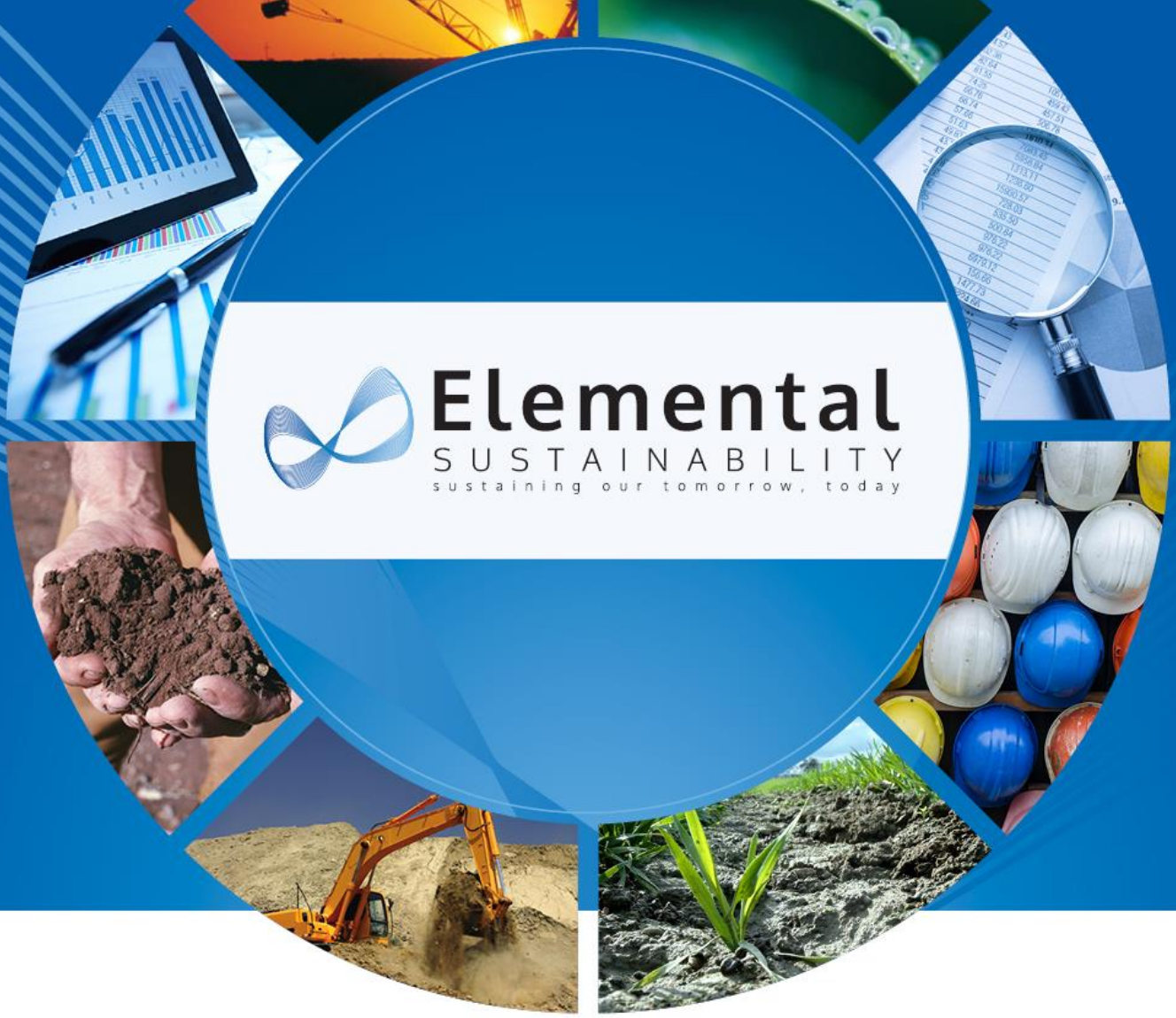

DRAFT SCOPING REPORT FOR THE PROPOSED WELGEDACHT BALLOON SIDING, GAUTENG PROVINCE

Various portions of the farm Geigerle 238 IR and various portions of the farm Palmietkuilen 241 IR, Gauteng

Elemental REF: Welgedacht_26/2020_EA

November 2021

Applicant:	**Canyon Resources (Pty) Ltd.**
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DOCUMENT HISTORY

Document Control, Quality Control and Disclaimer

Report	Draft Scoping Report for the proposed Welgedacht Balloon Siding		
Client	Canyon Resources (Pty) Ltd.		
Responsible Person	Contact Person: Mr. Tshiyamo Rankali Contact nr.: +27 11 783 7996 Email: t.rankali@canyoncoal.com		
Report Number	**Welgedacht_26/2020_EA**	**Report Status**	Public Review
DMRE	TBC	**Report Date**	5 November 2021

Report no	Date	Version	Status
V0.0	5 November 2021	0.0	Public Review

DOCUMENT REVIEWED BY

Responsible person	Date	Position
SR van de Giessen	12 October 2021	Senior Environmental Assessment Practitioner
Du Toit Wilken	7 November 2021	Senior Project Manager and Specialist

BASIS OF REPORT

This document has been prepared by Elemental Sustainability (Pty) Ltd (ELEMENTAL) with reasonable skill, care and diligence, and taking account of the manpower, timescales and resources devoted to it in accordance with the appointment from the Applicant.

This document has been prepared in accordance with the requirements of the National Environmental Management Act (Act No. 107 of 1998) (NEMA) and EIA regulations (2014), as amended. A Water Use Licence in terms of the requirements of the National Water Act (Act 36 of 1998) will be submitted for the proposed project.

The information contained in this report is relevant only to the specific project area and plan. It cannot be relied on for any other purpose or by any other person.

Information reported herein may be based on the interpretation of public domain data collected by ELEMENTAL and/or information supplied by the Applicant and/or its other advisors and associates. The data has been accepted in good faith as being accurate and valid.

This document may contain information of a specialised and/or highly technical nature and the reader is advised to seek clarification on any elements which may be unclear.

EXECUTIVE SUMMARY

Elemental Sustainability (Pty) Ltd. (Elemental) was appointed by Canyon Resources (Pty) Ltd. (Canyon Resources) to undertake the environmental authorisation process in terms of the National Environmental Management Act, 1998 (Act 107 of 1998) (as amended) and the National Environmental Management Waste Act, 2008 (Act 59 of 2008) for the proposed Welgedacht Balloon Siding and associated conveyor belt.

The siding is to be situated on Portions 10, 32, 51, 55, and 57 of the farm Geigerle 238 IR; and Portions 9 and 19 of the farm Palmietkuilen 241 IR, within the Gauteng Province. The proposed project will involve the development of the new Welgedacht Balloon Siding and associated infrastructure to be situated approximately 9 km east of Springs, Gauteng Province.

Project Area

Key infrastructure will include railway related infrastructure, access roads, haul roads, product stockpile area, a pollution control dam, stormwater trenches, security offices, fuel storage and a conveyor belt.

Legislative Requirements

The most important legislation applicable to the proposed project are the following:

- *National Environmental Management Act (No. 107 of 1998) [as amended]* Section 28 (1):

  Duty of Care and responsibilities to minimise and remediate environmental degradation. EIA Regulations, 2017 (Government Notices 983 and 984) [as amended];

- *EIA Regulations, 2014 (Government Notices 982) [as amended]:*
  - The proposed construction, operational and closure activities of the proposed development triggers listed activities that are listed in the EIA regulations for which a Scoping and Environmental Impact Assessment (EIA) process must be conducted;
- *National Water Act (Act No.36 of 1998) [as amended]*
  - Section 19: Prevention and remedying effects of pollution:
  - Section 21: Water Use Activities;
- *National Environmental Waste Act (Act No. 59 of 2008) [as amended]:*
  - Section 16: General duty in respect of waste management;
- *List of Waste Management Activities that have, or are likely to have a detrimental effect on the environment as promulgated in terms of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) [as amended];*
- *Waste Classification and Management Regulations and Norms and Standards for the assessment of for landfill disposal and for disposal of waste to landfill, 2013 (Government Notice 634 – 635 of 2013) promulgated in terms of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) [as amended];*
- *Regulations regarding the planning and management of residue stockpiles and residue deposits from a prospecting, mining, exploration or production operation (GN R. 632 of 2015);*

- *National Heritage Resources Act, 1999 (Act No. 25 of 1999);*
- *National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004) [as amended];*
- *National Dust Control Regulations, 2013 (Government Notice 827 of 2013);*
- *Veld and Forest Fire Act, 1998 (Act No. 101 of 1998) [as amended];*
- *National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004) [as amended];*
- *Alien and Invasive Species Regulations (Government Notice 598 of 2014) and Alien and Invasive Species List, 2016 in terms of NEMBA (Government Notice 864 of 2016);*
- *Conservation of Agricultural Resources Act (no. 43 of 1983);*
- *Deeds registries Act, 1937 (Act no. 47 of 1937) [as amended];*
- *Hazardous Substances Act, 1973 (Act 15 of 1973) [as amended];*
- *Hazardous Chemical Substances Regulations, 1995 (Government Notice 1179 of 1995); and*
- *Other relevant national, provincial, district and local municipality legislation and guidelines that may be applicable to the application. Some of these are discussed in the next section.*

Need and Desirability

According to the Department of Environmental Affairs' (DEA) 2017 Guideline on Need and Desirability, in order to describe the need for a development, it must be determined whether it is the right time for locating the type of land use and/or activity being proposed. To describe the desirability for a development, it must be determined, whether it is the right place for locating the type of land use and/or activity being proposed. Need and desirability can be equated to the concept of wise use of land which can be determined through asking the question: "what is the most sustainable use of land?" Considering the above, the need and desirability of an application must be addressed separately and in detail, and this is done within **Section 5** of this document.

The main benefits of the proposed project include:

- Direct economic benefits will be derived from wages, taxes and profits;
- Indirect economic benefits will be derived from the procurement of goods and services and the spending power of employees;
- It will contribute to the economic welfare of the surrounding community by creating working opportunities;
- It will contribute to the upliftment of living standards and the health and safety of the local community; and
- Effective transportation of coal.

As noted above, the Department of Environmental Affairs (DEA) published a Guideline on Need and Desirability (2017) in terms of the Environmental Impact Assessment (EIA) Regulations, 2014 (as amended). The key components are listed and discussed in the appropriate section below:

- Securing ecological sustainable development and use of natural resources; and
- Promoting justifiable economic and social development.

Alternatives

Alternatives are considered based on the following guidelines and discussed in Section 7:

(a) the property on which or location where it is proposed to undertake the activity;

(b) the type of activity to be undertaken;

(c) the design or layout of the activity;

(d) the technology to be used in the activity;

(e) the operational aspects of the activity; and

(f) the option of not implementing the activity).

The no-go option refers to the alternative of the proposed development not going ahead at all. This alternative will avoid potentially positive and negative impacts on the environment and the status quo of the area would remain, which is the conditions of the baseline environment without any deviations or expansions.

The implications of the no-go option will be evaluated as part of the EIA, focusing on comparing potential impacts from the proposed project with the status quo, and will be particularly relevant should it be found that detrimental impacts cannot be managed to an acceptable level.

Public Participation

This section describes the public participation process (PPP) to be undertaken, in line with Chapter 6 of the EIA Regulations (2014) (as amended). The process is undertaken to ensure compliance with the requirements in terms of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002) [as amended] (MPRDA) and the Environmental Impact Assessment Regulations (2014) [as amended]. The intention of the PPP is to inform I&APs, in sufficient detail, of the proposed project in order that I&APs may contribute meaningfully to the EIA process.

On the 5 June 2020, the Department of Environment Forestry and Fisheries (DEFF) issued Directions GN650 in terms of the Disaster Management Act (Act 57 of 2002). As per the Directions, a Public Participation (PP) Plan is required for all public participation to be conducted in terms of the NEMA, which ensures that the EAP and Applicant will ensure that all reasonable measures are taken to identify potential I&APs for purposes of conducting public participation on the application; and ensure that, as far as is reasonably possible, taking into account the specific aspects of the application-

(a) information containing all relevant facts in respect of the application or proposed application is made available to potential I&APs; and

(b) participation by potential or registered I&APs has been facilitated in such a manner that all potential or registered I&APs are provided with a reasonable opportunity to comment on the application or proposed application.

A copy of the PP Plan is included in Appendix Dvii of this report.

I&APs will be notified of the project through the distribution of a Background Information Document (BID) (Appendix Diii), the placement of a newspaper advertisement in the Springs Advertiser (Appendix Div) and the

placement of site notices (Appendix Di). A key aspect of public consultation is the notification of landowners, land occupiers and users within, and adjacent to, the application area (Appendix Dii6. As part of the PPP, an I&AP database has been developed for the project, as included in Appendix Dv of this report.

The Draft Scoping Report will be placed out for public review from 12 November 2021 to 13 December 2021. A hard copy of the report will be made available at the Bakerton Public Library located in Springs. An electronic link from where the report can be downloaded will also be sent to all preidentified I&APs. All comments received will be included in the Final Scoping Report to be submitted to the competent authority for adjudication.

Environmental Authorisation Application

- A copy of the scoping report will be made available for a 30-day review and comment period, from 12 November 2021 to 13 December 2021;
- An electronic copy of the scoping report can be downloaded. Please contact ELEMENTAL (send an email to sonja@elemental-s.co.za or dutoit@elemental-s.co.za) for the google drive link.
- A hard copy of the report will be made available at the Bakerton Library.
- Please send all comments to sonja@elemental-s.co.za or dutoit@elemental-s.co.za with the following reference (Welgedacht Balloon Siding_20_EA).

Registration of any I&AP's can take place by registering on the I&AP's database by sending details of the I&AP to the EAP. Please feel welcome to contact us should you have further queries or require additional clarification. All comments received from I&AP's and organs of state and responses sent will be included in the final Scoping Report to be submitted to the Competent Authority (CA).

DMRE review of the Scoping Report

On completion of the 30-day review period, a Final Scoping Report will be compiled which will include comments received during the I&AP review period. The electronic report will be submitted to the DMRE for its review and will also be uploaded on the DMRE online system.

Specialist studies

As part of the Environmental Impact Assessment (EIA) phase for the proposed Welgedacht Balloon Siding the following specialist studies will be completed:

- Ecological Assessment;
- Heritage and Archaeological Assessment;
- Hydrogeological Assessment;
- Hydrological Assessment (including water balance and aquatic assessment, if applicable);
- Hydropedological Assessment;
- Noise Assessment;
- Palaeontological Assessment;
- Soils, Land Use and Capability and Agricultural Impact Study;
- Storm Water Management Plan (including Geotechnical Assessment, floodlines and topography);

- Traffic Impact Assessment; and
- Wetland Delineation Study.

Potential Impacts Associated with the Proposed Activity

Potential impacts have been provided within Section 11 below for the Construction, Operational and Closure Phases and a general summary is provided in

Table *1* below.

Table 1: Summary of Potential Impacts during the various Project Phases

BIOPHYSICAL/SOCIO-ECONOMIC ASPECT	POTENTIAL IMPACT
Topography	**Placement of stockpile and railway line:** The project has the potential to temporarily alter the topography by creation of stockpile, infrastructure and railway line.
Soils and land capability	**Loss of soil and land capability:** The project has the potential to compromise soil resources through physical disturbance (erosion and compaction) and/or pollution.
Biodiversity	**Loss of biodiversity (terrestrial and aquatic):** Impacts on biological aspects, ecosystems.
Surface water	**Alteration of natural drainage patterns and pollution:** the proposed project may alter the surface water environment and decrease water quality.
Groundwater	**Groundwater contamination:** The project has the potential to contaminate groundwater resources.
Air	**Air quality:** The project may impact on the air quality and, therefore, will be subjected to an Air Quality Assessment.
Noise	**Disturbing noise levels:** The project has the potential to cause noise pollution through the Siding activities and the conveyor belt.
Traffic	**Road disturbance and traffic safety:** The project may result in an increase of traffic in the area.
Heritage/cultural and palaeontological resources	**Loss of heritage/cultural and palaeontological resources:** The project does have the potential to damage heritage/cultural and palaeontological resources that may be present and will be subjected to a Heritage assessment.
Socio-economic	**Positive and negative socio-economic impact:** The project has the potential for positive and negative socio-economic impacts. Positive impacts include job creation and stimulation of the local and regional economy. Negative impacts include the influx of job seekers and related issues of crime, disease and disruption to social structures
Land use	**Change in land use:** The proposed project has the potential to impact on surrounding land uses due to the surface infrastructure that will be constructed.

Reasoned Opinion of the EAP

Based on the findings of the preliminary impact assessment during the scoping phase, the EAP is of the opinion that the scoping phase be approved, due to the positive social and economic impacts it can have on the local and regional communities. The potential negative impacts will be investigated in the EIA phase and mitigation measures for the impacts will be developed and included in the EMP.

Recommendations

To achieve appropriate environmental management standards and ensure that the findings of the environmental studies are implemented through physical measures, the recommendations from the scoping report will be included within the Environmental Management Programme (EMP). The EMP will be based on all the information to be contained in the Environmental Impact Report (EIR) as well as all the specialists' reports.

Conclusion

The project is currently in the scoping phase. The project has the potential to impact on the biophysical, the cultural and socio-economic environment, as well as the landscape, both within, and surrounding the project area. Input received during the scoping phase will allow for the meaningful assessment of all relevant biophysical, cultural and socio-economic issues. Potential impacts will be investigated by specialist studies. Stakeholder engagement will continue throughout the EIA process. The Environmental Management Programme (EMP) will contain more detailed mitigation measures which will also be incorporated into the Environmental Impact Report (EIR).

The proposed mitigation measures, when implemented, will reduce the significance of the majority of the identified impacts. It is therefore recommended, based on the assessment of the current available information, that the Scoping Report for the proposed development be accepted by the Competent Authority.

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ABBREVIATIONS

ARC	Agricultural Research Council
BPEO	Best Practicable Environmental Option
CS	Community Survey
DAFF	Department of Agriculture, Forestry and Fisheries
DEA	Department of Environmental Affairs (now DEFF)
DFFE	Department of Forestry, Fisheries and Environment
DFS	Definitive Feasibility Study
DMR	Department of Mineral Resources (now DMRE)
DMRE	Department of Mineral Resources and Energy
DWS	Department of Water and Sanitation
EAP	Environmental Assessment Practitioner
ECA	Environmental Conservation Act (Act 73 of 1989)
ECO	Environmental Control Officer
EIA	Environmental Impact Assessment
EIR	Environmental Impact Assessment Report
EMPR	Environmental Management Programme
GNR	Government Notice Regulation
I&APs	Interested and Affected Parties
IDP	Integrated Development Programme
IEM	Integrated Environmental Management
IHAS	Invertebrate Habitat Assessment System
IHIA	Intermediate Habitat Integrity Assessment
IWUL	Integrated Water Use License
IWULA	Integrated Water Use License Application
LED	Local Economic Development
LOM	Life of Mine
MAMSL	Meter Above Mean Sea Level
MPRDA	Mineral and Petroleum Resources Development Act (Act 28 of 2002)
NEMA	National Environmental Management Act (Act 107 of 1998)
NEMAQA	National Environmental Management: Air Quality Act, 39 of 2004
NEMBA	National Environmental Management: Biodiversity Act (Act 10 of 2004)
NEMWA	National Environmental Management: Waste Act (Act 59 of 2008)
NFA	National Forest Act (Act 84 of 1998)
NHRA	National Heritage Resources Act (Act 25 of 1999)
NWA	National Water Act (Act 36 of 1998)

PAIA	Promotion of Access to Information Act (Act 2 of 2000)
PAJA	Promotion of Administrative Justice Act (Act 3 of 2000)
PES	Present Ecological State
PM10	Thoracic Particulate Matter
PM2.5	Inhalable Particulate Matter
PPP	Public Participation Process
RVI	Riparian Vegetation Index
SAHRA	South African Heritage Resources Agency
SANRAL	South African National Roads Agency Limited
SANS	South African National Standard
SASS	South African Scoring System
TPA	Tons Per Annum
TSP	Total Suspended Particulates

OBJECTIVE OF THE SCOPING PROCESS

The objective of the scoping process is to, through a consultative process—

(a) identify the relevant policies and legislation relevant to the activity;
(b) motivate the need and desirability of the proposed activity, including the need and desirability of the activity in the context of the preferred location;
(c) identify and confirm the preferred activity and technology alternative through an impact and risk assessment and ranking process;
(d) 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;
(e) identify the key issues to be addressed in the assessment phase;
(f) 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
(g) 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.

———

1 INTRODUCTION

Elemental Sustainability (Pty) Ltd. (Elemental) was appointed by Canyon Resources (Pty) Ltd. (Canyon Resources) to undertake the environmental authorisation process in terms of the National Environmental Management Act, 1998 (Act 107 of 1998) (as amended) and the National Environmental Management Waste Act, 2008 (Act 59 of 2008) for the proposed Welgedacht Balloon Siding and associated conveyor belt.

The siding is to be situated on Portions 10, 32, 51, 55, and 57 of the farm Geigerle 238 IR; and Portions 9 and 19 of the farm Palmietkuilen 241 IR within the Gauteng Province. The proposed project will involve the development of the new Welgedacht Balloon Siding and associated infrastructure to be situated approximately 9 km east of Springs, Gauteng Province. The proposed siding will be situated on the above farm portions. Key infrastructure will include railway related infrastructure, weigh bridges, access roads, haul roads, product stockpile area, a pollution control dam, stormwater trenches, security offices, fuel storage and a conveyor belt.

The coal extracted at the Proposed Palmietkuilen Colliery will be transported to the respective markets and rail transportation is identified as the most effective means of transportation. Therefore, the development of a facility such as the proposed coal siding for the receiving and dispatching of coal from the Proposed Palmietkuilen Colliery is essential to unlock the socio-economic benefits associated with the colliery. The Welgedacht Balloon Siding is therefore of strategic significance to ensure coal material generated at the Colliery is dispatched to the relevant markets.

1.1 Summary of the Environmental Authorisation Requirements

Prior to the commencement of the proposed project, environmental authorisations are required from the following competent authorities:

- Environmental Authorisation from the DMRE (as the competent authority) in terms of the NEMA. The proposed project incorporates several activities listed in the Environmental Impact Assessment Regulations (EIA Regulations): Listing Notice 1, 2 and 3, 2014 published in Government Notice (GN) No. 983, 984 and 985 of 4 December 2014 and amended by GN No. 327, 325 and 324 of 7 April 2017, respectively. The EIA regulations applicable in this study, are the EIA Regulations, 2014 published in GN No. 982 of 4 December 2014 (amended 2017 and 2021).
- A Waste Management License (WML) from the DMRE in terms of the NEM:WA. The proposed project incorporates waste management activities listed in GNR 921 of 29 November 2013, as amended.
- A Water Use License (WUL) from the Department of Water and Sanitation (DWS) in terms of the National Water Act, 1998 (No. 36 of 1998) (NWA). The proposed project incorporates water uses in terms of Section 21 of the NWA.

The applicable listed activities and water uses are listed in Section 3.1 (Table 5) of this report. An integrated NEMA and NEM:WA application has been lodged with the DMRE. The WUL application will be submitted to the DWS.

Additional permits or licenses that may be required for the project include:

- Approval from the relevant Department of Roads and Transport for upgrading any roads or intersections;
- Approval from Transnet for the railway siding;
- Permit in terms of the National Heritage Act, 1999 (No. 25 of 1999) (NHRA), the Ordinance on Exhumations, 12 of 1980, and/or the Human Tissues Act, 1983 (No. 65 of 1983 if any heritage sites (including graves) are damaged or removed.

This list will be refined, as may be required, during the course of the EIA process.

1.2 Report Structure

This report has been compiled in accordance with the 2014 NEMA EIA Regulations (as amended). A summary of the report structure, and the specific sections that correspond to the applicable regulations, is provided in Table 2 below.

Table 2: Report Structure

Environmental Regulation	Description	Section in Report
NEMA Regulation 982 (2014) as amended (2017 and 2021)		
Appendix 2(2)(a):	Details of – The EAP who prepared the report; and The expertise of the EAP, including a curriculum vitae;	Section 2.1 and Section 2.2 and Appendix A
Appendix 2(2)(b):	The location of the activity. Including – The 21-digit Surveyor General code of each cadastral land parcel; Where available, the physical address and farm name; Where the required information in items (i) and (ii) is not available, the coordinates of the boundary of the property or properties;	Section 2
Appendix 2(2)(c):	A plan which locates the proposed activity or activities applied for 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; or On a land where the property has not been defined, the coordinates within which the activity is to be undertaken;	Appendix C
Appendix 2(2)(d):	A description of the scope of the proposed activity, including – All listed and specified activities triggered; A description of the activities to be undertaken, including associated structures and infrastructure;	Section 3
Appendix 2(2)(e):	A description of the policy and legislative context within which the development is proposed including an identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks and instruments that are applicable to this activity and are to be considered in the assessment process;	Section 0
Appendix 2(2)(f):	A motivation for the need and desirability for the proposed development including the need and desirability of the activity in the context of the preferred location;	Section 5
Appendix 2(2)(h):	A full description of the process followed to reach the proposed preferred activity, site and location within the site, including – Details of all 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;	Section 6 Section 7 Section 8 Section 9 Section10

Environmental Regulation	Description	Section in Report
	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 alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects; 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 or 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 associated with the alternatives; 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; The outcome of the site selection matrix; If no alternatives, including alternative locations for the activity were investigated, the motivation for not considering such; and A concluding statement indicating the preferred alternatives, including preferred location of the activity;	Section 11 Section 12
Appendix 2(2)(i):	A plan of study for undertaking the environmental impact assessment process to be undertaken, including – A description of the alternatives to be considered and assessed within the preferred site, including the option of not proceeding with the activity; A description of the aspects to be assessed as part of the environmental impact assessment process; Aspects to be assessed by specialists; A description of the proposed method of assessing the environmental aspects, including a description of the proposed method assessing the environmental aspects to be assessed by specialists; A description of the proposed method of assessing duration and significance; An indication of the stages at which the competent authority will be consulted;	Section 13 and Section 14

Environmental Regulation	Description	Section in Report
	Particulars of the public participation process that will be conducted during the environmental impact assessment process; and A description of the tasks that will be undertaken as part of the environmental impact assessment process; 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.	
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 19 and Appendix A
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;	Appendix A
Appendix 2(2)(l):	Where applicable, any specific information required by the competent authority; and	N/A
Appendix 2(2)(m):	Any other matter required in terms of section 24(4)(a) and (b) of the Act.	N/A

2 CONTACT PERSON AND CORRESPONDENCE ADDRESS

2.1 DETAILS OF EAP WHO PREPARED THE REPORT

Name of the Practitioner:	Sonja van de Giessen
Tel No.:	083 3884633
E-mail address:	sonja@elemental-s.co.za

2.2 EXPERTISE OF THE EAP

2.2.1 THE QUALIFICATIONS OF THE EAP

In terms of Regulation 13 of the 2014 EIA Regulations (Government Notice R. 982) as amended by GNR326 (2021), an independent Environmental Assessment Practitioner (EAP), must be appointed by the applicant to manage the application. Elemental Sustainability (Pty) Ltd. has been appointed by the Applicant as the EAP and is compliant with the definition of an EAP as defined in Regulations 1 and 13 of the EIA Regulations and Section 1 of the NEMA. This includes, inter alia, the requirement that Elemental Sustainability is:

- Objective and independent;
- Has expertise in conducting EIA's;
- Complies with the NEMA, the Regulations and all other applicable legislation;
- Takes into account all relevant factors relating to the application; and
- Provides full disclosure to the applicant and the relevant environmental authority.

The declaration of independence of the EAP and the Curriculum Vitae (indicating the experience with environmental impact assessments and relevant application processes) are attached as Appendix A to this report.

2.2.2 SUMMARY OF THE EAPS' EXPERIENCE

Please refer to Table 3 for a summary of the qualification and experience of the EAP, as well as Appendix A of this report.

Table 3: Details of EAP

Environmental Consultants:	Elemental Sustainability (Pty) Ltd
Postal address:	P.O. Box 39080 Moreletapark, Pretoria 0044
Telephone:	083 388 4633
Fax:	None
Author EAP	Sonja van de Giessen (*Pr.Sci.Nat* and EAPASA)
Qualifications:	University of North West, MSc Environmental management – 2018

	University of South Africa, BSc Hons Environmental Science – 2010
Professional affiliation(s):	Natural Professional Scientist (*Pr. Sci.Nat.* Number: 400084/18) Environmental Assessment Practitioner South Africa (EAPASA Number: 2019/1496)
Expertise of the EAP:	Environmental management, specifically the mining industry sector, focusing on Environmental Impact Assessments, Environmental Management Programmes, Water Use Licence Applications and Integrated Water and Waste Management Plans and Environmental Auditing.
Experience	Approximately 10 years of experience.

2.2.3 SPECIALIST CONSULTANTS

Specialist consultants will be appointed to provide discipline specific input during the EIA phase and the following specialist disciplines are proposed at this stage:

- Ecological Assessment;
- Heritage and Archaeological Assessment;
- Hydrogeological Assessment;
- Traffic Assessment;
- Hydrological Assessment (including water balance and aquatic assessment, if applicable);
- Hydropedological Assessment;
- Noise Assessment;
- Air Quality Assessment
- Palaeontological Assessment;
- Soils, Land Use and Capability and Agricultural Impact Study;
- Storm Water Management Plan (including Geotechnical Assessment, floodlines and topography);
- Traffic Impact Assessment;
- Wetland Delineation Study; and
- Engineering Designs.

In line with NEMA GNR 982 as amended by GNR 326 (2017 and 2021), Appendix 6, the details of the relevant specialists, a summary of their expertise, as well as their declarations of independence will be included in their respective reports that will be appended to the EIA Report.

2.3 DESCRIPTION OF THE PROPERTY

The Welgedacht Balloon Siding is situated in the Gauteng province, about 9km north-east of Springs in the Lesedi Local Municipality. The project comprises a railway line from the main Transnet line on Portions 10, 32, 51, 55, and 57 of the farm Geigerle 238IR, with the main siding to be located on Portions 9 and 19 of the farm Palmietkuilen 241IR. A conveyor belt is proposed and will run from the main siding over portion 9 of the farm Palmietkuilen 241IR where the Palmietkuilen Mining Project is located. Coal from the Palmietkuilen Mining Project will be loaded onto the conveyor belt for transportation to the proposed Welgedacht Balloon Siding. Table 4 below provides a description of the project properties.

Table 4: Description of the property

Name:	Welgedacht Balloon Siding	
Application area (Ha)	32ha for the siding and 45 ha approximately with railway line and conveyor belt	
Magisterial district:	Lesedi Local Municipality Sedibeng District Municipality	
Distance and direction from nearest town	9km north-east of Springs	
21-digit Surveyor General Code for each farm portion	Portion 10 of Geigerle 238IR	T0IR00000000023800010
	Portion 32 of Geigerle 238IR	T0IR00000000023800032
	Portion 51 of Geigerle 238IR	T0IR00000000023800051
	Portion 55 of Geigerle 238IR	T0IR00000000023800055
	Portion 57 of Geigerle 238IR	T0IR00000000023800057
	Portion 9 of Palmietkuilen 241IR	T0IR00000000024100009
	Portion 19 of Palmietkuilen 241IR	T0IR00000000024100019

2.4 LOCALITY MAP

Figure 1 indicates the location of the proposed project. The locality map is also appended in Appendix B.

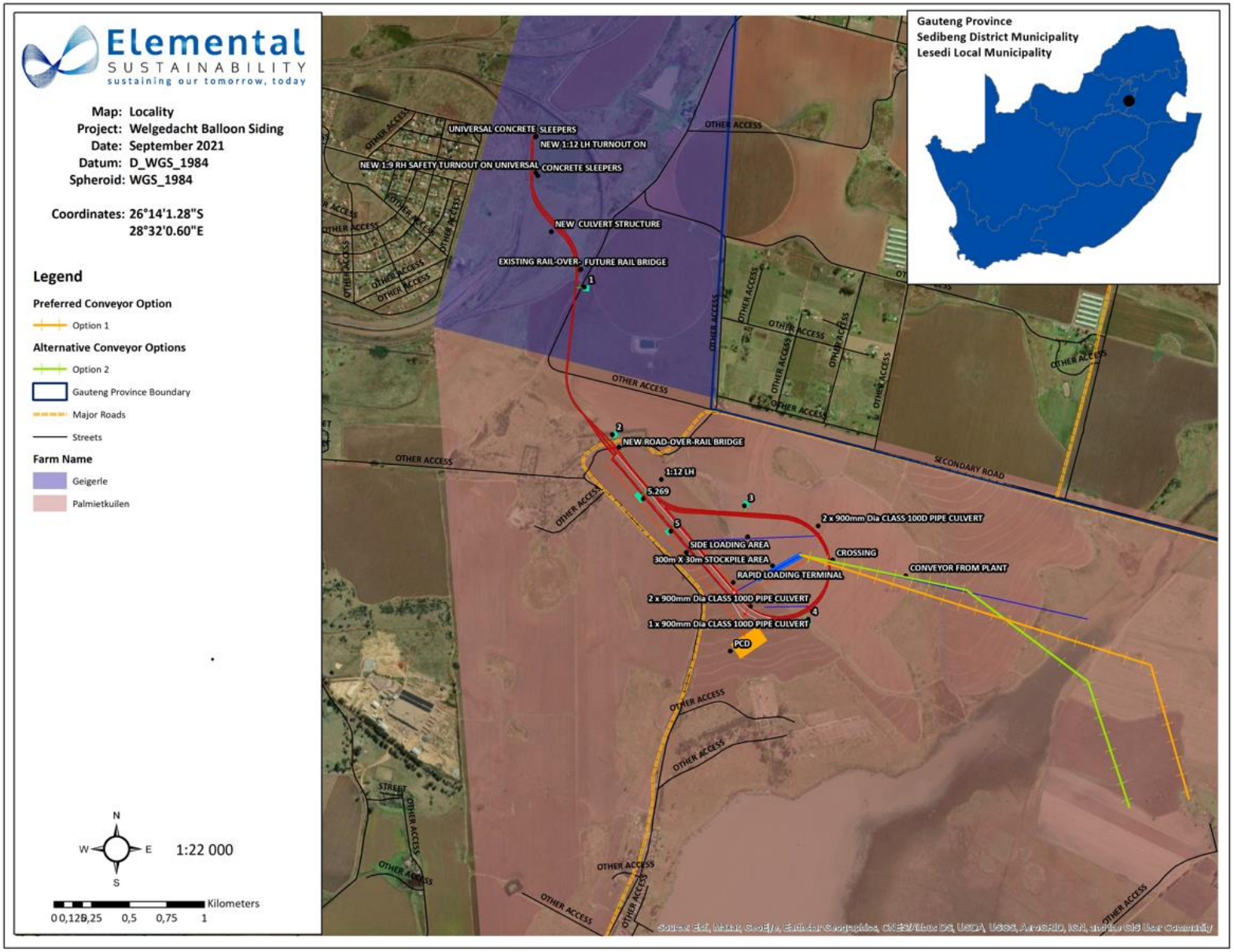

Figure 1: Locality of the Welgedacht Balloon Siding

3 DESCRIPTION OF THE SCOPE OF THE PROPOSED OVERALL ACTIVITY

3.1 LISTED AND SPECIFIED ACTIVITIES

Table 5 provides the listed and specified activities that are applicable to the Welgedacht Balloon Siding Project. Also refer to the layout plan included in Appendix C.

