Near-Threatened	Confirmed at two of the existing PCDs (scat). Unlikely to be negatively affected by proposed Ash and Rehabilitation Dams project in the long-term, only temporary disturbance during construction anticipated.
Serval (*Leptailurus serval)*	Near-Threatened	Almost certainly occurs in the area and will forage around the PCDs but does not exclusively rely on them. Unlikely to be negatively affected by proposed expansion of PCDs in the long-term, only temporary disturbance during construction anticipated.
Southern African Vlei Rat (*Otomys auratus)*	Near-Threatened	Almost certainly occurs in the areas surrounding the PCDs as well as the wetlands and drainage areas Unlikely to be negatively affected by proposed Ash And Rehabilitation Dams project in long-term, only temporary disturbance during construction anticipated.
Giant Girdled Lizard (*Smaug giganteus*)	Vulnerable	Although found within the study area, no suitable habitats exist for this species in the areas earmarked for the Ash And Rehabilitation Dams project.

Species	Conservation status	Present on site
Blue Korhaan *(Eupodotis caerulescens)*	Vulnerable	Observed in the grasslands adjacent to the power station property. Wil not be directly affected by the Ash And Rehabilitation Dams project. However, the structural failure and/or flooding of the PCDs could result in significant habitat loss for this species.
Red-footed Falcon (*Falco vespertinus*)	Near-Threatened	Migratory species foraging in the area, will not be affected by the Ash and Rehabilitation Dams project.

3.2.7 Ground Water

Advisian completed a desktop groundwater assessment for the study site on the 30th of November 2018. The findings of this survey are discussed in detail below.

The Majuba Power Station lies within the C11J quaternary catchment. Within this catchment two aquifer systems are present underlying the site. These aquifers comprise an upper and lower / deeper system. Groundwater is predominantly topographically controlled. However, the geological structures, such as dolerite dykes, also have a very important influence on the flow directions and flow velocities of the groundwater.

The underlying geology determines the geohydrological conditions as groundwater in the area predominantly is contained in fractures, faults, joints and dykes or contacts between the sediments and the dolerite.

The upper aquifer is associated with the weathered zone. Water is often found within a few metres of the surface. Rainfall infiltrates into the weathered material and is constrained by a lower impermeable shale layer or dolerite. Groundwater movement above this this shale or dolerite is lateral in the general direction of the surface slope. At surface, this water appears as either base flow in nearby streams or as springs/seepage. Below the weathered zone, within the consolidated formations, the deeper aquifer is found occurs in fractures, joints and structural openings in the rock. Dolerite and sandstone show better development of these structures; therefore, these formations show higher water-yielding properties. Yields from boreholes vary from 0.01 l/sec to 16 l/sec in the deeper aquifer from sandstone or dolerite.

Groundwater Levels and Flow

On average the water levels within Majuba Power Station area at a depth of 3.06 mbgl with a minimum depth of 0.31 mbgl between ADF and Witbankspruit and maximum depth of 11.75mbgl is observed between the ADF and Palmietspruit.

Ground Water Quality

Two types of groundwater have been observed to occur in the Majuba Power Station area. These two types are:

- Calcium-bicarbonate (Ca-HCO_3) water which originates as runoff (Ash moisture, dust suppression, etc.) and enters the groundwater system through Ash Dump area. This is typical of shallow, fresh groundwater's, implicating that it is freshly recharged water; and

- Sodium-bicarbonate (Na-HCO_3) waters – this type of groundwater occurs in the deeper aquifer within the fracture rock aquifer in the groundwater found in sandstone and dolerite.

Groundwater monitoring has been occurring on the site since 2010. Currently, no change in the physical or chemical quality has been observed for the site (See Specialist Study, report attached)

3.2.8 Surface Water / Wetlands

Enviro-Insight CC completed an aquatic ecological (wetland) assessment on the 7th of November 2018. The findings of this survey are discussed in detail below.

The area of interest falls entirely within quaternary catchment C11J in the Vaal Water Management Area. All watercourses draining the project area and its immediate vicinity ultimately flow into the Geelklipspruit River which flows in a north-westerly direction and joins the Vaal River (**Figure 10**).

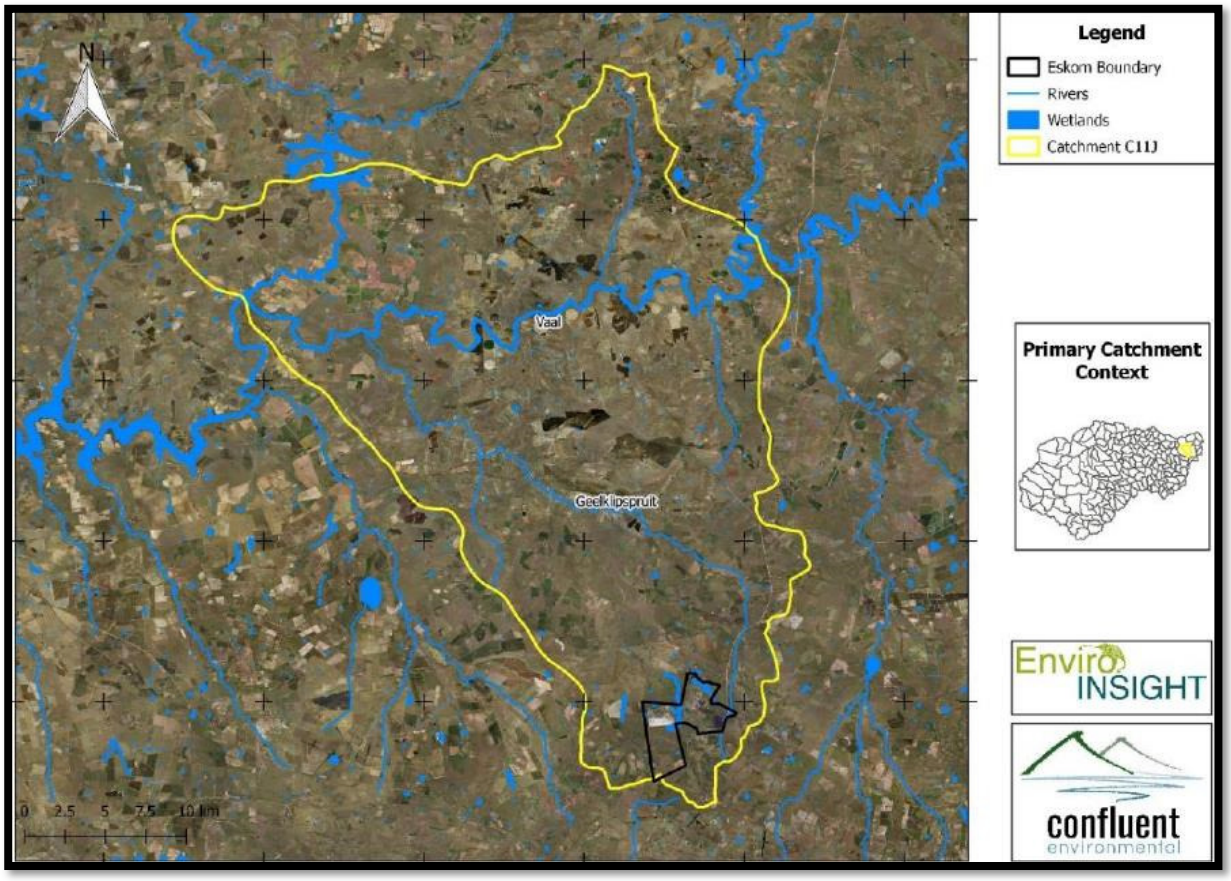

Figure 10: Location of Majuba power station property boundary within quaternary catchment C11J.

Surface water resources falling within the project area and potentially affected by the Ash and Rehabilitation Dams development are indicated in **Figure 11** and include:

- Existing pollution control dams Ash Dam 1, Ash Dam 2 (both of which will be extended) and Ash Dam 3 (which is not affected by the development);
- A non-perennial river originating from the vicinity of Ash Dam 3, draining westwards outside of the boundary of the property;
- A non-perennial tributary located to the north of the property that falls outside of the property, draining in a northerly direction; and

- A series of wetland seeps located to the east of the Ash Dam Facility.

