

Xakwa Coal (Pty) Limited

Draft Scoping Report

Modderfontein Colliery

Compiled and Submitted as contemplated in Appendix 2 and Regulation 21 of the Amended Environmental Impact Assessment Regulations, 2014 (GNR 326) of the National Environmental Management Act, 1998 (Act No. 107 of 1998)

For the application for an Environmental Authorisation and a Waste Management Licence in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008), Amended Environmental Impact Assessment Report Regulations 2014 (GNR 326),

**Government Notice No. 327 - Listing Notice 1 of 2014,
Government Notice No. 325 - Listing Notice 2 of 2014,
Government Notice No. 324 - Listing Notice 3 of 2014 and
Government Notice R921 – List of Waste Management Activities**

DMR Reference No.: MP 30/5/1/2/2/10272 MR

APRIL 2021

Executive Summary

Xakwa Coal (Pty) Limited is an emerging coal mining company, which intends to undertake a coal mining operation i.e. Modderfontein Colliery on portions 6, 7, 13 and 16 of the farm Modderfontein 236 IR, situated in the Delmas Magisterial District. Xakwa Coal (Pty) Limited is a holder of a prospecting right (REF No. MP 30/5/1/1/2/12734 PR) in respect of the above-mentioned portions of the farm Modderfontein 236 IR.

The depth of the coal seams within the proposed mining area ranges from 35 m to 60m below surface in light of the depth to coal seams, the proposed mining area can be optimally mined using the opencast mining method. The opencast mining method will be utilising the sequential lateral rollover mining technique. A reputable mining contractor will conduct the mining. The coal to be mined will be transported by tipper trucks from the mining areas to the R.O.M. coal stockpile area. After the processing (crushing and screening) of the R.O.M coal, the product coal will be hauled by haulage trucks via the road networks to destined clients. All necessary surface infrastructures required to undertake the proposed mining operation will be constructed at the proposed Modderfontein Colliery. Reserves are estimated to be 73 million tons at an average CV of 19.45 MJ/Kg (8360 Btu/1b) on an air-dried basis or 20.3 (8740 Btu/1b) on a moisture free basis, and a strips ratio of 1.5 cubic meters per ton.

Proposed surface infrastructure and facilities associated with the proposed Modderfontein Colliery include the following i.e.: access roads and haul roads; opencast workings, R.O.M and product stockpiling areas; crushing and screening plant; topsoil, softs and hards overburden stockpiling facilities (mineral residue deposits and stockpiles); clean and dirty water management facilities, waste management facilities, fuel storage facilities; workshops, weighbridge, offices and contractors' yard.

In view of the above, Xakwa Coal (Pty) Limited has lodged a mining right application (Ref. No.: MP 30/5/1/2/2/10272 MR) with the Department of Mineral Resources (Mpumalanga Regional Office) in accordance with the relevant guidelines and regulations under the Mineral and Petroleum Resources Development Act, 2002 as amended. The mining right application was accepted with a DMRE reference number MP 30/5/1/2/2/10272 MR.

The National Environmental Management Act, 1998 (Act 107 of 1998), (NEMA) and the National Environmental Management: Waste Act, 2008 (Act 59 of 2008), (NEMWA) requires that any person or entity that intends to undertake activities listed in government notices 324, 325 and 327 and waste management activities listed under GN 921 must obtain an environmental authorisation in terms of section 24D of the NEMA and a waste management licence in terms of part 4 of chapter 4 of the NEMWA before undertaking such activities. Activities that will require an environmental authorisation and a waste management licence in terms of the above-mentioned acts were identified for the proposed opencast and are listed in a table contained in this report under section three.

According to the amended NEMA EIA Regulations, 2014, an application for an environmental authorisation together with an application for a waste management licence for the triggered listed activities and waste management activities, must be submitted to a competent authority in line with the requirements of the above-mentioned regulations. According to the regulations, the Department of Mineral Resources (eMalahleni Regional Office) is the competent authority for the above-mentioned applications. Once the environmental authorisation is submitted the NEMA EIA Regulations, 2014 further requires that a Scoping Report be compiled and submitted to the competent authority after the report has been subjected to a public participation process for at least thirty days. The Draft Scoping Report (this document), which has been compiled to meet the requirements of

Appendix 2 and regulation 21 of the NEMA EIA Regulations, 2014 will be submitted to the competent authority together with the registered and potential interested and affected parties as part of the public participation process for their comments.