Table 5: Listed and specified activities

Listing Notice	Listed Activity	Name of Activity
GNR983 as amended (LN 1) Activity 2	The development and related operation of facilities or infrastructure for the generation of electricity from a non-renewable resource where— (i) the electricity output is more than 10 megawatts but less than 20 megawatts; or (ii) the output is 10 megawatts or less but the total extent of the facility covers an area in excess of 1 hectare.	Powerlines need to be erected for the project. The capacity will be determined during the EIA phase.
GNR983 as amended (LN 1) Activity 9	The development of infrastructure exceeding 1 000 metres in length for the bulk transportation of water or storm water— (i) with an internal diameter of 0,36 metres or more; or (ii) with a peak throughput of 120 litres per second or more; excluding where— (a) such infrastructure is for bulk transportation of water or storm water or storm water drainage inside a road reserve or railway line reserve; or (b) where such development will occur within an urban area.	Storm water infrastructure may trigger this activity and will be determined in the EIA phase
GNR983 as amened (LN 1) Activity 13	The development of facilities or infrastructure for the off-stream storage of water, including dams and reservoirs, with a combined capacity of 50 000 cubic metres or more, unless such storage falls within the ambit of activity 16 in Listing Notice 2 of 2014.	A PCD will be constructed, therefore this activity will be confirmed during the EIA phase following specialists' studies and the PCD size.
GNR983 as amended (LN 1) Activity 14	The development and related operation of facilities or infrastructure, for the storage, or for the storage and handling, of a dangerous good, where such storage occurs in containers with a combined capacity of 80 cubic metres or more but not exceeding 500 cubic metres.	Fuel storage. The capacity of the fuel storage tanks will be determined during the EIA phase.
GNR983 as amended (LN 1) Activity 19	The infilling or depositing of any material of more than **[5]** 10 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than **[5]** 10 cubic metres from **(i)** a watercourse; **(ii) the seashore; or** **(iii) the littoral active zone, an estuary or a distance of 100 metres inland of the high-water mark of the sea or estuary, whichever distance is the greater** but excluding where such infilling, depositing, dredging, excavation, removal or moving— i) will occur behind a development setback; ii) is for maintenance purposes undertaken in accordance with a maintenance management plan; or iii) falls within the ambit of activity 21 in this Notice, in which case that activity applies; iv) occurs within existing ports or harbours that will not increase the development footprint of the port or harbour; or v) where such development is related to the development of a port or harbour, in which case activity 26 in Listing Notice 2 of 2014 applies	A PCD will be constructed, therefore this activity will be confirmed during the EIA phase following specialists' studies and the PCD size.
GNR983 as amended (LN 1) Activity 24	The development of a road— (i) a road for which an environmental authorisation was obtained for the route determination in terms of activity 5 in	The access and haul roads will trigger this activity.

Listing Notice	Listed Activity	Name of Activity
	Government Notice 387 of 2006 or activity 18 in Government Notice 545 of 2010; or (ii) a road with a reserve wider than 13,5 meters, or where no reserve exists where the road is wider than 8 metres; but excluding a road— (a) roads which are identified and included in activity 27 in Listing Notice 2 of 2014; (b) roads where the entire road falls within an urban area; or (c) which is 1 kilometre or shorter.	
GNR983 as amended (LN 1) Activity 27	The clearance of an area of 1 hectares or more, but less than 20 hectares of indigenous vegetation, except where such clearance of indigenous vegetation is required for (i) the undertaking of a linear activity; or (ii) maintenance purposes undertaken in accordance with a maintenance management plan.	The access and haul roads may trigger this activity.
GNR983 as amended (LN 1) Activity 28	Residential, mixed, retail, commercial, industrial or institutional developments where such land was used for agriculture, game farming, equestrian purposes or afforestation on or after 01 April 1998 and where such development: (i) will occur inside an urban area, where the total land to be developed is bigger than 5 hectares; or (ii) will occur outside an urban area, where the total land to be developed is bigger than 1 hectare; excluding where such land has already been developed for residential, mixed, retail, commercial, industrial or institutional purposes.	Currently agricultural lands and more than 1 ha will be transformed.
GNR983 as amended (LN 1) Activity 30	Any process or activity identified in terms of section 53(1) of the National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004).	To be determined during the EIA phase by the specialist
GNR983 as amended (LN 1) Activity 56	The widening of a road by more than 6 metres, or the lengthening of a road by more than 1 kilometre (i) where the existing reserve is wider than 13,5 meters; or (ii) where no reserve exists, where the existing road is wider than 8 metres; excluding where widening or lengthening occur inside urban areas.	The access and haul roads may trigger this activity.
GNR 325 (LN2) Activity 4	The development and related operation of facilities or infrastructure, for the storage, or storage and handling of a dangerous good, where such storage occurs in containers with a combined capacity of more than 500 cubic metres.	Fuel storage. The capacity of the fuel storage tanks will be determined during the EIA phase.
GNR 984 as amended (LN2) Activity 6	The development of facilities or infrastructure for any process or activity which requires a permit or licence or an amended permit or licence in terms of national or provincial legislation governing the generation or release of emissions, pollution or effluent, excluding— (i) activities which are identified and included in Listing Notice 1 of 2014; (ii) activities which are included in the list of waste management activities published in terms of section 19 of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) in which case the National Environmental Management: Waste Act, 2008 applies; (iii) the development of facilities or infrastructure for the treatment of effluent, polluted water, wastewater or sewage where such facilities have a daily throughput capacity of 2 000 cubic metres or less; or (iv) where the development is directly related to aquaculture facilities or infrastructure where the wastewater discharge capacity will not exceed 50 cubic metres per day	WUL application will trigger this activity.

Listing Notice	Listed Activity	Name of Activity
GNR 984 as amended (LN2) Activity 7	The development and related operation of facilities or infrastructure for the bulk transportation of dangerous goods— (i) in gas form, outside an industrial complex, using pipelines, exceeding 1 000 metres in length, with a throughput capacity of more than 700 tons per day; (ii) in liquid form, outside an industrial complex, using pipelines, exceeding 1 000 metres in length, with a throughput capacity of more than 50 cubic metres per day; or (iii) in solid form, outside an industrial complex, using funiculars or conveyors with a throughput capacity of more than 50 tons per day.	Conveyor belt. Amount to be transported daily will be confirmed during the EIA phase.
GNR 984 as amended (LN2) Activity 9	The development of facilities or infrastructure for the transmission and distribution of electricity with a capacity of 275 kilovolts or more, outside an urban area or industrial complex excluding the development of bypass infrastructure for the transmission and distribution of electricity where such bypass infrastructure is — (a) temporarily required to allow for maintenance of existing infrastructure; (b) 2 kilometres or shorter in length; (c) within an existing transmission line servitude; and (d) will be removed within 18 months of the commencement of development.	Powerlines need to be erected for the project. The capacity will be determined during the EIA phase.
GNR 984 as amended (LN2) Activity 12	The development of railway lines, stations or shunting yards excluding — (i) railway lines, shunting yards and railway stations in industrial complexes or zones; (ii) underground railway lines in a mining area; or (iii) additional railway lines within the railway line reserve.	The railway line will trigger this activity.
GNR 984 as amended (LN2) Activity 15	The clearance of an area of 20 hectares or more of indigenous vegetation, excluding where such clearance of indigenous vegetation is required for— (i) the undertaking of a linear activity; or (ii) maintenance purposes undertaken in accordance with a maintenance management plan.	The site is over 30 ha for the siding and the combined clearance for the conveyor belt, road and the siding may trigger this activity. Will be determined by specialist studies during the EIA phase.
GNR 984 as amended (LN3) Activity 4	The development of a road wider than 4 metres with a reserve less than 13,5 metres. **c. Gauteng** i. A protected area identified in terms of NEMPAA, excluding conservancies; ii. National Protected Area Expansion Strategy Focus Areas; iii. Gauteng Protected Area Expansion Priority Areas; iv. Sites identified as Critical Biodiversity Areas (CBAs) or Ecological Support Areas (ESAs) in the Gauteng Conservation Plan or in bioregional plans; v. Sites identified within threatened ecosystems listed in terms of the National Environmental Management Act: Biodiversity Act (Act No. 10 of 2004); vi. Sensitive areas identified in an environmental management framework adopted by the relevant environmental authority; vii. Sites identified as high potential agricultural land in terms of Gauteng Agricultural Potential Atlas; viii. Important Bird and Biodiversity Area (IBA); ix. Sites or areas identified in terms of an international convention;	Access road and haul road sizes may be required. Specialist study will determine if any of these Listed Activities are triggered and this will be confirmed during the EIA phase.

Listing Notice	Listed Activity	Name of Activity
	x. Sites managed as protected areas by provincial authorities, or declared as nature reserves in terms of the Nature Conservation Ordinance (Ordinance 12 of 1983) or the NEMPAA; xi. Sites designated as nature reserves in terms of municipal Spatial Development Frameworks; or xii. Sites zoned for conservation use or public open space or equivalent zoning.	
GNR 985 as amended (LN3) Activity 12	The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan. **c. Gauteng** i. Within any critically endangered or endangered ecosystem listed in terms of section 52 of the NEMBA or prior to the publication of such a list, within an area that has been identified as critically endangered in the National Spatial Biodiversity Assessment 2004; ii. Within Critical Biodiversity Areas or Ecological Support Areas identified in the Gauteng Conservation Plan or bioregional plans; or iii. On land, where, at the time of the coming into effect of this Notice or thereafter such land was zoned open space, conservation or had an equivalent zoning.	Development of the infrastructure may trigger this activity. To be determined during the EIA phase through the specialist study.
GNR 985 as amended (LN3) Activity 10	The development and related operation of facilities or infrastructure for the storage, or storage and handling of a dangerous good, where such storage occurs in containers with a combined capacity of 30 but not exceeding 80 cubic metres. ***c*) Gauteng** (i) A protected area identified in terms of NEMPAA, excluding conservancies; (ii) National Protected Area Expansion Strategy Focus Areas; (iii) Gauteng Protected Area Expansion Priority Areas; (iv) Sites identified as Critical Biodiversity Areas (CBAs) or Ecological Support Areas (ESAs) in the Gauteng Conservation Plan or in bioregional plans; (v) Sites identified within threatened ecosystems listed in terms of the National Environmental Management Act: Biodiversity Act (Act No. 10 of 2004); (vi) Sensitive areas identified in an environmental management framework adopted by the relevant environmental authority; (vii) Sites identified as high potential agricultural land in terms of Gauteng Agricultural Potential Atlas; (viii) Sites or areas identified in terms of an international convention; (ix) Sites managed as protected areas by provincial authorities, or declared as nature reserves in terms of the Nature Conservation Ordinance (Ordinance 12 of 1983) or the NEMPAA; (x) Sites designated as nature reserves in terms of municipal Spatial Development Frameworks; (xi) Sites zoned for conservation use or public open space or equivalent zoning; or (xii) Important Bird and Biodiversity Areas (IBA).	The fuel tanks may trigger this activity. Size will be determined during the EIA phase
GNR 985 as amended (LN3) Activity 14	The development of— (i) canals exceeding 10 square metres in size; (ii) channels exceeding 10 square metres in size;	Development of the Pollution Control Dam/s may trigger this activity. To be determined

Listing Notice	Listed Activity	Name of Activity
	(iii) bridges exceeding 10 square metres in size; (iv) dams, where the dam, including infrastructure and water surface area exceeds 10 square metres in size; (v) weirs, where the weir, including infrastructure and water surface area exceeds 10 square metres in size; (vi) bulk storm water outlet structures exceeding 10 square metres in size; (vii) marinas exceeding 10 square metres in size; (viii) jetties exceeding 10 square metres in size; (ix) slipways exceeding 10 square metres in size; (x) buildings exceeding 10 square metres in size; (xi) boardwalks exceeding 10 square metres in size; or (xii) infrastructure or structures with a physical footprint of 10 square metres or more; (i) dams or weirs, where the dam or weir, including infrastructure and water surface area exceeds 10 square metres; or (ii) infrastructure or structures with a physical footprint of 10 square metres or more; where such development occurs— (a) within a watercourse; (b) in front of a development setback; or (c) if no Development setback has been adopted, within 32 metres of a watercourse, measured from the edge of a watercourse; excluding the development of infrastructure or structures within existing ports or harbours that will not increase the development footprint of the port or harbour. **c. Gauteng** i. A protected area identified in terms of NEMPAA, excluding conservancies; ii. National Protected Area Expansion Strategy Focus Areas; iii. Gauteng Protected Area Expansion Priority Areas; iv. Sites identified as Critical Biodiversity Areas (CBAs) or Ecological Support Areas (ESAs) in the Gauteng Conservation Plan or in bioregional plans; v. Sites identified within threatened ecosystems listed in terms of the National Environmental Management Act: Biodiversity Act (Act No. 10 of 2004); vi. Sensitive areas identified in an environmental management framework adopted by the relevant environmental authority; vii. Sites or areas identified in terms of an international convention; viii. Sites managed as protected areas by provincial authorities, or declared as nature reserves in terms of the Nature Conservation Ordinance (Ordinance 12 of 1983) or the NEMPAA; ix. Sites designated as nature reserves in terms of municipal Spatial Development Frameworks; or x. Sites zoned for conservation use or public open space or equivalent zoning.	during the EIA phase through the specialist studies. Specialist studies will determine if any of these Listed Activities are triggered and this will be confirmed during the EIA phase.
GNR 985 as amended (LN3) Activity 18	The widening of a road by more than 4 metres, or the lengthening of a road by more than 1 kilometre. **c. Gauteng** i. A protected area identified in terms of NEMPAA, excluding conservancies;	Access road and haul road sizes may be required. Specialist studies will determine if any of these Listed Activities are triggered

Listing Notice	Listed Activity	Name of Activity
	ii. National Protected Area Expansion Strategy Focus Areas; iii. Gauteng Protected Area Expansion Priority Areas; iv. Sites identified as Critical Biodiversity Areas (CBAs) or Ecological Support Areas (ESAs) in the Gauteng Conservation Plan or in bioregional plans; v. Sites identified within threatened ecosystems listed in terms of the National Environmental Management Act: Biodiversity Act (Act No. 10 of 2004); vi. Sensitive areas identified in an environmental management framework adopted by the relevant environmental authority; vii. Sites identified as high potential agricultural land in terms of Gauteng Agricultural Potential Atlas; viii. Sites or areas identified in terms of an international convention; ix. Important Bird and Biodiversity Area (IBA);	and this will be confirmed during the EIA phase.
National Environmental Management Waste Act		
GNR 921 Activity A1	The storage of general waste in lagoons.	PCD
GNR 921 Activity A12	The construction of a facility for a waste management activity listed in Category A of this Schedule (not in isolation to associated waste management activity).	PCD
GNR 921 Activity B1	The storage of hazardous waste in lagoons excluding storage of effluent, wastewater or sewage.	PCD
GNR 921 Activity B 7	The disposal of any quantity of hazardous waste to land.	Coal Stockpile
GNR 921 Activity B10	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 construction of a PCD and the coal stockpile
GNR 921 Activity B11	The establishment or reclamation of a residue stockpile or residue deposit resulting from activities which require a mining right, exploration right or production right in terms of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002).	Coal Stockpile

3.2 DESCRIPTION OF THE ACTIVITIES TO BE UNDERTAKEN

This section provides a detailed project description. The aim of the project description is to indicate the activities that are planned to take place at the proposed project area, and activities that are being applied for in this application. Furthermore, the detailed project description is presented to facilitate the understanding of the project related activities, which result in the impacts identified and assessed, and for which management measures have been proposed.

3.2.1 BACKGROUND

The proposed Welgedacht Balloon Siding is located 9km north-east of Springs in the Gauteng Province. Access to the project area can be reached by will be from the D1255. The siding will be used for transportation of coal from various surrounding coal mines and the Proposed Palmietkuilen Colliery. The proposed layout is provided in Figure 2. Following specialist studies, to be undertaken for the EIA phase, and public participation with landowners, Interested and Affected Parties (I&APs) and any other stakeholders, the location of the proposed surface infrastructure may move to other locations. The final surface infrastructure layout will, therefore, be provided in the Environmental Impact Assessment Report (EIAr).

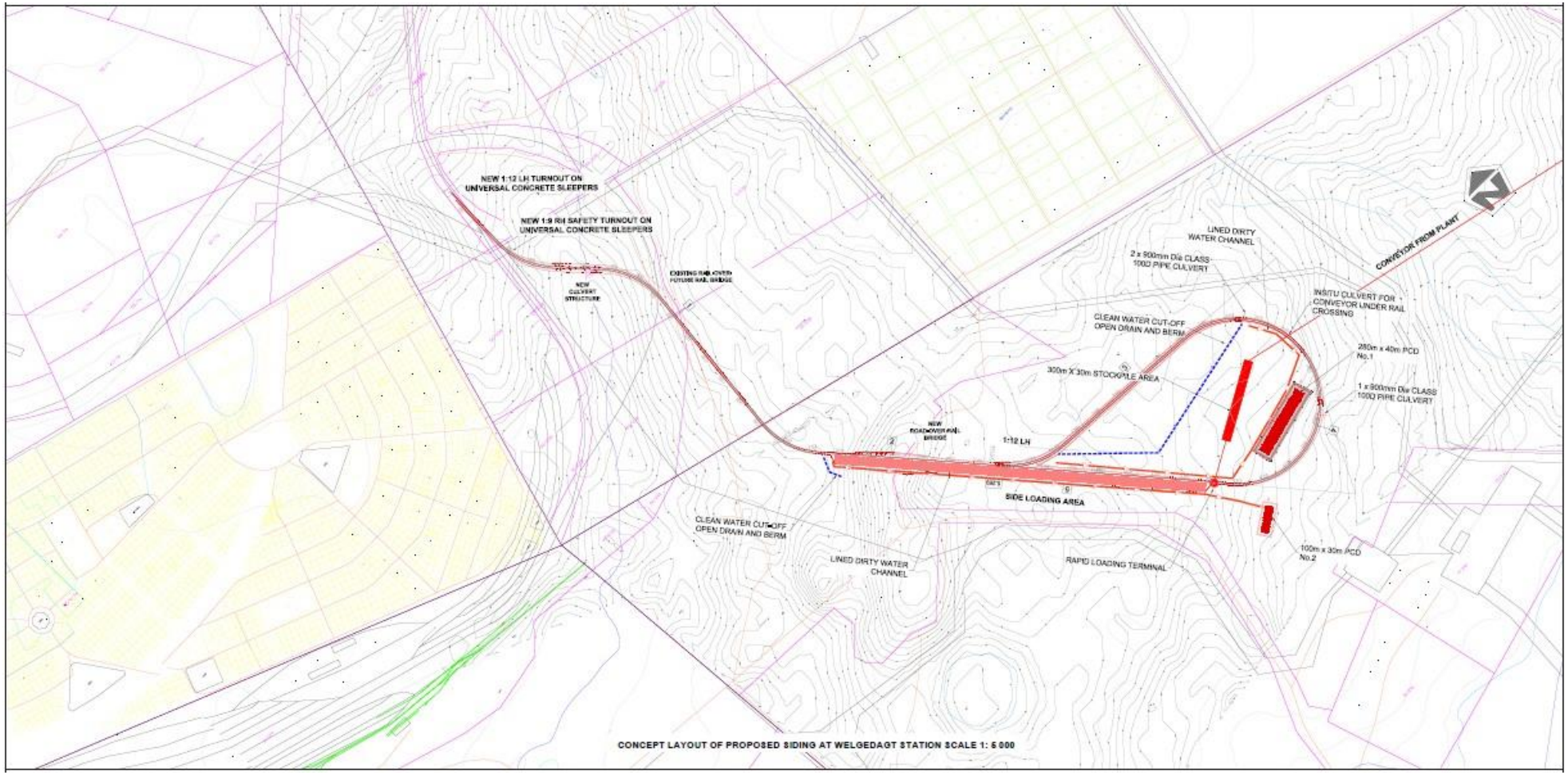

Figure 2: Proposed layout plan for the Welgedacht Balloon Siding

3.2.2 THE WELGEDACHT BALLOON SIDING INFRASTRUCTURE

Key infrastructure for the siding includes the following:

- Railway Infrastructure;
- Weigh bridges
- Access roads
- Haul roads
- Product Stockpile Area,
- Pollution Control Dam,
- Stormwater Trenches,
- Security Offices,
- Fuel storage, and
- Conveyor Belt

The final layout for the project will be included in the EIAr and the EMPr.

3.2.2.1 PROPOSED RAILWAY LINE

The following components of the railway design were taken into consideration:

- Length of the railway;
- Railway layout for the unloading facility;
- Frequency of trains;
- Formation design;
- Track design;
- Signalling design;
- Electrical design; and
- Communication design.

3.2.2.1.1 ROUTE LENGTH

The length of the proposed rail line will range between 5 and 6 km.

3.2.2.1.2 RAIL LAYOUT FOR UNLOADING FACILITY

The rail yard will be designed for 104 wagon trains, hauled by six locomotives. The layout will include unloading options by means of a bottom discharge wagon (Figure 3) or open-top containers. Two loops will be provided

on each side of the unloading point to allow a set of 104 loaded wagons to be placed, and a set of 104 empty wagons unloaded in a previous operation to be removed. Provision has been made for two spur lines to allow for six locomotives as well as defective wagons to be staged temporarily.

Figure 3: Example of a bottom discharge wagon

3.2.2.1.3 FREQUENCY OF TRAINS

It is envisioned that one train will enter the siding and one train will exit the siding on a daily basis. There will be a total of two trains per day.

3.2.2.1.4 FORMATION DESIGN

The formation design approach for this project will be based on the following engineering principles:

- To optimise the use of in-situ materials;
- To ensure proper horizontal and vertical alignment;
- To ensure drainage designs conforming to the required standards with special attention given to cross drainage;
- To provide an appropriate formation structure for a 25-year design life; and
- To ensure that the proposed design of the formation is economical and cost effective in terms of construction and subsequent maintenance.

3.2.2.1.5 TRACK DESIGN

The track design will allow for an axle load of 20 ton, which will be to class N2 standard. The minimum radius of curves on the line will be 500 m. This is to ensure that the new proposed railway line's track design is in accordance with the existing track design of the Transnet Freight Rail (TFR) line from which it takes off. Refer to Figure 4 for a typical cross section of a track design.

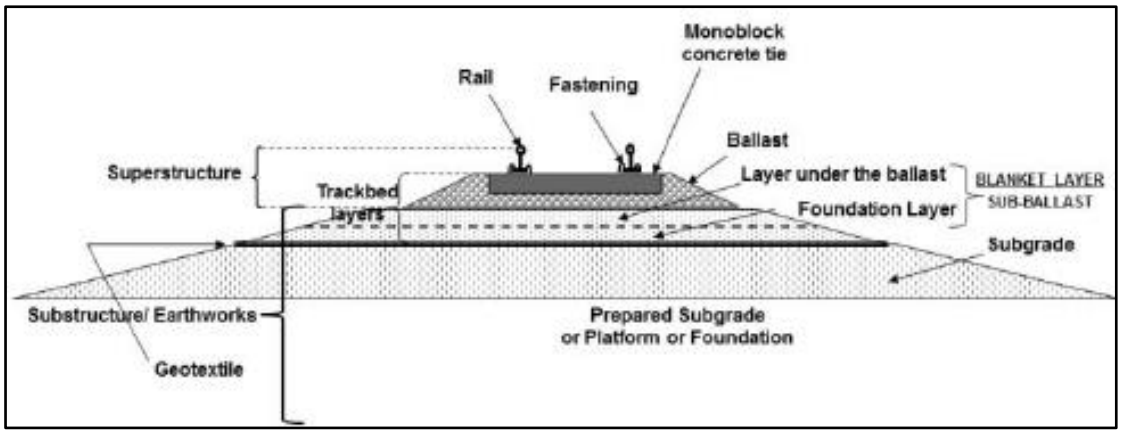

Figure 4: Typical cross section of track design

3.2.2.1.6 SIGNALLING DESIGN

The signalling design will be done to interface with the existing TFR signalling system and enable TFR to operate it as a part of the centralised train control system. The rail connection will require an additional relay room and the associated changes to the existing control panels.

3.2.2.1.7 ELECTRICAL DESIGNS

The electrical substation and overhead traction design will be done to the latest prevailing standards. It will make use of auto-tensioning devices on the overhead traction equipment (OHTE) and will be able to cater for 50 wagon trains with an axle load of 20 ton (Figure 5). The OHTE system voltage will be 3.3 kV DC. The OHTE system will be fed from the Palmietkuilen or the Strubenvale substation. substation.

Figure 5: Example of an OHTE system

3.2.2.1.8 COMMUNICATIONS DESIGN

The communication design will be done to interface with the communication system of TFR in order to operate the line as part of their network. The communication will allow for remote control of signalling equipment. Remote control of substations and communication between trains and the centralised traffic control centre.

The approach is to design the connection to the northern TFR rail line in such a way to allow the eastern and western approaching trains on the TFR rail line to enter the siding without delay. This can be done if the signalling of the siding is integrated and controlled by TFR. The communication system will not be visible and have minimal to no impact. The only visible item will be the optic fibre cable approximately 8 mm in diameter along the OHTE.

3.2.2.1.9 GEOMETRIC DESIGN STANDARDS

The line will be designed for 20 ton per axle loads at a maximum gradient of 1% (1:100) and will be in accordance with the following design documents:

- SANS 3000-1 Standards; and
- Standard Guidelines for the construction of rail lines.

The design criteria for the alignment and the yard are outlined in Table 6.

Table 6: Design criteria for the alignment and siding (unloading)

Parameter	**Desirable**
Alignment	
Design speed	70 km/h
Minimum radius	500 m
Design speed for super elevation	70 km/h
Minimum gradient	1.0%
Minimum rail reserve width (including service road)	±31 m depending on cut and fill heights
Siding	
Design speed	30 km/h
Minimum radius	400 m
Design gradient	1:800 min
Minimum rail reserve width	22.3 m

3.2.2.1.10 COMMUNICATION MASTS

A communication mast may be required in order for the train driver to receive signalling directions.

3.2.2.1.11 120 KV POWER LINES

In order for the railway to be electrified a 120 kV power line is required to distribute electricity.

3.2.2.1.12 BRIDGES

In the event that the railway crosses a stream or road, the following structures may be required to be constructed:

- Culverts: Crossing streams or providing for storm water runoff ;
- Road over rail bridges: Crossing under roads;
- Rail over road bridges: Crossing over roads;
- Rail over stream bridges: Crossing streams.
- Cattle crossings under / over rail structures may also be constructed, if deemed necessary, allowing for livestock to cross the rail track safely.

3.2.2.2 THE CONVEYOR BELT

It is proposed that an overland conveyor belt and associated service road be established between the plant at the Palmietkuilen Mining Project to the Welgedacht Balloon Siding. The conveyor will transfer coal product from the plant to the siding. The conveyor belt will be constructed on the approved alignment following a site walk down, and the construction will entail the fabrication, installation modifications and commissioning of 1.8km overland conveyor. The activities associated with the construction of the conveyor belt include the following:

- Civil works;
- Mechanical works; and
- Service road.

3.2.2.2.1 CIVIL WORKS

This civil works covers the ground works and service roads along the conveyor route as per the design drawing. Ground works and concrete plinths for the conveyor support (outside wetlands area):

- Excavation needs to be done every 4m for the conveyor support structure on all areas outside the indicated wetlands areas as indicated on the conveyor route drawing with the following specifications:
    - 2m long x 400mm wide x 400mm deep G5 material to be inserted into the hole and compacted
    - 1.2m x 300mm x 250mm concrete plinths to be installed on the levelled G5 base; and
    - Steel conveyor gantry structure to be installed on the concrete plinths.

Ground works and piles for the conveyor support (inside wetlands area):

- Pile holes to be drilled every 6m for the conveyor support structure in the wetlands areas, as indicated on the conveyor route drawing with the following specifications:
    - 2 x Diameter 300mm holes to be drilled 3m to 4m deep in the existing soil every 6m inside the wetlands area;
    - 2 x Diameter 300mm concrete piles to be installed in the holes and levelled to 300mm protrusion above ground level; and
    - Steel conveyor gantry structure to be installed on the concrete piles.

3.2.2.2.2 MECHANICAL WORKS

The mechanical conveyor structure will fit on top of the concrete plinths and piles as per the design drawings. The conveyor steel transfer structures will be built on the conveyor route.

3.2.2.2.3 SERVICE ROAD

A single lane service road (2.5m wide) will be graded next to the majority distance of the conveyor. It will cross the wetland areas and utilise the existing farm roads as indicated on the conveyor routing drawing. No material will be excavated for the road.

3.2.2.3 GENERAL AND HAZARDOUS WASTE

General and hazardous waste will be generated during the construction and operational phases. The types of waste may include:

- hazardous industrial waste (such as packaging for hazardous materials, used oils and lubricants,
- used liquid fuels, hydrocarbon contaminated soils) and
- general industrial waste (such as scrap metal, building rubble and demolition waste).

Any hydrocarbon contaminated soils will be removed and dealt with as hazardous waste. These wastes will be handled, sorted and temporarily stored on site in a waste/salvage yard. Where waste can be re-used or recycled this shall be undertaken, or alternatively the waste will be removed by approved waste handling companies for recycling, re-use or final disposal at permitted waste disposal facilities.

3.2.2.4 SEWAGE

Portable toilets and temporary ablution facilities will be utilised. A septic tank will be installed at the office. The treatment method and design capacity will be included in the EIA.

3.2.2.5 ACCESS ROAD AND FENCING

Access to the project area can be reached will be from the D1255 There will also be a proposed access road within the railway servitude. The access road will run parallel to the railway line. It is envisioned that the access road and railway servitude will be fenced off for safety and security reasons.

3.2.2.6 SECURITY AND ACCESS CONTROL

The siding will implement access control.

3.2.2.7 WATER AND SERVICES

Run-off water from the contaminated area (stockpile and workshops) will be directed towards the pollution control dam (PCD) on site. The water collected in the PCD will be used for dust suppression. Potable water will be obtained from the municipality.

3.2.2.8 PROPOSED ACTIVITIES

The main activities and process that are planned to take place on site are listed in Table 9. All actions, activities and processes have been grouped into each of the relevant project phases namely: pre-construction, construction, operation, decommissioning, rehabilitation and closure. For this report, the following broad definitions apply:

- Pre-construction refers to the phase in which planning takes place;
- Construction refers to the phase in which the site is prepared, and infrastructure is established;
- Operation refers to the phase in which the transportation of the coal takes place; and
- Decommissioning refers to the phase in which infrastructure is removed and rehabilitation efforts are applied, and their success monitored.

Table 7: List of main action, activities or processes on site and per phase

No.	Activity	Details
Preconstruction		
1.	Screening	Prior to the undertaking of an EIA, a technical team devised the railway route and conveyor belt alternatives for the proposed project. An environmental team was commissioned to undertake a screening exercise in the area to determine the top three most feasible alternatives from an environmental perspective to take into the EIA.
2.	Environmental Authorisation and Water Use Licence	An EIA is being undertaken to ensure that all environmental, social and cultural impacts are identified and to ensure that stakeholders have the

No.	Activity	Details
		opportunity to raise issues and concerns. This is necessary to obtain Environmental Authorisation from the competent authority (DMRE), and a water use licence (DWS).
3.	Consultation with Interested and Affected Parties and	All stakeholders and property owners will be engaged in the environmental authorisation processes; however, Canyon will have to begin with land negotiations in order to purchase servitudes.
4.	Structure foundation investigation	Investigations will be undertaken by a registered engineer to ensure that the foundation specifications are in line with the underlying geology
5.	Approval from road, rail and water authorities.	
Construction Phase		
1.	Structures	**Fencing** - Provide a safe and secured rail transport area to restrict access and prevent injuries to livestock.
		Formation - Provide a ground formation compacted to the correct standard, and alignment on which to build the railway track. The formation can be in a cutting or in the form of an embankment.
		Drainage - Provide water drainage channels along the track and within the servitude to provide for the maintenance of the line and its components.
		Bridge Structures - Provide structures at road or stream crossings, or for moving livestock, that may be classified as: • Culverts: Crossing streams and or providing for storm water runoff; • Road over rail bridges: Crossing under roads; • Rail over road bridges: Crossing over roads; or • Rail over stream bridges: Crossing streams. Cattle crossings under / over rail structures: Allowing for livestock to cross the rail track safely.
		Perway - Provide the railway track (permanent way) consisting of: • Ballast: Stone acting as a flexible support under the sleepers; • Sleepers: Supporting the rails; and • Rails: The rails carrying a train (will be 48 kg/m rails or heavier) Turnouts: Installations in a track that guide a train from one line to another.

No.	Activity	Details
2.	Construct Overhead Traction Equipment (OHTE)	The OHTE will be constructed to provide electricity to the locomotives via the pantographs mounted on top of the locomotives. The OHTE provides a transmission line along the route transferring continuous power through the contact wire to the pantographs of a train passing underneath the OHTE
3.	Construct bulk power supply transmission lines to traction from Eskom substations (Eskom)	These transmission lines are required to feed the traction substations from the Eskom supply. They can typically be 88 kV or 132 kV, three phase which are standard Eskom voltages.
4.	Design and construct signalling and rail bound communication system	A signalling system is required to control trains in order to maintain safe following distances and to avoid head-on collisions. Signals in the form of colour lights mounted on poles will be provided next to the track where required.
5.	Construction of conveyor belt	The conveyor belt from the Palmietkuilen mine to the Welgedacht Balloon Siding needs to be constructed, together with the servicing road.
6.	Construction of siding infrastructure	The various infrastructure to be built at the siding (storage area for fuel, office, PCD and stormwater berms) will need to be constructed as per the engineering designs.
Rehabilitation of construction site		
1.	Rehabilitate the construction site	The area where construction has taken place must be rehabilitated to minimise environmental degradation by following the Environmental Management Plan that is compiled in conjunction to the EIAr.
Operational Phase		
1.	Commencement of operations	Once the construction and rehabilitation tasks have been completed the transportation of coal may commence.
2.	Dust Suppression	Dust suppression needs to be undertaken on an ongoing basis.
3.	Repair and maintenance of storm water management infrastructure	The storm water management berms and PCD will need to maintained to prevent spillage.
4.	Repair and maintenance of conveyor belt.	The conveyor belt will need to be maintained and repaired on an ongoing basis to ensure that no spillage occurs.
Decommissioning		
1.	Decommissioning of the railway, the conveyor belt and the siding and associated infrastructure	Once the railway line, the siding and the conveyor belt are no longer in use and are no longer required, a decommissioning process may commence.

4 POLICY AND LEGISLATIVE CONTEXT

This section provides an overview of the governing legislation identified which may relate to the proposed project. A summary of the applicable legislation is provided in Table 8 below. The primary legal requirement for this project stems from the need for an EA to be granted by the competent authority, which is the DMRE, in accordance with the requirements of both the NEMA and NEMWA. In addition, there are numerous other pieces of legislation governed by many acts, regulations, standards, guidelines and treaties on an international, national, provincial and local level, which should be considered to assess the potential applicability of these for the proposed activity.

Table 8: Policy and Legislative Context

Applicable Legislation and Guidelines Used to Compile the Report	Reference Where Applied
Constitution of South Africa, 1996 (Act No. 108 of 1996) [as amended] • *Section 24* *Environment: 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 legislative and other measures that-* *i) prevent pollution and ecological degradation;* *ii) promote conservation; and* *Secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development.*	The proposed project has the potential to harm the environment and poses a risk to the health and wellbeing of people. The development, however, also has the potential to secure sustainable development through reusing process products and thereby limiting the use of natural resources. The Applicant has the overall responsibility to ensure that the rights of people in terms of Section 24 of the Constitution is protected in terms of the proposed development activity.
National Environmental Management Act (No. 107 of 1998) [as amended] • *Section 28 (1)* *Duty of Care and responsibilities to minimise and remediate environmental degradation.*	The Applicant is the developer and overall responsibility of the mine rests with him, especially in terms of liabilities associated with the operational phase.
EIA Regulations, 2014 (Government Notices 982 -984) [as amended] *The proposed construction, operational and closure activities of the proposed development triggers listed activities that are listed in the EIA regulations for which a Scoping and Environmental Impact Assessment (EIA) process have to be conducted:* Listing Notice 1, 2 & 3 have been triggered as well as GN633 for several waste activities requiring a Waste License as well.	The proposed project requires an application for an environmental authorisation for various activities, including activities in Listing Notice 2. An integrated NEMA and NEM:WA application has been launched with the DMRE (This application).
EIA Regulations, 2017 (Government Notices 982 - 984), as amended 2021 *Chapter 6: Regulation 39 to 44: Public Participation;* *Chapter 4: Application for Environmental Authorisation:*	The EIA Regulations, 2014 [as amended] prescribes inter alia: The manner in which public participation needs to be conducted as well as the requirements of a scoping and environmental impact assessment process and the content of a scoping report, environmental impact assessment report and environmental management programme.