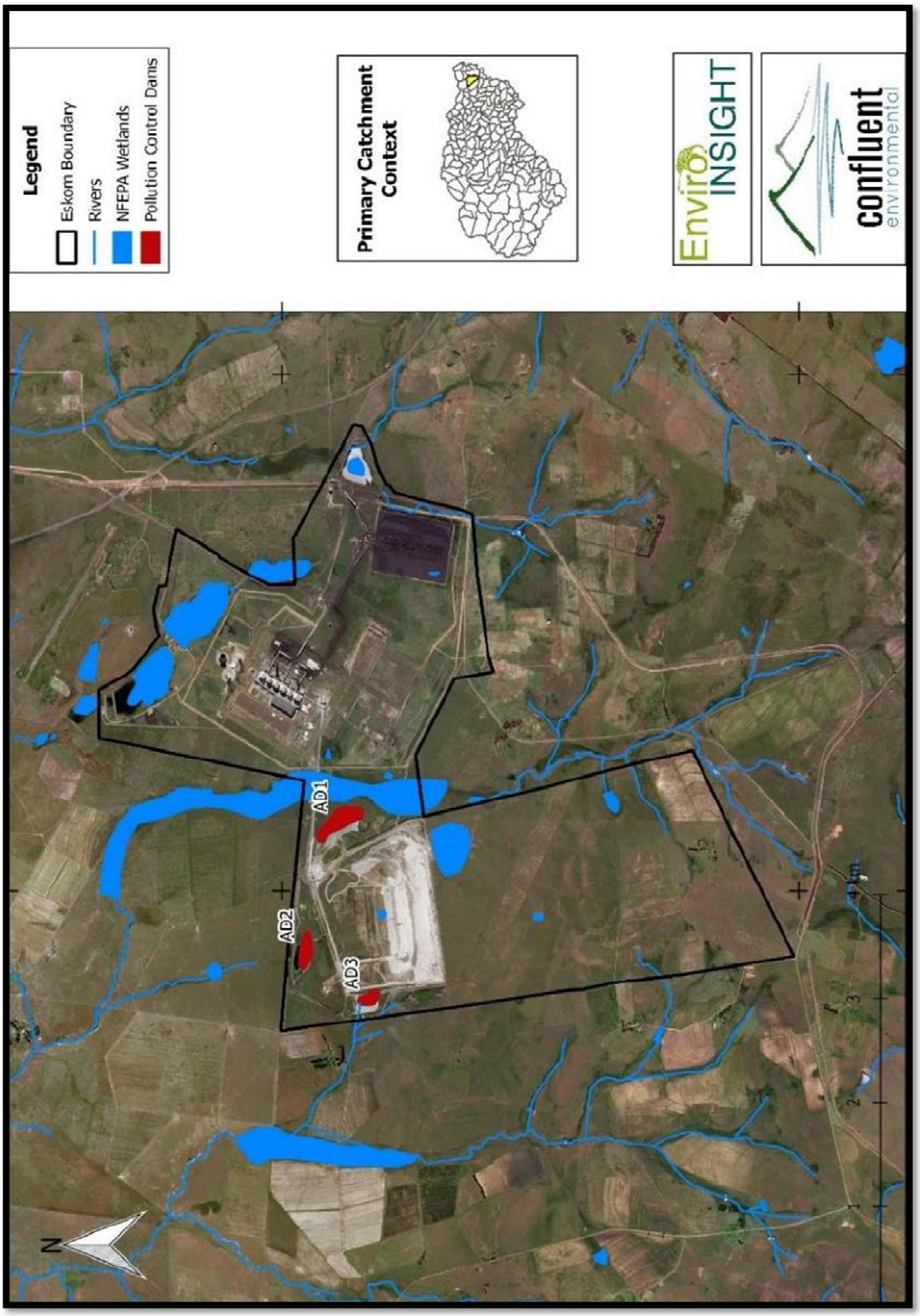

Figure 11: Freshwater resources potentially affected by the development

The majority of wetlands throughout the study area have been categorised as being in a near natural state (Present Ecological State of A/B) (Figure 12). The non-perennial watercourse draining to the west of the ADF (originating from the vicinity of AD3) is classified as a seep wetland, also with a PES of A/B.

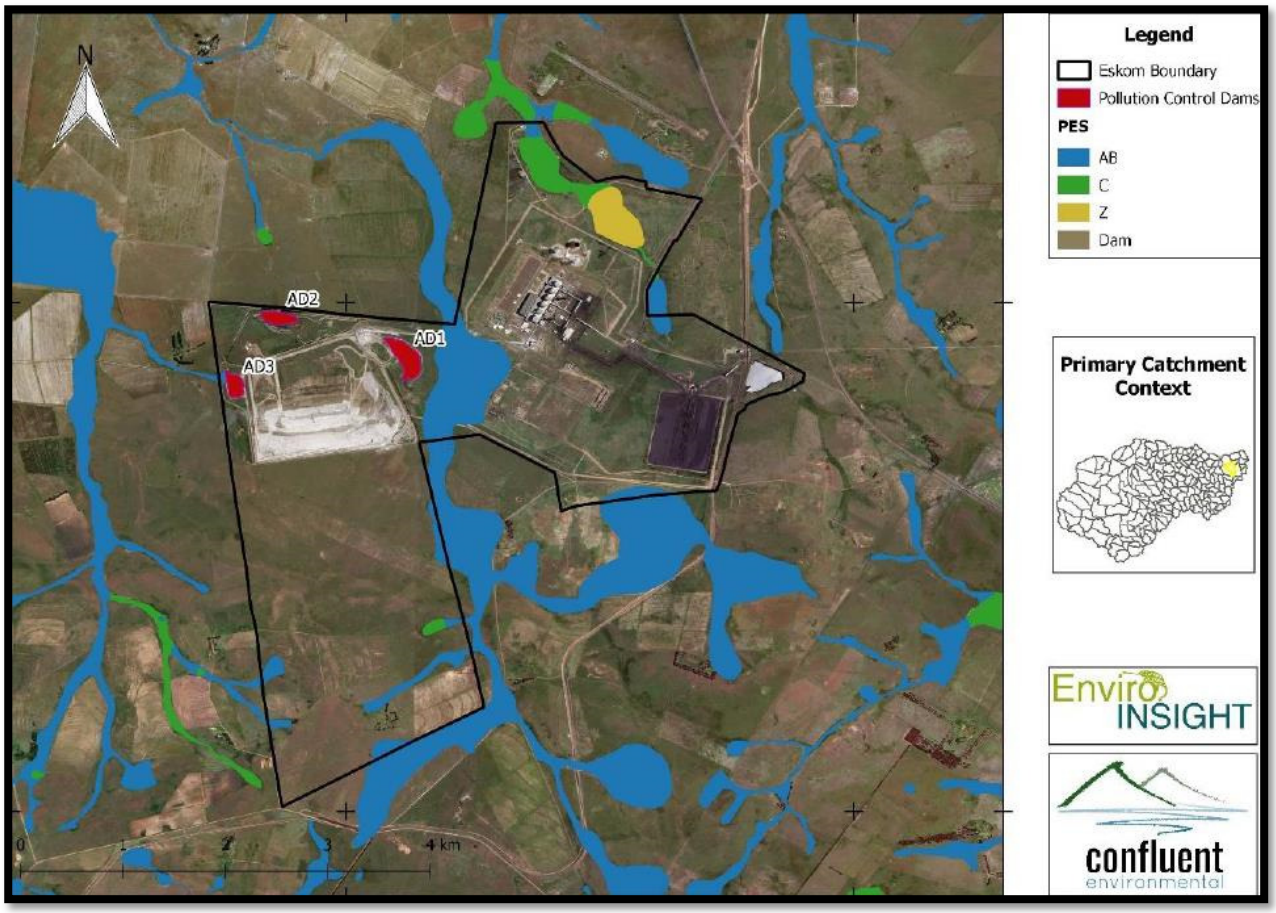

Figure 12: Present Ecological State (PES) of wetlands within the study area

The PES of the Geelklipspruit has however been assessed at a C (Moderately Modified). Modifications are largely due to moderate alterations in in-stream and riparian habitat and large modifications in water quality. The ecological importance of the Geelklipspruit is regarded as high mainly due to the high concentration of wetland and riparian habitats associated with the sub-quaternary river reach.

3.2.9 Sites of paleontological, archaeological and cultural interest

Heritage Contracts and Archaeological Consulting (HCAC) completed a heritage (scoping) assessment on the 7th of November 2018. The findings regarding the baseline survey conducted are discussed in the sections below.

3.2.9.1 Archaeology

No archaeological sites have been recorded on the national heritage database for the study area and no significant landscape features (i.e. rocky outcrops or hills) occur in close proximity to the site that may be historical focal points or contain heritage artefacts. Furthermore, the study area lacks raw materials suitable for the manufacture of stone artefacts or for the construction of late Iron Age Stone walled settlements.

3.2.9.2 Palaeontology

The area is of high paleontological sensitivity and SAHRA will most likely require further detailed studies (i.e. Heritage Impact Assessment) prior to the development proceeding.