Applicable Legislation and Guidelines Used to Compile the Report	Reference Where Applied
Part 3 Scoping and Environmental Impact Report (S&EIR) *Appendix 2: Scoping Report* *Appendix 3: Environmental Impact Assessment Report* *Appendix 4: Environmental Management Programme* *Appendix 5: Closure Plan* *Appendix 6: Specialist Reports*	The content of specialist reports, closure plans and environmental audit reports are also provided.
National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) [as amended] • *Section 16* *General duty in respect of waste management;* • *Section 17;* *Reduction, re-use, recycling and recovery of waste;* • *Section 18; and* *Extended producer responsibility; and* • *Section 21* *General requirements for storage of hazardous and general waste.*	The proposed stockpile area will produce general and hazardous waste which need to be managed and disposed of according to best practices such as recycling, safe storage, etc. An integrated NEMA and NEM:WA application has been launched with the DMRE (this application).
National Water Act, 1998 (Act No. 36 of 1998) [as amended] • *Section 3* *Regulation of flow and control of all water* • *Section 19* *Prevention of pollution to watercourses* • *Section 21* *The water use activities associated with the proposed development requires compliance with the requirements of the NWA as listed under GN No. 19182. An application for an integrated water use license is lodged in terms of Section 21 of the National Water Act, 1998 (Act 36 of 1998) [as amended] to undertake the following activity:* *Section 21: (g) disposing of waste in a manner which may detrimentally impact on a water resource.*	The proposed siding will have to apply for a Water Use License for the following Section 21 water uses: - Section 21(a): Talking of water from a water resource - Section 21(b): Storage of water - Section 21(c): Impeding or diverting the flow of water in a watercourse - Section 21(g): Disposing of water in a manner which may detrimentally impact on a water resource - Section 21(i): Altering the bed, banks, course or characteristics of a watercourse
Regulations Regarding the Procedural Requirements for Water Use Licence Applications and Appeals published in terms of NWA in Government Notice 267 of March 2017 Several General Authorisations have been published in terms of Section 39 of the NWA (various dates)	The Regulations will be taken into consideration during the Water Use Licence Application process and will be utilised by the Wetland specialist to determine the impact of the proposed siding and related activities on the wetland areas. The C&I risk assessment will be in the format as required by the regulations.
National Heritage Resources Act, 1999 (Act No. 25 of 1999) • *Section 44 (1);* *Preservation and protection of heritage resources;* • *Section 3 Types and ranges of heritage resources (i) (i);* *Objects recovered from the soil or waters of South Africa, including archaeological and palaeontological objects and material, meteorites and rare geological specimens*.	Protection of indigenous heritage resources on the property. A Heritage assessment will be conducted for the project and the documents will be distributed to SAHRA for comments during the onset of the PPP Phase.

Applicable Legislation and Guidelines Used to Compile the Report	Reference Where Applied
National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004) [as amended] • *Section 32* *Control of dust* • *Section 34* *Control of noise*	Impacts on surrounding landowners need to be managed through dust and noise mitigation measures. An Air Quality & Noise Impact Assessment will be undertaken during the onset of the project and the details will be provided within the EIA Phase of the project.
List of Activities which Result in Atmospheric Emissions, published in terms of NEM:AQA in Government Notice 893 of 2013 (as amended)	The proposed activities will not trigger any of the activities.
National Dust Control Regulations, 2013 (Government Notice 827 of 2013) • *Section 3* *Dust fall standard* • *Section 4* *Dust fall monitoring program* • *Section 6* *Measures for control of dust* • *Section 7* *Ambient air quality monitoring (PM10)* • *Section 8* *Offences* • *Section 9* *Penalties*	Dust fallout needs to be monitored in accordance to the standards set out in the monitoring programme with the specified measures due to the Applicant being liable to offences and penalties associated with non-conformance to dust which may influence employees and surrounding landowners.
National Greenhouse Gas Emission Reporting Regulations, published in terms of NEM:AQA in Government Notice of July 2017	During operational phase the siding will be required to report in the prescribed format.
Veld and Forest Fire Act, 1998 (Act No. 101 of 1998) [as amended] • *Section 12 (1)* *Duty of the landowner to prevent fire from spreading to neighbouring properties.*	Cautionary steps in avoiding the spread of fires to and from neighbouring properties.
National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004) [as amended] • *Section 9* *Norms and standards* • *Section 27* *Delegation of power and duties* • *Section 30* *Financial accountability* • *Section 43* *Biodiversity management plans.*	Indigenous vegetation needs to be protected and managed in accordance with management measures set out in the management plans developed for the mine and the Applicant need to ensure he is aware of, and covers, his liabilities. An application for removing and clearance of vegetation has been applied for within this application and no other vegetation clearance will be permitted other than that approved in terms of the EA when/if the Competent Authority makes its decision.
Alien and Invasive Species Regulations (Government Notice 598 of 2014) and Alien and Invasive Species List, 2014 in terms of NEMBA (Government Notice 599 of 2014)	It is the responsibility of the Applicant to ensure that all prohibited plant and animal species are eradicated as far as possible.

Applicable Legislation and Guidelines Used to Compile the Report	Reference Where Applied
• *Notice 2* *Exempted Alien Species in terms of Section 66 (1)* • *Notice 3* *National Lists of Invasive Species in terms of Section 70(1) – List 1, 3-9 & 11* • *Notice 4* *Prohibited Alien Species in terms of Section 67 (1) – List 1, 3-7, 9-10 & 12*	
Conservation of Agricultural Resources Act (no. 43 of 1983) • *Section 5* *Prohibition of spreading of weeds* • *Section 12* *Maintenance of soil conservation works and maintenance of certain states of affairs* • *Section 16* *Regional Conservation Committees*	Listed invader/alien plants occurring on site require management measures to be implemented to strive to maintain the status quo environment, especially through the guidelines provided by the Regional Conservation Committee.
Draft National Biodiversity Offset Policy, 2017	Not applicable to this project.
Hazardous Substances Act, 1973 (Act 15 of 1973) [as amended] • *Section 2* *Declaration of grouped hazardous substances;* • *Section 4* *Licensing;* • *Section 16* *Liability of employer or principle* • *Section 9 (1)* *Storage and handling of hazardous chemical substances* • *Section 18* *Offences*	The Applicant must ensure the safety of people working with hazardous chemicals (specifically fuels), as well as safe storage, use and disposal of containers during the on-site operational phase together with the associated liability should non-compliance be encountered.
Hazardous Chemical Substances Regulations, 1995 (Government Notice 1179 of 1995) • *Section 4* *Duties of persons who may be exposed to hazardous chemical substances* • *Section 9A (1)* *Penalties*	Hazardous substances will be stored and utilised on the site and non-compliance to management measures will result in prosecution of the Applicant in terms of his liabilities to the socio-economic environment.

Applicable Legislation and Guidelines Used to Compile the Report	Reference Where Applied
Waste Classification and Management Regulations and Norms and Standards for the assessment of for landfill disposal and for disposal of waste to landfill, 2013 (Government Notice 634 – 635 of 2013) promulgated in terms of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) [as amended]; and Regulations regarding the planning and management of residue stockpiles and residue deposits from a prospecting, mining, exploration or production operation (GN R. 632 of 2015)	The siding will produce general and hazardous waste which needs to be managed and disposed of according to best practices such as recycling, safe storage, etc. Disposal will take place on an existing approved waste disposal facility. Waste Classification will be done and a Waste License is required for the mine for the establishment of Waste/ Residue Stockpiles. An integrated NEMA and NEM:WA application has been launched with the DMRE.
National Norms and Standards for the Storage of Waste, published in terms of NEM:WA in Government Notice 926 of 2013	The purpose of the norms and standards is to – a. Provide a uniform national approach relating to the management of waste storage facilities. b. Ensure best practice in the management of waste storage facilities; and c. Provide minimum standards for the design and operation of ne waste storage facilities. Management of the waste storage facility will be in line with the requirements.
National Norms and Standards for the Sorting, Shredding, Grinding, Crushing, Screening or Baling of General Waste, published in terms of NEM:WA in Government Notice 1093 of 2017	The purpose of these Norms and Standards is to provide a uniform national approach relating to the management of waste facilities that sort, shred, grind, crush, screen, chip or bale general waste. No general waste will be processed on the siding area, in terms of these norms and standards.
Guideline on the Need and Desirability, Department of Environmental Affairs, 2017	This guideline has been taken into account as part of project planning. The 2017 Guideline has been used within this process.
NEMA: Government Notice. 805 Companion Guideline on the Implantation of the Environmental Impact Assessment Regulations, 2010, October 2012.	The application for Environmental Authorisation is submitted in terms of the EIA Regulations.
NEMA: GN. 807 Public Participation Guideline, October 2012.	Consultation with Interested and Affected Parties and Communities.
Public Participation guideline in terms of NEMA EIA Regulations, Department of Environmental Affairs, 2017	This guideline has informed the public participation process for the project. On the 5 June 2020, the Department of Environment Forestry and Fisheries (DEFF) issued Directions GN650 in terms of the Disaster Management Act (Act 57 of 2002). As per the Directions, a Public Participation Plan is required for all public participation to be conducted in terms of the NEMA, which ensures that the EAP and Applicant will ensure that all reasonable measures are taken to identify potential I&APs for purposes of conducting public participation on the application; and ensure that, as far as is reasonably possible, taking into account the specific aspects of the application- (a) information containing all relevant facts in respect of the application or proposed application is made available to potential I&APs; and

Applicable Legislation and Guidelines Used to Compile the Report	Reference Where Applied
	(b) participation by potential or registered I&APs has been facilitated in such a manner that all potential or registered I&APs are provided with a reasonable opportunity to comment on the application or proposed application. These Directives have been applied to the public participation process.
Regulations on use of Water for Mining and Related Activities Aimed at the Protection of Water Resources, 1999 (Notice 704 of 1999). • *Regulation 4: Restrictions on location of mining activities* • *Regulation 7: Protection of water resources* • *Regulation 12: Technical investigation and monitoring.*	Every person in control of a mine or related activity must take measures to manage water in an effective manner as prescribed by the regulations. A storm water management plan will be implemented on site to protect the water resources.
Noise Control Regulations (The Republic of South Africa, 1992) published in terms of Section 25 of the Environment Conservation Act (Act no. 73 of 1989)	The regulations define the following • Controlled areas; and • Disturbing noise Limits are provided for rating levels for outdoor noise and will be utilised by the noise specialist to determine the impact and mitigation measures.
National Guideline on minimum information requirements for preparing Environmental Impact Assessments for mining activities that require environmental authorisation, published in terms of NEMA in Government Notice 86 of 2018	This guideline has been taken into account as part of project planning.
Restitution of Land Rights Amendment Act, 2014 (Act 15 of 2014). The act deals with Land claims.	The validity of the amendment Act was challenged in the Constitutional Court. The Constitutional Court found the Amendment Act to be invalid because of the failure of Parliament to facilitate public involvement as required by the Constitution. The Amendment Act ceased to be law on 28 July 2018. The Constitutional Court ordered that the claims that were lodged between 1 July 2014 and 27 July 2016 are validly lodge, but it interdicted the Commission from processing those claims until the Commission has finalised the claims lodged by 31 December 1998 or until Parliament passes a new law providing for the re-opening of lodgement of land claims. It is important to note that the provisions of section 11(7) of the Restitution of land Rights Amendment Act, 1994 do not apply until after the Commission has accepted the claim for investigation and published its details in the Government Gazette. Where section 11(7) of Restitution of land Rights Amendment Act, 1994 applies, the land claim commission will be informed a month before any activity is undertake on the property.
Deeds Registries, 1937 (Act No. 47 of 1937) [as amended]	Registration of servitudes and deed titles.

Applicable Legislation and Guidelines Used to Compile the Report	Reference Where Applied
National Strategy for Sustainable Development and Action Plan 2011 – 2014 (NSSD 1) (2011)	The Strategy for Sustainable Development and Action Plan (NSSD1) is a proactive strategy that regards sustainable development as a long-term commitment, which combines environmental protection, social equity and economic efficiency with the vision and values of the country. It is a milestone in an ongoing process of developing support, and initiating and up-scaling actions to achieve sustainable development in South Africa (DEA, 2011) and has outlined the following strategic objectives: • enhance systems for integrated planning and implementation; • sustain ecosystems and use natural resources efficiently; • move towards a green economy; • build sustainable communities; and • respond effectively to climate change. The Act, development plans, development frameworks and bylaws have informed project planning and the need and desirability of the project, and will be taken into account in the assessment and mitigation of impacts during the EIA phase.
National Spatial Development Perspectives (NSDP)	The NSDP (2006) provides a framework for a focused intervention by the State in equitable and sustainable development. It represents a key instrument in the State's drive towards ensuring greater economic growth, buoyant and sustained job creation and the eradication of poverty. It provides: • a set of principles and mechanisms for guiding infrastructure investment and development decisions; • a description of the spatial manifestations of the main social, economic and environmental trends that should form the basis for a shared understanding of the national space economy; and • an interpretation of the spatial realities and the implications for government intervention. The Act, development plans, development frameworks and bylaws have informed project planning and the need and desirability of the project and will be taken into account in the assessment and mitigation of impacts during the EIA phase.
National Development Plan 2030 (2010)	The National Development Plan aims to ensure that all South Africans attain a decent standard of living through the elimination of poverty and reduction of inequality by 2030. The core elements of a decent standard of living identified in the plan are: • housing, water, electricity and sanitation; • safe and reliable public transport; • quality education and skills development; • safety and security; • quality health care;

Applicable Legislation and Guidelines Used to Compile the Report	Reference Where Applied
	• social protection; • employment; • recreation and leisure; • clean environment; and • adequate nutrition The Act, development plans, development frameworks and bylaws have informed project planning and the need and desirability of the project and will be taken into account in the assessment and mitigation of impacts during the EIA phase.
New Growth Path (2010)	South Africa has embarked on a new economic growth path in a bid to create 5 million jobs and reduce unemployment from 25% to 15% over the next ten (10) years. The plan aims to address unemployment, inequality and poverty by unlocking employment opportunities in South Africa's private sector and identifies seven job drivers. These job drivers have the responsibility to create jobs on a large scale. The seven key economic sectors or "job drivers" for job creation are listed below: • infrastructure development and extension: Public works and housing projects; • agricultural development with a focus on rural development and specifically • "Agro-Processing"; • mining value chains; • manufacturing and industrial development (IPAP); • knowledge and green economy; • tourism and services; and • informal sector of economy The Act, development plans, development frameworks and bylaws have informed project planning and the need and desirability of the project and will be taken into account in the assessment and mitigation of impacts during the EIA phase.
National Framework for Sustainable Development (2008)	The purpose of the National Framework on Sustainable Development is to enunciate South Africa's national vision for sustainable development and indicate strategic interventions to re-orientate South Africa's development path in a more sustainable direction. It proposes a national vision, principles and areas for strategic intervention that will enable and guide the development of the national strategy and action plan.
National Spatial Development Perspective (2006)	The NSDP 2006 provides a framework for a focused intervention by the State in equitable and sustainable development. It represents a key instrument in the State's drive towards ensuring greater economic growth, buoyant and sustained job creation and the eradication of poverty. Employment opportunities, direct and in-direct will be provide by the proposed mine.
SANS 3000- standards Railway safety management (All standards published in 2016 and 2017)	These standards are applicable to ensure the systemic engineering and operational safety standards in terms of electrical distribution and overhead traction systems; track and

Applicable Legislation and Guidelines Used to Compile the Report	Reference Where Applied
	associated civil infrastructure and installations; level crossings; train authorization and control, and telecommunication; operational principles for safe movement on rail; and interface and interface management, and interoperability requirements are met.
Gauteng Spatial Development framework, January 2011.	Gauteng Spatial Development Framework aims to accommodate growth and sustainability by providing a clear future provincial spatial structure that is robust, flexible, compact and complex. The development frameworks have informed project planning and the need and desirability of the project, and will be taken into account in the assessment and mitigation of impacts during the EIA phase
Lesedi Municipality IDP (2020-2021)	The Municipality is looking at consolidating existing sectors and exploring new sectors of growth and in this way building local economies to create more employment and sustainable livelihoods. The development frameworks have informed project planning and the need and desirability of the project and will be taken into account in the assessment and mitigation of impacts during the EIA phase.
All other relevant national, provincial, district and local municipality legislation and guidelines that may be applicable to the application. Some of these are discussed in the next section but will be discussed in detail within the EIAr / EMPr report.	

5 NEED AND DESIRABILITY OF THE PROPOSED ACTIVITIES

The main benefits of the proposed Welgedacht Balloon Siding are:

- Direct economic benefits will be derived from wages, taxes and profits;
- Indirect economic benefits will be derived from the procurement of goods and services and the spending power of employees;
- It will contribute to the economic welfare of the surrounding community by creating working opportunities;
- It will contribute to the upliftment of living standards and the health and safety of the local community; and
- Effective transportation of coal.

The (then) Department of Environmental Affairs (DEA) published a Guideline on Need and Desirability (2017) in terms of the Environmental Impact Assessment (EIA) Regulations, 2014 (as amended). The key components are listed and discussed below:

- Securing ecological sustainable development and use of natural resources; and
- Promoting justifiable economic and social development.

According to DEA's (2017) Guideline on Need and Desirability, in order to describe the need for a development, it must be determined whether it is the right time for locating the type of land use and/or activity being proposed. To describe the desirability for a development, it must be determined, whether it is the right place for locating the type of land use and/or activity being proposed. Need and desirability can be equated to the concept of wise use of land which can be determined through asking the question: "what is the most sustainable use of land?" Considering the above, the need and desirability of an application must be addressed separately and in detail answering *inter alia* the questions as indicated in Table 9.

Table 9: Need and desirability considerations

Securing ecological sustainable development and use of natural resources		
1. 1.1	How will this development (and its separate elements/aspects) impact on the ecological integrity of the area? How were the following ecological integrity considerations taken into account? 1.1.1 Threatened Ecosystems, 1.1.2 Sensitive, vulnerable, highly dynamic or stressed ecosystems, such as coastal shores, estuaries, wetlands, and similar systems require specific attention in management and planning procedures, especially where they are subject to significant human resource usage and development pressure, 1.1.3 Critical Biodiversity Areas ("CBAs") and Ecological Support Areas ("ESAs"), 1.1.4 Conservation targets, 1.1.5 Ecological drivers of the ecosystem, 1.1.6 Environmental Management Framework, 1.1.7 Spatial Development Framework, and 1.1.8 Global and international responsibilities relating to the environment (e.g. RAMSAR sites, Climate Change, etc.).	The following specialist studies shall be conducted in support of this application: • Ecological Assessment; • Heritage and Archaeological Assessment; • Hydrogeological Assessment; • Hydrological Assessment (including water balance and aquatic assessment, if applicable); • Hydropedological Assessment; • Noise Assessment; • Air Quality Assessment • Palaeontological Assessment; • Soils, Land Use and Capability and Agricultural Impact Study; • Storm Water Management Plan (including Geotechnical Assessment, floodlines and topography); • Traffic Impact Assessment; and • Wetland Delineation Study. The conclusions of these studies, and the identified impacts and mitigation measures stemming there from will be included in the EIA and EMPR. The need of the project in terms of the Nkangala District Municipal SDF will also be further considered in the EIA and EMPR.
1.2	How will this development disturb or enhance ecosystems and/or result in the loss or protection of biological diversity? What measures were explored to firstly avoid these negative impacts, and where these negative impacts could not be avoided altogether, what measures were explored to minimise and remedy (including offsetting) the impacts? What measures were explored to enhance positive	Refer to baseline ecological information in Sections 9.8 and 9.9, and the impact assessment and mitigation measures in Section 11 and Section 12 of this Scoping Report. These sections will be further expanded in the EIA and EMPR, with the addition of specialist input.

	impacts?	
1.3	How will this development pollute and/or degrade the biophysical environment? What measures were explored to firstly avoid these impacts, and where impacts could not be avoided altogether, what measures were explored to minimise and remedy (including offsetting) the impacts? What measures were explored to enhance positive impacts?	Refer to baseline ecological information Sections 9.8 and 9.9, and the impact assessment and mitigation measures in Section 11 and Section 12 of this Scoping Report. These sections will be further expanded in the EIA and EMPR, with the addition of specialist input.
1.4	What waste will be generated by this development? What measures were explored to firstly avoid waste, and where waste could not be avoided altogether, what measures were explored to minimise, reuse and/or recycle the waste? What measures have been explored to safely treat and/or dispose of unavoidable waste?	General waste, hazardous waste and litter will be generated during the Sidings lifetime and these should be kept in designated areas and disposed of to a licensed landfill facility. Other wastes that may cause soil contamination, are from the use of vehicles and loaders during the loading and transportation of coal, which may lead to hydrocarbon spills. Regulations for soil clean-up and management will been prescribed in the EMPr.
1.5	How will this development disturb or enhance landscapes and/or sites that constitute the nation's cultural heritage? What measures were explored to firstly avoid these impacts, and where impacts could not be avoided altogether, what measures were explored to minimise and remedy (including offsetting) the impacts? What measures were explored to enhance positive impacts?	A Heritage Impact Assessment will be undertaken for the proposed project.
1.6	How will this development use and/or impact on non-renewable natural resources? What measures were explored to ensure responsible and equitable use of the resources? How have the consequences of the depletion of the non-renewable natural resources been considered? What measures were explored to firstly avoid these impacts, and where impacts could not be avoided altogether, what measures were explored to minimise and remedy (including offsetting) the impacts? What measures were explored to enhance positive impacts?	The operation will be used for the transportation of a known resource (coal resource – limited resource) within the vicinity of the project area. Through implementing good practice environmental management measures and mitigation measures, it will ensure that both human and environment are not negatively affected by the development.
1.7	How will this development use and/or impact on renewable natural resources and the ecosystem of which they are part? Will the use of the resources and/or impact on the ecosystem jeopardise the integrity of the resource and/or system taking into account carrying capacity restrictions, limits of acceptable change, and thresholds? What measures were explored to firstly avoid the use of resources, or if avoidance is not possible, to minimise the use of resources? What measures were taken to ensure responsible and equitable use of the resources? What measures were explored to enhance positive impacts? 1.7.1. Does the proposed development exacerbate the increased dependency on increased use of resources to maintain economic growth or does it reduce resource dependency (i.e. de-materialised growth)? (note: sustainability requires that settlements reduce their ecological footprint by using less material and energy demands and reduce the amount of waste they generate, without compromising their quest to improve their quality of life). 1.7.2. Does the proposed use of natural resources constitute the best use thereof? Is the use justifiable when considering intra- and intergenerational equity, and are there more important priorities for which the resources should be used (i.e. what are the opportunity costs of using these resources this the proposed development alternative?)	Renewable natural resources may be the use of borehole water, to a limited amount, on-site. Water requirements have been described above and all water uses will be licensed in terms of the National Water Act. Stormwater will be captured in the PCD infrastructure and re-used and recycled into the process and may be used as dust suppression around the dirty footprint areas within the area. This will alleviate the requirement for clean make-up water to be sourced from groundwater. No discharges into the environment will be applied.

	1.7.3. Do the proposed location, type and scale of development promote a reduced dependency on resources?	
1.8	How were a risk-averse and cautious approach applied in terms of ecological impacts? 1.8.1 What are the limits of current knowledge (note: the gaps, uncertainties and assumptions must be clearly stated)? 1.8.2 What is the level of risk associated with the limits of current knowledge? 1.8.3 Based on the limits of knowledge and the level of risk, how and to what extent was a risk-averse and cautious approach applied to the development?	The current knowledge gaps include: • Detailed and site-specific information regarding some of the environmental aspects is not yet available for the proposed project area. However, the outstanding information will be generated through the identified specialist studies identified in Section 13.3. • While the expected potentially significant impacts have been preliminarily identified as part of this Scoping Process, the impacts on all environmental aspects will be explored in more detail and quantified wherever possible during the EIA Phase. • The mitigation measures associated with the impacts need to still be determined. • The level of risk is low as this report represents the preliminary scoping level study whilst the EIA and EMPR will be further informed by the various specialist studies and feedback from the I&AP's (during Scoping review).
1.9	How will the ecological impacts, resulting from this development, impact on people's environmental right in terms following. 1.9.1 Negative impacts: e.g. access to resources, opportunity costs, loss of amenity (e.g. open space), air and water quality impacts, nuisance (noise, odour, etc.), health impacts, visual impacts, etc. What measures were taken to firstly avoid negative impacts, but if avoidance is not possible, to minimise, manage and remedy negative impacts? 1.9.2 Positive impacts: e.g. improved access to resources, improved amenity, improved air or water quality, etc. What measures were taken to enhance positive impacts?	Refer to the impact assessment and mitigation measures in Section 12 in this Scoping Report. These aspects will be further explored in the EIA and EMPR. The specialist studies as listed above will be undertaken to establish the impact and how the impact of the proposed development can be mitigated and manged.
1.10	Describe the linkages and dependencies between human wellbeing, livelihoods and ecosystem services applicable to the area in question and how the development's ecological impacts will result in socio-economic impacts (e.g. on livelihoods, loss of heritage site, opportunity costs, etc.)?	Refer to the impact assessment and mitigation measures in Section 12 in this Scoping Report. These aspects will be further explored in the EIA and EMPR.
1.11	Based on all of the above, how will this development positively or negatively impact on ecological integrity objectives/targets/considerations of the area?	The Environmental risk assessment for all environmental features will be assessed and included in the EIA/EMPr phase of the project.
1.12	Considering the need to secure ecological integrity and a healthy biophysical environment, describe how the alternatives identified (in terms of all the different elements of the development and all the different impacts being proposed), resulted in the selection of the "best practicable environmental option" in terms of ecological considerations?	Refer to 7, details of the alternatives considered, and Section 12 the advantages and disadvantages of the proposed activity, of this Scoping Report. This aspect will be further explored in the EIA and EMPR.
1.13	Describe the positive and negative cumulative ecological/biophysical impacts bearing in mind the size, scale, scope and nature of the project in relation to its location and existing and other planned developments in the area?	Refer to Section 12 of this Scoping Report. This aspect will be further explored in the EIA and EMPR
"Promoting justifiable economic and social development"		
2.1	What is the socio-economic context of the area, based on, amongst other considerations, the following considerations? 2.1.1 The IDP (and its sector plans' vision, objectives, strategies, indicators and targets) and any other strategic plans, frameworks of policies applicable to the	The economic baseline revealed that the Lesedi Local Municipality (LLM) is a relatively small economy and makes a minor contribution towards the economies of the Sedibeng DM and Gauteng Province, although the economy has shown above average growth in the past few years mainly due to the growing tertiary industries. In addition, the primary sector has a

	area, 2.1.2 Spatial priorities and desired spatial patterns (e.g. need for integrated of segregated communities, need to upgrade informal settlements, need for densification, etc.), 2.1.3 Spatial characteristics (e.g. existing land uses, planned land uses, cultural landscapes, etc.), and 2.1.4 Municipal Economic Development Strategy ("LED Strategy").	negligible impact on employment and GDP in the local economy of Lesedi. Lastly, the municipality is dominated by low income earners. The planned Siding project should assist in improving the economic environment. Providing employment to the local labour will have a positive impact on the employment creation, skills development, household earnings and local economy activity. The Siding will connect with the main Transnet Railway Line, which is utilised to transport coal in South Africa, with various coal mines in the vicinity of the proposed Siding which will be able to make use of the Siding to transport the coal product.
2.2	Considering the socio-economic context, what will the socio-economic impacts be of the development (and its separate elements/aspects), and specifically also on the socio-economic objectives of the area? 2.2.1. Will the development complement the local socio-economic initiatives (such as local economic development (LED) initiatives), or skills development programs? 2.2.2. Implementation on Social labor Plan (SLP)	Also refer to the comments made above. The proposed project will benefit society and the surrounding communities both directly and indirectly by providing jobs at the proposed operation and through the transportation of coal reserves. Direct economic benefits will be derived from wages, taxes and profits. Indirect economic benefits will be derived from the procurement of goods and services and the spending power of employees. The project will make use of local workers and service providers and this must be recorded, to ensure local economic development (as will be recommended in the EMPR).
2.3	How will this development address the specific physical, psychological, developmental, cultural and social needs and interests of the relevant communities?	Refer to comments made above. All aspects and comments received from I&APs during the process will be reasonably addressed and incorporated into the final EIA/EMPr submitted to the DMRE. Local economic growth and work opportunities will be main benefits from the project if approved and may address some of the physical, psychological, development, cultural and social needs. Refer to the proposed public participation process in Section 8 of this Scoping Report, as well as the Public Participation Plan attached in Appendix D1 as per the requirements of the DEFF directive issued in terms of the Disaster Management Act (Act 57 of 2002). This aspect will be further expanded on in the EIA and EMPR.
2.4	Will the development result in equitable (intra- and inter-generational) impact distribution, in the short- and long-term? Will the impact be socially and economically sustainable in the short- and long-term?	Refer to the impact assessment and mitigation measures in Section 12 of this Scoping Report. This aspect will be further explored in the EIA and EMPR.
2.5	In terms of location, describe how the placement of the proposed development will; 2.5.1. result in the creation of residential and employment opportunities in close proximity to or integrated with each other, 2.5.2. reduce the need for transport of people and goods, 2.5.3. result in access to public transport or enable non-motorised and pedestrian transport (e.g. will the development result in densification and the achievement of thresholds in terms public transport), 2.5.4. compliment other uses in the area, 2.5.5. be in line with the planning for the area, 2.5.6. for urban related development, make use of under-utilised land available	Alternatives have been assessed during the process and the best suited alternative will be described within this application and depicted in the EIA Phase. Refer to Section 7, details of alternative considered, in this Scoping Report.

	with the urban edge, 2.5.7. optimise the use of existing resources and infrastructure, 2.5.8. opportunity costs in terms of bulk infrastructure expansions in non-priority areas (e.g. not aligned with the bulk infrastructure planning for the settlement that reflects the spatial reconstruction priorities of the settlement), 2.5.9. discourage "urban sprawl" and contribute to compaction/densification, 2.5.10. contribute to the correction of the historically distorted spatial patterns of settlements and to the optimum use of existing infrastructure in excess of current needs, 2.5.11. encourage environmentally sustainable land development practices and processes 2.5.12. take into account special locational factors that might favour the specific location (e.g. the location of a strategic mineral resource, access to the port, access to rail, etc.), 2.5.13. the investment in the settlement or area in question will generate the highest socio-economic returns (i.e. an area with high economic potential), 2.5.14. impact on the sense of history, sense of place and heritage of the area and the socio-cultural and cultural-historic characteristics and sensitivities of the area, and 2.5.15. in terms of the nature, scale and location of the development promote or act as a catalyst to create a more integrated settlement?	
2.6	How were a risk-averse and cautious approach applied in terms of socio-economic impacts? 2.6.1. What are the limits of current knowledge (note: the gaps, uncertainties and assumptions must be clearly stated)? 2.6.2. What is the level of risk (note: related to inequality, social fabric, livelihoods, vulnerable communities, critical resources, economic vulnerability and sustainability) associated with the limits of current knowledge? 2.6.3. Based on the limits of knowledge and the level of risk, how and to what extent was a risk-averse and cautious approach applied to the development?	Specialist studies will be undertaken for the EIA phase of the project as listed above. All gap knowledges will therefore be identified and included in the EIA phase of the project. While the expected potentially significant impacts have been preliminarily identified as part of this Scoping Process, the impacts on socio-economic aspects will be explored in more detail and quantified wherever possible during the EIA Phase. The mitigation measures associated with the impacts need to still be determined.
2.7	How will the socio-economic impacts, resulting from this development impact, on people's environmental right in terms following: 2.7.1. Negative impacts: e.g. health (e.g. HIV-Aids), safety, social ills, etc. What measures were taken to firstly avoid negative impacts, but if avoidance is not possible, to minimise, manage and remedy negative impacts? 2.7.2. Positive impacts. What measures were taken to enhance positive impacts?	Refer to the impact assessment in Section 11 and the mitigation measures in Section 12.1 of this Scoping Report. This aspect will be further explored in the EIA and EMPR.
2.8	Considering the linkages and dependencies between human wellbeing, livelihoods and ecosystem services, describe the linkages and dependencies applicable to the area in question and how the development's socio-economic impacts will result in ecological impacts (e.g. over utilisation of natural resources, etc.)?	The area where the project is proposed to be located is currently utilised for agriculture and grazing. A Soil and Agricultural Assessment study will be undertaken and included in the EIA report.
2.9	What measures were taken to pursue the selection of the "best practicable	Refer to the impact assessment and mitigation measures in Section 12 of this Scoping Report.

	environmental option" in terms of socio-economic considerations?	This aspect will be further explored in the EIA and EMPR.
2.10	What measures were taken to pursue environmental justice so that adverse environmental impacts shall not be distributed in such a manner as to unfairly discriminate against any person, particularly vulnerable and disadvantaged persons (who are the beneficiaries and is the development located appropriately)? Considering the need for social equity and justice, do the alternatives identified, allow the "best practicable environmental option" to be selected, or is there a need for other alternatives to be considered?	Refer to the impact assessment and mitigation measures in Section 12 of this Scoping Report. The siding will be in line with the regulatory requirements to ensure that the mitigation measures proposed can be carried out. This aspect will be further explored in the EIA and EMPR.
2.11	What measures were taken to pursue equitable access to environmental resources, benefits and services to meet basic human needs and ensure human wellbeing, and what special measures were taken to ensure access thereto by categories of persons disadvantaged by unfair discrimination?	By conducting a Scoping and Environmental Impact Assessment Process, the Applicant ensures that equitable access has been considered. Refer to the impact assessment and mitigation measures in Sections 11and 12 of this Scoping Report. This aspect will be further explored in the EIA and EMPR.
2.12	What measures were taken to ensure that the responsibility for the environmental health and safety consequences of the development has been addressed throughout the development's life cycle?	Refer to the impact assessment and mitigation measures in Section 12 of this Scoping Report. The EIA and EMPR will specify timeframes within which mitigation measures must be implemented.
2.13	What measures were taken to: 2.13.1. ensure the participation of all interested and affected parties, 2.13.2. provide all people with an opportunity to develop the understanding, skills and capacity necessary for achieving equitable and effective participation, 2.13.3. ensure participation by vulnerable and disadvantaged persons, 2.13.4. promote community wellbeing and empowerment through environmental education, the raising of environmental awareness, the sharing of knowledge and experience and other appropriate means, 2.13.5. ensure openness and transparency, and access to information in terms of the process, 2.13.6. ensure that the interests, needs and values of all interested and affected parties were taken into account, and that adequate recognition were given to all forms of knowledge, including traditional and ordinary knowledge, and 2.13.7. ensure that the vital role of women and youth in environmental management and development were recognised and their full participation therein will be promoted?	Refer to Section 8 of this Scoping Report, describing the public participation process to be undertaken for the proposed project.
2.14	Considering the interests, needs and values of all the interested and affected parties, describe how the development will allow for opportunities for all the segments of the community (e.g. a mixture of low-, middle-, and high-income housing opportunities) that is consistent with the priority needs of the local area (or that is proportional to the needs of an area)?	Refer to Section 8 of this Scoping Report, describing the public participation process to be implemented for the proposed project. This aspect will be further explored in the EIA and EMPR.
2.15	What measures have been taken to ensure that current and/or future workers will be informed of work that potentially might be harmful to human health or the environment or of dangers associated with the work, and what measures have been taken to ensure that the right of workers to refuse such work will be respected and protected?	The Applicant will need to draft an Environmental Policy and a Health and Safety Policy, which will regulate activities in the project area. All workers and contractors will need to abide to the policies and framework as specified.
2.16	Describe how the development will impact on job creation in terms of, amongst other aspects:	A Soil, Land Capability and Agricultural Impact Assessment will be undertaken as part of the EIA process. This will be further addressed in the EIAr.

	2.16.1. the number of temporary versus permanent jobs that will be created, 2.16.2. whether the labour available in the area will be able to take up the job opportunities (i.e. do the required skills match the skills available in the area), 2.16.3. the distance from where labourers will have to travel, 2.16.4. the location of jobs opportunities versus the location of impacts (i.e. equitable distribution of costs and benefits), and 2.16.5. the opportunity costs in terms of job creation (e.g. a mine might create 100 jobs, but impact on 1000 agricultural jobs, etc.).	
2.17	What measures were taken to ensure: 2.17.1. that there were intergovernmental coordination and harmonisation of policies, legislation and actions relating to the environment, and 2.17.2. that actual or potential conflicts of interest between organs of state were resolved through conflict resolution procedures?	The applicant is in the process of applying for the following aspects across different legislation requirements: • Environmental Authorisation (this application); • WUL (Department of Water and Sanitation –DWS – To be initiated). • All legislation that has been incorporated within these processed were discussed within Section regarding Policy and Legislative Content above.
2.18	What measures were taken to ensure that the environment will be held in public trust for the people, that the beneficial use of environmental resources will serve the public interest, and that the environment will be protected as the people's common heritage?	Refer to Section 8 of this Scoping Report, describing the public participation process to be implemented for the proposed project, as well Section 11 (the impact on any national estate), in the Scoping Report.
2.19	Are the mitigation measures proposed realistic and what long-term environmental legacy and managed burden will be left?	Refer to the impact assessment and mitigation measures in Section 11 and Section 12 of the Scoping Report. This aspect will be further explored in the EIA and EMPR.
2.20	What measures were taken to ensure that the costs of remedying pollution, environmental degradation and consequent adverse health effects and of preventing, controlling or minimising further pollution, environmental damage or adverse health effects will be paid for by those responsible for harming the environment?	This will be addressed during the EIA phase of the project, as a Closure report will be submitted as part of the EIAr.
2.21	Considering the need to secure ecological integrity and a healthy bio-physical environment, describe how the alternatives identified (in terms of all the different elements of the development and all the different impacts being proposed), resulted in the selection of the best practicable environmental option in terms of socio-economic considerations?	Refer to Section 7 (description of the process followed to reach the proposed preferred site), of the Scoping Report. This aspect will be further explored in the EIA and EMPR.
2.22	Describe the positive and negative cumulative socio-economic impacts bearing in mind the size, scale, scope and nature of the project in relation to its location and other planned developments in the area?	Refer to Section 12 of this Scoping Report. This aspect will be further explored in the EIA and EMPR.

6 PERIOD FOR WHICH THE ENVIRONMENTAL AUTHORISATION IS REQUIRED

The Palmietkuilen mine which will be serviced by the proposed Welgedacht Balloon Siding has a Life of Mine of 53 years, therefore, the environmental authorisation is required for at least 53 years.

7 DESCRIPTION OF THE PROCESS FOLLOWED TO REACH THE PROPOSED PREFERRED SITE

A project alternative is defined as a possible course of action, in place of another, that would meet the same purpose and need (DEAT, 2004). In an EIA process, project alternatives serve to determine the most effective way of meeting the objectives of that project. This is generally done through either enhancing the benefits of an activity and/or mitigating the negative impacts and risks of an activity.

According to the Department of Environmental Affairs (DEA) Criteria for Determining Alternatives in EIA Guideline (2004), there are various types or categories of alternatives, including:

- Location alternative – alternative project sites in the same geographic area;
- Process/design alternative – alternative process/design/equipment;
- Activity alternative – consideration of different means to achieve the same project objective;
- Routing alternative – consideration of different routes for linear infrastructure;
- Site layout alternative – consideration of the different options to place project infrastructure; and
- No-go alternative – the proposed project/activity does not proceed, implying that the current situation or status quo remains.

i) Details of all alternatives considered

The identification of alternatives is a key aspect of the success of the scoping process. All reasonable and feasible alternatives must be identified and screened to determine the most suitable alternatives to consider and assess in the EIA phase. There are, however, some significant constraints that have to be taken into account when identifying alternatives for a project of this scope. Such constraints include social, financial and environmental issues, which will be discussed in the evaluation of the alternatives. Alternatives can typically be identified according to:

- Location/layout/design alternatives;
- Process alternatives;
- Technological alternatives; and
- Activity alternatives (including the No-go option).

For any alternative to be considered feasible such an alternative must meet the need and purpose of the development proposal without presenting significantly high associated impacts.

The alternatives are described, and the advantages and disadvantages are presented in this section. It is further indicated which alternatives are considered feasible from a technical as well as environmental perspective.

Alternatives can also be distinguished into discrete or incremental alternatives. Discrete alternatives are overall development options, which are typically identified during the pre-feasibility, feasibility and or scoping phases of the EIA process (DEAT; 2004). Incremental alternatives typically arise during the EIA process and are usually suggested as a means of addressing identified impacts. These alternatives are closely linked to the identification of mitigation measures and are not specifically identified as distinct alternatives. This section provides information on the development footprint alternatives, the properties considered, as well as the type of activity, activity layout, technological and operational aspects of the activity.

7.1.1 TRANSPORTATION OF COAL

Coal from the Palmietkuilen mine to the Welgedacht Balloon Siding can either be transported via road and/ or conveyor belt. The transportation of coal product from site to the rail siding will be undertaken by a conveyor belt. The alternative is to use trucks to transport coal product to the siding. The preferred alternative is to use the conveyor belt. The benefit of utilising the siding will, inter alia, reduce the number of coal trucks on the roads in the surrounding area.

7.1.2 CONVEYOR BELT ROUTING ALTERNATIVES

Routing alternatives were considered for the conveyor belt route. Figure 6 below indicates the Alternative 1 for the Conveyor Routes. However, due to economic considerations, Alternative 2 will also be considered as indicated in Figure 7 below. Specialist Studies to be undertaken during the EIAr phase will determine the preferred route for the conveyor belt.

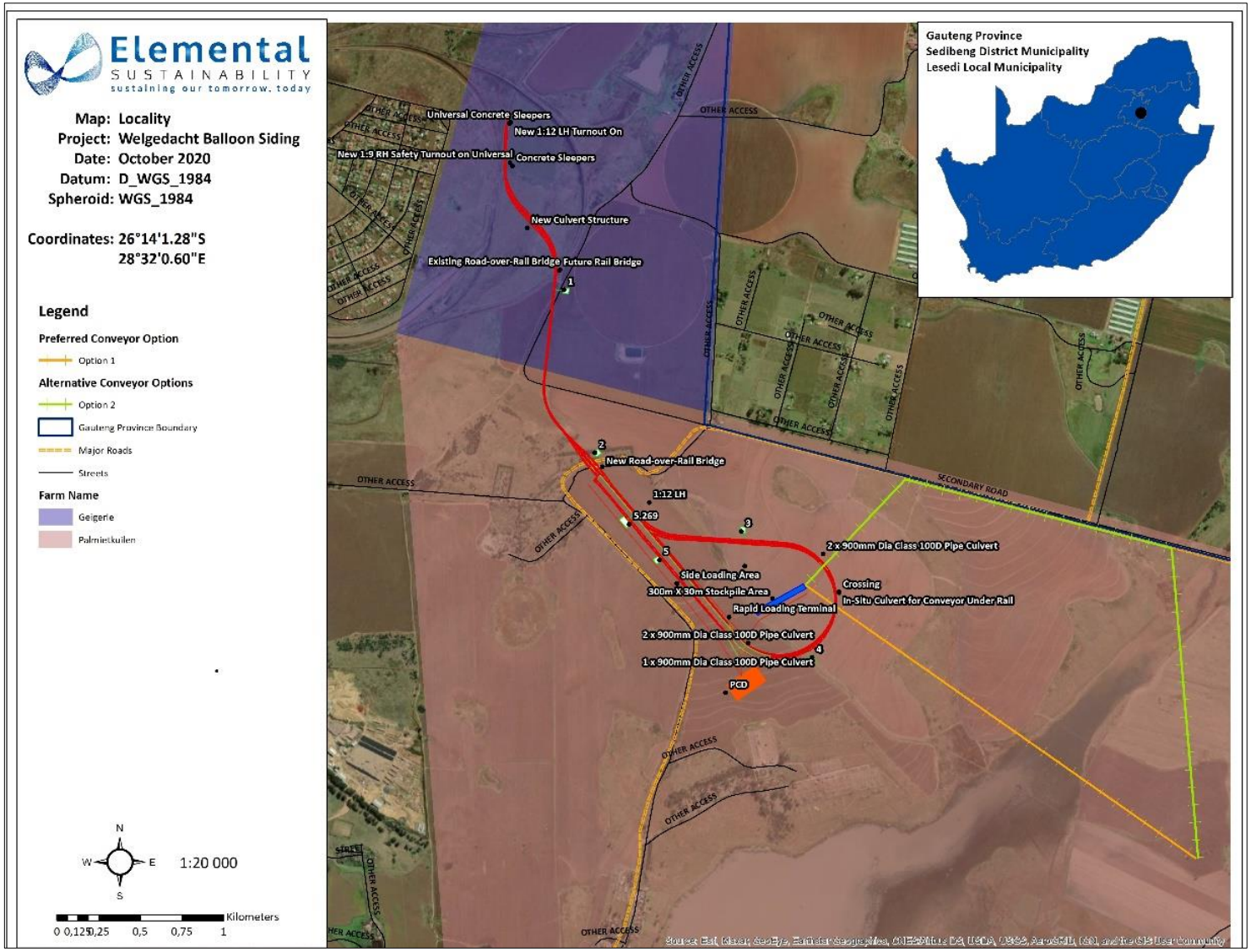

Figure 6: Conveyor routes- Alternative 1

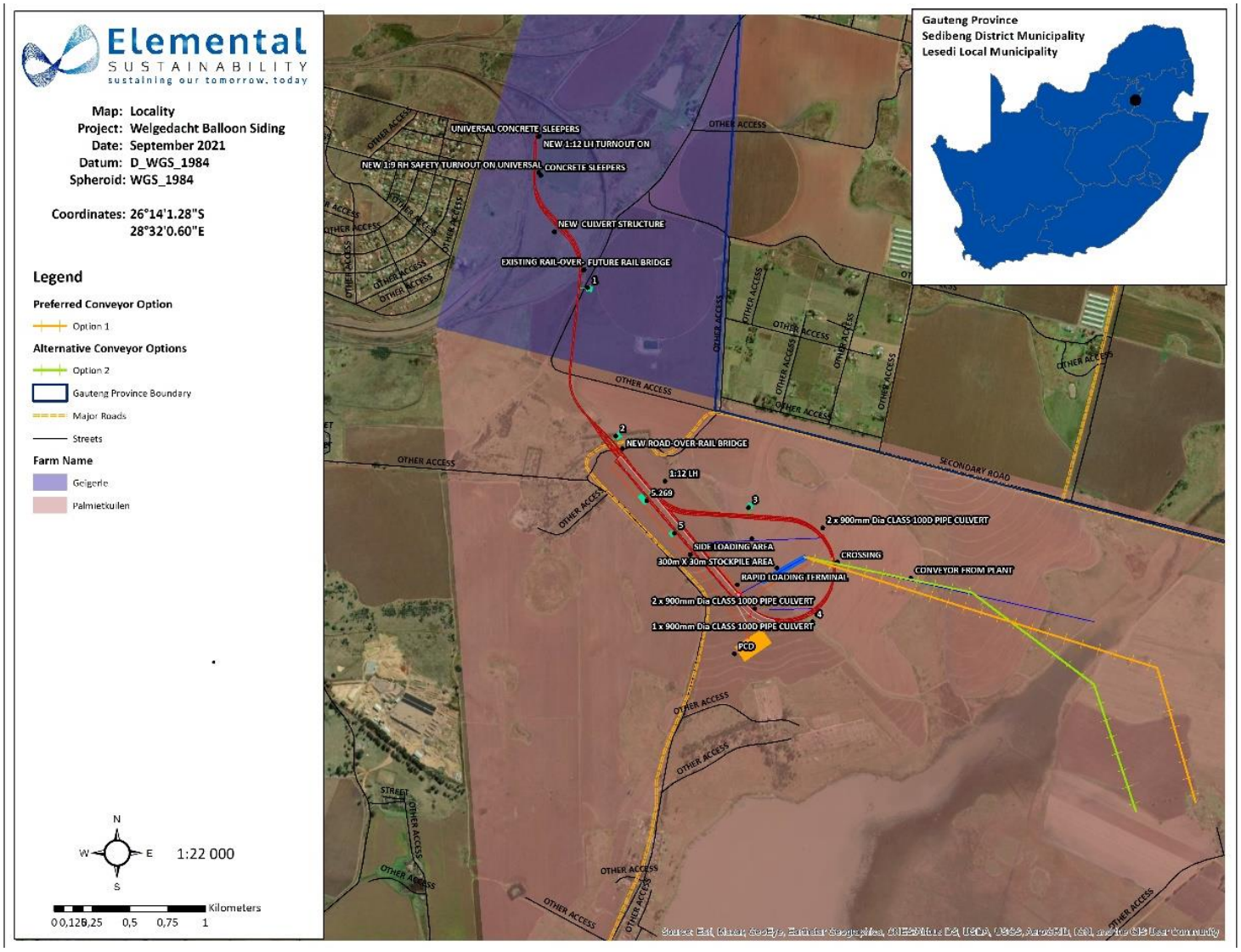

Figure 7: Conveyor Route - Alternative 2

7.1.3 NO GO OPTION

The no-go option refers to the alternative of the proposed project not going ahead at all. This alternative will avoid potentially positive and negative impacts on the environment and the status quo of the area would remain, which is the conditions of the current baseline environment without any deviations or expansions.

The implications of the no-go option will be evaluated as part of the EIA, focusing on comparing potential impacts from the proposed project with the status quo, and will be particularly relevant should it be found that detrimental impacts cannot be managed to an acceptable level. This section describes the pros and cons of various alternatives described above. The findings are presented here in Table *10*.

Table 10: Summary of advantages and disadvantages of alternative coal transportation

Environmental consideration	Transportation of coal via existing road network	Transportation of coal via conveyor belts
Impacts on sensitive habitat	No new roads will have to constructed for the hauling of coal outside the boundary of the proposed site. No virgin land will have to be transformed.	This alternative traverse the Blesbokspruit and wetlands on the western side of the project site. Transporting coal through these areas poses a risk to the wetlands and the Blesbokspruit.
Rehabilitation	No rehabilitation required	The footprint of the conveyor belt will require rehabilitation
Air emissions	Dust and exhaust emissions from the transportation of coal on hauling trucks	Dust generation due from the transportation of coal on trucks. No exhaust emissions.
Noise generation	Medium noise impacts associated with hauling trucks	Minimum noise generation
Financial considerations	High cost for fuel consumption of hauling trucks	Very high initial costs to establish infrastructure
Visual impact	Moderate visual impact	High visual impact
Traffic	Increased traffic may cause disruption	No additional traffic

8 DETAILS OF THE PUBLIC PARTICIPATION PROCESS TO BE FOLLOWED

This section describes the public participation process that will be followed as per the requirements of the NEMA and the regulations thereunder and the NWA.

8.1 PUBLIC PARTICIPATION

The Public Participation Process (PPP) is a requirement of several pieces of South African legislation and aims to ensure that all relevant Interested and Affected Parties (I&APs) are consulted, involved and their comments are considered and a record of all comments and responses is included in the reports submitted to the Authorities. The process ensures that all stakeholders are provided an opportunity as part of a transparent process which allows for a robust and comprehensive environmental study. The PPP for the proposed project needs to be managed sensitively and according to best practises to ensure and promote:

- Compliance with international best practice options;
- Compliance with national legislation;
- Establishment and management of relationships with key stakeholder groups; and
- Involvement and participation in the environmental study and authorisation/approval process.

As such, the purpose of the PPP and stakeholder engagement process is to:

- Introduce the proposed project;
- Explain the authorisations required;
- Explain the environmental studies already completed and yet to be undertaken (where applicable);
- Solicit and record any issues, concerns, suggestions, and objections to the project;
- Provide opportunity for input and gathering of local knowledge;
- Establish and formalise lines of communication between the I&APs and the project team;
- Identify all significant issues for the project; and
- Identify possible mitigation measures or environmental management plans to minimise and/or prevent negative environmental impacts and maximize and/or promote positive environmental impacts associated with the project.

8.2 LEGAL FRAMEWORK

The PPP for the proposed project will be undertaken in accordance with the requirements of the NEMA EIA Regulations (2014), as amended in 2021, as well as the NWA and in line with the principles of Integrated Environmental Management (IEM). IEM implies an open and transparent participatory process, whereby stakeholders and other I&APs are afforded an opportunity to comment on the project and have their views considered and included as part of project planning.

On the 5 June 2020, the Department of Environment Forestry and Fisheries (DEFF) issued Directions GN650 in terms of the Disaster Management Act (Act 57 of 2002). As per the Directions, a Public Participation Plan is required for all public participation to be conducted in terms of the NEMA, which ensures that the EAP and Applicant will ensure that all reasonable measures are taken to identify potential I&APs for purposes of conducting public participation on the application; and ensure that, as far as is reasonably possible, taking into account the specific aspects of the application-

(a) information containing all relevant facts in respect of the application or proposed application is made available to potential I&APs; and

(b) participation by potential or registered I&APs has been facilitated in such a manner that all potential or registered I&APs are provided with a reasonable opportunity to comment on the application or proposed application.

The applicant and EAPs, in addition to the methods contained in Chapter 6 of the EIA Regulations, or as part of reasonable alternative methods proposed in terms of regulation 41(2)(e) of the EIA Regulations, may make use of the following non-exhaustive list of methods:

- emails, websites, Cloud Based Services, or similar platforms, direct telephone calls, virtual meetings, newspaper notices, community representatives, distribution of notices at places that are accessible to potential I&APs.

Hard copies or electronic versions of reports may be made accessible through any of the following non-exhaustive list of methods:

- websites, Zero Data Portals, community or traditional authorities, Cloud Based Services, provided that all registered I&APs have access to the reports.
- A hard copy of the draft Scoping Report is available at the Bakerton Library, Springs. The report has been placed out for public review from 12 November 2021 to 13 December 2021.

A copy of the Public Participation Plan is included in Appendix Dvii of this report.

The proposed public participation process for the Welgedacht Balloon Siding is discussed in Sections 8.2.1 to 8.2.5 below.

8.2.1 SECTION 39: ACTIVITY ON LAND OWNED BY PERSON OTHER THAN THE PROPONENT - SUBREGULATION 1 AND 2(A), (B) AND (C)

(1) If the proponent is not the owner or person in control of the land on which the activity is to be undertaken, the proponent must, before applying for an environmental authorisation in respect of such activity, obtain the written consent of the landowner or person in control of the land to undertake such activity on that land.

(2) Subregulation (1) does not apply in respect of -

a) linear activities; and

[Para. (a) amended by GN 517 of 11 June 2021.]

(b) . . . . . .

[Para. (b) amended by GN 326 of 7 April 2017 and deleted by GN 517 of 11 June 2021.]

(c) strategic integrated projects as contemplated in the Infrastructure Development Act, 2014.

As the application is for an environmental authorisation in terms of NEMA, the proponent is required to obtain written consent of the landowner or person in control of the land to undertake the activity. Written consent has been obtained from the landowner and has been included in the EA form submitted to the DMRE.

8.2.2 SECTION 41: PUBLIC PARTICIPATION PROCESS

8.2.2.1 SECTION 41, SUBREGULATION 2 (A) – SITE NOTICES

1) The person conducting a public participation process must take into account any relevant guidelines applicable to public participation as contemplated in section 24J of the Act and must give notice to all potential interested and affected parties of an application or proposed application which is subjected to public participation by—

a) fixing a notice board at a place conspicuous to and accessible by the public at the boundary, on the fence or along the corridor of—

i. the site where the activity to which the application or proposed application

ii. relates is or is to be undertaken; and

iii. any alternative site.

Ten site notices will be erected within and surrounding the proposed Welgedacht Balloon Siding project area. The site notices will be placed in conspicuous areas that are accessible to the public at the boundary. The site notices will include a short background of the proposed project, the locality of the project, information on the activities that are being applied for and details of how the Environmental Assessment Practitioner (EAP) can be contacted to provide any comments. The information with regards to the place ment of the site notices will be included in Appendix Di of the Final Scoping Report.

8.2.2.2 SECTION 41, SUBREGULATION 2 (B) – WRITTEN NOTICE

b) giving written notice, in any of the manners provided for in section 47D of the Act, to—

i. the occupiers of the site and, if the proponent or applicant is not the owner or person in control of the site on which the activity is to be undertaken, the owner or person in control of the site where the activity is or is to be undertaken and to any alternative site where the activity is to be undertaken;

[Subpara.(i) amended by GN 326 of 7 April 2017.]

ii. owners, persons in control of, and occupiers of land adjacent to the site where the activity is or is to be undertaken and to any alternative site where the activity is to be undertaken;

[Subpara.(ii) amended by GN 326 of 7 April 2017.]

iii. the municipal councillor of the ward in which the site and alternative site is situated and any

organisation of ratepayers that represent the community in the area;

[Subpara.(iii) amended by GN 326 of 7 April 2017.]

iv. the municipality which has jurisdiction in the area;

v. any organ of state having jurisdiction in respect of any aspect of the activity; and

vi. any other party as required by the competent authority;

Written notices (to be included as Appendix Dii in the Final Scoping Report) will be provided to all landowners in and around the adjacent project area. Written notices will also be sent to the municipality that has jurisdiction in the area and all organs of state as pre-identified and that register for the project. This includes the following:

- South Africa Heritage Resource Agency (SAHRA);
- Department of Roads and Transport;
- Department: Agriculture, Rural Development, Land and Environmental Affairs;
- Department of Agriculture Forestry and Fisheries.
- Department of Mineral Resources and Energy (DMRE); and
- Department of Human Settlements, Water and Sanitation (DWS).
- Department of Environmental Affairs and Forestry;
- Agriculture, Land Reform and Rural Development;
- Department of Economic Development and Tourism;
- Gauteng Department of Public Works, Roads and Transport;
- Department of Social Development – Provincial;
- South African National Roads Agency (SANRAL);
- Provincial Heritage Authority;
- Eskom;
- Transnet;
- Lesedi Local Municipality;
- Sedibeng District Municipality; and
- Ward Councillor/s.

A Background Information Document (Appendix Diii), in English, will be distributed in and around proposed Welgedacht Balloon Siding project area. The BID will be distributed electronically to all I&APs that have provided an email address.

8.2.2.3 DETAILS OF BACKGROUND INFORMATION DOCUMENT (BID)

A BID in English has been compiled for distribution (refer to Appendix Diii for a copy of the BID). The BID contains the following information:

- Project name;
- Applicant name;
- Project location (including map of study area);
- Description of the EA application process, EIA flow chart, and public participation process;
- Information on future document review opportunities;
- A detailed questionnaire/ I&AP registration form; and
- Relevant EAP contact person for the project.

Copies of the BID will be emailed, where possible, to the current landowners and adjacent landowners. Copies of the BID will also be given to occupiers of the site and I&APs via direct consultation or will be emailed to potential I&APs. Copies of the BID documents will be hand delivered to the local communities and also sent by email to the government departments and municipalities.

Copies of the BID will be distributed to any other parties if required by the competent authority. The BID and distribution of the BID's will be presented in the Final Scoping Report and the EIAr as an Appendix.

8.2.2.4 SECTION 41, SUBREGULATION 2 (C), (D) & (E) – ADVERTISEMENTS

c) placing an advertisement in—
  i. one local newspaper; or
  ii. any official Gazette that is published specifically for the purpose of providing public notice of applications or other submissions made in terms of these Regulations;

d) placing an advertisement in at least one provincial newspaper or national newspaper, if the activity has or may have an impact that extends beyond the boundaries of the metropolitan or district municipality in which it is or will be undertaken: Provided that this paragraph need not be complied with if an advertisement has been placed in an official Gazette referred to in paragraph (c)(ii); and

e) using reasonable alternative methods, as agreed to by the competent authority, in those instances where a person is desirous of but unable to participate in the process due to—
  i. illiteracy;
  ii. disability; or
  iii. any other disadvantage.

As the boundary of the proposed project is restricted to the Springs area, an advertisement will be placed in the local newspaper (The Springs Advertiser) containing the following information:

- Project name;
- Applicant name;

- Project location;
- Nature of the activity;
- Relevant EAP contact person for the project;
- Availability of the Scoping Report for review; and
- Contact details for the relevant EAP where I&APs can send comments/concerns.

A copy of the advert that is to be placed will be attached in an Appendix Div in the Final Scoping Report

8.2.2.5 SECTION 41, SUBREGULATION 3

3) A notice, notice board or advertisement referred to in subregulation (2) must—

a) give details of the application or proposed application which is subjected to public participation; and

b) state—

i. whether basic assessment or S&EIR procedures are being applied to the application;

ii. the nature and location of the activity to which the application relates;

iii. where further information on the application or proposed application can be obtained; and

iv. the manner in which and the person to whom representations in respect of the application or proposed application may be made.

As indicated in Section 8.2.2.2 and Section 8.2.2.4 above, both the site notice and the adverts will include all information as per the requirements of Section 41, subregulation 3.

The EAP's contact number, postal address and email address will be stated on the site notice and adverts. Comments/concerns and queries will be encouraged to be submitted in either of the following manners:

1. Electronically (email);
2. Telephonically; and/or
3. Written letters.

8.2.2.6 SECTION 41, SUBREGULATION 4

4) A notice board referred to in subregulation (2) must—

a) be of a size of at least 60cm by 42cm; and

[Para. (*a*) amended by GN 326 of 7 April 2017.]

b) display the required information in lettering and in a format as may be determined by the competent authority.

Site notices erected around the boundary of the proposed Welgedacht Balloon Siding will be at least 60cm by 42 cm. The proposed format is Arial and the font size is 14. A locality map will be included on the site notice.

Refer to Appendix Di for a copy of the site notice. The locality map of where the site notices have been placed will be included in the Final Scoping Report.

8.2.2.7 SECTION 41, SUBREGULATION 5, 6 & 7

5) Where public participation is conducted in terms of this regulation for an application or proposed application, subregulation (2)(a), (b), (c) and (d) need not be complied with again during the additional public participation process contemplated in regulations 19(1)(b) or 23(1)(b) or the public participation process contemplated in regulation 21(2)(d), on condition that—

a) such process has been preceded by a public participation process which included compliance with subregulation (2)(a), (b), (c) and (d); and

b) written notice is given to registered interested and affected parties regarding where the—

i. revised basic assessment report or, EMPr or closure plan, as contemplated in regulation 19(1)(b);

ii. revised environmental impact assessment report or EMPr as contemplated in regulation 23(1)(b); or

iii. environmental impact assessment report and EMPr as contemplated in regulation 21(2)(d); may be obtained, the manner in which and the person to whom representations on these reports or plans may be made and the date on which such representations are due.

[Para. (*b*) amended by GN 326 of 7 April 2017 and substituted by GN 517 of 11 June 2021.]

Subregulation 5 is not applicable to the Welgedacht Balloon Siding, as the Application is a new Application for the proposed project and does not include any revised reports.

6) When complying with this regulation, the person conducting the public participation process must ensure that—

a) information containing all relevant facts in respect of the application or proposed application is made available to potential interested and affected parties; and

b) participation by potential or registered interested and affected parties is facilitated in such a manner that all potential or registered interested and affected parties are provided with a reasonable opportunity to comment on the application or proposed application.

All relevant facts in respect of the proposed application, will be made available to potential I&APs. Both the Scoping Report and the Environmental Impact Assessment Report with the Environmental Management Programme Report will be made available for public review and comment for a period of 30 days each.

7) Where an environmental authorisation is required in terms of these Regulations and an authorisation, permit or licence is required in terms of a specific environmental management Act, the public participation process contemplated in this Chapter may be combined with any public participation processes prescribed in terms of a specific environmental management Act, on condition that all relevant authorities agree to such combination of processes.

As this is an integrated application, namely an environmental authorisation and waste licence application in terms of the NEMA, and a water use licence application in terms of the NWA, it is proposed to combine the

public participation process with all notification documentation and other public participation opportunities referring to all three authorisation/permit or licence.

8.2.3 SECTION 42: REGISTER OF INTERESTED AND AFFECTED PARTIES

8.2.3.1 INTERESTED AND AFFECTED PARTY (I&AP) DATABASE

A proponent or applicant must ensure the opening and maintenance of a register of interested and affected parties and submit such a register to the competent authority, which register must contain the names, contact details and addresses of—

a) all persons who, as a consequence of the public participation process conducted in respect of that application, have submitted written comments or attended meetings with the proponent, applicant or EAP;

b) all persons who have requested the proponent or applicant, in writing, for their names to be placed on the register; and

c) all organs of state which have jurisdiction in respect of the activity to which the application relates.

As part of the PPP, the database for I&AP will be developed and will be continuously updated for the project. A copy of the database to date is included as Appendix Dv of the Scoping Report.

8.2.4 SECTION 43: REGISTERED INTERESTED AND AFFECTED PARTIES ENTITLED TO COMMENT ON REPORTS AND PLANS

8.2.4.1 INTERESTED AND AFFECTED PARTIES AND COMMENTING AUTHORITIES

43) 1). A registered interested and affected party is entitled to comment, in writing, on all reports or plans submitted to such party during the public participation process contemplated in these Regulations and to bring to the attention of the proponent or applicant any issues which that party believes may be of significance to the consideration of the application, provided that the interested and affected party discloses any direct business, financial, personal or other interest which that party may have in the approval or refusal of the application.

2) In order to give effect to section 24O of the Act, any State department that administers a law relating to a matter affecting the environment must be requested, subject to regulation 7(2), to comment within 30 days.

Stakeholders who are captured/registered on the database for the project shall include the following:

The owners or persons in control of the land where the proposed activity is to be undertaken (if different than applicant);

- The occupiers of the property where the development is to be undertaken;
- The owners and occupiers of land adjacent to the project area;
- Provincial and local government (relevant local and district municipalities and ward councillors);

- Organs of state, other than the authorising authority, such as the Department of Agriculture, Forestry and Fisheries (DAFF – now grouped with Environmental Affairs, forming DEFF since 2019) or Department of Roads, having jurisdiction in respect of any aspect of the proposed project;
- Relevant residents' associations, rates payers' organisations, community-based organisations and NGOs;
- Environmental and water bodies, forums, groups and associations; and
- Private sector (business, industries) in the vicinity.

8.2.4.2 DECISION MAKING AUTHORITIES IN TERMS OF THE ENVIRONMENTAL AUTHORISATION AND WATER USE LICENCE

The decision-making authorities includes the:

- DMRE; and
- DWS – (Water Use License).

I&APs who submit contact details will be registered on the I&AP database. The database will be updated on an on-going basis throughout the process and included as an Appendix to the Scoping Report and the Environmental Impact Assessment Report, as well as the Integrated Water and Waste Management Plan.

8.2.4.3 ENVIRONMENTAL AUTHORISATION APPLICATION

- Notification:

All potential I&APs will be notified by means of advertisement, site notices and/or notification letter and be requested to register as an I&AP for the proposed project.

- Scoping Phase:
    - During the Scoping phase the I&APs shall have the opportunity to comment on the Scoping Report, which will be made available for public review for 30 days. Registered I&APs will be notified of the availability of the Scoping Report. The report will be made available electronically via a downloadable link and a hard copy of the report will be made available at the Bakerton Library in Springs (The Draft Scoping Report will be made available for a 30 day review and comment period, from **12 November to 13 December 2021** and an electronic link will be provided to all registered I&APs All necessary measures will be put in place to ensure that the COVID-19 protocols are adhered to when reviewing the document. Should you require a CD copy of the report, please contact ELEMENTAL. Upon request, Zoom, Microsoft teams and skype meetings will be arranged and communicated with registered I&APs, together with a hand sanitiser);
    - Copies of the Scoping Report will be submitted to stakeholders (SAHRIS, Transnet and the Sedibeng Local Municipality), and government departments (DWS) for review.

- All comments received during the scoping phase will be included as an Appendix in the Final Scoping Report to be submitted to the DMRE.

8.2.5 SECTION 44: COMMENTS OF INTERESTED AND AFFECTED PARTIES TO BE RECORDED IN REPORTS SUBMITTED TO COMPETENT AUTHORITY

8.2.5.1 PUBLIC MEETINGS AND OPEN DAYS

Due to the restrictions, as a result of COVID-19, for both the Scoping and EIA Phase, Zoom meetings, Microsoft Team Meetings, Skype, and/or phone calls with landowners and I&AP's are encouraged. Open hours may be arranged depending on the restriction level at the time of the public review period. The purpose of the meeting for the Scoping Phase, will be to introduce the project and to get the potential Interested and Affected parties to register, as well as raise any concerns or issues that the I&APS may have with regards to the proposed Welgedacht Balloon Siding Project. Notes of the Zoom, Microsoft Team, Skype, and/or phone calls will be included in the Final Scoping Report as an Appendix.

8.2.5.2 SUMMARY OF ISSUES RAISED BY I&APS FROM PUBLIC PARTICIPATION

All issues raised and / or comments received will be included in the Public Participation Report, which will be attached as an Appendix in the Scoping Report and updated for the EIAr to be submitted to the competent authority.

Comments received during PPP session will be included in Table 11. (Please note that this will be completed for the final Scoping report to be submitted to the DMRE for adjudication).

Summary of issues raised by I&APs

Comments received during the public review period will be updated in this section when the scoping report is submitted to the Competent Authority and attached as an Appendix to the scoping report.

Table 11: Summary of issues raised

Name and Surname	Issues raised	Response provided by project team

9 THE ENVIRONMENTAL ATTRIBUTES ASSOCIATED WITH THE SITE: BASELINE ENVIRONMENT

This section discussed the current geographical, physical, biological, socio- economic, and cultural character of the project area.

As part of the environmental authorisation application, the screening tool was applied. The National Web based Environmental Screening Tool is a geographically based web-enabled application which allows a proponent intending to submit an application for environmental authorization in terms of the Environmental Impact Assessment Regulations (2014), to screen their proposed site for any environmental sensitivity.

The Screening Tool also provides site specific EIA process and review information, for example, the screening tool may identify if an industrial development zone, minimum information requirement, Environmental Management Framework or bio-regional plan applies to a specific area.

Some of these documents can then be accessed through the screening tool via links, for consideration during pre-screening. Further to this, the Screening Tool also identifies related exclusions and/ or specific requirements including specialist studies applicable to the proposed site and/or development, based on the national sector classification and the environmental sensitivity of the site.

The sensitivities identified by the screening tool are presented in Appendix E.

As per the results of the Screening Tool, the following specialist studies are recommended

- Agricultural Impact Assessment
- Landscape
- Visual Impact Assessment
- Archaeological and Cultural Heritage Impact Assessment
- Palaeontology Impact Assessment
- Terrestrial Biodiversity Impact Assessment
- Aquatic Biodiversity Impact Assessment
- Geotechnical Assessment
- Plant Species Assessment and
- Animal Species Assessment.

Table 26 in Section 13.2 provides a summary of all specialist studies that will be undertaken during the EIA phase of the project.

9.1 TOPOGRAPHY

Surface elevations at the project site range between 1’580 and 1,610 m above mean sea level (mamsl), with the general slope direction being from northwest to southeast at the southern sector of the Site and southeast to northwest on the northern sector of the site.

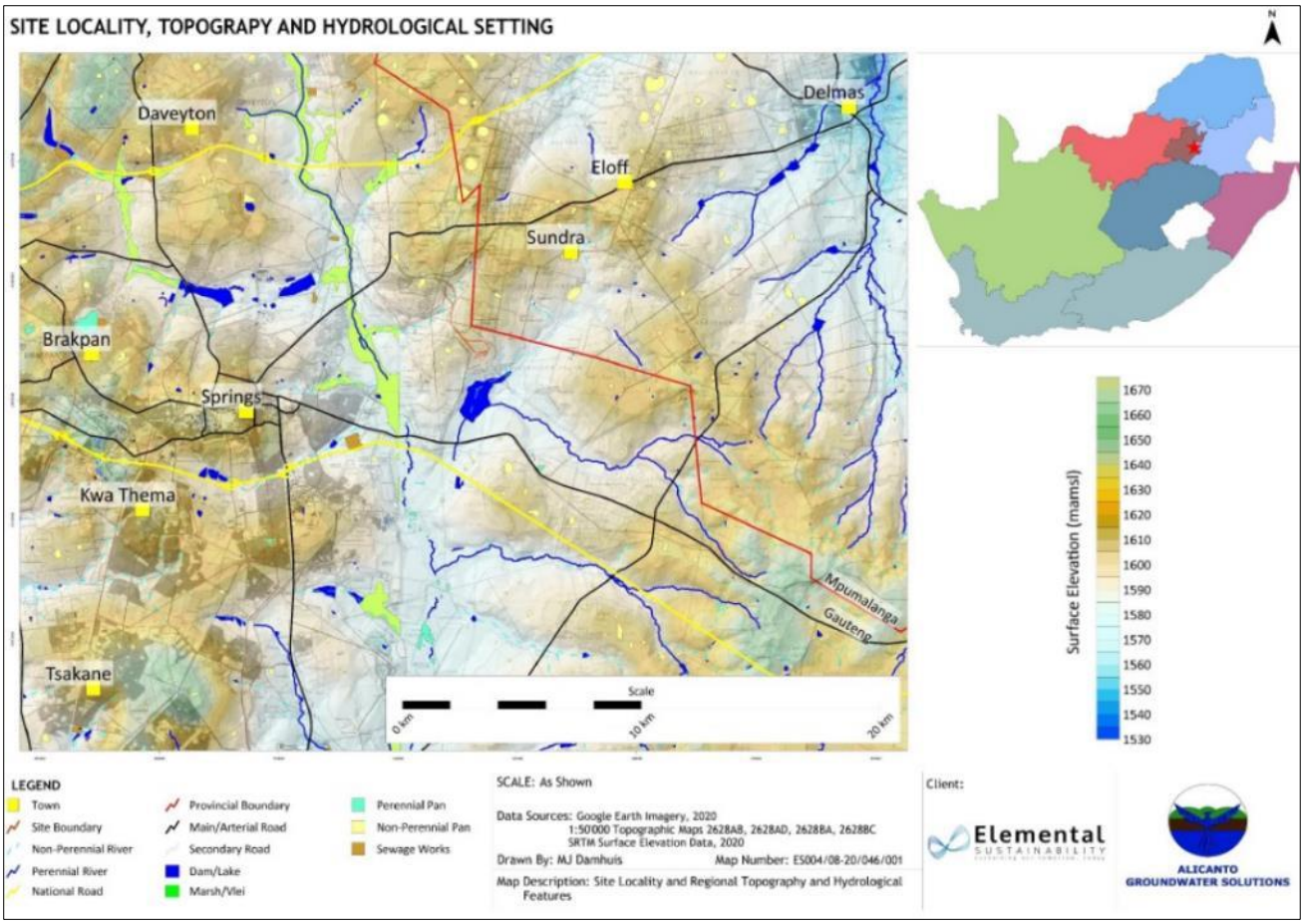

Figure 8: Topography of the project area

9.2 REGIONAL GEOLOGY

The project site falls within the Springs-Vischkuil Coalfield (Digby Wells, 2017) and is underlain by sandstone, shale and coal beds of the Vryheid formation (Ecca Group; Karoo Supergroup), which are in turn underlain by the Dwyka formation diamictite which has been mapped at the northern extent of the Site and ~2.5 km west and south of the Site. Dolomite and chert of the Malmani subgroup are located at the northern Site extent and ~3 km west and south of the Site with quaternary alluvial deposits located ~1 km east and ~2 km south of the Site.