3.2.9.3 Farmsteads

No home or farmsteads are visible on Google Earth and no structures older than 60 years were noted during the site visit.

3.2.9.4 Cemeteries

Graves and informal cemeteries can be expected anywhere on the landscape, but no graves were recorded in the study area during the field visit.

3.2.10 Visual Aspects

A number of farms and homesteads occur throughout the study area, and in close proximity to the Majuba power station.

The visual character of the Majuba Power Station and its associated infrastructure is shaped by a combination of the following features:

- Grassland;
- An undulating topography with isolated koppies and ridges;
- Perennial and non-perennial streams and isolated dams;
- Cultivated land;
- Majuba Power Station and associated infrastructure (being a visually dominant feature in the area);
- Mining areas;
- Dispersed farmsteads, and
- Roads, including the N11 national road from Amersfoort to Volksrust, arterial routes (R23, R35) and a number of access roads to farms in the region.

The topography is an important form giving element of the visual landscape. It opens up vast panoramic views of the landscape, and on the other hand it creates visual barriers. The topography in the study area has a strong undulating character with hills and koppies south and east. This is significant in terms of the location of the ADF, since the topography will be the primary factor determining the visibility and level of exposure thereof. In this regard, the screening effect of hills in the south must be noted.

3.2.11 Air Quality

Eskom manages an ambient air quality monitoring station near Majuba power station which assesses impacts on air quality from Majuba Power Station and other pollution sources in the area. The monitoring station is located 3 km east-south-east of the power station and is equipped for continuous monitoring of ambient concentrations of sulphur dioxide (SO_2), nitrogen dioxide (NO_2), and fine particulate matter of particulate size <10 μ m in diameter (PM^{10}). The average daily PM^{10} concentrations for the period January 2009 to June 2012 are presented in **Figure 13**.

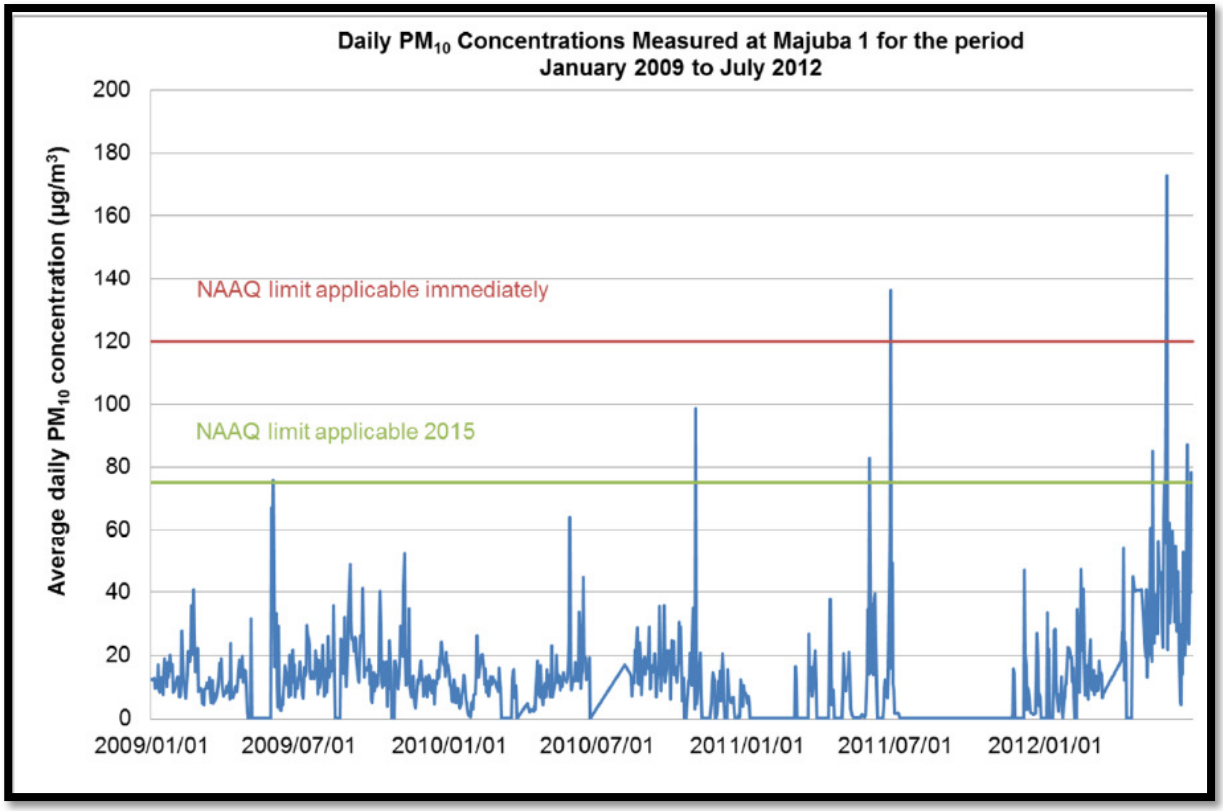

Figure 13: Daily measured PM10 ground level concentrations (µg/m^3) at Eskom Majuba 1 monitoring station (January 2009 – June 2012)

3.3 Socio-Economic Environment

The town of Amersfoort was established in 1888 around a Dutch Reformed Church which was built in 1876. The area was first settled in 1876 when two farmers of the area donated land to the church, where Rev. Frans Lion Cachet proceeded to build a Dutch Reformed church. The new village was named after the hometown (in the Netherlands) of the Dutch farmers. When the area became too small for the growing village, more land was purchased from one of the original donors and the town was proclaimed in 1888. The bridge over the Vaal River was built in 1896 and is a national monument. The township of eZamokuhle lies adjacent to the town and contributes greatly to its economy.

The 2006 Demarcation Board Data has been utilised to assess demographics, employment and income and economic profile within the study area.

3.3.1 Demographic Profile

Table 11 below gives an indication of the different geographic areas within the Pixley Ka Seme Local Municipality as well as the number of wards and households.

Table 11: Ward areas and number of households

Demographic Area	Ward	Number of Households
Vukuzakhe	1-2	2600
Volksrust	3-4	3421

Demographic Area	Ward	Number of Households
Wakkerstroom & eSizameleni	5	1832
Perdekop & Siyazenzela	6	2253
Amersfoort	7	1565
Ezamokuhle	8	1794
Daggakraal & Sinqobile	9-11	4946
TOTAL		**18 412**

3.3.2 Populations Estimates

Population estimates (total number of people per household type) for Pixley ka Seme Local Municipality are presented in **Table 12**.

Table 12: Population and Household Status Quo

Local Municipality	Formal Households 2006	Informal Households 2006	Traditional Household 2006
Pixley ka Seme LM	10 524	5 475	2 001

3.3.3 Education Profile

The level of education for the population in the municipal area is reflected in **Table 13** below.

Table 13: Education level in Pixley Ka Seme Local Municipality

Education Level	Pixley Ka Seme Local municipality
None	11.97%
Grade 0-2	10.49%
Grade 3-6	9.87%
Grade 7-9	8.70%
Grade 10-11	7.21%
Grade 12 only	6.53%
Certificate/Diploma	7.19%
Bachelor's Degree	7.96%
Postgraduate Degree	8.31%

3.3.4 Employment Status

The employment status within the Pixley ka Seme Local Municipal area is presented in **Table 14**.

Table 14: Employment status within Pixley Ka Seme Local Municipality

Status	2005	2006	2007	2008
Economically active (% of population)	21 053 (23.7%)	21 314 (23.6%)	21 657 (23.7%)	22 455 (24.4%)
Inactive (% of population)	67 857 (76.3%)	68 835 (76.4%)	69 560 (76.3%)	69 755 (75.6%)
Unemployed (% of Inactive pop.)	5 053 (24%)	4 902 (23%)	4 981 (23%)	4 940 (22%)
People in poverty (% of population)	52 314 (58.8%)	49 805 (55.3%)	49 209 (53.9%)	47 811 (51.9%)
Total population	**88 910**	**90 149**	**91 216**	**92 210**

4 ENVIRONMENTAL INVESTIGATION METHODOLOGY

4.1 Introduction

The integrated environmental authorisation application, and any other future application processes (to be identified during the course of this EIA Process) for the proposed development will be undertaken as one integrated application process because its undertaken in terms of NEMA and NEMWA. The EIA process will comprise of three phases, namely the:

- Pre-scoping/Initiation Phase;
- Application and Scoping Phase; and
- Environmental Impact Reporting Phase.