The Vryheid formation is comprised predominantly of sandstone and shale, with subordinate coal beds, with a maximum thickness of ~500 m in the deeper parts of the Karoo basin and ~80-170 m in the Witbank Coalfield and marginal areas (GPT, 2018).

The Site is underlain predominantly by shale, sandstone and coal of the Vryheid formation based on the 1:250’000 geological map series 2628 East Rand. Digby Wells (2017) installed several hydrogeological boreholes at the nearby Palmietkuilen Site south of the Site, where the following was noted:

- The weathered zone extends to a depth of ~10-12 m and is comprised of shallow gravel (<5 m depth) and clay (3-12 m depth),

- Mudstone, quartzite and shale were intersected up to 50-70 m depths and are expected in the central region of the Site,
- Tillite was intersected at depths between 35 and 60 m, which is expected at the western extent of the Site, and
- Dolerite was intersected locally at depths in excess of 80 m.

Figure 9 is a geological map indicating the project area.

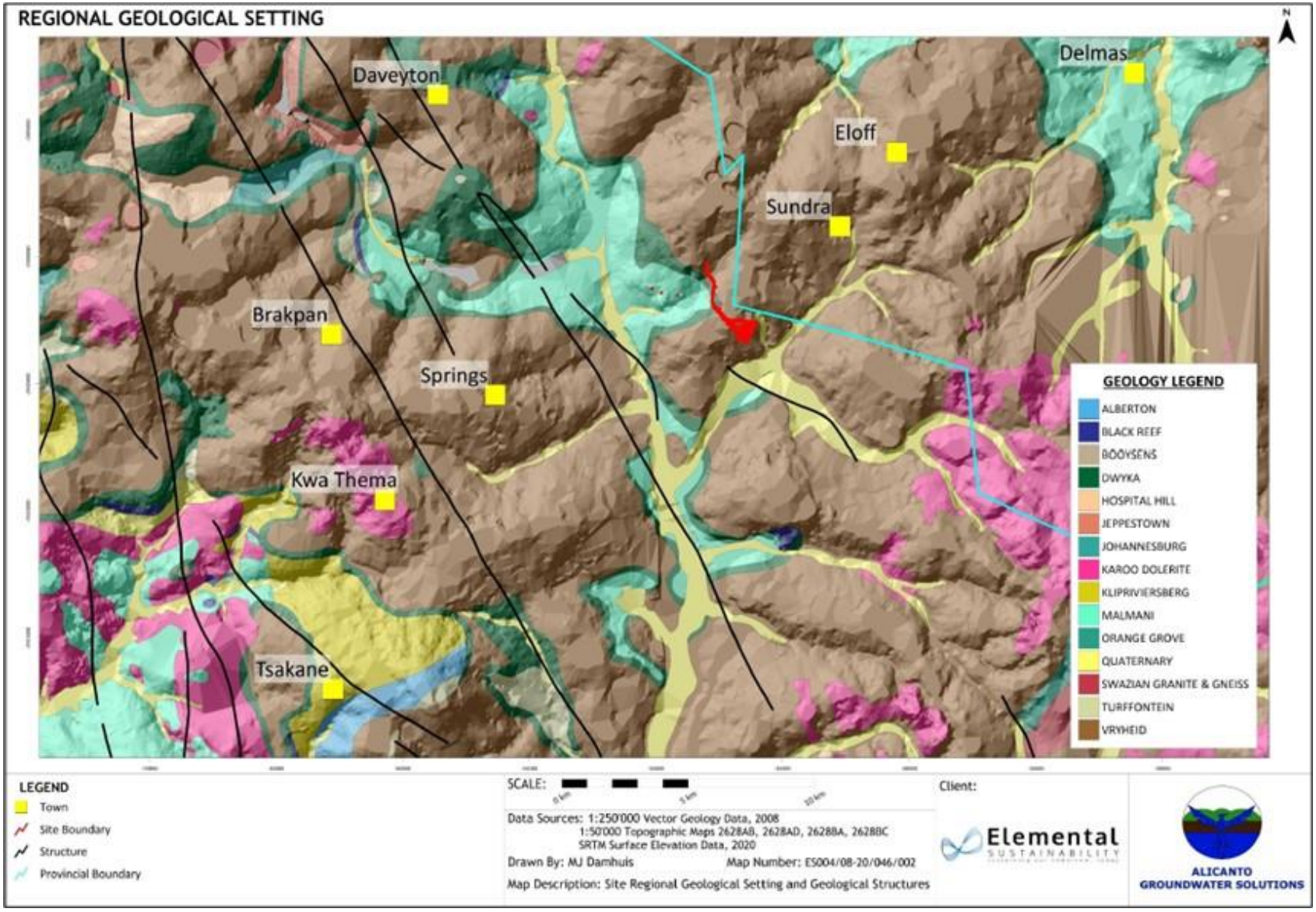

Figure 9: Geological Map indicating the proposed Welgedacht Balloon Siding

9.3 CLIMATE

9.3.1 TEMPERATURE

The temperatures are highest on average in October to February where temperatures rise above 30°C. The coldest months in the year are in June and July (>5°C) where the number of frost days are the highest. In the summer months' maximum average daily temperatures are predicted to be 23°C to 26°C on average, with a maximum of 32°C possible during hot days, dropping to a predicted 9°C to 13°C on average at night, and 4°C minimum on cold nights. During winter months the average day time temperature are predicted in the 18°C to 21°C range, while cold winter night-time temperatures are predicted to drop to -3°C.

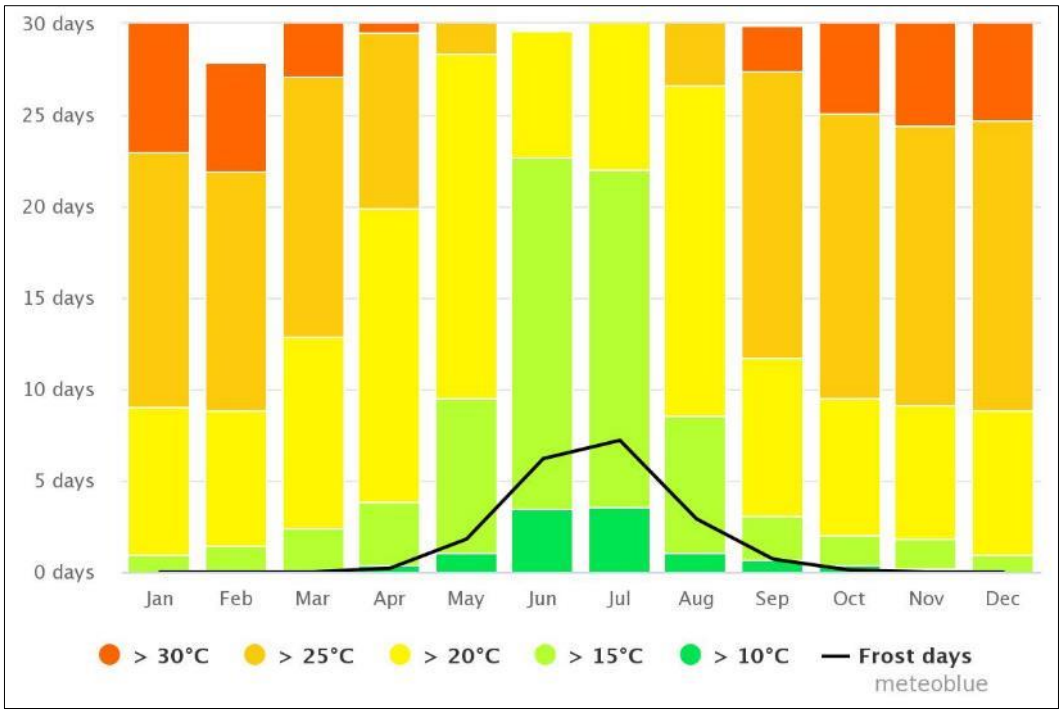

Figure 10: Mean monthly temperatures in Springs, Gauteng

9.3.2 MEAN MONTHLY PRECIPITATION AND EVAPORATION

The site is situated in the summer rainfall region of South Africa, with the majority of rainfall between September and March. Rainfall data was obtained from satellite datasets for 30 years, which indicated a mean annual precipitation (MAP) of 699 mm and evaporation data presented by GPT (2018) showed a mean annual evaporation (MAE) of 1697.3 mm. Figure 11 shows the monthly distributions of rainfall and evaporation at the Site.

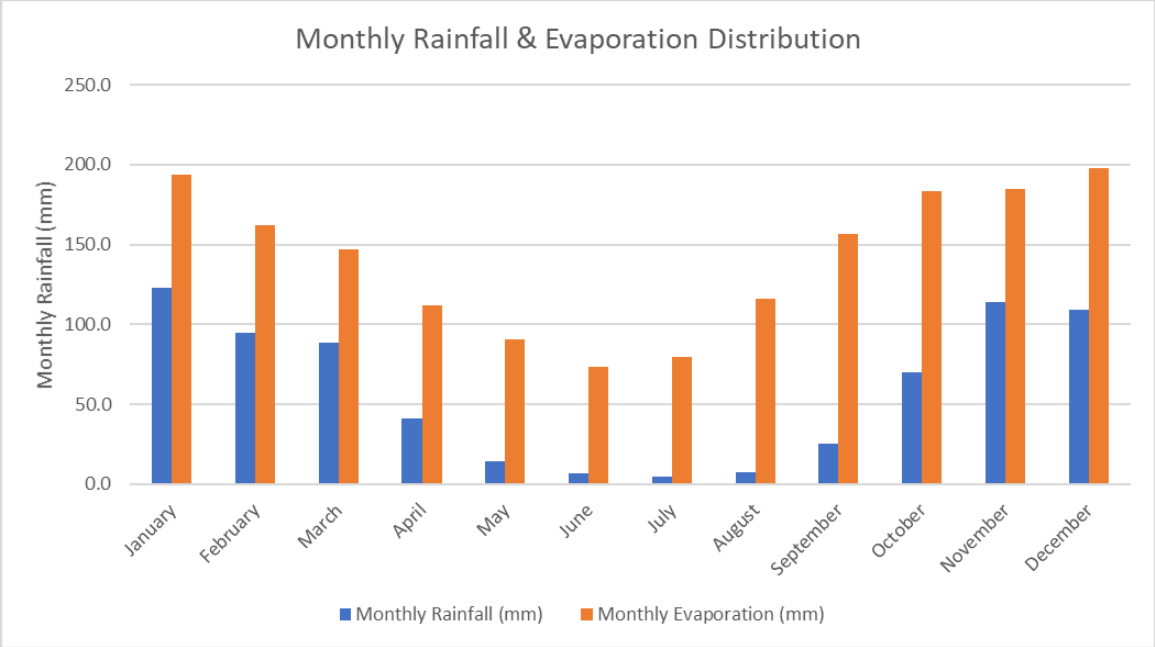

Figure 11: Monthly precipitation and evaporation distribution for the study area

9.3.3 WIND SPEED AND DIRECTION

The predominant wind direction in the proposed region is north to northwest and less frequent winds occur from the east and northeast and southwest. The maximum average wind speed is 7 m/s (classified as a “gust”) during October. This is due to the changing of the seasons (winter to spring) and wind speeds tend to increase from August Refer to Figure 12.

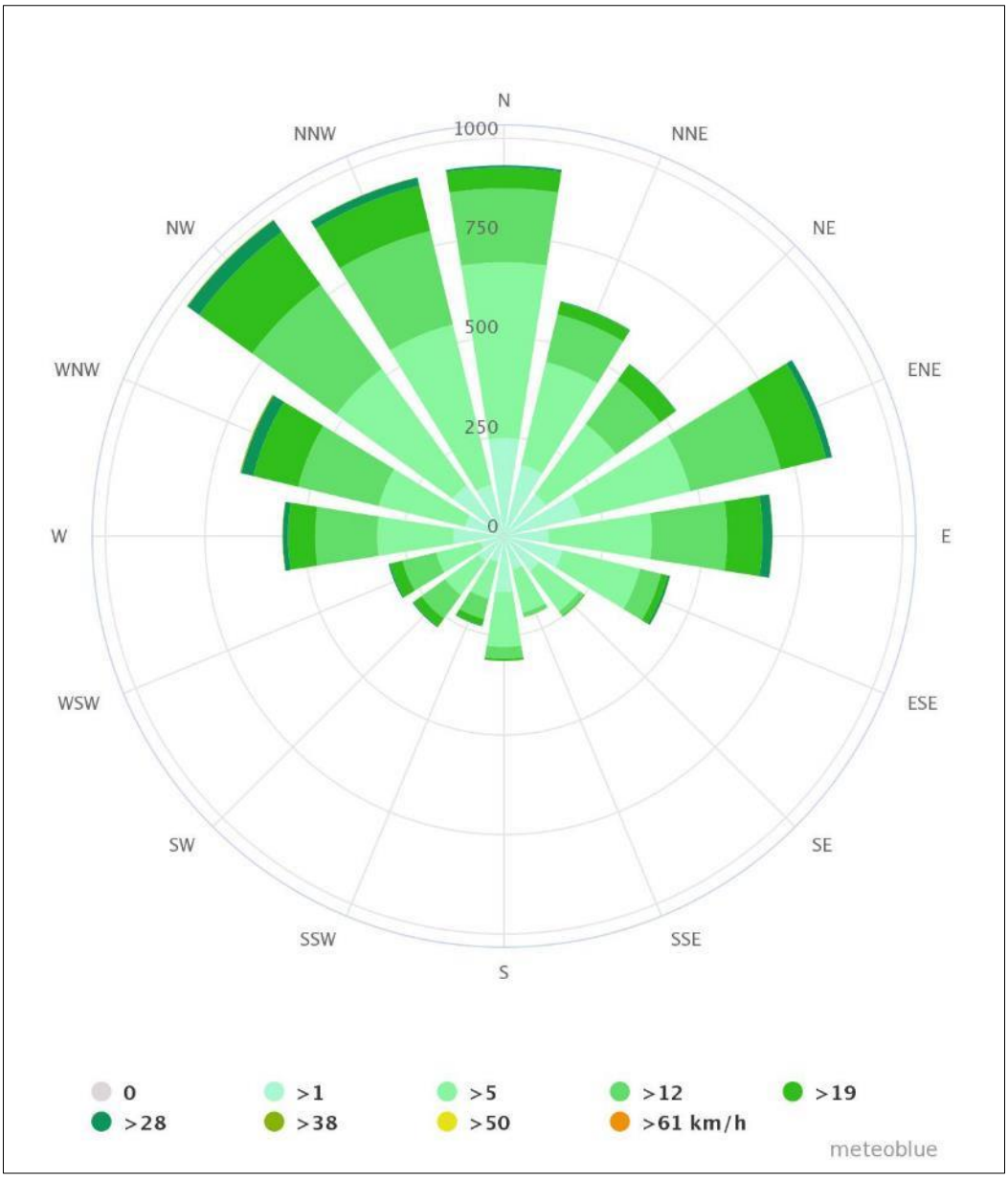

Figure 12: Windrose indicating wind speeds and directions in the Springs area

9.4 HYDROGEOLOGY

A hydrogeological study will be undertaken for the EIA phase of the project. The results of the study will be included in the EIAr and EMPr.

9.4.1 SITE HYDROGEOLOGY

According to the 1:500'000 Hydrogeological Map Series 2526: Johannesburg (Barnard, 1999) the Site is underlain by intergranular and fractured aquifers with an average borehole yield of 0.1-0.5 l/s. Barnard (1999) mapped a high yielding karst aquifer unit ~2 km west and at the northern rail extent of the Site with an average borehole yield in excess of 5 l/s.

Borehole data was obtained from the National Groundwater Archive (NGA) database (DWS, 2020) within a 10-km radius of the Site. The average borehole depth was ~48 m, ranging between <5 m and ~200 m, with the average water strike depth being ~37 m, ranging between <2 m and ~165 m. The majority of the boreholes were drilled to depths of 30-45 m, with two water strike zones identified at 10-20 m and 30-45 m depths as shown in Figure 13. Water strike frequencies decreased dramatically at depths greater than 80 m. Most blow yields recorded in the NGA (DWS, 2020) were below 0.1 l/s (27%), with more than 50% of the total blow yields being less than 0.5 l/s. The average recorded blow yield was 1.2 l/s, ranging between <0.1 l/s and 1.3 l/s, up to localised maximum values of 1.5-5 l/s. Figure 14 shows the blow yield distribution for the regional area.

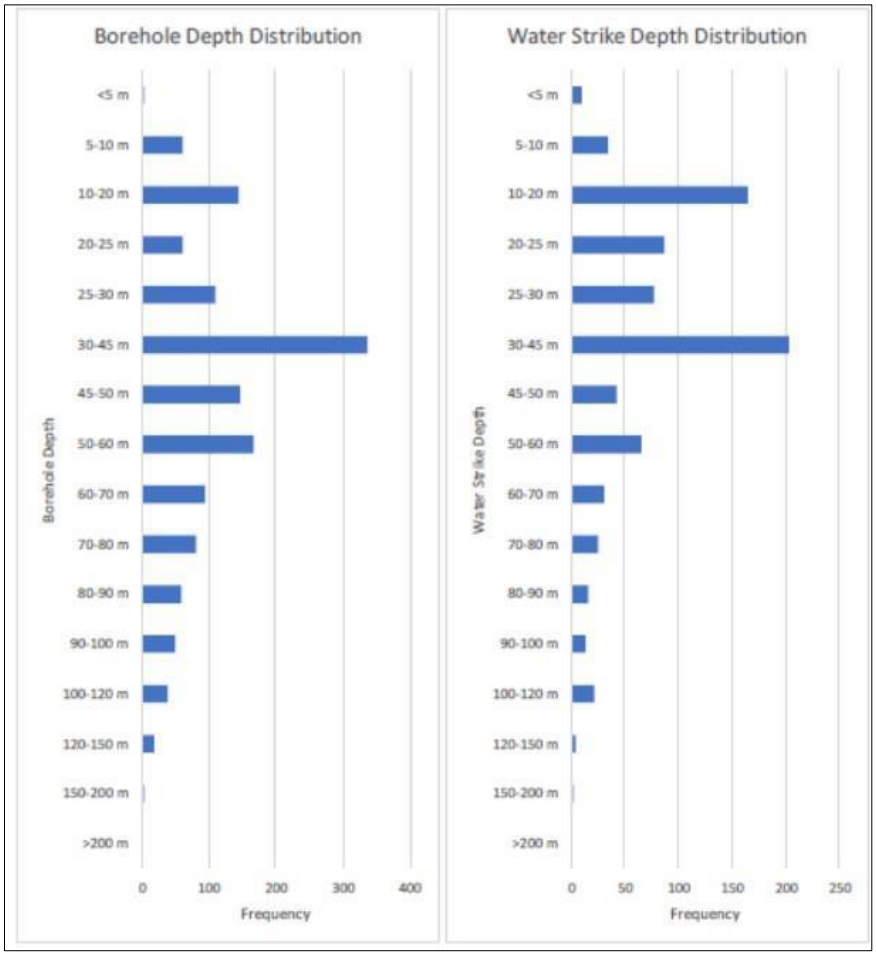

Figure 13: Regional Borehole and Water Strike Depth Distributions (DWS, 2020)

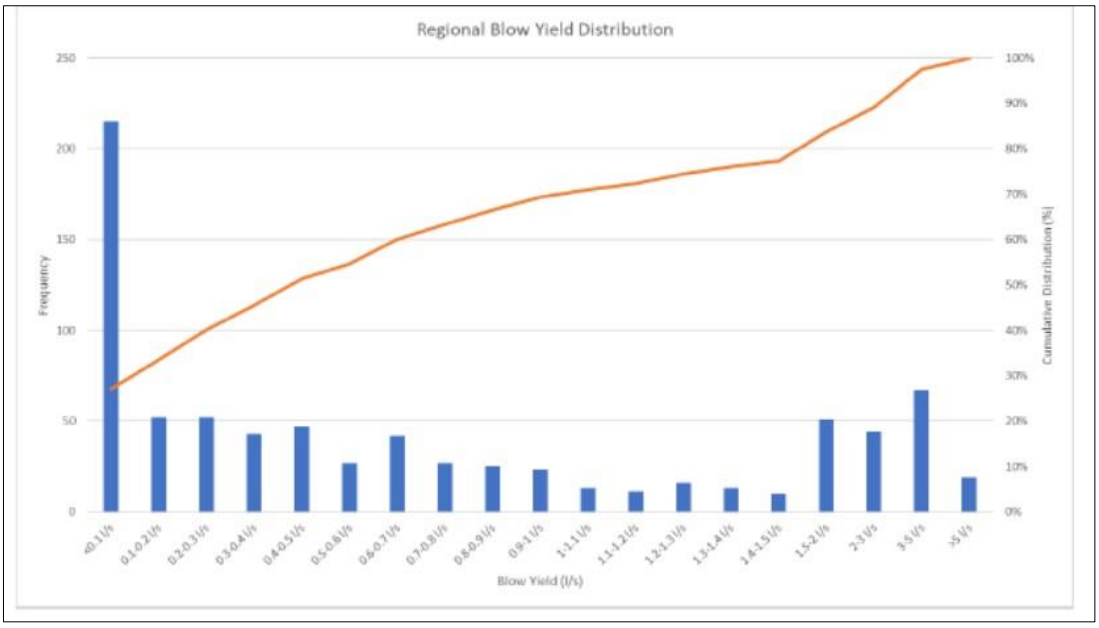

Figure 14: Regional Blow Yield Distribution

According to Hodgson & Krantz (1998) three distinct hydrogeological units are present within the Karoo coalfields, namely:

- An upper, weathered hydrogeological unit;
- A fractured, Ecca sediments hydrogeological unit; and
- A deeper, fractured basement hydrogeological unit.

The upper, weathered hydrogeological unit is typically found between 5 and 12 m depths, with the dominant recharge mechanism being infiltration of rainwater (1-5% of MAP) (AGS, 2019). Groundwater movement in the upper, weathered hydrogeological unit is controlled by the less permeable shale found at depth, as well as outcropping intrusions, paleo-topographic highs or streams/rivers where topography cuts through the water table (AGS, 2019).

The fractured Ecca hydrogeological unit is found at depths ranging between 20 and 45 m (refer to Figure 5.3) with the frequency of successful water strike intersection decreasing with depth. The matrix of the Ecca geology is well-cemented, thus lowering groundwater potential in the matrix and leading to almost all economic water strikes being associated with secondary geological features such as faults, fracture zones and intrusive contact zones.

The basement hydrogeological unit is generally regarded as insignificant due to its low yielding nature, great depth (>100 m) and limited recharge potential due to the overlying Dwyka tillite units.

the Site region there is a fourth hydrogeological unit to be considered, namely the karst unit situated ~2 km west and at the northern rail extent of the Site. According to the 1:500’000 hydrogeological map series 2526 Johannesburg (Barnard, 1999) the average borehole yield of the karst system west of the Site is over 5 l/s.

9.4.2 UNSATURATED ZONE

Limited information was available regarding the unsaturated zone at the Site and a detailed investigation of the unsaturated zone was outside of the project scope of work. The unsaturated zone typically behaves as a buffer zone for water infiltrating to the aquifers of a region, as well as a storage zone for water in some instances. The nature of the unsaturated zone is important when determining aquifer vulnerability at a Site.

Based on the available water levels for the Site area, the unsaturated zone is between 2 and 12-15 m in thickness and found up to ~20 m below ground level in areas of high weathering.

9.4.3 AQUIFER PARAMETERS

Based on literature (Grobbelaar *et al*., 2004; Hodgson & Krantz, 1998) the Ecca Group geology generally forms poor aquifers, with most water strikes being intersected at bedding contact zones and at secondary features such as faults or intrusions. Transmissivity values obtained from aquifer testing conducted in the region (AGS, 2019) varied between 0.007 and 2.5 m^2/day, with an average of ~1 m^2/day. The low values (i.e. 0.007 m^2/day) were likely to be representative of competent Dwyka Group and values for the fractured Karoo hydrogeological unit are likely to be between 0.1 and 1.5 m^2/day up to 2.5 m^2/day or higher at zones that are highly fractured or contact zones with more competent geology.

Storage values for the Site are expected to range between 0.001 and 0.1, with specific storage values in the range of 0.00000001 and 0.00001.

Recharge values were calculated using the Chloride Mass Balance method, as discussed in Section 7.3, and taken from literature values. The regional recharge for the Site was expected to vary between 1 and 4% of MAP.

9.4.4 HYDROCENSUS

A Hydrocensus will be conducted during the assessment and the results will be included in the EIA/EMPR documentation and provide the background groundwater quality.

9.5 SURFACE WATER (HYDROLOGY)

The Welgedacht Balloon Siding falls within quaternary catchments C21D and C21E with unnamed, non-perennial rivers located north west and south east of the Site. The perennial Blesbokspruit is located ~4 km west of the Site, associated with the Springs Bird Sanctuary wetland area. Aston Lake is located ~1.5 km south of the Site and several non-perennial pans are located south west of the Site. Figure 24 indicates the various watercourse within the project area.

The project area falls under the Upper Vaal Management Area (WMA: 08) which extends to portions of the Gauteng, Mpumalanga, North West and Free State Provinces. The greatest part of the project area falls within the C21E quaternary catchment, with some sections of the railway line falling within the C21E quaternary catchment (refer to Figure 15).

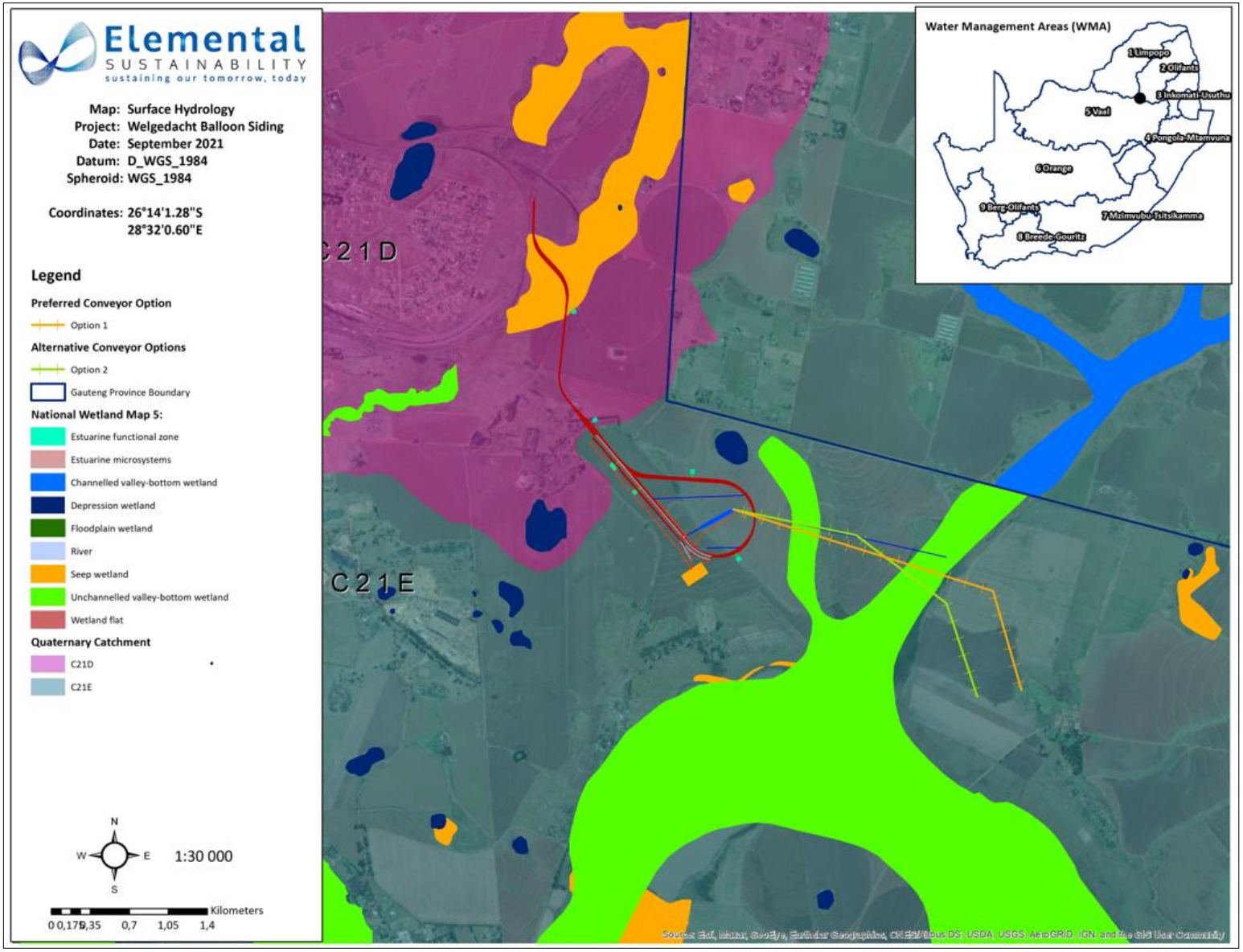

Figure 15: Watercourses and quaternary catchment of the Welgedacht Balloon Siding

9.5.1 SURFACE WATER QUALITY

It is recognised that some water resources, by virtue of their ecological importance, may require a high level of protection, whereas other water resources may serve the country's developmental and economic growth needs. The Water Resource Classification System is a step-wise process whereby water resources are categorized according to specific classes that represent a management vision of a particular catchment by taking into account the current state of the water resource and defining the ecological, social and economic aspects that are dependent on the resource.

9.5.2 RESOURCE CLASS

On 22 April 2016, the Minister of Water and Sanitation, published the Classes and Resource Quality Objectives of water resources for catchments of the Vaal WMA, as GN No. 468 in Government Gazette No. 39943. This notice provides a summary of the water resource classes and ecological categories for Integrated Units of Analyses (IUAs).

IUAs are classified in terms of their extent of permissible utilisation and protection as either Class I: indicating high environmental protection and minimal utilisation; or Class II: indicating moderate protection and moderate utilisation; and Class III: indicating sustainable minimal protection and high utilisation. The table below indicates the Resource Class Ecological Category set for the C21F Quaternary Catchment, located downstream of catchments C21D and C21E. No resource classes were provided for the C21D and C21E catchments and the C21F catchment is considered to be representative.

Table 12: Water Resource Classes per IUA and Ecological Categories per Biophysical Node

IUA	Water Resource Class for IUA	Quaternary Catchment	Water Resource	Ecological Category to be maintained
Klip River (Gauteng) (UI)	III	EWR site – 11	C21F	Suikerbosrand and its tributary, the Blesbokspruit

9.5.3 SENSITIVITY

Refer to Figure 15 for the surface water sensitivity map. This will be further discussed in the EIAr/EMPr.

9.5.4 AQUATIC ECOLOGY

South Africa's National Water Act (Act 36 of 1998) stipulates that the country's water resources should be managed, which includes the ecological integrity of a resource. The act focuses on protecting the needs of the environment and the basic needs of neighbouring countries, for the present and the future population. The Act defines water as a renewable natural resource. The ecological integrity of a resource is therefore considered an essential part of the resource, which must be managed.

The SASS method that was developed has been extended by defining the SASS5 method in greater detail to minimise variability. It also resulted in more accurate results when compared to the SASS4 method. Over recent years the method has become the standard for the rapid bio-assessment of rivers in South Africa and now forms the backbone of the National River Health Programme and is increasingly being included in the determination of the Ecological Reserve as required by the NWA.

Management strategies for water resources should be built upon the knowledge and expertise of various disciplines, with the biologist playing an important role. It is for this reason that aquatic bio-monitoring is extremely important to provide indications of harmful impacts to the ecosystem.

The aquatic ecology will be assessed for the Welgedacht Balloon Siding and the results of the study will be included in the EIAr/EMPr.

9.6 WETLANDS

There are several wetlands located within and around the proposed project area. seeps (refer to Figure 15). A section of the railway line falls within a seep wetland, while the conveyor belt crosses an unchanneled vallley bottom wetland. An aquatic/wetland specialist will be appointed during the EIA phase of the study to identify and characterise these watercouses in more detail. A hydropedological assessment will also be undertaken for the WUL process.

The wetlands are providing important hydrological services such as flood attenuation, streamflow regulation during low flow periods and water quality improvement. The wetlands are important for the provision of the crops and for the cattle raised on the properties. Furthermore, these wetlands are an important water source for the landowners and surrounding communities.

The Aston Lake, which drains into the Blesbokspruit River Ramsar wetland and Marievale Nature Reserve approximately 4 km from the dam's outlet and approximately 6.5 km from the nearest proposed conveyort infrastructure. The Blesbokspruit wetland is listed as a Ramsar wetland site of International Importance; one of 17 in South Africa and the only one in the Gauteng Province. It was designated as such in October 1986 as it was one of few permanent water bodies in the former Transvaal region with ecological significance (South African Wetlands Conservation Programme, 1999). Due to this status and the connectivity to the Blesbokspruit watercourse, the valley bottom wetlands associated with the Aston Lake have an NFEPA rank of 1; the highest possible classification in the ranking criteria (refer to Table 13).

Table 13: NFEPA wetland classification ranking criteria

Criteria	Rank
• Wetlands that intersect with a RAMSAR site.	1
• Wetlands within 500 m of an IUCN threatened frog point locality; • Wetlands within 500 m of a threatened waterbird point locality;	2

• Wetlands (excluding dams) with the majority of their area within a sub-quaternary catchment that has sightings or breeding areas for threatened Wattled Cranes, Grey • Crowned Cranes and Blue Cranes; • Wetlands (excluding dams) within a sub-quaternary catchment identified by experts at the regional review workshops as containing wetlands of exceptional Biodiversity importance, with valid reasons documented; and • Wetlands (excluding dams) within a sub-quaternary catchment identified by experts at the regional review workshops as containing wetlands that are good, intact examples from which to choose.	
• Wetlands (excluding dams) within a sub-quaternary catchment identified by experts at the regional review workshops as containing wetlands of biodiversity importance, but with no valid reasons documented.	3
• Wetlands (excluding dams) in A or B condition AND associated with more than three other wetlands (both riverine and non-riverine wetlands were assessed for this criterion); and • Wetlands in C condition AND associated with more than three other wetlands (both riverine and non-riverine wetlands were assessed for this criterion).	4
• Wetlands (excluding dams) within a sub-quaternary catchment identified by experts at the regional review workshops as containing Impacted Working for Wetland sites.	5
• Any other wetland (excluding dams).	6

9.7 WATER AUTHORITY

The Department of Water and Sanitation (DWS), Gauteng is the commenting authority for this area.

9.8 FLORA (PLANT LIFE)

An Ecological Study (including the flora, fauna, avifauna, amphibians) will be undertaken for the proposed project. The findings and recommendation of this study will be included in the EIAr and EMPr.

9.8.1 REGIONAL VEGETATION

Figure 16 indicates the vegetation group within the project area, which represents the Soweto Highveld Grassland. The Soweto Highveld Grassland comprises a gently to moderately undulating landscape on the Highveld plateau supporting short to medium-high, dense, tufted grassland dominated almost entirely by *Themeda triandra,* and accompanied by a variety of other grasses such as *Elionurus muticus*, *Eragrostis racemosa*, *Heteropogon contortus* and *Tristachya leuEMMhrix* (Mucina and Rutherford, 2006).

The majority of the natural vegetation occurring on site has been disturbed through previous TFR construction activities and related infrastructure, as well as farming. Sections of the conveyor belt fall into the Andesite Mountain Bushveld.

Table 14 indicates the common and characteristic plant species of the Soweto Highveld Grassland. Table 15 indicates the common and characteristic species of the Andesite Mountain Bushveld and Table 16, provides the common and characteristic species of the Eastern Highveld Grassland.

Table 14: Common and Characteristic Plant Species of the Soweto Highveld Grassland

Plant Forms	Species (names based on taxonomic names as in 2006)
Graminoids (grasses)	*Andropogon appendiculatus, Brachiaria serrata, Cymbopogon pospischillii, Cynodon dactylon, Elionurus muticus, Eragrostis capensis, E. chloromelas, E.curvula, E. plana, E. planiculmis, E. racemosa, Heteropogon contortus,Hyparrhenia hirta, Setaria nigrirostris, S. sphacelata, Themeda triandra, Tristachya leucothrix, Andropogon schirensis, Aristida adscensionis, A. bipartita, A. congesta, A. junciformis subsp. galpinii, Cymbopogon caesius, Digitaria diagonalis, Diheteropogon amplectens, Eragrostis micrantha, E. superba, Harpochloa falx, Microchloa caffra, Paspalum dilatatum*
Herbs	*Hermannia depressa, Acalypha angustata, Berkheya setifera, Dicoma anomala, Euryops gilfillanii, Geigeria aspera var. aspera, Graderia subintergra, Haplocarpha scaposa, Helichrysum miconiifolium, H. nudifolium var. nudifolium, H. rugulosum, Hibuscus pusillus, Justicia anagalloides, Lippia scaberrima, Rhynchosia effusa, Schistostephium crataegifolium, Selago densiflora, Senecio coronatus, Hilliardiella oligocephala, Wahlenbergia undulata*
Geophytic herbs	*Haemanthus humilis subsp. hirsutus, Haemanthus montanus*
Herbaceuos climber	*Rhynchosia totta*
Low shrubs	*Anthospermum hispidulum, A. rigidum subsp. pumilum, Berkheya annectens, Felicia muricata, Ziziphus zeyheriana*

Table 15: Common and Characteristic species of the Andesite Mountain Bushveld

Plant Forms	Species (names based on taxonomic names as in 2006)
Graminoids (grasses)	*Eragrostis curvula*, *Hyparrhenia hirta*, *Setaria sphacelata*, *Themeda triandra*, *Cymbopogon pospischilii*, *Digitaria eriantha* subsp. *eriantha*, *Elionurus muticus*, *Eragrostis racemosa*, *E. superba*, *Panicum maximum*.
Herbs	*Commelina africana*, *Vernonia galpinii*, *V. oligocephala*. Succulent Herb: *Aloe greatheadii* var. *davyana*
Woody Climber	*Rhoicissus tridentata*
Tall Shrubs	*Asparagus laricinus*, *Euclea crispa* subsp. *crispa*, *Rhus pyroides* var. *pyroides*, *Diospyros lycioides* subsp. *lycioides*, *Gymnosporia polyacantha*, *Lippia javanica*, *Rhamnus prinoides*
Small Trees	*Acacia caffra*, *A. karroo*, *Celtis africana*, *Protea caffra*, *Zanthoxylum capense*, *Ziziphus mucronata*
Low shrubs	*Asparagus suaveolens*, *Rhus rigida* var. *margaretae*, *Teucrium trifidum*. Soft Shrub: *Isoglossa grantii*

Table 16: Common and Characteristic species of the Eastern Highveld Grasslands

Plant form	Species (names based on taxonomic names as in 2006)
Graminoids (grasses and sedges)	*Heteropogon contortus, Aristida aequigluims, A. congesta , A. junciformis subsp. Galpini, Brachiaria serrata, Cynodon dactylon, Digitaria monodactyla, D. tricholaenoides, Elionurus muticus, Eragrostis chloromelas, E. curvula, E. plana, E. racemosa, E. sclerantha, Heteropogon contortus, Loudetia simplex, Microchloa caffra, Monocymbium cereiiforme, Setaria sphacelata, Sporobolus africanus, S. pectinatus, Themeda triandra, Trachypogon spicatus, Tristachya leucothrix, T. rhmanni, Alloteropsis semialata subsp. eckloniana, Andrpogon appendiculatus, A. schirensi, Bewsia biflora, Ctenuim concinnum, Diheteropogon*

	amplectens, Eragrostis capensis, E. dummiflua, E. patentissima, Harpochloa falx, Panicum natalense, Rendlia altera, Schizachyruim sanguineum, Setaria nigrirostris, Urelytrum agropyroides
Herbs	*Berkheya setifera, Haplocarpha scaposa, Euryops gifillani, Justicia anagalloides, Acalyha angusta, Cahmaecrista mimosoides, Dicoma anomala, E. transvalensis subsp. setilobus, Helichrysum aureonitens, H. caespititium, H. callicomum, H. oreophilum, H. caespititium, H. oerophilum, H. rugulosum, lpomoea crassipes, Pentanisia prunelloides subsp. latifolia, Selago densiflora, Senecio coronatus, Hilliardiella oligocephala, Wahlenbergia undulata*
Geophytic herbs	*Gladiolus crassifolius, Haemanthus humilis subsp. hirsutus, Hypoxis rigidulua var. pilosissima, Ledebouria ovatifolia*
Succulent herb	*Aloe ecklonis*
Low shrubs	*Anthospermum rigidum subsp. pumilum, Seriphium plumosa*

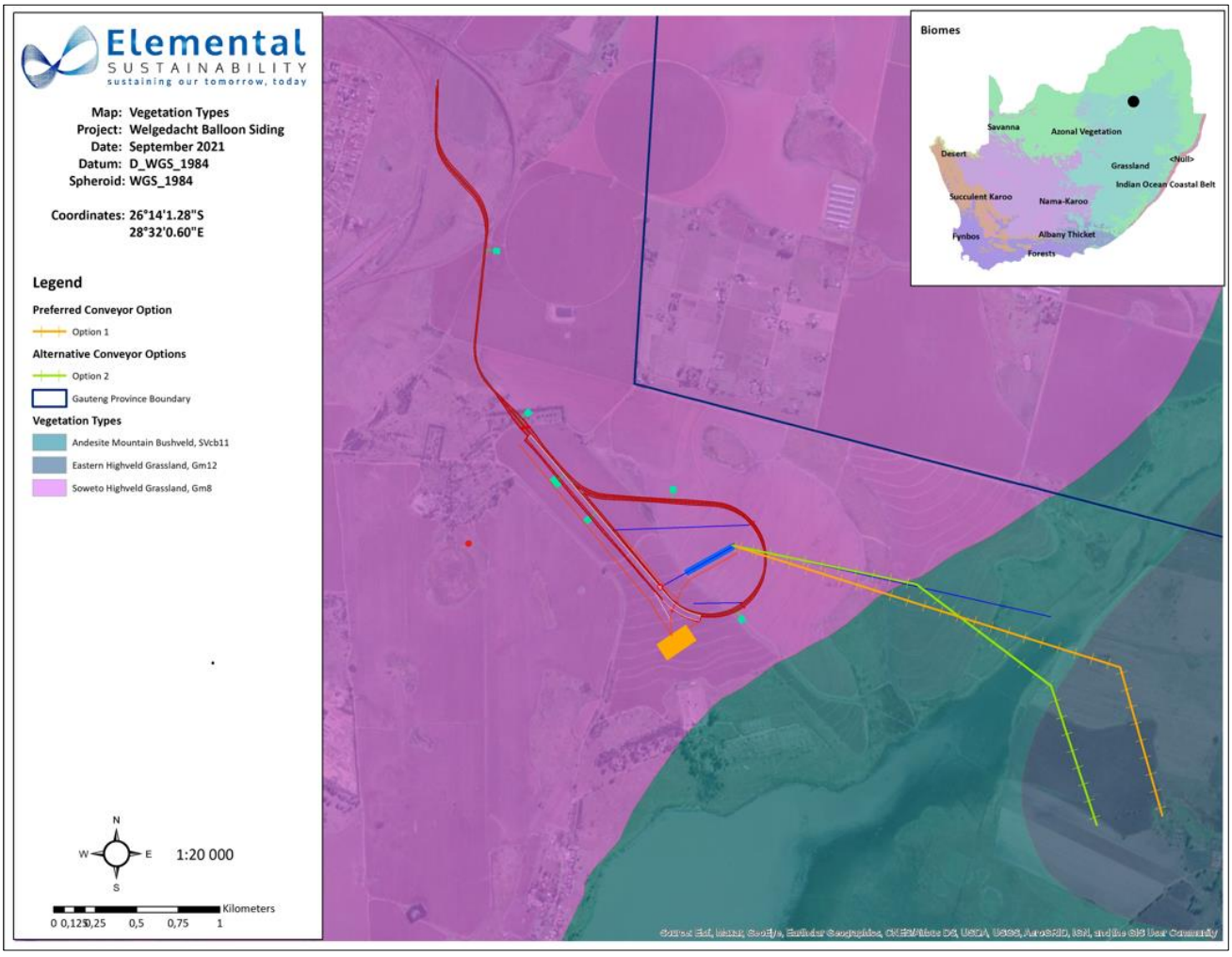

Figure 16: Vegetation groups within the proposed Welgedacht Balloon Siding area

9.8.2 REGIONAL CONSERVATION ASSESSMENTS

Knowledge of the distribution of biodiversity, the status of species, approaches for dealing with aspects such as climate change, methods of data analysis, and the nature of threats to biodiversity within a planning region are constantly changing, especially in the Gauteng province which is developing at an extremely rapid rate. This requires that the conservation plan be treated as a living document with periodic review and updates.

The Gauteng Conservation Plan (C-Plan) is based on the systematic conservation principles outlined by Margules and Pressey (2000): complementarity, efficiency, defensibility and flexibility, irreplaceability, retention, persistence and accountability. The Gauteng C-Plan is a living document that is constantly reviewed and updated and documents the distribution of conservation important areas for biodiversity.

As per the Gauteng C-Plan (Figure 17), the Welgedacht Balloon Siding and the conveyor belts fall into an Ecological Support Area. Parts of conveyor routes cross an important bird area (IBA), namely the Blesbokspruit IBA.

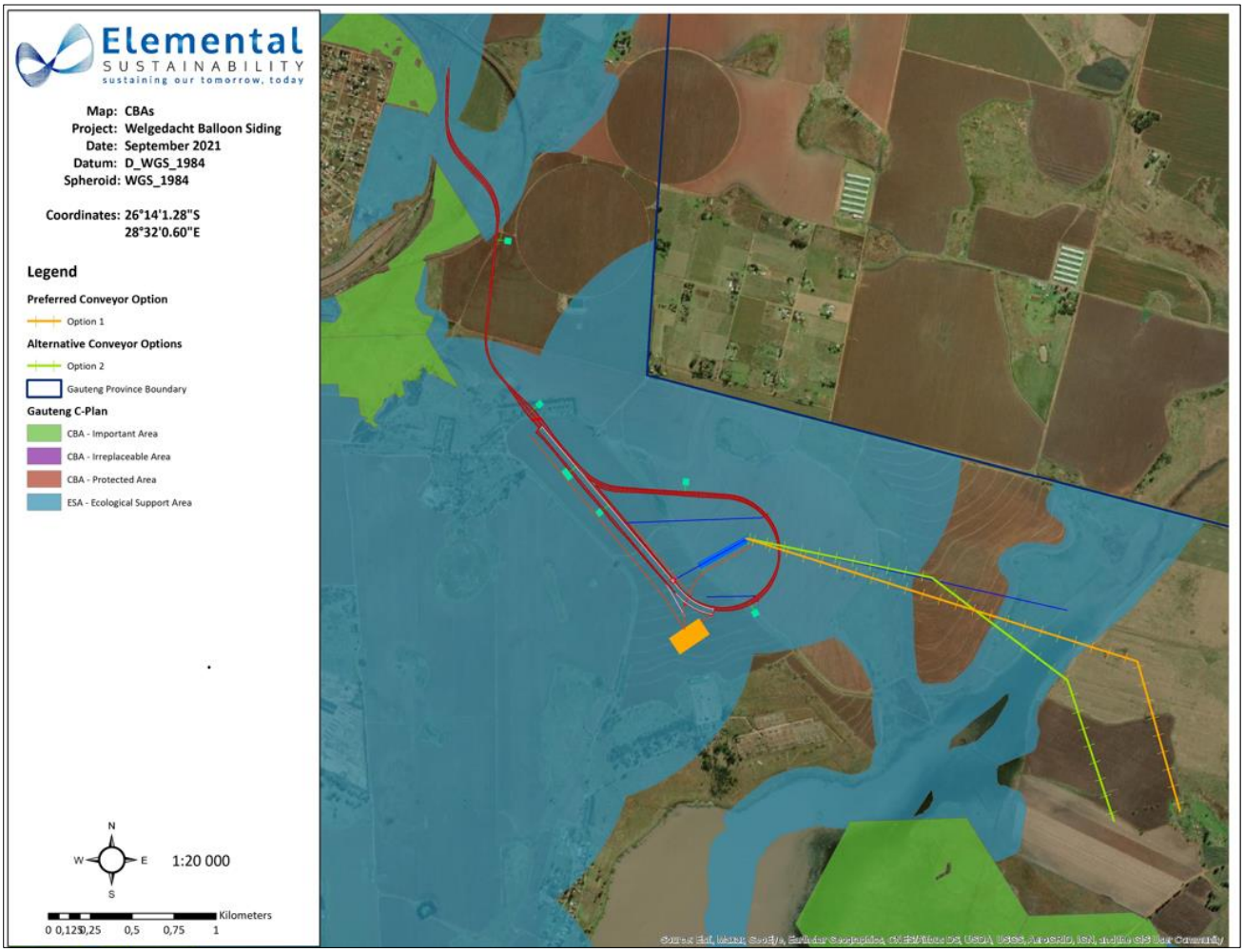

Figure 17: Gauteng C Plan for the Welgedacht Balloon Siding

9.9 FAUNA (ANIMAL LIFE)

The study undertaken by Digby Wells (2016) for the adjacent Palmietkuilen mine indicated that a total of 13 mammal species were recorded on site, two of these species are regarded as species of special concern, Cape Clawless Otter (*Aonyx capensis*) and Serval (*Felis serval*) are protected according to NEMBA TOPS list). A total of 89 bird species were recorded, one SSC was recorded namely, the Secretary Bird (Sagittarius serpentarius). Four frog species were recorded on site, namely: *Amietia angolensis* (Common River Frog), *Bufo gutturalis* (Guttural Toad), *Cacosternum boettgeri* (Common Caco) and *Strongylopus fasciatus* (Striped Stream Frog).

The IBA is indicated in Figure 17. The Digby Wells study (2016) recorded a total of 89 bird species were identified during the dry season and the wet season survey (combined). It is generally accepted that vegetation structure, rather than the actual plant species, influences bird species distribution and abundance (in Harrison et al.; 1997).

The bird species that can be found in the general area include:

- Southern Red Bishop (*Euplectes orix*);
- Cape Glossy starling (*Lamprotornis nitens*);
- Pintailed whydah (*Vidua macroura*);
- Western Cattle egret (*Bubulcus ibis*);
- Hadeda ibis (*Bostrychia hagedash*);
- European bee-eater (*Merops apiaster*);
- Cape turtle dove (*Streptopelia caicola*);
- Laughing dove (*Streptopelia senegalensis*);
- African Sacred ibis (*Threskiornis aethiopicus*);
- Crested barbet (*Trachyphonus vaillantii*);
- Southern bald ibis (*Geronticus calvus*);
- Barn swallow (*Hirundo rustica*);
- Blacksmith lapwing (*Vanellus armatus*);
- Helmeted guineafowl (*Numinda meleagris*) (uKhosi,2015).

9.10 AGRICULTURAL AND LAND CAPABILITY

A Soil Study, Land Use and Land Capability Study together with an Agricultural Assessment will be undertaken for the project. The results thereof will be included in the EIAr.

Agricultural activities within the Project area comprise irrigated and dry-land commercial maize and soya farming operations. Farmlands generally produce for the local market within Gauteng and Mpumalanga. Farms provide permanent employment for a number of permanent employees, which include unskilled farm labour and semi-skilled managerial staff. Farming operations are solely dependent on ground and surface water as well as extensive support infrastructure, which include pivoted irrigation systems, warehouses, workshops, farm office and worker accommodation, etc.

9.11 LAND CAPABILITY

Land capability is determined by a combination of soil, terrain and climate features. The dominant land capability classes in the project area are Class II (Intensive cultivation), Class III (Moderate cultivation) and Class V (Wet zones), as depicted in Figure 18. The ensuing paragraphs list in detail the limitations used to define the three classes.

9.11.1 CLASS II: ARABLE

Class II land capability coincides with the Hutton and Clovelly soils. These soils are well drained, easily managed and have high agricultural potential. Land in Class II has some limitations that reduce the choice of plants or require moderate conservation practices. It may be used for cultivated crops, but with less latitude in the choice of crops or management practices than Class I. The limitations are few and the practices are easy to apply. Limitations may include, singly or in combination, the effects of:

- Gentle slopes;
- Moderate susceptibility to wind and water erosion;
- Less than ideal soil depth;
- Somewhat unfavourable soil structure and workability;
- Slight to moderate salinity or sodicity easily corrected but likely to recur;
- Occasional damaging flooding;
- Wetness correctable by drainage but existing permanently as a moderate limitation; and
- Slight climatic limitations on soil use and management.

Limitations may cause special soil-conserving cropping systems, soil conservation practices, water-control devices or tillage methods to be required when used for cultivated crops.

9.11.2 CLASS III: ARABLE

Land in Class III has more severe limitations that reduce the choice of plants or require special conservation practices or both. Land may be used for cultivated crops, but has more restrictions than Class II. When used for cultivated crops, the conservation practices are usually more difficult to apply and to maintain. The number of practical alternatives for average farmers is less than that for soils in Class II. Limitations restrict, singly or in combination, the amount of clean cultivation, time of planting, tillage, harvesting and choice of crops. Limitations may result from the effects of one or more of the following:

- Moderately steep slopes;
- High susceptibility to water or wind erosion or severe adverse effects of past erosion;.
- Frequent flooding accompanied by some crop damage;

- Very slow permeability of the subsoil;
- Wetness or some continuing waterlogging after drainage;
- Shallow soil depth to bedrock, hardpan, fragipan or clay-pan that limits the rooting zone and water storage;
- Low water-holding capacity;
- Low fertility not easily corrected;
- Moderate salinity or sodicity; and
- Moderate climatic limitations.

9.11.3 CLASS V: GRAZING

Class V land capability coincides with the Arcadia soils. Although these soils are deeper, they have high clay content and shrink/swell properties, making them very difficult to manage from an agricultural perspective. Land in Class V has little or no erosion hazard but has other limitations impractical to ameliorate which limit its use largely to grazing or wildlife. Limitations restrict the kind of plants that can be grown and prevent normal tillage of cultivated crops.

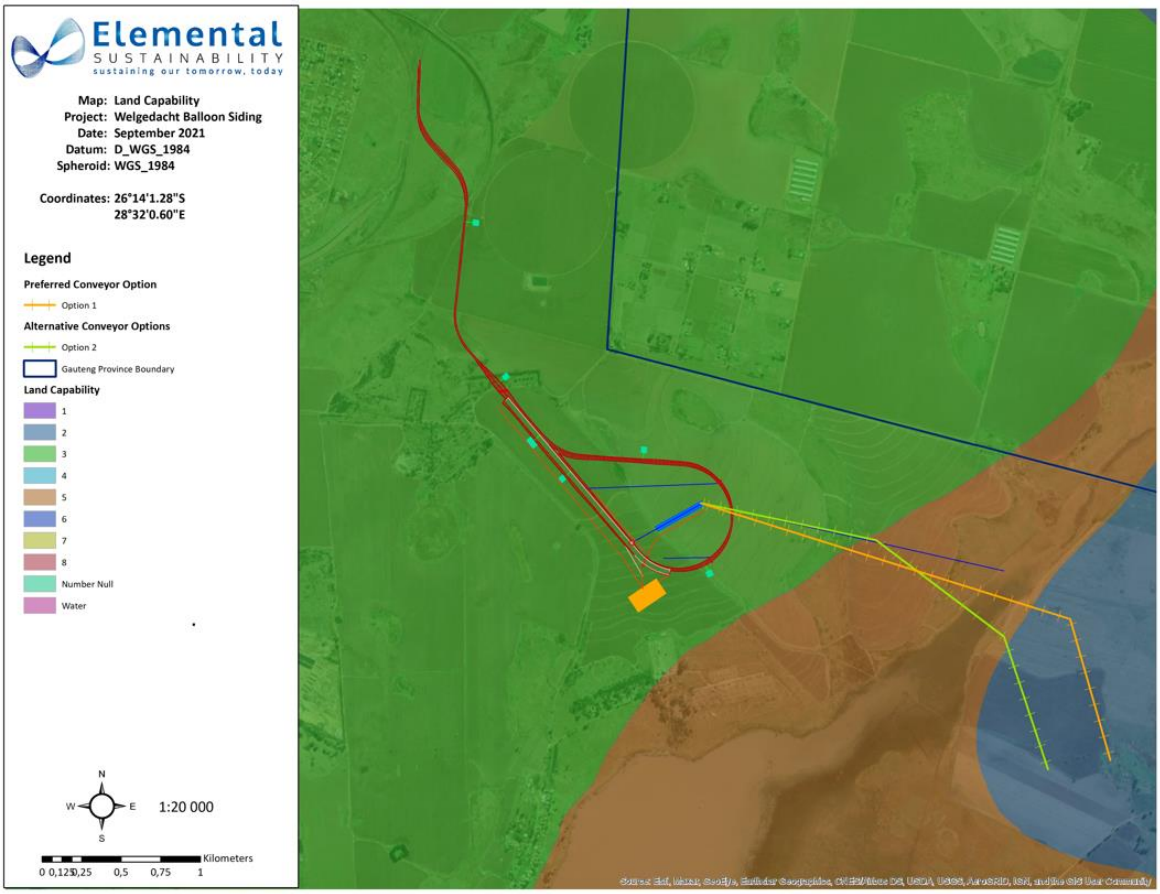

Figure 18: Land capability for the Welgedacht Balloon Siding and conveyor routes

As indicated in Figure 19 below, the largest part of the project falls within cultivated area with sections of the conveyor crossing waterbodies. Small sections of natural vegetation occur within the project area.

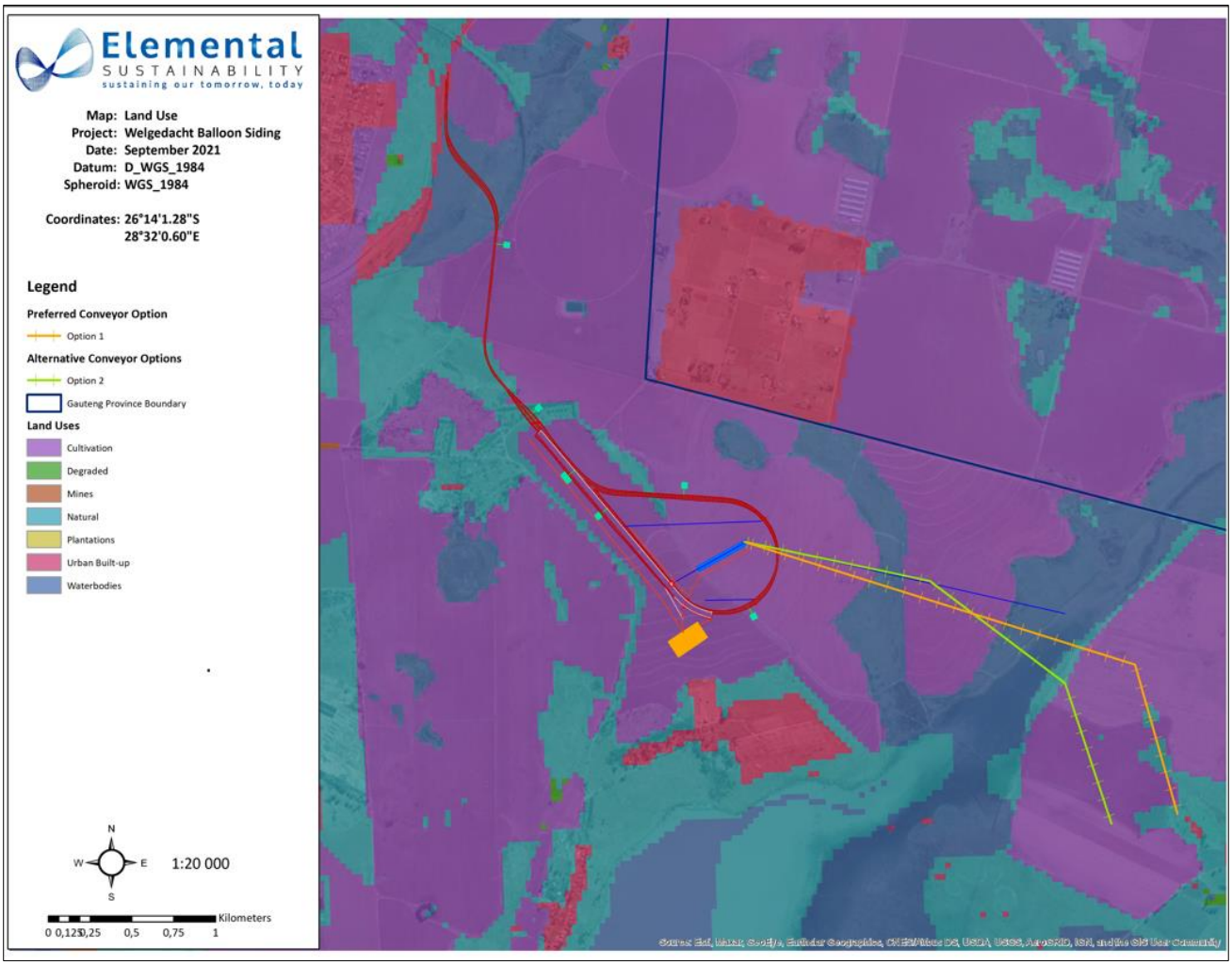

Figure 19 Land use for the Welgedacht Balloon Siding and the surrounding area

9.12 AIR QUALITY

An Air Quality Assessment will be undertaken for the proposed project and the results of this study will be included in the EIAr/EMPr.

Dust can become a nuisance when the amount of dust generated by certain activities, affect the performance of other activities or if the natural environment is negatively affected by the dust fallout. This includes human health and wellbeing as priority. When dust generating activities are unregulated it will only become a much larger issue which will ultimately lead to major pollution of the receiving environment. It is important to predict and determine possible areas of dust generation as early identification can help develop mitigation or prevention plans for the specific dust generating activities. A prediction is made possible by using existing examples of dust

generating activities on other sites and its effect and measures set in place to mitigate these. As almost all mining activities and related processes are based on the same principle, it is reasonable to assume that the dust fallout for similar activities would be comparable. (ENVASS, 2015).

9.13 NOISE

A Noise study will be undertaken for the project and included in the EIAr/EMPr. Potentially sensitive receptors, also known as noise-sensitive developments (NSDs), located within or close to the project area will be identified using Google Earth®. All potential NSDs within approximately 1,000m from the project boundary will be identified. The measurements will consist of a number of short-term recordings around the project site to confirm the characteristics of the site. Wind-induced noises may influence the measurements.

9.14 VISUAL

At present the visual character of the area is dominated by agricultural activities (maize cultivation and grazing of cattle), housing developments and the main railway line within the project area. The infrastructure related to the siding is limited in height and does not involve any facility to a height of greater than approximately 30m. Various coal mines exist within the area. However, a Visual Assessment will be undertaken for the Welgedacht Balloon and results will be discussed in the EIAr/EMPr.

9.15 ARCHAEOLOGY AND HERITAGE AS PART OF THE ENVIRONMENTAL AUTHORISATION PROCESS, A HERITAGE STUDY WILL BE UNDERTAKEN TO IDENTIFY ALL HERITAGE FEATURES. THIS WILL BE DISCUSSED IN FULL THE EIAR/EMPR.

It is anticipated that the following cultural and historical sites and resources could exist on site:

- Burial sites and graves;
- Farmsteads; and
- Old structures such as dams, etc.

A Heritage Assessment will be undertaken for the project and the results thereof included in the EIAr/EMPr.

9.16 SOCIAL-ECONOMIC ENVIRONMENT

The following section provides a summary of the social and economic environment that may be influenced by the proposed project. Information in this section was sourced from Stats SA and the Integrated Development Plans (IDP's) for the Sedibeng District Municipality. The information provided in the IDP's and the Stats SA website are based on a 2011 National census and well as the 2016 Community Survey[1].

[1] It is acknowledged that this data may be outdated as no more recent census has been undertaken (Stats SA) and in addition, the municipal IDP 2020-2021 is still in draft mode and may be updated after review.

According to the National Environmental Management Act (NEMA, 1998) environment refers to the surroundings in which humans exist. When viewing the environment from a socio-economic perspective the question can be asked what exactly the social environment is. Different definitions for social environment exist, but a clear and comprehensive definition that is widely accepted remains elusive.

The environment influences and constrains behaviour, but behaviour also leads to changes in the environment. The impacts of a project on people can only be truly understood if their environmental context is understood. The baseline description of the social environment will include a description of the area within a provincial, district and local context that will focus on the identity and history of the area as well as a description of the population of the area based on a number of demographic, social and economic variables.Table 17 presents a summary of the socio-economic aspects which may have a bearing on the proposed project.

Table 17: Summary of the socio-economic aspects (Sedibeng District Municpality)

Aspect	Local Municipality
District Municipality	Sedibeng District Municipality
Province	Gauteng Province
Location	The Project area is situated within Sedibeng District Municipality (SDM), which comprise three local municipalities (LMs); Midvaal, Emfuleni and Lesedi. The Project Area is located entirely within Ward 12 of Lesedi Local Municipality (LLM) and directly borders Ward 7 of the Victor Khanye LM (VKLM), located in the Nkangala District Municipality (Mpumalanga Province) and Ward 75 and 76 of the Ekurhuleni Metropolitan Municipality (EMM). Human settlements closest to the site include Aston Lake and Prosperity (directly adjacent), Endicott and Vischkuil (2km south), Sundra (2.5km north), Welgedacht (3km north-west) and Springs (4km east). Agricultural activities within the Project area comprise irrigated and dry-land commercial maize and soya farming operations. Farmlands are under the ownership of privately owned companies and generally produce for the local market within Gauteng and Mpumalanga. Farmland is either used by owners or leased out on an annual basis to other farmers who will cultivate the land and/or use it to graze livestock. Farms provide permanent employment for a number of permanent employees, which include unskilled farm labour and semi-skilled managerial staff. Farming operations are solely dependent on ground and surface water as well as extensive support infrastructure, which include pivoted irrigation systems, warehouses, workshops, farm office and worker accommodation, etc.
Local Municpality	Lesedi Local Municipality (LLM)
Ward	12
Population composition	Black African (65%), White (32%), Other (2%)
Languages	IsiZulu (37%), closely followed by Afrikaans (31%)

Age and Gender	The age distribution of the surveyed population indicates a relatively old population with only 17% of household members being younger than 10 years, and an average age of almost 30 years. The population's gender ratio indicates that females and males are equally distributed.
Household Size	The average household size (calculated by dividing the total number of household members recorded during the survey by the number of surveyed households) is between four and five members. It is relatively uncommon for extended family members to share the same household.
Education	School attendance is relatively high amongst those of school going age (6-18 years), with most children (83%) attending primary school. Attendance varies considerably between boys (94%) and girls (69%), with attendance amongst girls being 25% lower.
Housing	In addition to permanent household members several homesteads also offer accommodation to tenants. Just more than a quarter of households (27%) rent out rooms to tenants, with the average number of tenants per affected household being between two and three persons.
Household Services	Household's access to regional water schemes is the lowest within Ward 12 of LLM (64%). Households also seem to have limited access to flush sanitation facilities, with only 51% of households in Ward 12 having access to flush sanitation facilities. Household access to electricity for lighting, heating and cooking on Ward level is generally lower than the corresponding municipal average.
Employment Trends	In 2011, the employment rate among the Ward's labour force was about 45% of the total population (older than 15) and 81% among the economically active population. Employment was mostly provided within the formal sector (82%), which is likely driven through activities within the manufacturing, wholesale and trade, energy, as well as services and finance sectors (StatsSA, 2013). Major economic activities in the Ward consist of commercial agriculture and dryland crop production, in addition to a small number of light industries. Unemployment among the economically active population (11%) is low when compared to the corresponding figure for the LLM. Employment and unemployment patterns vary considerably across genders with a greater percentage of females who are classed as unemployed and not economically active. Males far outnumber (18%) females among those who are employed on both a Ward and Municipal level.
Economic Sector Performance	The economic baseline revealed that the LLM is a relatively small economy and makes a minor contribution towards the economies of the Sedibeng DM and Gauteng Province, although the economy has shown above average growth in the past few years mainly due to the growing tertiary industries. In addition, the primary sector has a negligible impact on employment and GDP in the local economy of Lesedi. Lastly, the municipality is dominated by low income earners. The planned Siding project should assist in improving the

	economic environment. Providing employment to the local labour will have a positive impact on the employment creation, skills development, household earnings and local economy activity.

10 DESCRIPTION OF SPECIFIC ENVIRONMENTAL FEATURES AND INFRASTRUCTURE ON THE SITE

10.1 ENVIRONMENTAL FEATURES

A large part of the study site consists of cultivated lands and grazing areas. Railway lines, farm roads and powerlines also transect the area. Natural wetlands are also located in parts of the project area.

10.2 EXISTING INFRASTRUCTURE ON THE STUDY AREA AND IN CLOSE PROXIMITY

This is a new application, and no current infrastructure has been developed that is related to the siding and the conveyor belts. Existing infrastructure includes agricultural infrastructure, roads, and a substation.

11 IMPACTS IDENTIFIED

Potential impacts that may be caused by the proposed development will be identified using input from the following:

- Views of I&APs;
- Existing information;
- Specialist investigations;
- Site visit with the project team; and
- Legislation.

The following potential major direct, indirect and cumulative impacts were identified:

- Land degradation
- Potential to alter the topography
- Loss of soil characteristics - erosion and compaction
- Potential for alien invasive establishment
- Reduced flow to downstream water catchment
- Potential pollution to water resources (surface, wetlands and groundwater)
- Increased dust and emissions
- Increased noise levels
- Potential damage to heritage sites (grave and/or archaeological artefacts)
- Potential increased traffic – haulage
- Health and safety impacts;
- Potential injury and loss of health and life of humans; and
- Altered Socio-Economic Environment (Positive or negative).