This DSR documents the tasks which have been undertaken as part of the Pre-scoping/Initiation Phase, including the Application and Scoping Phase of this application process. These tasks include the public participation process (PPP) and the documentation of the issues which have been identified as a result of these activities.

4.2 Pre-Scoping/Initiation Phase

The Pre-Scoping/Initiation Phase consisted of project kick-off meeting with the Applicant and key stakeholders to review and formalise the proposed development in terms of scope, methodology and timeframes, and to clearly define the expectations and objectives of the project. In addition, available information has been collected and reviewed to determine any possible gaps in information.

Pre-application meeting has been held with the relevant Competent Authorities (DEA) to ascertain their respective process requirements. Meetings with DWS are not foreseen, as the WULA process falls outside the scope of this EIA.

4.3 Application and Scoping Phase

This phase consisted of completing the appropriate application forms by the EAP and the Applicant as well as the subsequent submission and registration of the proposed development with the relevant Competent Authorities.

The NEMA Environment Authorisation (EA) application form shall be submitted to the DEA in due course, after which the applicant shall be issued with an 'Acknowledgement of Receipt' and subsequent possible acceptance. The DEA reference number allocated to this application shall be made available in the subsequent IAP communication.

This reference number must appear on all official correspondence with the authorities and the public regarding the proposed development.

The Scoping activities will be undertaken in accordance with the 2014 EIA Regulations, as amended. The main objectives of the Scoping phase are to:

- Describe the methodology applied to conduct the scoping investigations;
- Identify the relevant policies and legislation relevant to the activity;
- Provide a description of the proposed development;
- Identify and describe reasonable land use or development alternatives to the proposed development;
- Describe the existing status of the receiving baseline environment;
- Motivate the need and desirability of the proposed activity, including the need and desirability of the activity in the context of the preferred location;
- Identify and confirm the preferred activity and technology alternative through an impact and risk assessment and ranking process;
- Identify and confirm the preferred site, through a detailed site selection process, which includes an impact and risk assessment process inclusive of cumulative impacts and a ranking process of all the identified alternatives focusing on the geographical, physical, biological, social, economic, and cultural aspects of the environment;
- Identify the key issues to be addressed in the assessment phase;
- Describe the process of IAP, stakeholder and authority's engagement, including the comments and response report of this public participation round; and
- Agree on the level of assessment to be undertaken, including the methodology to be applied, the expertise required as well as the extent of further consultation to be undertaken to determine the impacts and risks the activity will impose on the preferred site through the life of the activity, including the nature, significance, consequence, extent, duration and probability of the impacts to inform the location of the development footprint within the preferred site; and
- Identify suitable measures to avoid, manage or mitigate identified impacts and to determine the extent of the residual risks that need to be managed and monitored.

Scoping is the process for determining issues and concerns related to the proposed development and involves consultation with the stakeholders and authorities. In addition, this phase includes the identification of required specialist studies and potential environmental aspects for further investigation; it also outlines the plan of study (PoS) for the EIR Phase and facilitates the input from stakeholders and authorities to inform the EIR process.

4.3.1 Stakeholder Engagement - Scoping Phase

The DSR will be made available to all interested and affected parties (IAPs) on 30 January to 1 March 2019, for a 30-day review and comment period. The comments received from IAPs will be recorded and incorporated into the Final Scoping Report (FSR) which will be submitted to the DEA as well as any other relevant commenting authorities.

4.3.2 Submission of the Scoping Report and Decision-Making

The respective competent authorities will be allocated 43 days to review the FSR and must within this specified timeframe issue a decision to proceed to the EIR Phase.

In addition, the FSR will be circulated concurrently to all registered IAPs for a reasonable time during the Department's final review and decision-making process, to ensure administrative justice and access to information as per the Constitution. Any comments received during this period will be forwarded to the competent authority.

4.4 Environmental Impact Assessment Phase

Once the FSR and the Purpose of Study (PoS) for the EIA has been accepted by the DEA, the proposed development will proceed into the Environmental Impact Assessment Phase.

This phase entails the various detailed specialist investigations and the detailed assessment of all impacts identified during the Scoping Phase. Advisian will produce a Draft EIR after the completion of the required specialist studies and will report on the assessment process. The Draft EIR will also identify suitable measures to avoid, manage or mitigate identified impacts and to determine the extent of the residual risks that need to be managed and monitored for the life of the proposed development.

All requirements as considered in terms of the 2014 EIA Regulations will be included in the Draft EIR. The Draft EIR will contain, inter alia, the following:

- Details of –
  - The EAP who prepared the report; and
  - The expertise of the EAP, including their curriculum vitae;
- The location of the activity, including:
  - The 21-digit Surveyor General Code of each cadastral land parcel affected by the proposed development;
  - Where available, the physical address and Farm name; and
  - Where the required information in items of the above is not available, the coordinates of the boundary of the property or properties;
- A plan(s) which illustrates the activity or activities applied for as well as the associated structures and infrastructure at an appropriate scale, or, if it is –
  - A linear activity, a description and coordinates of the corridor in which the proposed activity or activities is to be undertaken;
  - On land where the property has not been defined, the coordinates within which the activity is to be undertaken;
- A description of the scope of the proposed activity, including –
  - All listed and specified activities triggered and being applied for; and

  - A description of the associated structures and infrastructure related to the development;
- A description of the policy and legislative context within which the development is located and an explanation of how the proposed development complies with and responds to the legislation and policy context;
- 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;
- A motivation for the preferred development footprint within the approved site;
- A full description of the process followed to reach the proposed development footprint within the approved site, including:
  - Details of the development footprint alternatives considered;
  - Details of the public participation process undertaken in terms of regulation 41 of the Regulations, including copies of the supporting documents and inputs;
  - A summary of the issues raised by interested and affected parties, and an indication of the manner in which the issues were incorporated, or the reasons for not including them;
  - The environmental attributes associated with the development footprint alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects;
  - The impacts and risks identified including the nature, significance, consequence, extent, duration and probability of the impacts, including the degree to which these impacts-
    - ❖ Can be reversed;
    - ❖ May cause irreplaceable loss of resources; and
    - ❖ Can be avoided, managed or mitigated;
  - The methodology used in determining and ranking the nature, significance, consequences, extent, duration and probability of potential environmental impacts and risks;
  - Positive and negative impacts that the proposed activity and alternatives will have on the environment and on the community, that may be affected focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects;
  - The possible mitigation measures that could be applied and level of residual risk;
  - If no alternative development locations for the activity were investigated, the motivation for not considering such; and
  - A concluding statement indicating the preferred alternative development location within the approved site;
- A full description of the process undertaken to identify, assess and rank the impacts the activity and associated structures and infrastructure will impose on the preferred location through the life of the activity, including-
  - A description of all environmental issues and risks that were identified during the environmental impact assessment process; and
  - An assessment of the significance of each issue and risk and an indication of the extent to which the issue and risk could be avoided or addressed by the adoption of mitigation measures;
- An assessment of each identified potentially significant impact and risk, including-
  - Cumulative impacts;
  - The nature, significance and consequences of the impact and risk;
  - The extent and duration of the impact and risk;
  - The probability of the impact and risk occurring;
  - The degree to which the impact and risk can be reversed;

  - The degree to which the impact and risk may cause irreplaceable loss of resources; and
  - The degree to which the impact and risk can be mitigated;
- Where applicable, a summary of the findings and recommendations of any specialist report complying with Appendix 6 to these Regulations and an indication as to how these findings and recommendations have been included in the final assessment report;
- An environmental impact statement which contains-
  - A summary of the key findings of the environmental impact assessment;
  - A map at an appropriate scale which superimposes the proposed activity and its associated structures and infrastructure on the environmental sensitivities of the preferred site indicating any areas that should be avoided, including buffers; and
  - A summary of the positive and negative impacts and risks of the proposed activity and identified alternatives;
- Based on the assessment, and where applicable, recommendations from specialist reports, the recording of proposed impact management objectives, and the impact management outcomes for the development for inclusion in the EMPr as well as for inclusion as conditions of authorisation;
- The final proposed alternatives which respond to the impact management measures, avoidance, and mitigation measures identified through the assessment;
- 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
- A description of any assumptions, uncertainties and gaps in knowledge which relate to the assessment and mitigation measures proposed;
- 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;
- Where the proposed activity does not include operational aspects, the period for which the integrated environmental authorisation is required and the date on which the activity will be concluded, and the post construction monitoring requirements finalised;
- An undertaking under oath or affirmation by the EAP in relation to:
  - The correctness of the information provided in the reports;
  - The inclusion of comments and inputs from stakeholders and IAPs;
  - The inclusion of inputs and recommendations from the specialist reports where relevant; and
  - Any information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by interested or affected parties;
- Where applicable, details of any financial provisions for the rehabilitation, closure, and ongoing post decommissioning management of negative environmental impacts;
- An indication of any deviation from the approved scoping report, including the plan of study, including-
  - Any deviation from the methodology used in determining the significance of potential environmental impacts and risks; and
  - A motivation for the deviation;
- Any specific information that may be required by the competent authority; and
- Any other matters required in terms of section 24(4)(a) and (b) of the Act.