Table 18: Impacts during the Construction phase activity specific impacts

Environmental impacts category	Aspects/activities associated with the project	Significance rating before mitigation	Significance rating after mitigation
Air Quality	Dust generation from earth works and vehicle movement.	Medium (-)	Low (-)
	Vehicle/machine exhaust emissions.	Low (-)	Low (-)
	Spontaneous combustion of coal.	Low (-)	Low (-)
Surface water contamination	Hydrocarbon (oil and diesel) spillages from vehicles and other construction equipment - contamination of runoff water.	Medium (-)	Low (-)
	Storage of diesel on-site.	Medium (-)	Low (-)
	Handling and use of cement during construction.	Low (-)	Low (-)
Soil erosion and deterioration	Soil erosion due to soil disturbance and increased runoff volumes and velocity.	Medium (-)	Low (-)
	Loss of topsoil.	Medium (-)	Low (-)
Waste management	Storage and handling of general waste - litter leading to nuisance conditions.	Low (-)	Low (-)
	Storage and handling of hazardous waste - water and soil pollution, harm to surrounding communities.	Low (-)	Low (-)
Hazardous substances management	Storage and handling of hazardous substances such as diesel and oil - spillages leading to stormwater contamination.	Low (-)	Low (-)
Biodiversity impacts	Reduction in general floral biodiversity.	Low (-)	Low (-)
	Reduction in general faunal biodiversity.	Low (-)	Low (-)
	Decline in Threatened and red data species.	Medium (-)	Low (-)

Environmental impacts category	Aspects/activities associated with the project	Significance rating before mitigation	Significance rating after mitigation
	Destruction of terrestrial faunal habitat.	Low (-)	Low (-)
	Destruction of aquatic habitats.	Medium (-)	Low (-)
	Deduction in natural migratory and faunal dispersal routes (corridors wetlands).	Low (-)	Low (-)
	Encroachment of alien and invasive species due to disturbance to the area.	Medium (-)	Low (-)
Wetlands impact	Loss of wetlands due to construction activities.	Medium (-)	Low (-)
	Increased runoff, erosion and sedimentation.	Medium (-)	Low (-)
	Construction impacts related to water quality.	Medium (-)	Low (-)
Heritage impacts	Destruction of heritage resources resulting in the destruction of heritage resources older than 60 years.	Low (-)	Low (-)
Noise impacts	Groundworks.	Medium (-)	Low (-)
	Foundations.	Medium (-)	Low (-)
	Building activities.	Medium (-)	Low (-)
	Transportation of building material to and from the site.	Medium (-)	Low (-)
	Assembly of equipment/machinery.	Medium (-)	Low (-)
Visual	Visibility from sensitive receptors / visual scarring of the landscape and impact on ‘Sense of Place’ due to the visibility of the conveyor belt and the Siding including the Stockpile.	Medium (-)	Low (-)
	Visibility of solid domestic and operational waste.	Low (-)	Low (-)

Environmental impacts category	Aspects/activities associated with the project	Significance rating before mitigation	Significance rating after mitigation
Traffic impacts	Increased traffic volumes due to construction activities.	Low	Low
Social impacts	Use of local suppliers - contribution to local economic development.	Medium positive (+)	
	Employment opportunities for local and regional residents.	Medium positive (+)	

Table 19: Impacts associated with the project during operational phase

Environmental impacts category	Aspects/activities associated with the project	Significance rating before mitigation	Significance rating after mitigation
Air Quality	Dust generation from the transportation of coal on conveyor belt.	Medium (-)	Medium (-)
	Dust generation from the stockpiling and loading of coal at the siding.	Medium (-)	Medium (-)
	Vehicle/machine exhaust emissions.	Low (-)	Low (-)
	Spontaneous combustion of coal - safety and air quality issue.	Low (-)	Low (-)
Groundwater	Seepage from pollution control dam leading to groundwater contamination.	Medium (-)	Low (-)
	Seepage from coal stockpiles leading to groundwater contamination.	Low (-)	Low
	Abstraction of groundwater - depletion of water resource.	Medium (-)	Low (-)
Waste management	Storage and handling of general waste - litter leading to nuisance conditions.	Low (-)	Low (-)
	Storage and handling of hazardous waste - water and soil pollution, harm to surrounding communities.	Medium (-)	Low (-)

Environmental impacts category	Aspects/activities associated with the project	Significance rating before mitigation	Significance rating after mitigation
Surface water pollution	Effluent discharge into the environment (water resources) from the conveyor, the coal stockpiles, coal spillages and other contaminated areas	High (-)	Low (-)
	Increased sediment loads in the wetlands and subsequently the Blesbokspruit due to: • Reduced infiltration due to compacted soils and other impermeable surfaces associated with infrastructure increasing runoff volumes and velocities with subsequent increase in erosion at discharge points; and • Clearing of vegetation and erosion of the bare side slopes of the stockpiles.	Medium (-)	Low (-)
	Deterioration of water quality due to possible release of dirty storm water: Storm water typically contains various pollutants that could contribute to deteriorating the water quality in the wetlands where stormwater is released into the valley bottoms. In addition, stormwater runoff will carry pollutants from accidental spills, dust or eroded materials.	Medium (-)	Low (-)
	Flooding of infrastructure and operations will occur if there are inadequate stormwater controls.	Medium (-)	Low (-)
	Abstraction of surface water - Impact on the quantity of water resource.	Medium (-)	Low (-)
Hazardous substances management	Storage and handling of hazardous substances such as diesel and oil - spillages leading to stormwater contamination.	Medium (-)	Low (-)
Biodiversity impacts	Reduction in general floral biodiversity.	Low (-)	Low (-)
	Reduction in general faunal biodiversity.	Low (-)	Low (-)
	Decline in threatened and red data species.	Medium (-)	Low (-)
	Destruction of terrestrial faunal habitat.	Low (-)	Low (-)
	Destruction of aquatic habitats.	Medium	Low (-)

Environmental impacts category	Aspects/activities associated with the project	Significance rating before mitigation	Significance rating after mitigation
	Deduction in natural migratory and faunal dispersal routes (corridors wetlands).	Low (-)	Low (-)
	Encroachment of alien and invasive species due to disturbance.	Medium (-)	Low (-)
Wetland impact	Water quality impacts emanating from the proposed facility.	High (-)	Low (-)
	Flooding and erosion - loss of wetland function.	Medium (-)	Low (-)
	Destruction of adjacent wetland habitat in all phases may occur if operation activities are not properly controlled as activities could lead to destruction of wetland vegetation and compaction of wetland soils adjacent to the operational area infrastructure footprint.	Medium (-)	Low (-)
	Loss of biodiversity and habitat in the Wetland: Sedimentation from erosion or windblown dust from exposed soil will modify the substrate and increase turbidity, thus affecting habitat and food availability.	Medium (-)	Low (-)
Traffic impact	Increase in the traffic on the roads due to employers and maintenance workers using roads.	Low (-)	Low (-)
Noise impacts	Increase in the traffic noise from the additional traffic along the existing roads and the conveyor belt.	Low (-)	Low (-)
	Loading activities.	Medium (-)	Low (-)
	Emergency generator.	Medium (-)	Low (-)
Visual impacts	Dust generation.	Medium (-)	Low (-)
	Footprint of the facility and the conveyor belt.	Medium (-)	Low (-)
Impact on natural resources	Wasteful use and resources like water and electricity leads to unnecessary impacts to the national resources.	Low (-)	Low (-)

Environmental impacts category	Aspects/activities associated with the project	Significance rating before mitigation	Significance rating after mitigation
	Use of water from the PCD for dust suppression - reduce dependency on water resources.	High positive (+)	
Social impacts	Employment opportunities for local and regional residents.	High positive (+)	
	Use of local suppliers - contribution to local economic development.	High positive (+)	

Table 20: Impacts during decommissioning

Environmental impacts category	Aspects/activities associated with the project	Significance rating before mitigation	Significance rating after mitigation
Air Quality	Dust generation from vehicle movement on unprepared soil - increased dust generation and nuisance conditions.	Medium (-)	Low (-)
	Vehicle exhaust emissions - air pollution.	Low (-)	Low (-)
	Generation of dust from demolition activities.	Medium (-)	Low (-)
	Decommissioning and rehabilitation of the site will prevent further generation of air emissions.	High positive (+)	
Groundwater contamination	Seepage from pollution control dam leading to groundwater contamination.	Medium (-)	Low (-)
	Seepage from coal stockpiles leading to groundwater contamination.	Low (-)	Low (-)
Surface water discharge	Surface water contamination due to on-site spillages or loss of containment.	Medium (-)	Low (-)
Waste management	Storage and handling of general waste and decommissioning rubble - litter leading to nuisance conditions.	Low (-)	Low (-)

Environmental impacts category	Aspects/activities associated with the project	Significance rating before mitigation	Significance rating after mitigation
	Storage and handling of hazardous waste - water and soil pollution, harm to surrounding communities.	Low (-)	Low (-)
Noise	Noise impact on employees and surrounding communities during decommissioning.	Low (-)	Low (-)
Rehabilitation	Decommissioning and rehabilitation of the site will prevent further environmental impacts and improve the visual appearance of the site.	High positive (+)	
Wetlands impact	Loss of wetlands due to decommissioning activities.	Medium (-)	Low (-)
	Increased runoff, erosion and sedimentation.	Medium (-)	Low (-)
	Decommissioning impacts related to water quality.	Medium (-)	Low (-)
Social	Loss of employment opportunities due to closure of the site.	High (-)	Medium (-)

Table 21: Closure and post-closure specific impacts

Environmental impacts category	Aspects/activities associated with the project	Significance rating before mitigation	Significance rating after mitigation
Geological and Soils	Soil erosion, loss of agricultural potential.	Medium (-)	Low (-)
Hydrological, Surface Water and Groundwater	Seepage from stockpile could cause a contamination plume affecting the groundwater resources.	Medium (-)	Low (-)
	Groundwater pollution.	Medium (-)	Low (-)
Waste	Generation and disposal of additional hazardous waste.	Medium (-)	Low (-)
Biological Fauna and Flora	Rehabilitation of area with natural vegetation and re-establishment of local biodiversity.	Medium (-)	Low (-)

Environmental impacts category	Aspects/activities associated with the project	Significance rating before mitigation	Significance rating after mitigation
	Loss of ecological function in wetland and stream.	Medium (-)	Low (-)

Table 22: Impacts due to not implementing the proposed development (No Go Alternative)

Environmental impacts category	Aspects/activities associated with the project	Significance rating before mitigation	Significance rating after mitigation
Socio-economic	Reduced employment opportunities for local residents and skills transfer to unskilled and semi-skilled unemployed individuals.	Very high (-)	Very high (-)
	Reduced period of development and upliftment of the surrounding communities and infrastructure.	Very high (-)	Very high (-)
	Reduced period of development of the economic environment, by job provision and sourcing supplies for and from local residents and businesses.	Very high (-)	Very high (-)
	Positive: No additional negative impacts on the environment.	Medium (+)	Very high (+)
Hydrological, Surface Water and Groundwater	No additional pollution to surface and groundwater.	Medium (+)	Medium (+)
Waste	No waste generated as a result of the activities.	Medium (+)	Medium (+)
Biological Fauna and Flora	No impact on wetlands or streams. No reduction in ecological function.	Low (+)	Low (+)
	Agricultural activities will continue in the area and monoculture.	Low (+)	Low (+)

11.1.1 METHODOLOGY USED IN DETERMINING THE SIGNIFICANCE OF ENVIRONMENTAL IMPACTS

A “significant impact” is defined as it is defined in the EIA Regulations (2014) (as amended): “an impact that may have a notable effect on one or more aspects of the environment or may result in non-compliance with accepted environmental quality standards, thresholds or targets and is determined through rating the positive and negative effects of an impact on the environment based on criteria such as duration, magnitude, intensity and probability of occurrence”. The objective of this EIA methodology is to serve as framework for accurately evaluating impacts associated with current or proposed activities in the biophysical, social and socio-economical spheres. It aims to ensure that all legal requirements and environmental considerations are met in order to have a complete and integrated environmental framework for impact evaluations.

11.1.2 ENVIRONMENTAL IMPACT ASSESSMENT (EIA) REGULATIONS, 2017 [AS AMENDED] REQUIREMENTS

The Environmental Impact Assessment (EIA) 2014 Regulations [as amended] promulgated in terms of Sections 24 (5), 24M and 44 of the National Environmental Management Act, 1998 (Act No. 107 of 1998) [as amended] (NEMA), requires that all identified potential impacts associated with the proposed project be assessed in terms of their overall potential significance on the natural, social and economic environments. The criteria identified in the EIA Regulations (2014) include the following:

- Nature of the impact;
- Extent of the impact;
- Duration of the impact
- Probability of the impact occurring;
- Degree to which impact can be reversed;
- Degree to which impact may cause irreplaceable loss of resources;
- Degree to which the impact can be mitigated; and
- Cumulative impacts.

Elemental Sustainability has developed an impact assessment methodology (as defined below) whereby the Significance of a potential impact is determined through the assessment of the relevant temporal and spatial scales determined of the Extent, Magnitude and Duration criteria associated with a particular impact. This method does not explicitly define each of the criteria but rather combines them and results in an indication of the overall significance.

11.1.3 ELEMENTAL SUSTAINABILITY IMPACT ASSESSMENT METHODOLOGY

The impact assessment methodology used to determine the significance of impacts prior and after mitigation is presented below.

Extent of the impact

The EXTENT of an impact is the physical extent/area of impact or influence.

Score	Extent	Description
1	Footprint	The impacted area extends only as far as the actual footprint of the activity.
2	Site	The impact will affect the entire or substantial portion of the site/property.
3	Local	The impact could affect the area including neighbouring properties and transport routes.
4	Region	Impact could be widespread with regional implication.
5	National	Impact could have a widespread national level implication.

Duration of the impact

The DURATION of an impact is the expected period of time the impact will have an effect.

Score	Duration	Description
1	Short term	The impact is quickly reversible within a period of less than 2 years, o limited to the construction phase, or immediate upon the commencemen of floods.
2	Short to medium term	The impact will have a short term lifespan (2–5 years).
3	Medium term	The impact will have a medium term lifespan (6 – 10 years)
4	Long term	The impact will have a medium term lifespan (10 – 25 years)
5	Permanent	The impact will be permanent beyond the lifespan of the development

Intensity of the impact

The INTENSITY of an impact is the expected amplitude of the impact.

Score	Intensity	Description
1	Minor	The activity will only have a minor impact on the affected environment in such a way that the natural processes or functions are not affected.
2	Low	The activity will have a low impact on the affected environment.
3	Medium	The activity will have a medium impact on the affected environment, bu function and process continue, albeit in a modified way.
4	High	The activity will have a high impact on the affected environment which may be disturbed to the extent where it temporarily or permanently ceases.
5	Very High	The activity will have a very high impact on the affected environment which may be disturbed to the extent where it temporarily or permanently ceases.

Reversibility of the impact

The REVERSIBILITY of an impact is the severity of the impact on the ecosystem structure

Score	Reversibility	Description
1	Completely reversible	The impact is reversible without any mitigation measures and managemen measures
2	Nearly completely reversible	The impact is reversible without any significant mitigation and managemen measures. Some time and resources required.
3	Partly reversible	The impact is only reversible with the implantation of mitigation and management measures. Substantial time and resources required.
4	Nearly irreversible	The impact is can only marginally be reversed with the implantation o significant mitigation and management measures. Significant time and resources required to ensure impact is on a controllable level.
5	Irreversible	The impact is irreversible.

Probability of the impact

The PROBABILITY of an impact is the severity of the impact on the ecosystem structure

Score	Probability	Description
1	Improbable	The possibility of the impact occurring is highly improbable (less than 5% of impact occurring).
2	Low	The possibility of the impact occurring is very low, due either to the circumstances, design or experience (5% to 30% of impact occurring).
3	Medium	There is a possibility that the impact will occur to the extent that provision must be made therefore (30% to 60% of impact occurring).
4	High	There is a high possibility that the impact will occur to the extent that provision must be made therefore (60% to 90% of impact occurring).
5	Definite	The impact will definitely take place regardless of any prevention plans, and there can only be relied on migratory actions or contingency plans to contain the effect (90% to 100% of impact occurring).

Calculation of Impacts – Significance Rating of Impact

Significance is determined through a synthesis of the various impact characteristics and represents the combined effect of the Irreplaceability (Magnitude, Extent, Duration, and Intensity) multiplied by the Probability of the impact. The significance of an impact is rated according the scores a presented below:

Equation 1:

Significance = Irreplaceability (Reversibility + Intensity + Duration + Extent) X Probability

Significance Rating

Score	Significance	Colour Code
1 to 20	Very low	
21 to 40	Low	
41 to 60	Medium	
61 to 80	High	
81 to 100	Very high	

Degree to which the impact can be mitigated: *The effect of mitigation measures on the impact and its degree of effectiveness:*

Equation 2:

Significance Rating (WM) = Significance Rating (WOM) x Mitigation Efficiency

Mitigation Efficiency (ME)	
High	0,2
Medium to High	0,4
Medium	0,6
Low to Medium	0,8
Low	1,0

Confidence rating: *Level of certainty of the impact occurring*.

- **Certain**
- **Sure**
- **Unsure**

Cumulative impacts: *The effect the combination of past, present and "reasonably foreseeable" future actions have on aspects.*

- Very Low cumulative impact
- Low cumulative impact
- Medium cumulative impact
- High cumulative impact

12 THE POSITIVE AND NEGATIVE IMPACTS AND ALTERNATIVES

Potential impacts identified during the scoping process, with inputs from I&APs, are discussed under environmental component headings in this section. These discussions should be read with the corresponding descriptions of the baseline environment.

The potential impacts associated with the project phases (construction, operations, decommissioning and closure) have been identified and described and reference has been made to the studies/investigations that are required to inform the impact assessment. In the absence of site-specific studies, the assessment conclusions are conservative. It follows that the assessment provided below is a preliminary assessment which will, after having obtained specialist input, be refined/changed as necessary in the EIA, as appropriate.

Geology

Limited geological impacts will occur due to the establishment of surface infrastructure features.

Topography

The topography of the project area would be altered by project related activities. The topography of the site could be altered through:

- The alteration of drainage patterns; and
- establishment of coal stockpile.

Biodiversity

In the broadest sense, biodiversity provides value for ecosystem functionality, aesthetic, spiritual, cultural, and recreational reasons. The known ecosystem related value is listed as follows:

- Soil formation and fertility maintenance;
- Primary production through photosynthesis, as the supportive foundation for life;
- Provision of food and fuel;
- Provision of shelter and building materials;
- Regulation of water flows and water quality;
- Regulation and purification of atmospheric gases;
- Moderation of climate and weather;
- Control of pests and diseases; and
- Maintenance of genetic resources (key for medicines, crop and livestock breeding).

The discussions below consider terrestrial and aquatic ecosystems.

Issue: Physical Loss and/or general disturbance of terrestrial biodiversity

The habitat units of the project area will be impacted on and degraded to some extent as a result agricultural and anthropogenic activities, however, the project area still contains habitat units which are considered to be ecologically sensitive. The proposed project activities impact on terrestrial biodiversity in the area where the surface infrastructure will be constructed.

The significance of this impact is medium in the unmitigated scenario. The processing of RoM will take place at the processing plant. Mitigation and management measures that will be identified by the specialist studies will be implemented, included in the EIA and EMPr to ensure that the impact reduce.

Water Resources - Surface Water

The discussion below considers surface water and focuses on possible impact associated with the proposed project.

Issue: Reduction in surface water quantity and quality

The proposed project area has the potential to negatively impact on water resources. Surface water impacts are associated with the processing of ore and disposal of waste onto temporary waste storage facilities. Impact associated with processing and disposal will be assessed and mitigation and management measures will be included in the EIA phase. In the absent of mitigation measures will the direct impact on surface resources be medium and the indirect impact high. With mitigation measured the significance of the potential impacts can be reduced. The impact on wetland and pans will be assessed in the EIA phase and possible offset will be investigated. The impact on wetland and pans is expected to be high.

Water Resources – Groundwater

The discussion below considers groundwater and focuses on possible impact associated with the proposed project.

Issue: Reduction in groundwater quantity and quality

The project has the potential to negatively impact on water resources through emission sources that can have a negative impact on water quality. Contaminants from the project are expected to include operation related consumables, silt, fuels, hydrocarbons, residues, sulphate pollution and hazardous wastes. Sulphate pollution is associated with the oxidation of sulphate minerals and the leaching, oxidation of these minerals.

In the absence of mitigation, given the importance of the groundwater system and based on the layout plan of the siding as presented in this report, the severity of unmitigated impacts would be medium. Regarding water quantity impacts, where water resources are used by third party users, potential impacts affecting third party supply could occur. The related unmitigated significance is medium. Important to note is that the use or potential contamination of water resources is regulated through water use licensing requirements of the DWS as the custodian of water resources in South Africa. Where the project plan takes into account the findings of specialist studies, applies the necessary mitigation to avoid, minimises or remedy impacts in line with the mitigation hierarchy and operates under a water use license, the significance of potential impacts can be reduced.

Socio-Economic

Issue: Positive and negative socio-economic impacts

The project has the potential to have positive and/or negative impacts on the following, regardless of the alternatives that are selected:

- employment for local communities;
- the local and national economy;
- social structures within communities;
- increased pressure on basic services;
- quality of life and health related issues
- livelihoods of businesses

Socio-economic impacts would occur during all project phases. In the absence of mitigation that focuses on enhancing positive impacts and reducing negative impacts, the severity of unmitigated impacts would be medium for negative impacts and medium (positive) for positive impacts. The related unmitigated significance could be medium. Where the project planning takes into account and applies the necessary mitigation to avoid, minimises or remedy impacts in line with the mitigation hierarchy, the significance of potential negative impacts can be reduced and potential positive impacts can be increased.

Land Use

Issue: Impact on surrounding land uses

The dominant land use in the area is agriculture. Project activities have the potential to impact on these land uses in all phases, regardless of the alternatives that are selected. These land uses may be affected by one or more of the biophysical, cultural and socio-economic impacts that could occur as a result of the proposed project. In the absence of mitigation that focuses on effectively mitigating each biophysical, cultural and socio-economic impact type, the severity would be medium; potential impacts would extend to the land uses located beyond the site boundary. The severity is likely to decrease with an increase in distance from the impact source. Where project planning takes into account the findings of specialist studies and applies the necessary mitigation to avoid, minimises or remedy impacts in line with the mitigation hierarchy, the significance of potential impacts could be reduced.

Heritage/Cultural resources

Issue: Loss of or damage to heritage

The placement of infrastructure, in all phases prior to closure, have the potential to remove, damage or destroy heritage/cultural and palaeontological resources, either directly or indirectly, and may result in the loss of the resource for future generations. In the absence of mitigation measures, if the resources are considered to be of high heritage significance, the unmitigated severity could be high. The related unmitigated significance would be high. Where the project planning takes into account the findings of the specialist studies and either avoids

resources of high significance or alternatively document and/or relocate resources in line with a permit or the necessary approvals the significance of potential impacts can be reduced.

Traffic

Issue: Effect on roads due to project related traffic

As the project involves the transportation of coal, this could contribute to increased traffic and introduce mine-related trucks on public road networks which can result in an inconvenience to current road users, higher accidents (for people and animals) decreased road service levels and/or increased road damage. This in turn can put pressure on the relevant roads authority to increase the maintenance programmes and/or upgrade the roads.

Regardless of the alternatives that are selected, the project would contribute to traffic volumes on public roads. Traffic impacts are expected from construction through to the end of the decommissioning phase.

In the absence of mitigation measures that take into account other road uses and users, project-related use of public roads could result in a medium to high severity impact. Any serious injury or death is a long-term impact that would extend to the communities to which injured people/animals belong. With mitigation that focuses on ensuring adequate capacity on the road network and safety measures for other road users, the significance could reduce to medium as the severity, duration and frequency of potential accidents is expected to reduce.

Soil and Land Capability

Issue: Loss of soil and land capability through removal, erosion and compaction

Topsoil is generally a resource of high value containing a gene bank of vegetation seeds and other organisms. Soil resources can be lost through removal, erosion and compaction which can result in a loss of soil functionality as an ecological driver. The conservation of topsoil, soil management practises and the related rehabilitation strategy and initiatives become is highly important in achieving the post-closure land use. A number of activities / infrastructures in all phases have the potential to result in the loss of soils and related land capability, regardless of the alternatives that are selected.

In the absence of soil conservation and management measures and a rehabilitation plan that supports the post closure land use, the severity of potential impacts is expected to be high due to the impacted nature of the project area. Given the extent of the planned project, the area of disturbance could be significant if rehabilitation is not followed. Without mitigation the loss of soil and related land capability would definitely occur. This impact significance could be reduced to medium/low with the implementation of mitigation measures focused on minimising impacts during operations and remedying any negative impacts at closure.

Air Quality

Issue: Decrease in air quality due to increase in dust

Dust can become a nuisance when the amount of dust generated by certain activities affect the performance of other activities or if the natural environment is negatively affected by the dust fallout. Nuisance dust can reduce visibility; soil or damage buildings and other materials; and increase costs due to the need for washing, cleaning and repainting. Plants can be affected by dust fallout through reduced light transmission which affects photosynthesis and can result in decreased growth. Fallout dust can also collect in watercourse causing sedimentation and a reduction in the water quality, and can also affect aquatic life through the smothering of riverine habitat and fish gill clogging.

In the absence of dust suppression the air quality can decrease due to the proposed activities at the proposed Welgedacht Siding. Without mitigation these impacts will be medium and will be low with the implementation of mitigation measures.

12.1 THE POSSIBLE MITIGATION MEASURES THAT COULD BE APPLIED AND THE LEVEL OF RISK

Table 23 provides possible mitigation measures that should be implemented to reduce the potential impacts. This section will be updated with the results and recommendation methods provided by the specialist studies during the EIAr phase.

Table 23: Mitigation measures (Construction, Operational and Closure Phase)

Potential impacts:	Significance rating of impacts (positive or negative):	Proposed mitigation:	Significance rating of impacts after mitigation:	Risk of the impact and mitigation not being implemented
Impact category: Emissions to atmosphere – nuisance to nearby community				
Vehicle/machine exhaust emissions - air pollution	Low	Prohibit vehicles from idling when not in use.	Low	Low
Dust generation from earth works and vehicle movement	Medium	Enforce vehicle speed limits. Apply dust suppression on dirt roads. Dust fall monitoring must be conducted to detect increase levels of dust fall. Dust suppression must be conducted on all haul roads. Suitable dust suppression products should be used.	Low	Low
Impact category: Storm water discharge and surface water pollution				
Hydrocarbon spillages from vehicles and other construction equipment - storm water pollution	Medium	Place drip trays under parked vehicles if required. Spill kits must be made available, and employees trained to utilise spill kits.	Low	Low

Potential impacts:	**Significance rating of impacts (positive or negative):**	**Proposed mitigation:**	**Significance rating of impacts after mitigation:**	**Risk of the impact and mitigation not being implemented**
Storage of diesel on-site	Medium	Clean up spillages immediately. Inform contractors of the need for appropriate measures to manage cement in an environmentally sound manner. Cement spillages must be cleaned appropriately. Store diesel/oil in a designated area only.	Low	Low
Handling and use of cement during construction	Low		Low	Low
Impact category: Soil erosion and deterioration				
Soil erosion due to soil disturbance and increased runoff volumes and velocity and Loss of topsoil	Medium	Establish a suitable storm water management system to divert runoff from operational areas or potentially contaminated areas. Report and rectify erosion when detected. Store excavated topsoil in a demarcated area, designed to prevent contamination for later rehabilitation purposes.	Low	Low
Impact category: Waste Management				

Potential impacts:	Significance rating of impacts (positive or negative):	Proposed mitigation:	Significance rating of impacts after mitigation:	Risk of the impact and mitigation not being implemented
Poor on-site waste management - wind-blown litter, soil and water contamination, burning of waste.	Low	Store general waste in a designated area, designed to prevent wind-blown litter. Where possible recycle, recover or reuse waste. Ensure that all general waste is removed and disposed of at a licensed general waste disposal site. Use only licenced contractors to remove waste. Waste should not cause nuisance conditions. Inspect waste storage areas regularly during construction. Prohibit the burning of waste hazardous waste site. Hazardous waste such as oily rags must be removed and disposed of at a licensed hazardous waste site and the safe disposal certificates kept on file. Place used hydrocarbon waste in a designated area.	Low	Low
Storage and handling of hazardous waste - water and soil pollution, harm to surrounding communities	Low		Low	Low
Impact category: Hazardous substances management				

Potential impacts:	Significance rating of impacts (positive or negative):	Proposed mitigation:	Significance rating of impacts after mitigation:	Risk of the impact and mitigation not being implemented
Hazardous substances (cleaning detergents, paint etc.)	Low	Store chemical substances in a designated area. Store only compatible substances in a specific area. Fire-fighting equipment must be available in the case of a fire - if required. Safety Data Sheets must be available for all hazardous substances. Clean up spillages immediately. Only competent staff must manage hazardous substances.	Low	Low
Impact category: Heritage resources				
Construction activities resulting in the destruction of heritage resources older than 60 years	Low	Implement a chance find procedure. Obtain permits from SAHRA if required.	Low	Low
Impact category: Noise generation				
Groundworks	Medium	Machinery with low noise levels to be used.	Low	Low
Foundations	Medium	Machinery with low noise levels to be used.	Low	Low

Potential impacts:	Significance rating of impacts (positive or negative):	Proposed mitigation:	Significance rating of impacts after mitigation:	Risk of the impact and mitigation not being implemented
Building activities	Medium	Building activities to take place during daytime periods only.	Low	Low
Transportation of building material to and from the site	Medium	Use machinery with low noise levels and maintained in a good order to be used and to comply with the IFC"s Health and Safety Regulations	Low	Low
Assembly of equipment/machinery	Medium	Machinery with low noise levels to be used.	Low	Low
Impact category: Traffic impacts				
Increased traffic volumes due to construction activities	Low	Inform communities of planned activities that would affect vehicle/ pedestrian traffic. Optimise the hauling plan to minimise disruption of movement patterns. Ensure the required signage has been erected to warn road users of mine traffic. Ensure that access to residences and business properties is uninterrupted by providing alternative routes.	Low	Low
Impact category: Biodiversity				

Potential impacts:	Significance rating of impacts (positive or negative):	Proposed mitigation:	Significance rating of impacts after mitigation:	Risk of the impact and mitigation not being implemented
Construction activities - decline in Threatened and red data species	Medium	Establish buffer zones around wetlands as per wetland mitigation measures. The overhanging riparian vegetation along both banks, as well as vegetation within the 100-year flood line, must be kept as undisturbed and natural as possible. Implement measures to prevent sediment load in the Blesbokpruit River system. The areas earmarked for exclusion from development must be fenced off during the construction phase to ensure that the developer and his contractors do not	Low	Low

Potential impacts:	Significance rating of impacts (positive or negative):	Proposed mitigation:	Significance rating of impacts after mitigation:	Risk of the impact and mitigation not being implemented
		damage these areas or do not cover them with soil, builders" rubble or waste. No vehicles may enter the exclusion zones. Where possible, trees naturally growing on the site should be retained as part of the landscaping. Dumping of builders" rubble and other waste in the areas earmarked for exclusion must be prevented, through fencing or other management measures. Outside lighting should be designed to minimize impact on fauna.		
Construction activities - destruction of terrestrial faunal habitat	Low		Low	Low
Construction activities - destruction of aquatic habitats	Medium		Low	Low
Construction activities - reduction in natural migratory and faunal dispersal routes (corridors wetlands)	Low		Low	Low

Potential impacts:	Significance rating of impacts (positive or negative):	Proposed mitigation:	Significance rating of impacts after mitigation:	Risk of the impact and mitigation not being implemented
Impact category: Wetlands				
Loss of wetlands due to construction activities	Medium	Wetland areas are to be avoided as far as possible. Construction activities must take place as far away from the wetlands as possible. Should the relevant water use license be granted for construction to take place in the wetlands (i.e. conveyor crossing and railway line), the impacted area must be as minimal as possible. Heavy vehicles for construction of the stormwater culverts should be avoided as far as practically possible. No unnecessary clearance of wetland habitat is allowed to take place in unauthorized areas. All further mitigation measures as determined in the water use license must be adhered to. No animals or avifauna are to be hunted, captured, trapped, removed, harmed, killed or eaten. The Environmental Representative must be contacted if the mitigation measures are not adhered to.	Low	Low

Potential impacts:	Significance rating of impacts (positive or negative):	Proposed mitigation:	Significance rating of impacts after mitigation:	Risk of the impact and mitigation not being implemented
		Construction must take place in the low flow season (winter months being May/June/ July) as far as practically possible. The time that surfaces are left exposed must be kept to a minimum and re-vegetation should be implemented where applicable. In general, rehabilitation to the affected areas through/in the wetlands will need to take place in any impacted areas in the wetlands following construction. A wetland rehabilitation plan and monitoring must be implemented.		
Increased runoff, erosion and sedimentation	Medium	A stormwater management plan must be compiled and implemented. Stormwater management must take into consideration potential flood impacts and must be managed to deal with potential floods, as well as to reduce silt and sediment loads from entering the wetlands. Implementation of soft engineering structures to mitigate increased run-off and sedimentation. Run-off from the construction site in general must only be allowed to exit the site in a controlled and diffuse manner.	Low	Low

Potential impacts:	Significance rating of impacts (positive or negative):	Proposed mitigation:	Significance rating of impacts after mitigation:	Risk of the impact and mitigation not being implemented
		Construction close to and in the wetlands, where a water use license has been obtained to do so, is to take place in the low flow season (winter months May/June/July/August) as far as practically possible. The time that surface areas exposed must be kept to a minimum and re-vegetation must be implemented where applicable as soon as possible. No establishment of new roads into or within the buffer zones of the wetlands identified are allowed unless water use licensing has been granted.		
Construction impacts related to water quality	Medium	All construction materials are to be stored in the temporary construction area outside of the wetlands. All soil stockpiles must be contained by bunded areas. All vehicles and equipment must be regularly maintained to avoid any oil, fuel or hazardous leaks or spills. Movement of contractors and vehicles within wetland areas must be minimised. Chemical toilets must be provided and must be serviced on a regular basis.	Low	Low
Impact category: Social benefits				

Potential impacts:	Significance rating of impacts (positive or negative):	Proposed mitigation:	Significance rating of impacts after mitigation:	Risk of the impact and mitigation not being implemented
Employment opportunities for local and regional residents	Medium positive			
Use of local suppliers - contribution to local economic development	Medium positive			

Table 24: Operational Phase impacts and mitigation measures

Potential impacts:	Significance rating of impacts (positive or negative):	Proposed mitigation:	Significance rating of impacts after mitigation:	Risk of the impact and mitigation not being implemented
Impact category: Air quality				

Potential impacts:	**Significance rating of impacts (positive or negative):**	**Proposed mitigation:**	**Significance rating of impacts after mitigation:**	**Risk of the impact and mitigation not being implemented**
Atmospheric emissions	Low	Apply dust suppression on the dirt roads. Cover and maintain the conveyor belt to reduce windblown dust from the coal. Conduct dust fall monitoring - when increased dust fall is detected investigate additional dust control methods. Ensure effective dust management of stockpile area through implementing one of the following or if required through dust monitoring a combination of methods: Install and operate mist cannons around the coal stockpile area. Erect wind screens/wind fences at strategic locations in terms of surrounding receptors. The wind screens must be maintained to ensure the effectiveness thereof. Clean up coal spillages immediately. Train staff to report and clean up coal spillages immediately . Maintain a complaint register. Limit stockpile height.	Low	Low
Dust generation from the transportation of coal to the siding via conveyor belt	Medium		Low	Low
Dust generation from the stockpiling and loading of coal at the siding	Medium		Medium	Low

Potential impacts:	Significance rating of impacts (positive or negative):	Proposed mitigation:	Significance rating of impacts after mitigation:	Risk of the impact and mitigation not being implemented
Spontaneous combustion of coal - safety and air quality issue	Low	Ensure that employees are aware of storage requirements. Adequate firefighting equipment must be available. Develop and implement a fire management plan.	Low	Los
Impact category: Groundwater				
Seepage from pollution control dam leading to groundwater contamination - potential migration to Blesbokspruit Expected hydro chemical or geochemical Ca, Na, SO_4, Cl, Potential acidity	Medium	General measures include the following: • Surface hydrology design should include surface drainage and storm water diversion drains, to meet the requirements of the Water Act. This includes the separation of unpolluted from polluted surface water and the containment of polluted water on site in impoundments. Also, where leachate is generated, it must be contained separately from water which is only slightly polluted through contact with the waste. • Monitoring systems for surface and ground water pollution should be indicated. This will include the positions of both surface water sampling points and monitoring boreholes. • The Department requires a Water Quality Monitoring Plan as part of the permitting requirements. This involves background analyses, detection monitoring,	Low	Low

Potential impacts:	Significance rating of impacts (positive or negative):	Proposed mitigation:	Significance rating of impacts after mitigation:	Risk of the impact and mitigation not being implemented
		investigative monitoring and post-closure monitoring. The Water Quality Monitoring Plan ensures that the water quality in the vicinity of a landfill is regularly monitored and reported upon throughout its life, so that, where necessary, remedial action can be taken. • All temporarily and finally covered areas must be graded and maintained to promote run-off without excessive erosion and to eliminate ponding or standing water. • Clean, uncontaminated water, which has not been in contact with the waste, must be allowed to flow off the site into the natural drainage system, under controlled conditions. All drains must be maintained. This involves ensuring that they are not blocked by silt or vegetation. • Berms to be constructed around coal stockpile area to ensure no clean water within siding area gets into contact with coal material within loading area.		
Abstraction of groundwater - depletion of water resource	Medium	Maintain abstraction rates below the sustainable safe yields of the aquifer. Abstraction must be conducted according to the WUL conditions.	Low	Low

Potential impacts:	Significance rating of impacts (positive or negative):	Proposed mitigation:	Significance rating of impacts after mitigation:	Risk of the impact and mitigation not being implemented
Impact category: Surface water pollution				
Effluent discharge into the environment (water resources) from the coal stockpile, coal spillages and from the conveyor belt.	High	The dirty water pollution control dam must be designed to meet the DWS standards for dealing with flood events (i.e. 1:100 and 1:50 year flood events). It is important therefore that a stormwater management system is implemented whereby all dirty water is collected and clean water is separated. Where dirty water is separated and stored, this can be used for dust suppression purposes. Quality of this water must be regularly checked to ensure that it meets minimum standards as required by the DWS. Emergency spill plans and procedures must be in place and implemented should overspill of pollution control dams and drainage networks occur. All vehicles and equipment must be regularly maintained to avoid any oil/fuel leaks or spills. If any spill or leak does occur, it must be ensured that it is properly cleaned up as soon as possible to avoid significant effects.	Low	Low