4.4.1 Specialist Studies

The following specialists have been appointed and are involved in the assessment of the various environmental and socio-economic aspects of the project. **Table 15** below presents the Specialists and their relevant areas of expertise.

Table 15: Specialist Team Appointed

Specialist Study	Organisation/Individual Appointed for the respective studies
Wetland Assessment	Enviro-Insight CC.
Heritage Impact Assessment	Heritage Contracts and Archaeological Consultants CC.
Groundwater Impact Assessment	Advisian
Ecological Assessment	Enviro-Insight CC.

4.4.2 Stakeholder Engagement - EIA Phase

The Draft EIR will be made available to all IAPs for a 30-day review and comment period, prior to the finalisation and submission of the report to the Competent Authority. The comments received from IAPs will be recorded and incorporated into the Final EIR (FEIR) which will be submitted to the DEA as well as any other relevant commenting authorities for review and final decision-making.

Furthermore, stakeholders will be afforded an additional timeframe in which to review the FEIR in parallel to the authority review period.

4.4.3 Submission of the EIR and Decision-Making

The respective Competent Authority will be allocated 107 days to review the FEIR submitted, in which time they may:

- Acknowledge receipt of the document;
- Grant IEA in respect of all or part of the activities applied for; or
- Refuse IEA should it not comply with the legislative prerequisites

5 PUBLIC PARTICIPATION PROCESS

5.1 Introduction

As per the principles enshrined in the Constitution including the NEMA, IAP engagement is a right and understood to be 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 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.

This PPP will be undertaken in accordance with the principles of integrated environmental management as highlighted in the NEMA (Chapter 1), including Chapter 6 of the 2014 EIA Regulations (as amended in 2017), regulation 39 to 44; as well as in accordance with Section 17, Procedure for public participation, of the National Water Act.

The objectives of the PPP can be summarised as follows:

- Identify relevant individuals of the general public, communities, civic organisations and state departments or agencies who may be interested in or affected by the proposed development;
- Clearly outline the scope of the proposed development, including the scale and nature of the existing and proposed activities;
- Identify shortcomings and gaps in existing information;
- Identify viable project alternatives that will assist the relevant authorities in making an informed decision;
- Identify key concerns raised that should be addressed in the subsequent specialist studies;
- Highlight the potential for environmental and socio-economic impacts, whether positive or negative; and
- Inform stakeholders of the proposed solutions or mitigations measures which will be implemented to mitigate the potential impacts identified.

5.2 The Rights, Roles and Responsibilities of the IAP

5.2.1 Rights of the IAP

Registered IAPs have the right to bring to the attention of the EAP and Competent Authority any issues that they believe may be of significance to the consideration of the application. The rights of registered IAP are qualified by certain obligations, namely:

- IAPs must ensure that their comments are submitted within the stipulated timeframes that have been approved by the DEA, or within any extension of the timeframe agreed by the Applicant, EAP or Competent Authorities. Such extensions must be communicated to potential stakeholders during the course of the application process;
- Serve a copy of the comments submitted directly to the EAP, Applicant or the Competent Authorities, and
- Disclose to the EAP any direct business, financial, personal or other interest that they might have in the granting or rejection of this application.

5.2.2 Role of the IAP

The role of the IAP in the PPP usually includes one or more of the following:

- Assisting in the identification and prioritisation of issues that need to be investigated during the EIR Phase;
- Proposing potential project alternatives to be investigated and possible mitigation measures in a means of preventing, minimising and managing negative impacts and enhancing proposed projected benefits;
- Assisting in or commenting on the development of mutually acceptable criteria to be used during the evaluation of project alternatives;

- Highlighting information in terms of the needs, values and expectations of the public in relation to the proposed development;
- Contributing local and traditional knowledge; and
- Validating that the issues raised during the PPP have been considered.

5.2.3 Responsibility of the IAP

The responsibility of the IAP in order to participate effectively during the S&EIR process, are as follows:

- Register as a IAP and become involved in the process as early as possible;
- Recommend potentially other IAPs who should be consulted;
- Contribute towards the design of the public participation process (including timeframes) to ensure that it is acceptable to all stakeholders;
- Follow the process once it has been accepted;
- Read the documents and supporting information provided and actively seek to understand the issues involved;
- Provide timeous responses to correspondence;
- Be courteous and respectful towards the EAP, project team and other stakeholders;
- Refrain from making subjective, unfounded or ill-informed statements; and
- Recognise that the process is confined to issues that are directly relevant to the proposed development.

5.3 Approach to Public Participation

The approach Advisian has adopted in terms of the PPP is based on the following principles:

- Undertake meaningful and timely participation with IAPs;
- Focus on significant issues during the S&EIR Process;
- Undertake due consideration of all alternatives tabled;
- Take accountability for the information provided and circulated;
- Encourage co-regulation, shared responsibility and a sense of ownership over the proposed project lifecycle;
- Apply "due process" particularly with regard to the PPP as provided for in the 2014 EIA Regulations; and
- Consider the needs, interests and values of all IAPs.

5.4 Proposed Public Participation Methodology

Advisian proposes the following activities to be undertaken as part of the Application and Scoping Phase and subsequent PPP:

- Identify and registration of all IAPs;
- Notify the relevant Competent and Commenting Authorities about the proposed development;
- Notify all identified IAPs of about the proposed development;
- Circulation of the DSR to IAPs and Authorities for a 30-day review and comment period;

- Manage public meeting (during Scoping phase), if required;
- Compilation of the Comments and Responses Report for the Scoping phase;
- Circulation of the DEIR to IAPs and Authorities for a 30-day review and comment period;
- Manage public meeting (during EIA phase), if required;
- Compilation of the Comments and Responses Report for the EIA phase;
- IAP and authority notification of the Competent Authority's final decision and appeals procedure;
- Conclusion of the appeals procedure.

The activities undertaken thus far to canvass public opinion regarding the proposed project are summarised in **Table 16**.

Table 16: Summary of the expected PPP activities during the Scoping phase

Activity	Date
Submission of the Integrated Environmental Authorisation application in terms of NEMA and NEM: WA to the DEA	29 January 2019
Acknowledgement of receipt of the Integrated EA Application from DEA	Anticipated date 12 February 2019
Media Notices advertising the commencement of the PPP and the availability of the DSR	30 January 2019
Circulation of the DSR for minimum of 30 days	30 January – 1 March 2019
Submission of the Final Scoping Report to DEA	15 March 2019

5.4.1 Identification and Registration of IAPs

The identification and registration of IAPs is an ongoing activity during the course of the S&EIR Process. It should be noted, that only a registered IAPs are entitled to comment (in writing), on all submissions made to the Competent Authority by the Applicant or the EAP managing the application. In addition, comments are to be submitted within the stipulated timeframes set by the competent authority or any extension of the timeframe agreed to by the Applicant or EAP. The specific timeframes will be advertised. All registered IAPs will be notified in writing.

Interested and Affected Parties were identified and will continue to be identified through several mechanisms, these include:

- Existing databases from previous projects in the study area;
- Engagement with local business owners, non-governmental agencies, civic organisations, and local municipal representatives and ward councillors;
- Canvasing in and around the project area, via press advertisements, community notices etc.;
- Submitted IAP registration and comments; and
- Attendance registers of project meetings (such as public engagement meetings).

All persons and organisations identified to date have been registered on the project IAP database.

5.4.2 Authority Notification

National, provisional and local authorities relevant to the project will be notified of the proposed development via a notification letter at the start of the PPP. The comments received from these authorities will be included in a Comment and Response Report (appendix to the final Scoping Report for submission). Communication lines will remain in place for the duration of the proposed development to ensure all authorities have the opportunity to comment on the proposed development and the EA processes undertaken.

The NEMA Integrated EA Application shall be submitted to the DEA during the last week of January 2019, after which the DEA reference number allocated to this application shall be communicated to the registered IAPs in the subsequent communication.