Potential impacts:	Significance rating of impacts (positive or negative):	Proposed mitigation:	Significance rating of impacts after mitigation:	Risk of the impact and mitigation not being implemented
The wetlands and subsequently the Blesbokspruit could be impacted on due to: Clearing of vegetation and erosion of the bare side slopes of the stockpile; Reduced infiltration due to compacted soils and other impermeable surfaces associated with infrastructure increasing runoff volumes and velocities with subsequent increase in erosion at discharge points.	Medium	Keep the construction footprint area to a minimum and retain vegetation in all areas outside the direct footprint. Where vegetation destruction does occur outside the footprint rip the soil and re-vegetate as soon as possible. Place access so that the grade of the road is minimized. Where this is not possible, implement water management measures to disperse the water to a variety of points along the road where the flow can be controlled, and the energy dissipated. Demarcate and cordon off the boundaries of the Wetland from heavy machinery. Educate and make employees and contractors aware of the reasons for cordoning off this area. Prevent sediments in runoff from entering the wetland by placing a berm between the workings / soil stockpiles and the wetland. Divert clean stormwater around exposed areas. Where stormwater is discharged into wetlands, construct gabions in an effective and appropriate manner to contain erosion. The stormwater diversion canal must incorporate energy dissipating structures into the design of the canal to reduce accelerated run-off entering any wetlands.	Low	Low

Potential impacts:	Significance rating of impacts (positive or negative):	Proposed mitigation:	Significance rating of impacts after mitigation:	Risk of the impact and mitigation not being implemented
		Re-vegetate all cleared areas and berms immediately according to a re-vegetation plan. Repair and reseed areas damaged by erosion and monitor until it can be shown to the satisfaction of a suitably qualified specialist that soil erosion is under control. Monitor re-vegetated areas at least monthly to ensure successful reestablishment of vegetation and that no erosion gullies are forming. Take corrective actions on the basis of monitoring results. A water quality monitoring program will be developed and implemented to commence prior to construction, in order to develop adequate baseline data. Water quality monitoring should be ongoing during construction, operation and decommissioning until such time that adequate water quality has been achieved. Undertake concurrent rehabilitation as soon as the disturbing activity has ceased according to a Rehabilitation Plan which will inform the final design of the landscape in advance. Where erosion begins to take place in a wetland, a wetland rehabilitation plan will be required. Recommendations		

Potential impacts:	Significance rating of impacts (positive or negative):	Proposed mitigation:	Significance rating of impacts after mitigation:	Risk of the impact and mitigation not being implemented
		from a suitably qualified wetland specialist must be obtained and implemented.		
Deterioration of water quality due to possible release of dirty storm water: Storm water typically contains various pollutants that could contribute to deteriorating the water quality in the wetlands where stormwater is released into the valley bottoms. In addition, stormwater runoff will carry pollutants from accidental spills, dust or eroded materials.	Medium	Monitor water quality of seepage from the coal stockpile. Plan additional mitigation measures if monitoring indicates unacceptable water quality levels. The storage (stockpile) and loading surface of the siding must comply to DWS requirements. Maintain the routine monitoring program during decommissioning and post closure for early detection of impacts and implementation of corrective action.	Low	Low
Abstraction of surface water - Impact on the quantity of water resource	Medium	Ensure any abstraction is done according to IWWMP and WUL conditions.	Low	Low
Impact category: Waste Management				
Storage and handling of general waste - litter leading to nuisance conditions	Low	Store general waste in a designated area, designed to prevent windblown litter. Ensure that all general waste is removed and disposed of at a licensed general waste disposal site. Use only licenced contractors.	Low	Low

Potential impacts:	Significance rating of impacts (positive or negative):	Proposed mitigation:	Significance rating of impacts after mitigation:	Risk of the impact and mitigation not being implemented
		Burning of waste must be prohibited on site. Maintain an inventory of waste generated. Place used hydrocarbon waste in a designated container.		
Impact category: Hazardous Waste				
Storage and handling of hazardous substances such as diesel and oil - spillages leading to stormwater contamination	Medium	Chemical storage containers must be compatible with the respective substances to prevent any corrosion that may lead to leakages. Inspect containers regularly to detect leakages. Chemical containers must be placed in a bunded area with a capacity to contain 110% of the tank's capacity. Ensure that drainage valves for bunds are closed at all times. A Safety Data Sheet must be available for all hazardous substances stored on-site. Signage must be placed on all chemical storage tanks indicating the name of the substance and the hazards associated with the respective substances. Firefighting equipment must be readily available.	Low	Low
Impact category: Noise				

Potential impacts:	Significance rating of impacts (positive or negative):	Proposed mitigation:	Significance rating of impacts after mitigation:	Risk of the impact and mitigation not being implemented
Increase in the traffic noise from the additional traffic along the existing roads and running of the conveyor belt	Low	Enforce strict speed limits and erect speed humps if required. Maintain vehicles in good working conditions.	Low	Low
Loading activities	Medium	The following noise mitigatory measures must be in place: • Front End Loaders which comply with the manufacturer's specifications according to recommended noise levels to be used at all times; • The reverse signal to be replaced with a low frequency vibrating unit; Conduct environmental noise monitoring on a biennial basis.	Medium	Low
Impact category: Visual				
Dust generation Footprint of the facility	Medium	Ensure good house-keeping. Maintain coal stockpile levels as low as possible.	Low	Low
Impact category: Biodiversity				
Operational activities - reduction in general floral biodiversity	Low	Implement measures to prevent sediment load in the Blesbokspruit River system.	Low	Low

Potential impacts:	Significance rating of impacts (positive or negative):	Proposed mitigation:	Significance rating of impacts after mitigation:	Risk of the impact and mitigation not being implemented
Operational activities - reduction in general faunal biodiversity	Low	Buffer zones around sensitive environmental areas must be maintained during operational phase. Prevent pollution of natural areas around the site.	Low	Low
Operational activities - destruction of terrestrial faunal habitat	Low		Low	Low
Operational activities - destruction of aquatic habitats	Medium		Low	Low
Operational activities - reduction in natural migratory and faunal dispersal routes (corridors wetlands)	Low		Low	Low
Encroachment of alien and invasive species as a result of disturbance.	Medium		Low	Low
Impact category: Wetlands				
Water quality impacts emanating from the proposed facility	High	It is important that a stormwater management system is implemented whereby all dirty water is collected and clean water is separated. The dirty water pollution control dam must be designed to meet the DWS standards	Low	Low

Potential impacts:	Significance rating of impacts (positive or negative):	Proposed mitigation:	Significance rating of impacts after mitigation:	Risk of the impact and mitigation not being implemented
		Emergency spill plans and procedures must be in place and implemented. All vehicles and equipment must be regularly maintained to avoid any oil/fuel leaks or spills. If any spill or leak does occur, it must be ensured that it is properly cleaned up as soon as possible to avoid significant effects.		
Flooding and erosion - loss of wetland function	Medium	Any stormwater culverts must incorporate energy dissipating structures into the design of the canal to reduce accelerated run-off. Where erosion begins to take place in a wetland, this must be dealt with as soon as practically possible to prevent severe erosion.	Low	Low
Destruction of adjacent wetland habitat in all phases may occur if operation activities are not properly controlled as activities could lead to destruction of wetland vegetation and compaction of wetland soils adjacent to the operational area infrastructure footprint.	Medium	Demarcate “no go” areas and inform people accordingly to prevent entrance to sensitive areas. Demarcate and cordon off the boundaries of the Wetland from heavy machinery. Educate and make employees and contractors aware of the reasons for cordoning off this area. Locate all infrastructure of the demarcated Wetland area. Undertake all activities within the operation footprint area.	Low.	Low

Potential impacts:	Significance rating of impacts (positive or negative):	Proposed mitigation:	Significance rating of impacts after mitigation:	Risk of the impact and mitigation not being implemented
		Locate all construction servitudes outside the wetland areas. Where the servitudes intrude into the wetlands, rip and vegetate all the areas following construction. Minimize the construction footprint and ensure that construction areas are located on the southern side of the haul road away from the wetland. Vegetation will not be disturbed unnecessarily. Bare soil areas will be re-vegetated immediately according to a re-vegetation plan.		
Impact category: Health and Safety				
Injuries due to occupational hazards	Low	Implement the requirements of the Occupational Health and Safety Act and Regulations. Implement best practice guidelines.	Low	Low
Impact category: Natural resource management				
Wasteful use and resources like water and electricity leads to unnecessary impacts to the national resources.	Low	No running taps to be left unattended. Switch off lights when not in use. Maintenance of water infrastructure	Low	Low

Potential impacts:	Significance rating of impacts (positive or negative):	Proposed mitigation:	Significance rating of impacts after mitigation:	Risk of the impact and mitigation not being implemented
		Investigate energy saving mechanisms such as energy saving lights		
Use of water from the PCD for dust suppression - reduce dependency on water resources	High positive			
Impact category: Social benefits				
Employment opportunities for local and regional residents	High positive in combination with surrounding mine.			
Use of local suppliers - contribution to local economic development	High positive			
Indirect knock-on economic impacts	Medium positive			

Table 25: Mitigation measures for decommissioning phase

Potential impacts:	Significance rating of impacts (positive or negative):	Proposed mitigation:	Significance rating of impacts after mitigation:	Risk of the impact and mitigation not being implemented
Impact category: Emissions to atmosphere (dust and exhaust emissions)				
Dust generation from vehicle movement on unprepared soil - increased dust generation and nuisance conditions	Medium	Appoint registered demolition contractors with appropriate procedures and equipment. Restrict vehicle movement to demarcated areas. All vehicles to be maintained in good working order to keep their atmospheric emissions under control. Enforce vehicle speed limits to reduce dust emissions. Prohibit idling of vehicles when not in use.	Low	Low
Vehicle exhaust emissions - air pollution	Low		Low	Low
Generation of dust from demolition activities	Medium		Low	Low
Impact category: Surface water discharge				
Hydrocarbon spillages from decommissioning vehicles – storm water and soil pollution	Medium	Refuel vehicles off site or in a dedicated/paved area with a sump to capture runoff. Place drip trays under parked vehicles, where necessary. Clean hydrocarbon spills up immediately. Contaminated soil must be cleaned up with a readily available spill kit or excavated immediately, followed by proper disposal at a licensed disposal site.	Low	Low

Potential impacts:	Significance rating of impacts (positive or negative):	Proposed mitigation:	Significance rating of impacts after mitigation:	Risk of the impact and mitigation not being implemented
Impact category: Groundwater pollution				
Seepage from pollution control dam leading to groundwater contamination - potential migration to Blesbokpruit	Medium	Update the numerical and geochemical model against monitored data After proper geochemical investigation the ARD can be dealt with as follows: • Neutralisation (e.g. lime) and treatment (stimulation of sulphate reducing bacteria) • Segregation/isolation/encapsulation All stockpile material and the contents of the PCD must be removed from the site and disposed of correctly.	Low	Low
Impact category: Waste management				
Storage and handling of general waste and building rubble - windblown litter leading to nuisance conditions	Low	Store general waste in a designated area, designed to prevent windblown litter. Ensure that all general waste and building rubbles is removed and disposed of at a licensed general waste disposal site. Use only licenced contractors. Maintain an inventory of waste generated.	Low	Low

Potential impacts:	Significance rating of impacts (positive or negative):	Proposed mitigation:	Significance rating of impacts after mitigation:	Risk of the impact and mitigation not being implemented
		Store building rubble in a designated area.		
Storage and handling of hazardous waste - water and soil pollution, harm to surrounding communities	Low	Hazardous waste generated during decommissioning activities must be removed and disposed of at a licensed hazardous waste site and the safe disposal certificates kept on file Place used hydrocarbon waste in special containers. Contaminated general waste and building waste must be managed as hazardous waste. Hazardous and general waste must be managed separately.	Low	Low
Impact category: Noise				
Noise impact on surrounding communities due to demolition activities	Low	Restricting the decommissioning activities to daylight hours. Switching off equipment when not in use. Maintain equipment and vehicle in good working condition.	Low	Low
Impact category: Wetlands				

Potential impacts:	Significance rating of impacts (positive or negative):	Proposed mitigation:	Significance rating of impacts after mitigation:	Risk of the impact and mitigation not being implemented
Loss of wetlands due to decommissioning activities	Medium	Adhere to all specialist stipulated mitigation measures. Compile a wetland rehabilitation plan for the construction and decommissioning phases of the proposed development; and A construction and operational stormwater management plan is critical to prevent contamination and degradation of wetlands in the construction and operation phase of the proposed development. It is also important to prevent flood related disasters affecting the proposed development during both phases.	Low	
Increased runoff, erosion and sedimentation	Medium		Low	Low
Decommissioning impacts related to water quality	Medium		Low	Low
Impact category: Rehabilitation				
Decommissioning and rehabilitation of the site will prevent further environmental impacts and improve the visual appearance of the site	Positive High			
Impact category: Social				
Loss of employment opportunities	High	Engagement with employees in advance.	Medium	Low

12.2 THE OUTCOME OF THE SITE SELECTION MATRIX. FINAL SITE LAYOUT PLAN

The final site layout plan will be described in the EIAr / EMPr once all specialist studies have been completed and comments from I&APs have been received. In the absence of site-specific specialist studies, it is not possible to complete a final site selection matrix at this stage. Please refer to Appendix C for a preliminary layout of the project.

The positioning of the siding was informed by the position adjacent mines and ensuring a feasible access point to the siding. However, in terms of the location of the conveyor belt route, two alternatives' sites have been considered as discussed in Section **Error! Reference source not found.**.

12.2.1 MOTIVATION WHERE NO ALTERNATIVE SITES WERE CONSIDERED

Refer to Section 7, which refers to the various alternatives that have been considered for the proposed Welgedacht Siding project.

12.2.2 STATEMENT MOTIVATING THE PREFERRED SITE

The final site layout plan will be described in the EIR / EMPR once all specialist and engineering designs have been completed and comments from I&APs have been received. Please refer to Appendix C for a preliminary layout of the siding for the proposed Welgedacht Siding Project.

13 PLAN OF STUDY FOR THE ENVIRONMENTAL IMPACT ASSESMENT PROCESS

The section below outlines the proposed plan of study that will be conducted for the various environmental aspects during the EIA Phase. It is important to note that the plan of study will also be guided by comment obtained from I&AP's and other stakeholders during the PPP.

The alternatives considered and discussed in Section 7, including land use, location, and transportation have culminated into the identification of potentially feasible development alternatives. The feasible development alternatives are discussed below.

13.1 DESCRIPTION OF ALTERNATIVES TO BE CONSIDERED INCLUDING THE OPTION OF NOT GOING AHEAD WITH THE ACTIVITY.

13.1.1 LOCATION/LAYOUT/DESIGN ALTERNATIVES

The following location, layout or design alternatives will be taken forward for consideration in the EIA phase:

- Conveyor belt location 1 and conveyor belt location 2;
- The current layout plan is based on ease of access for a railway siding. Layout plans can be altered based on specialist findings and engineering recommendations.

13.2 DESCRIPTION OF THE ASPECTS TO BE ASSESSED AS PART OF THE ENVIRONMENTAL IMPACT ASSESSMENT PROCESS

This section lists the aspects to be subjected to specialist investigation in the EIA phase in line with the terms of reference outlined in Table 26 below. These include:

- Ecological Assessment;
- Heritage and Archaeological Assessment;
- Hydrogeological Assessment;
- Hydrological Assessment (including water balance and aquatic assessment, if applicable);
- Hydropedological Assessment;
- Noise Assessment;
- Air Quality Assessment;
- Palaeontological Assessment;
- Soils, Land Use and Capability and Agricultural Impact Study;
- Storm Water Management Plan (including Geotechnical Assessment, floodlines and topography);
- Traffic Impact Assessment; and
- Wetland Delineation Study.

This section describes the nature and extent of the investigations required. In particular, it describes the scope of work for the specialist investigations. The impact assessments and detailed management measures for each aspect will be included in the EIAr. Copies of the specialist reports will be attached as appendices to the EIAr.

13.3 DESCRIPTION OF ASPECTS TO BE ASSESSED BY SPECIALISTS

Table *26* provides a description of the aspects to be assessed by the various specialists for the proposed Welgedacht Balloon Siding and associated conveyor belt.

Table 26: Description of aspects to be assessed by specialists

Aspect	Specialist Study	Specialist	Terms of Reference

Surface water and Aquatic Ecology	Surface Water Assessment	Red Kite Environmental Solutions (Pty) Ltd	The Scope of Work for the Surface Water Assessment for the Welgedacht Siding will include the following tasks:
			• A desktop review of available information for the project area, including satellite images, databases and specialist studies performed for the area;
			• Identify impactable water resources, with their accompanying catchments, and sub-catchment areas as well as setting forth information on which measures and legislation will be applicable to the project;
			• Field visit to survey the affected watercourses;
			• If site conditions allow, two monitoring sites in the Dwars-in-die-wegvlei will be assessed for the aquatic assessment, the following methodology will be used: o SASS5 (South African Scoring System version 5),
			  o IHAS (Invertebrate Habitat Assessment system)'
			  o Upstream and downstream water quality sampling (2 samples)'
			• Determine or recommend ranges of acceptability for water quality for affected watercourses and compare to existing water quality monitoring data;
			• Determination of watercourse buffers as per Buffer Zone Guidelines for Wetlands, Rivers and Estuaries by Macfarlane and Bredin (2017);
			• Surface Water Assessment Report describing the affected surface water environment and condition;
			• NEMA 2014 impact assessment;
			• Developing a sensitivity map based on field visits and supported by appropriate regional information to inform the impact assessment;
			• Recommendation of site-specific mitigation measures;
			• Compilation of a specialist assessment report detailing the methodology and findings of the assessment.

Water Balance	Water Balance Report	Red Kite Environmental Solutions (Pty) Ltd	The approach as contained in the Department of Water and Sanitation's "Best Practice Guideline G2: Water and Salt Balances", with the following Scope of Work to be undertaken: • Define water balance boundaries;

Aspect	Specialist Study	Specialist	Terms of Reference
			• Identify water circuits and develop schematic flow diagram; • Data collection; • Solve water balance for identified units; and • Compile conceptual water balance report.
Air Quality	Air Quality Impact Assessment	Elemental Sustainability (Pty) Ltd	The purpose of this study will be to: • Study the available information relevant to the pre-and post-development ambient air quality pollution concentrations in the environment; • Identify the major existing air emission sources in the environment; • Identify the existing sensitive air pollution areas in the environment; • Estimate by means of measurements and integration of the results with those of any relevant existing information the present ambient air quality climate; • Identify the project related processes and equipment that will cause the major contribution to the future air quality impact; • Dispersion modelling to compute ambient concentrations as a function of source configurations, and meteorological characteristics, calculating the spatial and temporal patterns in the ground level concentrations arising from the emissions of emissions sources. • Consider, evaluate and rate the potential air quality impacts; and • Propose relevant management and mitigation measures to lessen the anticipated impacts.
Noise	Environmental Noise Impact Assessment	Enviro Routes (Pty) Ltd.	The study will determine the potential noise impact on the surrounding environment due to the proposed development of a coal mine. The purpose of this study will be to: • Establish baseline conditions of the area; • Model noise generated by proposed activities through Measurements conducted at receptors (I&AP's or noise sensitive developments) in terms of SANS10103:2008, National environmental Act (Act No. 107 OF 1998), GN NO. 326 and GN R154 (National Noise Control Regulation) methodology. A minimum of 10-minute day and night measurements will be conducted (day/night as per SANS10103:2008).; • Determine impact of activities; • Identify gaps and limitations; • Establish mitigation and management measures
Groundwater	Groundwater Impact Assessment	Alicanto (Pty) Ltd	The following scope of work as per the requirements for an EIA assessment and a water use license application will be undertaken: • Assessments of potential impacts associated with the proposed project on the receiving environment as well as the cumulative impact of the entire operation • Geohydrological report A hydrocensus/site visit and discussion with relevant mine personnel is the most appropriate way of collecting information. The desktop study and fieldwork will consist of the following: • Conduct a desk study to apprehend the current state of knowledge.

Aspect	Specialist Study	Specialist	Terms of Reference

			• Gathering of existing information such as previous groundwater balance studies, inflow rates, previous general groundwater studies in the area, groundwater monitoring information, etc.
			• Gathering of monitoring data
			• Hydrocensus of the area (1-2km radius of the project area)
			• Site visit and discussions with relevant personnel
			• Initial conceptual model
			  ○ Conceptual Modelling
			  ○ Using existing monitoring data, a conceptual model will be constructed with the aim of describing flow mechanisms and contaminant transport from the proposed proejct.
			  ○ Numerical Modelling
			  ○ Predictive modelling pre-project for impact prediction will be done to quantify potential impacts from the project:
			  ○ Groundwater flow, transport modelling to predict the impacts of the project on groundwater quantity and quality in the region of the mine (Positive and negative).
			• A groundwater management and a monitoring network plan will be included in the report.
			• Reporting
			A report detailing the findings of the study will provided in the format of regulations regarding the procedural requirements for water use licence applications and appeals, specialist groundwater study.

Hydropedological	Hydropedological Assessment	GPT (Pty) Ltd	Hydropedological Assessment Report: • Hydropedological modelling to assess impacts on wetlands.
Heritage	Heritage Impact Assessment	Mr. Tobias Marais.	Phase 1 Heritage Impact Assessment (HIA) for the proposed project area.
Paleontological Assessment	Paleontological Impact Assessment	University of Witwatersrand Dr. Miriam Bamford	Phase 1 Paleontological Impact Assessment will be undertaken for the proposed project area.
Biodiversity Assessment	Biodiversity Impact Assessment	Enviridi Environmental Consultants (Pty) Ltd	The terms of reference for this bird impact assessment study will be as follows: • To qualitatively and quantitatively assess the significance of the avifaunal habitat components, and current general conservation status of the property; • To comment on ecologically sensitive areas; • To comment on connectivity with natural vegetation and habitats on adjacent sites; • To highlight and assess potential impacts of the proposed development on the avifauna of the study site, and • To provide management recommendations to mitigate negative and enhance positive impacts should the proposed development be approved
			The terms of reference for the Vegetation Assessment will be as follows: • Describe the affected floristic environment from available literature and by means of a desktop study to identify a list of possible floral species that are likely to occur on site.

Aspect	Specialist Study	Specialist	Terms of Reference
			• List and record endangered, red data and protected plant species found on site. • List exotic and invasive plant species found on site. • List plants found on site with medicinal properties • Identification of anticipated impact of the proposed project on the vegetation and ecosystem services. • Provide proposals for mitigation of identified impacts. • Draw up a sensitivity map indicating all sensitive areas, transformed areas and buffers around sensitive features.
			The main objectives of the fauna study will be as follows: • To provide a description of the potentially affected fauna habitat by making use of available literature resources, and in so compiling a list of fauna species likely to occur on site; • To list and record endangered, red data or protected fauna species found or likely to occur on site; • To assess the condition of suitable habitat on site for sensitive fauna species; • To compile a sensitivity map indicating sensitive or non-sensitive or transformed areas and relevant buffer zones; • To identify anticipated impacts of the proposed development on fauna species; and • To provide mitigation measures to limit and/or eliminate the anticipated impacts.
Pans and Wetlands	Wetland Impact Assessment	Elemental Sustainability (Pty) Ltd	The main objectives of wetland delineation study will be as follows: • Delineate and classify wetlands within 500m of the development site • Discusses drivers of wetlands • Ground truthing of desktop data • Assessment of the PES or EIS scores and Recommended Ecological Category • The Risk Assessment based on the 2016 version of the Risk Matrix Tool presented in appendix A of the Risk-Based Water Use Authorisation Approach and Delegation Protocol for Section 21(c) and (i) • To identify anticipated impacts of the proposed development on wetlands; • To provide mitigation measures to limit and/or eliminate the anticipated impacts.
Soil and Agriculture	Soil and Agricultural Agro-Ecosystem Assessment	Dr Andries Gouws Index	• The entire project area will be assessed using available desktop data. • The desktop survey will inform the most suitable options for the conveyor belt alignment. • Two possible conveyor belt alignments will be surveyed in detail together with the land where the project infrastructure will be located. • The detailed assessment includes: ○ The site survey will be conducted by physical soil classification at a survey point every 150 m apart. The information, together with other data such as contours, will be used to

Aspect	Specialist Study	Specialist	Terms of Reference
			classify the area into land capability classes following both the DAFF system as well as the guidelines outlined by the South African Chamber of Mines. o Soil samples will be collected for soil analysis of basic soil fertility parameters and also to inform the soil monitoring recommendations. o The agricultural potential of the area will be determining using the baseline soil properties as well as climate data. The area will also be assessed for other agricultural production options such irrigated agriculture and livestock production. o The report will be compliant with the NEMA regulations for specialist studies as well as other legislation relevant to the fields of soil and agricultural potential. o For the impact assessment, a methodology recommended by Elemental Sustainability (Pty) Ltd will be used. o The report will also include a Soil Management Plan that will include soil quality monitoring parameters.
Traffic	Traffic Impact Assessment	Corli Havenga (Pty) Ltd.	This study would be conducted by traffic specialists from the consulting engineering firm Corli Havenga Transportation Engineer. The study would establish the baseline traffic volumes by means of traffic counts, calculate project-related contributions to baseline traffic volumes, evaluate the performance and layout of intersections, provide input on road conditions and the design of the access point, assess potential impacts associated with each of the project phases, recommend any road and safety improvements and develop a traffic management plan.
Geotechnical Assessment Floodline Determination and Engineering Designs	Geotechnical Impact Assessment	WRM Consulting Engineers	Determination of floodlines for streams crossing the project area; Geotechnical assessment; Clean and dirty water separation berms; Preliminary Pollution Control Dam designs; Preliminary overburden, ROM and Stockpile pad designs; Preliminary domestic water and sewage disposal designs; Preliminary drawings for access control, fences and roads; and Preliminary design report for WULA.

14 PARTICULARS OF THE PUBLIC PARTICIPATION PROCESS WITH REGARDS TO THE IMPACT ASSESSMENT PROCESS THAT WILL BE CONDUCTED

14.1 STEPS TO BE TAKEN TO NOTIFY INTERESTED AND AFFECTED PARTIES

During the Environmental Impact Assessment Phase, the following will be applicable:

- The draft EIAR will be made available for public review for 30 days. Registered I&APs will be notified of the availability of the draft EIAR. The report will be made available electronically via a downloadable link.
- Copies of the EIAR will be submitted to the stakeholders (SAHRA and the Ekhuruleni Local Municipality), and government departments (DMRE and DWS) for review.
- A hard copy of the report/s be made available at the Bakerton Public Library (if open at the time of the report going out for review), with hand sanitiser. This is dependent on whether it will be permitted by the library at the time of the document going out for public review and the level is the State of Disaster.
- All comments received during the environmental impact assessment phase will be included as an Appendix in the Final EIAr to be submitted to the DMRE.

14.2 NEXT PHASES OF THE PUBLIC PARTICIPATION PROCESS

14.2.1 DETAILS OF THE ENGAGEMENT PROCESS TO BE FOLLOWED

An advertisement, in English, will also be placed in the local newspaper to advise I&APs of the availability of the Environmental Impact Assessment Report for review.

Due to the restrictions, as a result of COVID-19, for both the Scoping and EIA Phase, Zoom meetings, Microsoft Team Meetings, Skype, and/or phone calls with landowners and I&AP's will be encouraged. Open hours may be held, depending on the level of restrictions implemented at the time of the public review period of the report. The purpose of these meetings, for the Scoping Phase, will be to introduce the project and to get the potential Interested and Affected parties to register, as well as raise any concerns or issues that the I&APS may have with regards to the proposed Welgedacht Balloon Siding Project. Notes of the Zoom, Microsoft Team, Skype, and/or phone calls will be included in the Final Scoping Report as an Appendix.

Zoom or Skype, and/or phone calls with landowners and other I&AP's will be undertaken.

During the EIA phase, the purpose of public participation will be to provide the findings of the specialist reports to the public and to address any concerns that I&APs may have with regards to the project.

It must be noted that there are currently restrictions in place in terms of meetings and gatherings during the COVID-19 period and, therefore, there is a possibility that public meetings will not form part of the Scoping and EIA phases.

As per GNR 43412 (5 June 2020), the EAP and Applicant will ensure that all reasonable measures are taken to identify potential I&APs for purposes of conducting public participation on the application; and

- ensure that, as far as is reasonably possible, taking into account the specific aspects of the application-

(a) information containing all relevant facts in respect of the application or proposed application is made available to potential I&APs; and

(b) participation by potential or registered I&APs has been facilitated in such a manner that all potential or registered I&APs are provided with a reasonable opportunity to comment on the application or proposed application.

The applicant and EAPs, in addition to the methods contained in Chapter 6 of the EIA Regulations, or as part of reasonable alternative methods proposed in terms of regulation 41(2)(e) of the EIA Regulations, may make use of the following non-exhaustive list of methods:

- emails, websites, Cloud Based Services, or similar platforms, direct telephone calls, virtual meetings, newspaper notices, community representatives, distribution of notices at places that are accessible to potential I&APs.
- Hard copies or electronic versions of reports may be made accessible through any of the following non-exhaustive list of methods:
- Websites, Zero Data Portals, community or traditional authorities, Cloud Based Services, provided that all registered I&APs have access to the reports.
- A hard copy of the report/s be made available at the Bakerton Public Library, with hand sanitiser. This is dependent on whether it will be permitted by the library at the time.

14.2.2 DESCRIPTION OF THE INFORMATION TO BE PROVIDED TO INTERESTED AND AFFECTED PARTIES

- The Environmental Impact Assessment Report will include the project description with the layout, a discussion of alternatives, and the findings of specialist studies and full assessment of all impacts of the alternatives, including cumulative impacts;
- The Environmental Management Programme will also be made available and include, *inter alia,* mitigation, management and monitoring measures to prevent and mitigate negative impacts and enhance positive impacts that have been identified in the EIA; roles and responsibilities and an environmental awareness plan.

15 DESCRIPTION OF THE TASKS THAT WILL BE UNDERTAKEND DURING THE ENVIRONMENTAL IMPACT ASSESSMENT PROCESS

A description of the tasks that would be undertaken during the EIA phase is provided below in Table *27*. A preliminary schedule for the EIA phase that aligns with regulatory timeframes is included below.

Table 27: EIA Tasks and Timing

Phase	EAP activity	Opportunities for Consultation and Participation		Schedule *
		Competent Authorities	**I&APs**	
Scoping Phase	Compile Scoping Report	-		September 2021
	Distribute Scoping Report for review	DMRE	Review of Scoping Report (30 days), Comments to EAP	12 November 13 to December 2021
	I&AP consultations	-	-	12 November 13 to December 2021
	Collate and respond to comments and finalise Scoping report	Provide final to DMRE	-	December 2021
Specialist studies	EAP to manage specialist activities and receive inputs for EIA.	-	-	December 2021 to February 2022
EIA Phase	Compile EIA report	-	-	February to March 2022
	Distribute EIA for review	Provide copy to DMRE for records	Review of EIA (30 days), Comments to EAP	March to April 2022
	I&AP consultations	-	Consultation with I&APs	
	Collate and respond to comments and finalise EIA report	-	-	April 2022
Competent authority review and decision making	EIA report to DMRE (106 days from acceptance of Scoping report).	DMRE Acknowledge Receipt of EIA (10 days).	Notify I&APs of final report submission	May 2021
		DMRE Review (107 days)		
		Environmental Authorisation Granted / Refused		October 2022
Decision	Notify registered I&APs of decision (within 14 days of date of decision)	-	-	October 2022
Appeal Phase	EAP to provide information on appeal process as and when required.	Consultation during processing of appeal if relevant.	Submit appeal in terms of National Appeal Regulations, 2014	90-day process

- **Approach to the EIA**

An Environmental Impact Assessment (EIA) is a good planning tool. It identifies the environmental impacts of a proposed development and assists in ensuring that a project will be environmentally acceptable and integrated into the surrounding environment in a sustainable way.

The EIA for this project will comply with the National Environmental Management Act (1998) (as amended) and the NEMA EIA Regulations (2014) [as amended] of the Department of Environmental Affairs and Forestry (DEAF). The guiding principles of an EIA are provided below.

- **Guiding principles for an EIA**

The EIA must take an open participatory approach throughout. This means that there should be no hidden agendas, no restrictions on the information collected during the process and an open-door policy by the proponent. Technical information must be communicated to stakeholders in a way that is understood by them and that enables them to meaningfully comment on the project.

There should be ongoing consultation with interested and affected parties representing all walks of life. Sufficient time for comment must be allowed. The opportunity for comment should be announced on an on-going basis. There should be opportunities for input by specialists and members of the public. Their contributions and issues should be considered when technical specialist studies are conducted and when decisions are made.

- **Information gathering**

Early in the EIA process, the Environmental Assessment Practitioner (EAP) identified the information that would be required for the impact assessment and the relevant data were obtained. In addition, available information about the receiving environment was gathered from reliable sources, interested and affected parties, previous documented studies in the area and previous EIA Reports. The project team then visited the site to gain first-hand information and an understanding of the existing operations and the proposed project.

- **Specialist Assessments**

Based on the impacts identified during the Scoping Phase, the following specialist studies have been identified to be completed and form part of the EIA:

- Ecological Assessment;
- Heritage and Archaeological Assessment;
- Hydrogeological Assessment;
- Hydrological Assessment (including water balance and aquatic assessment, if applicable);
- Hydropedological Assessment;
- Air Quality Assessment;
- Noise Assessment;
- Palaeontological Assessment;
- Soils, Land Use and Capability and Agricultural Impact Study;
- Storm Water Management Plan (including Geotechnical Assessment, floodlines and topography);
- Traffic Impact Assessment; and
- Wetland Delineation Study.
-

The main objective of the specialist studies is to provide independent scientifically sound information on issues of concern relating to the project proposal. The findings of the various specialist studies undertaken will be incorporated into the EIA Report. Any impacts that have not been identified during the scoping phase that have been identified and assessed by specialists will also be included in the environmental impact assessment.

- **Legislative Framework**

The legal requirements will be described and assessed in more detail.

- **Alternatives**

Current site alternatives and layouts and additional site and layout alternatives as identified by interested and affected parties, will further be assessed and a preferred alternative recommended.

- **Description and assessment of impacts identified during the scoping phase**

A comprehensive list of all impacts as identified by the EAP and the specialists, will be provided within the EIA report and assessed as per the methodology described in this report and plan of study.

- **Environmental management programme**

An Environmental Management Programme containing mitigation, management and monitoring measures and specifying roles and responsibilities will be compiled with specialist input.

- **Stakeholder engagement**

Registered I&APs, including relevant organs of state, will be consulted with during the EIA phase. All their comments will be formally responded to and incorporated into the EIA and the EIA report that will be submitted to the competent authority.

16 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

Refer to Table 23 for the mitigation measures. It should be noted that this table has been compiled with the information on hand and would be refined during the EIA phase. Mitigation and management measures identified by all specialist during the EIA phase will be included in the EIA and EMPr.

17 OTHER INFORMATION REQUIRED BY THE COMPETENT AUTHORITY

Compliance with the provisions of sections 24 (4) (a) and (b) read with section 24 (3) (a) and (7) of the National Environmental Management Act (Act 107 of 1998) the EIA report must include the:

17.1 IMPACT ON THE SOCIO-ECONOMIC CONDITIONS OF ANY DIRECTLY AFFECTED PERSON

A total number of 35 new employment opportunities will be created with 4 jobs to include women, 2 for people with disabilities and 10 jobs for the youth. The percentage to previously disadvantaged individuals is 90%, with 31 skilled employment opportunities and 4 for unskilled employment opportunities.

A public participation process will be undertaken which will include consultation with all landowners. Furthermore, an agricultural assessment will be undertaken and the results thereof included in the EIAr.

17.2 IMPACT ON ANY NATIONAL ESTATE REFERRED TO IN SECTION 3(2) OF THE NATIONAL HERITAGE RESOURCES ACT

A heritage study will be conducted to identify potential impacts on heritage resources. The results of this study will be included in the EIAr and EMPr.

18 OTHER MATTERS REQUIRED IN TERMS OF SECTIONS 24 (4) (A) AND (B) OF THE ACT

No other matters are required in terms of Section 24(4)(A) and (B) of the act.

19 UNDERTAKINGS BY THE EAP

I, Sonja van de Giessen, the Environmental Assessment Practitioner responsible for compiling this report, undertake that:

- the information provided herein is correct;
- the comments and inputs from stakeholders and I&APs have been correctly recorded, although due to the volume of comments and objections received from I&APs, it's possible that not all the information has been included;
- information and responses provided to stakeholders and I&APs by the EAP is correct to the best of Elemental Sustainability's knowledge at the time of compiling the report; and
- the level of agreement with I&APs and stakeholders has been correctly recorded and reported.

_____

Signature of the EAP

Date:

-END-

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