5.4.3 IAP Notification

5.4.3.1 Newspaper Advertisements

As per the 2014 EIA regulatory requirements (amended in 2017), and section 17 of the NWA, the proposed development will be advertised in a provincial and local newspaper. The purpose of the advertisements is to notify the public of the proposed development and to invite the public to register as IAPs. The relevant advertisements will be placed as per **Table 17** below:

Table 17: Placement and Dates of Advertisements

Newspaper	Circulation	Language	Publication Date
Mpumalanga Mirror	Provincial	English, Afrikaans, Zulu	29 January 2019
Standerton Advertiser	Local	English, Afrikaans, Zulu	30 January 2019

5.4.3.2 Site Notices

As per the EIA regulatory requirements, site notices/posters will be placed at the following locations:

- Majuba Power Station: Reception;
- Amersfoort Library, Amersfoort;
- Perdekop Public Library, Perdekop;
- Volksrust Library, Volkskrust; and
- Vukuzakhe Library, Vukuzakhe.

5.4.3.3 Notification letters

The purpose of the Notification Letter is to provide all identified IAPs with introductory information on the proposed project; the public participation process; the availability of the draft Scoping Report for a 30-day review and comment period; how to submit any comments regarding the proposed project and the DSR; as well as how other interested parties can register as an IAP for the project.

5.4.4 IAP Engagement – Scoping Phase

The DSR and Plan of Study for the EIA will be made available for public review and comment for 30 days from 30 January – 01 March 2019. The review of the DSR will be advertised in the abovementioned newspapers, as well as the venues where the DSR will be available for public review (**Table 18**). The public viewing venues are listed below, and will be made available electronically for download from the Advisian website, http://www.advisian.com/en-gb/stakeholder-engagement

Table 18: Public reviewing locations for the DSR

Location	Address
Amersfoort Public Library	Corner Plein & Bree Street, Amersfoort (Mpumalanga province)
Perdekop Library	Durban street, Perdekop (Mpumalanga province)
Vukuzakhe Library	Mavuso street, Vukuzakhe, Volksrust (Mpumalanga province)
Volksrust Library	Volksrust Library, Louis Trichardt Street, Volksrust (Mpumalanga province)
Majuba Power Station	Majuba Power Station Reception Office
Advisian Website	https://www.advisian.com/en-gb/stakeholder-engagement

5.4.5 Public Meeting / Open Day

It is proposed that two (2) project open days are arranged, one during the Scoping phase and the other during EIA Phase of this project. The first open day is currently being arranged to take place during the third week of February 2019. All IAPs will be notified of the final arrangements.

5.4.6 Comment and Response Report

All concerns, comments, viewpoints and questions (collectively referred to as 'issues') raised by registered I&APs during the scoping phase will be captured in a Comment and Response Table which forms part of the Comment and Response Report (CRR).

The Comment and Response Report records the following:

- The IAP database regarding the project;
- All project notifications and communications regarding the PPP;
- List of all issues raised;
- The phase of the project when the issues was raised;
- Record of IAPs who raised the issues and date when it was raised; and
- Responses to the issues.

5.4.7 Submission of the Final Scoping Report

The CRR will form part of the FSR for submission. Only once FSR has been accepted by the competent authorities will the IAPs be informed of EIA PPP.

5.5 Conclusion

The PPP shall be conducted in a thorough manner according to the relevant Acts and Regulations to ensure that all issues and possible impacts of the proposed development are identified and addressed. All the comments raised by IAPs will be addressed in the EIR Phase.

6 NEED AND DESIRABILITY

Eskom's core business is the generation, transmission and distribution of electricity throughout South Africa. Electricity cannot always be successfully stored and must in most cases be used as it is generated. Therefore, electricity is generated according to supply-demand requirements. The reliable provision of electricity by Eskom is critical to industrial development and other poverty alleviation initiatives in the country.

The Majuba Power Station is a major stabilising link to South Africa's network and produce ±9% of South Africa's electricity supply. Majuba is not linked to a specific mine and it receives its coal from various sources. The power station is running out of space for ash disposal and in order for the station to be able to continue with the generation of electricity it requires an upgrade to the existing ADF area for the continuous disposal of the ash for the remaining life of the station.

The following ash dams facilities (presented in **Table 19**) within the ADF area will need to be constructed and extended to cater for the projected storm water required by Eskom to adequately sustain the storage of the ash for the remaining life of the station.

Table 19: Ash and rehabilitation dams' required specifications

Facility Description	Surface footprint change (m^2)	
Ash Dam 1	Existing =	110 000 m^2
	Decrease =	69 500 m^2
	Final area required	**40 500 m^2**
Ash Dam 2	Existing =	95 000 m^2
	Increase =	65 000 m^2
	Final area required	**160 000 m^2**
New Rehabilitation Dam 1	Final area required	**80 000 m^2**
New Rehabilitation Dam 2	Final area required	**19 300 m^2**
This Project	TOTAL AREA	**288 800 m^2**

7 SCOPE OF PROPOSED ACTIVITES

7.1 Major Activities of the Proposed Development

There are four main phases within the proposed development, namely:

- Planning Phase;
- Construction Phase;
- Rehabilitation Phase; and
- Operational and Maintenance Phase;

Each of these Phases is outlined below.

7.2 Planning Phase

Prior to the undertaking of this EIA Process, possible project alternatives were considered and a preliminary engineering design (refer to **Figure 2**) was developed for the Ash and Rehabilitation Dams project.

7.3 Construction Phase

The Construction Phase will include the following:

- Activities to extend the 2 existing ash dams at the ADF.
- Activities to construct 2 new rehabilitation dams at the ADF.

7.4 Operational and Maintenance Phase

During the Operational Phase of the Ash and Rehabilitation Dams, activities will be carried out by Eskom according to the Operational and Maintenance Plan of the ADF.

7.4.2 Decommissioning & rehabilitation Phase.

The Ash and Rehabilitation Dams will be decommissioned according to the guidelines detailed in the Majuba Power Station Decommissioning Plan.

Rehabilitation of the ADF, once decommissioned, will be completed by following the guidelines stipulated in the Environmental Management Programme (to be compiled during the EIR Phase of this project).

7.5 Project Alternatives Considered

7.5.1 Site Alternatives

No site alternatives were considered as the construction of the new rehabilitation dams and upgrade of the existing ash dams are associated infrastructures supporting the already authorised ADF. The ADF currently exists and will be extended to cater for the remaining life of the station. The IEA was issued on

19 August 2015 by DEA; WUL issued on 1 February 2016 by DWS; and the detailed designs approved by DEA on 16 October 2017 for the ADF.

7.5.2 The No-Go Alternative

If the ash and rehabilitation dams project were not to proceed, this would result in Majuba Station's inability to effectively contain the storm water from the ADF, which in turn will pose a significant environmental risk to the immediate and surrounding biophysical and social environment. The potential impacts resulting from the proposed development not taking place will be assessed in detail during the EIR phase of the project.

8 POTENTIAL ENVIRONMENTAL & SOCIAL IMPACTS

The following potential environmental impacts (generated by the construction and operational activities of the proposed Ash and Rehabilitation Dams project) have been identified and will be assessed in detail as part of the EIR phase:

8.1 Terrestrial Ecology (Flora)

- Loss, destruction and/or eradication of critically endangered/endangered plant species;
- Impact on plant communities of particular scientific, conservation or education value;
- Impact on sensitive plant ecological systems;
- Decrease in bio-diversity of natural plant communities;
- Possibility to enhance the spread of invasive and/or alien plants and declared weeds;
- Threat to the ecological functioning of natural plant communities due to:
    - ❖ Isolation of plant communities by destruction of habitat;
    - ❖ Reduction in the effective size of habitat/community; and
    - ❖ Physical destruction of the habitat.
- Degradation of plant habitat through:
    - ❖ Compaction of the topsoil through trampling, vehicles, machinery etc.;
    - ❖ Introduction and/or spread of invasive alien species - creation of dispersal sites; and
    - ❖ Potential for bush encroachment through disturbance of topsoil.

8.2 Terrestrial Ecology (Fauna)

- Loss and/or displacement of critically endangered/endangered animal species;
- Impact on natural communities of particular scientific, conservation or education value;
- Impact on natural movement of species (flight pathways etc.);
- Disturbance of non-resident or migrant species (birds over-wintering, breeding);
- Decrease in bio-diversity of natural animal communities;
- Decrease in availability and reliability of food sources for animal communities;
- Possibility to introduce and/or enhance the spread of alien animal species;

- ❖ Threat to the ecological functioning of natural terrestrial communities due to:
- ❖ Isolation of animal communities by destruction of habitat; and
- ❖ Physical destruction of the habitat.

- Construction of barriers to animal movement or migration.

8.3 Aquatic Ecology (Wetlands & Rivers)

- Alteration to, modification, destruction of a wetland habitat.
- Alteration to, modification, destruction of a river bed and impediment of the natural flow.

8.4 Heritage Resources

- Loss of archaeological or palaeontological artefacts or fossils during construction activities associated with the Ash and Rehabilitation Dams project.

8.5 Groundwater resources:

- Contamination of groundwater through leakages or seepage during the construction and operational phases of the Ash and Rehabilitation Dams project.

8.6 Socio-Economic Issues

- Creation of temporary employment during the construction phase.
- Loss of land or property.

The proposed mitigation measures for the above listed potential negative impacts will be included in the EIAR.

The potential direct, indirect and cumulative impacts (negative and positive) of the project and the No Go option, based on the key issues listed above, will be addressed in the Impact Assessment Phase of the EIA.

9 PLAN OF STUDY FOR THE ENVIRONMENTAL IMPACT ASSESSMENT PHASE

9.1 Purpose of the Plan of Study

This Section is intended to provide a summary of the key findings of the Scoping Phase of the S&EIA process and to describe the activities to be undertaken in the EIA phase of the S&EIA. Legislatively, the Section is required to provide the following:

- A description of the environmental and socio-economic issues identified during Scoping phase that may require further investigation and assessment;
- A description of the preferred option and feasible project alternatives identified during Scoping Phase that may be further investigated;

- An indication of additional information required to determine the potential impacts of the proposed activity on the receiving environment;
- A description of the proposed method of identifying these impact; and
- A description of the proposed criteria for assessing the significance of these impacts.

Once the FSR has been submitted to and accepted by the DEA, the proposed development will proceed into the detailed EIR Phase, which involves the detailed specialist investigations. Advisian will produce a Draft EIR after the completion of the required specialist studies. The Draft EIR will provide an assessment of all the identified key issues and associated impacts from the Scoping Phase. All legislative requirements as contemplated in the 2014 EIA Regulations will be included in the Draft EIR. The Draft EIR will contain, inter alia, the following:

- Details of the EAP who prepared the report and the expertise of the EAP to carry out the S&EIR process, including a curriculum vitae;
- The location of the activity, including the 21-digit SG code of each cadastral land parcel, where available, the physical address and farm name; and the coordinates of the boundary of the property or properties;
- A site plan which illustrates the proposed activity or activities applied for as well as the associated structures and infrastructure at an appropriate scale;
- A description of the scope of the proposed activity, including all listed and specified activities triggered and being applied for; and a description of the associated structures and infrastructure related to the proposed project;
- A description of the policy and legislative context within which the development is located and an explanation of how the proposed development complies with and responds to the legislation and policy context;
- 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;
- A motivation for the preferred development footprint within the approved site;
- A full description of the process followed to reach the proposed development footprint within the approved site;
- Details of the PPP undertaken;
- A summary of the issues raised by IAPs, and an indication of the manner in which the issues were incorporated, or the reasons for not including them;
- The environmental attributes associated with the development footprint alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects;
- The impacts and risks identified including the nature, significance, consequence, extent, duration and probability of the impacts;
- The methodology used in determining and ranking of potential environmental impacts and risks;
- Positive and negative impacts;
- An assessment of each identified potentially significant impact and risk;
- The possible mitigation measures that could be applied;
- An environmental impact statement;
- A description of any assumptions, uncertainties and gaps in knowledge;
- A reasoned opinion as to whether the proposed activity should or should not be authorised;
- An undertaking under oath or affirmation by the EAP; and
- An Environmental Management Programme Report (EMPr).

9.2 Environmental Impact Assessment

9.2.1 Introduction

The purpose of the EIR Phase of the S&EIR Process is as follows:

- Address issues that have been raised during the Scoping Phase;
- Assess alternatives to the proposed activity in a comparative manner;
- Assess all identified impacts and determine the significance of each impact; and
- Formulate mitigation measures.

Numerous acceptable approaches and methodologies exist by which the above purpose can be achieved. The South African legislation, including the guideline documents published in support thereof, does not provide a specific methodology for the assessment of impacts. Rather, an assessment framework is provided within which environmental assessment practitioners are expected to structure a project-specific assessment methodology. This assessment framework recognises that there are different methodologies available for assessing the impact of a development but that the specific methodology selected must provide for the following:

- A clear process for impact identification, prediction and evaluation;
- The specification of impact identification techniques;
- Criteria for evaluating the significance of impacts;
- The design of mitigation measures to address impacts;
- Defining types of impacts (direct, indirect or cumulative); and
- Specification of uncertainties.

This Section of the Plan of Study for the EIR serves to describe the manner in which Advisian intends undertaking the EIR Phase of the S&EIR Process.

9.2.2 Impact Assessment Methodology

In accordance with the 2014 EIA Regulations, promulgated in terms of Section 24(J) of the National Environmental Management Act, 1998 (Act 107 of 1998), specialists will be required to assess the significance of potential impacts in terms of the following criteria:

- Cumulative impacts;
- The nature, significance and consequences of the impact and risk;
- The extent and duration of the impact and risk;
- The probability of the impact and risk occurring;
- The degree to which the impact and risk can be reversed;
- The degree to which the impact and risk may cause irreplaceable loss of resources; and
- The degree to which the impact and risk can be mitigated.

The potential environmental impacts will be evaluated according to their extent, duration, severity, frequency, probability and confidence of the impact. Furthermore, cumulative impacts will also be taken into consideration.

9.2.2.1 Identification of Environmental Impacts and Aspects

Once a potential issue and/or possible impact has been identified during the Scoping process, it is necessary to identify which activity and specifically what aspect of the operations/activities result in the issue being raised or the possible impact being identified.

By considering the root cause of the issue in this way the probability that the activity undertaken does or may result in an impact can be determined. The associated impact can then be assessed in order to determine its significance and to define mitigation measures or management measures to address the impact.

The following definitions therefore apply:

- An activity is a distinct process or task undertaken by an organisation for which a responsibility can be assigned. Activities also include facilities or pieces of infrastructure that are possessed by an organisation;
- An environmental aspect is an 'element of an organisations activities, products and services which can interact with the environment.[1] The interaction of an aspect with the environment may result in an impact;
- Environmental impacts are the consequences of these aspects on environmental resources or receptors of particular value or sensitivity, for example, disturbance due to noise and health effects due to poorer air quality;
- Receptors can comprise, but are not limited to, people or human-made systems, such as local residents, communities and social infrastructure, as well as components of the biophysical environment such as aquifers, flora and palaeontology. Impacts on the environment can lead to changes in existing conditions; the impacts can be direct, indirect or cumulative;
- Direct impacts refer to changes in environmental components that result from direct cause-effect consequences of interactions between the environment and project activities. Indirect impacts result from cause-effect consequences of interactions between the environment and direct impacts; and
- Cumulative impacts refer to the accumulation of changes to the environment caused by human activities.

9.2.2.2 Determining Impact Significance

The accumulated knowledge and the findings of the environmental investigations form the basis for the prediction of impacts. Once a potential impact has been determined it is necessary to identify which project activity will cause the impact, the probability of occurrence of the impact, and its magnitude and extent (spatial and temporal).

A definition of a 'significant impact' for the purposes of the study is:

> *"An impact which, either in isolation or in combination with others, could, in the opinion of the specialist, have a material influence on the decision-making process, including the specification of mitigating measures."*

[1] The *definition* has been aligned with that used in the ISO 14001 Standard.

This information is important for evaluating the significance of the impact, and for defining mitigation and monitoring strategies. The aspects and impacts identified are therefore described according to the following five criteria:

- **Spatial Scope / Extent**

The spatial scope for each aspect, receptor and impact is defined. The geographical coverage (spatial scope) description takes account of the following factors:

- The physical extent/distribution of the aspect, receptor and proposed impact; and
- The nature of the baseline environment within the area of impact.
- For example, the impacts of noise are likely to be confined to a smaller geographical area than the impacts of atmospheric emissions, which may be experienced at some distance. The significance of impacts also varies spatially. Many are significant only within the immediate vicinity of the site or within the surrounding community, whilst others may be significant at a local or regional level.

Table 20: Spatial Scale of the impact will be rated according to the following scale:

Spatial Scale	Rating
Activity specific	1
Area specific	2
Whole site/plant/mine	3
Regional/neighbouring areas	4
National	5

- **Duration**

Duration refers to the length of time that the aspect may cause a change either positively or negatively on the environment. The environmental assessment will distinguish between different time periods by assigning a rating to duration based on the following scale:

Table 21: Duration of the impact will be rated according to the following scale:

Duration	Rating
One day to one month	1
One month to one year	2
One year to ten years	3
Life of operation	4
Post closure	5

- **Severity**

The severity of an environmental aspect is determined by the degree of change to the baseline environment, and includes consideration of the following factors:

- The reversibility of the impact;

- The sensitivity of the receptor to the stressor;
- The impact duration, its permanency and whether it increases or decreases with time;
- Whether the aspect is controversial or would set a precedent; and
- The threat to environmental and health standards and objectives.

The severity of each of the impacts will be rated on the following scale:

Table 22: Severity of each of the impacts will be rated according to the following scale:

Severity	Rating
Insignificant/non-harmful	1
Small/potentially harmful	2
Significant/slightly harmful	3
Great/harmful	4
Disastrous/extremely harmful	5

- **Frequency of the Activity**

The frequency of the activity refers to how regularly the activity takes place. The more frequent an activity, the more potential there is for a related impact to occur. The following frequency categories have been defined:

Table 23: Frequency of impacts will be rated according to the following scale:

Frequency	Rating
Annually or less	1
6 monthly	2
Monthly	3
Weekly	4
Daily	5

- **Probability of the Impact**

The probability of the impact refers to how often the aspect impacts or may impact either positively or negatively on the environment. After describing the frequency, the findings will be indicated on the following scale:

Table 24: Probability of impacts will be rated according to the following scale:

Probability	Rating
Almost never/almost impossible	1
Very seldom/highly unlikely	2
Infrequent/unlikely/seldom	3

Probability	Rating
Often/regularly/likely/possible	4
Daily/highly likely/definitely	5

The environmental significance rating is an attempt to evaluate the importance of a particular impact, the consequence and likelihood of which has already been assessed by the relevant specialist.

The sum of the first three criteria (extent, duration and severity) provides a collective score for the consequence of each impact. The sum of the last two criteria (frequency of activity and probability of impact) determines the likelihood of the impact occurring. The product of consequence and likelihood leads to the assessment of the significance of the impact, shown in the significance matrix below in **Table 25**.

Impact Significance Rating = Likelihood (Frequency x Probability) X Consequence (Extent + Duration + Severity)

Table 25: Significance Assessment Matrix

Likelihood (Frequency of Activity + Probability of Impact)	Consequence (Extent + Duration + Severity)														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
2	4	6	8	10	12	14	16	08	20	22	24	26	28	30	
3	6	9	12	15	18	21	24	27	30	33	36	39	42	45	
4	8	12	16	20	24	28	32	36	40	44	48	52	56	60	
5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	
6	12	18	24	30	36	42	48	54	60	66	72	78	84	90	
7	14	21	28	35	42	49	56	63	70	77	84	91	98	105	
8	16	24	32	40	48	56	64	72	80	88	96	104	112	120	
9	18	27	36	45	54	63	72	81	90	99	108	117	126	135	
10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	

With this model an Impact can be calculated and then classified as either a Positive or Negative Impact of Very Low to Very High significance in accordance with the following value rating as provided in **Table 26.**

Table 26: Positive and Negative Impact Mitigation Ratings

Colour Code	Significance Rating	Value	Negative Impact Management Recommendation	Positive Impact Management Recommendation
	Very High	126-150	Improve Current Management	Maintain Current Management
	High	101-125	Improve Current Management	Maintain Current Management
	Medium-High	76-100	Improve Current Management	Maintain Current Management
	Low-Medium	51-75	Maintain Current Management	Improve Current Management
	Low	26-50	Maintain Current Management	Improve Current Management
	Very Low	1-25	Maintain Current Management	Improve Current Management

The model outcome is then assessed in terms of impact certainty and consideration of available information. Where a particular variable rationally requires weighting or an additional variable requires consideration the model outcome is adjusted accordingly.

9.2.3 Public Engagement

Public engagement during the EIA Phase revolves around the issues identified in the Scoping Phase as well as the review and findings of the EIA, which will be presented in the Draft EIR. All IAPs will be notified of the progress to date and availability of the Draft EIR, via mail or email. As legislated, a period of 30-days will be allowed for public review and comment. The Draft EIR will be made available in the following way:

- Distribution for comment at central public places, as per the Scoping phase;
- The document will be made available to download from the Advisian website; and
- Copies of CDs will be made available on request.

The following information will be provided to IAPs:

- Initial Site Plan;
- Project Alternatives;
- A description of activities and operations to be undertaken;
- Baseline information;
- Specialist studies;
- Impact assessment;
- Management measures;
- Monitoring and measuring plan; and

- Closure details.

The information outlined above will be presented in one or more of the following:

- Notifications;
- Scoping Report;
- EIR;
- EMPr; and
- Public meetings (if required).

All comments received during the EIR Phase will be recorded in the comments and response report, which will be included in the draft and final EIR. The final EIR will incorporate public comment received on the Draft EIR and will be made available for public review with hard copies distributed mainly to the authorities and key stakeholders.

9.2.3.1 Notification of the Integrated Environmental Authorisation

All registered IAPs will receive communication at the end of the process notifying them of the Competent Authority's final decision, thanking them for their contributions, and explaining the appeals procedure.

9.3 Conclusions and Recommendations

This PoS for EIA Phase is aimed at meeting the requirements of the 2014 EIA Regulations and the guidelines issued in respect thereof as a minimum. The methodologies proposed for obtaining the information required to effectively identify and assess the potential environmental impacts of the proposed development are considered to be comprehensive and sufficient to allow for the compilation of an EIR and its associated EMPr which addresses IAPs concerns and which will provide the Competent Authority with the appropriate information necessary to allow for informed decision-making.

10 PROPOSED WAY FORWARD

The purpose of this Draft Scoping Report (DSR) is to provide stakeholders with an overview of the proposed construction of 2 Rehabilitation Dams and upgrade of 2 Existing Ash Dams for Majuba Power Station Ash Disposal Facility (ADF). An important part of this DSR is the PoS that sets out the approach of the Environmental Impact Assessment to follow. This Scoping Report also contains:

- A description of the existing and proposed activities;
- An outline of the proposed process to be followed;
- Information on the Applicant, EAP and IAPs identified to date;
- An outline of the baseline receiving environment in which the proposed development is to be located;
- Information on the potential environmental impacts to be studied in more detail during the EIAR Phase of the project; and

  Information on the specialist studies undertaken.

Based on the desktop studies undertaken to date no environmental fatal flaws have been identified that would prohibit the proposed development from continuing at this stage of the process. However, a number of environmental impacts have been identified and therefore a detailed EIA is required in order to provide an assessment of these potential impacts and recommend appropriate mitigation measures.

It is the EAP's opinion that the adopted predictive methods are sufficient and adequate for rating the significance of the impacts during the EIR phase; and recommends that the PoS that was proposed in this Scoping Report is accepted as framework for proceeding into the EIA phase of the assessment.

For further queries on the proposed development, please feel free to contact the undersigned:

WorleyParsons RSA (Pty) Ltd, t/a Advisian	
Contact Person:	Marinda le Roux / Michelle Herbert
Physical Address:	31 Allen Drive, Loevenstein, Bellville, 7530
Telephone:	010 593 3936 / 010 593 3944
Email:	MarindaLeRoux.Advisian@outlook.com Michelle.Herbert@Advisian.com

11 LETTER OF UNDERTAKING

The Environmental Assessment Practitioner (EAP) herewith confirms the following:

A. The correctness of the information provided in this Report and all supporting studies;

B. The inclusion of comments and issues received in writing from registered interested and affected parties (IAPs);

C. The inclusion of inputs and recommendations from the specialist reports where relevant; and

D. That the information provided by the EAP to IAPs and any responses by the EAP to comments and issues presented by IAPs are correctly reflected herein.

Signature of the Environmental Assessment Practitioner

WorleyParsons RSA (Pty) Ltd., trading as Advisian

Name of the Company

2019-01-23

Date

12 REFERENCES

Lidwala Consulting Engineers (SA) (Pty) Ltd, 2014. Final Environmental Impact Assessment for the proposed continuous disposal of ash at the Majuba Power Station, Mpumalanga Province.

The Constitution of South Africa (Act No. 108 of 1996)

Environmental Management Information Series (DEA, latest draft dated 2006)

Pixley ka Seme Local Municipality Integrated Development Plan (IDP)

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Red List of South African Plants, 2009. Raimondo et al

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Enviro-Insight CC November, 2018. Specialist Report terrestrial ecological (flora) assessment

Enviro-Insight CC, 2018. Specialist Report ecological (wetland) assessment

Heritage Contracts and Archaeological Consulting, 2018. Specialist Report Heritage (scoping) assessment

Advisian, 2018. Specialist Groundwater Report

Majuba Power Station air quality monitoring station data (Eskom)

Appendix A EA Application Form

Appendix B Curriculum Vitae

Appendix C Specialist Reports