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APPENDICES

Appendix 1 Regulation 2 (2) Plan

1 INTRODUCTION

1.1 WHO IS DEVELOPING THE SCOPING REPORT?

EAP: Mr. O.T. Shakwane

Professional Registration Numbers

SACNASP: 117080

EAPASA: 2019/1763

IAIASA Membership No.: 3847

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1.2 EXPERTISE OF THE EAP WHO PREPARED THE EMP AMENDMENT REPORT

Geovicon Environmental (Pty) Limited is a geological and environmental consulting company. The company was formed during 1996, and currently has twenty-five years' experience in the geological and environmental consulting field. Geovicon Environmental (Pty) Limited has successfully completed consulting areas in the Mining sector (coal, gold, base metal and diamond), Quarrying sector (sand, aggregate and dimension stone), Industrial sector and housing sector. Geovicon Environmental (Pty) Limited has undertaken contracts within all the provinces of South Africa, Swaziland, Botswana and Zambia. During 2001 Geovicon Environmental (Pty) Limited entered the field of mine environmental management and water monitoring.

Geovicon Environmental (Pty) Limited is a Black Economically Empowered Company with the BEE component owning 60% of the company. Geovicon Environmental (Pty) Limited has three members i.e. O.T Shakwane, J.M. Bate and T.G Tefu. The following include CV's of the EAP's who prepared the report:

Mr. O.T Shakwane obtained his BSc (Microbiology and Biochemistry) from the University of Durban Westville in 1994, and completed his honours degree in Microbiology in 1995. Mr O.T Shakwane has also completed short courses on environmental law, environmental impact assessment, environmental risk assessment and environmental management system with the North-West University. He has worked with the three state departments tasked with mining and environmental management i.e. Department of Water and Sanitation (Gauteng and Mpumalanga Region), Department of Mineral Resources (Mpumalanga Region) and Department of Agriculture, Conservation and Environment (Gauteng Region). Mr. Shakwane has been in the consulting field since 2004 and has completed various projects similar to

the proposed Modderfontein Colliery project as an environmental assessment practitioner. Mr Shakwane is the environmental assessment practitioner for the environmental impact assessment for the proposed Modderfontein Colliery. He is registered with the Environmental Assessment Practitioners Association of South Africa and South African Council for Natural Scientific Professions as an Environmental Assessment Practitioner and a Professional Natural Scientist, respectively. He is also a member of the International Association for Impact Assessment, South Africa and a committee member of the International Association for Impact Assessors, South Africa, Mpumalanga Branch.

Over the past years Geovicon Environmental (Pty) Limited has formalised working relationships with companies that offer expertise in the following fields i.e. Geohydrology, Civil and Geotechnical Engineering, Geotechnical Consultancy, Survey and Mine Planning and Soil & Land Use Consultancy. Geovicon Environmental (Pty) Limited is an independent consulting company, which has no interest in the outcome of the decision regarding the environmental authorisation and waste management licence (Integrated Environmental Authorisation) application for the proposed Modderfontein Colliery mining project.

1.3 WHO WILL EVALUATE THE SCOPING REPORT?

Before the proposed listed activities applied for can proceed, the environmental impacts that may result from the proposed project must be assessed. The Department of Mineral Resources and Energy are the competent authority for this environmental authorisation application.

Note that during the public participation process for the proposed project, the EAP will also consult with the interested and affected parties. The organs of state that are to be consulted may include but not limited to the following:

- Department of Water and Sanitation (Commenting Authority)
- Department of Agriculture, Rural Development, Land and Environmental Affairs (Commenting Authority)
- SANRAL
- ESKOM
- TRANSNET
- Mpumalanga Tourism and Parks Agency (Commenting Authority)
- South African Heritage Resources Agency (Commenting Authority)
- National Department of Agriculture, Forestry and Fisheries (Commenting Authority)
- Victor Khanye Local Municipality
- Ward Councillor (Victor Khanye Local Municipality)

Note however that this list is not exhaustive as more organs of state may be identified by the competent authority and EAP during the public participation process.

2 PROJECT BACKGROUND AND CONTEXT

2.1 OVERVIEW OF THE PROJECT

2.1.1 Name of the Applicant

Xakwa Coal (Pty) Ltd

2.1.2 Name of the mining Project

Modderfontein Colliery

2.1.3 Name of the Proposed Project

Modderfontein Colliery

2.1.4 Address of mining Project

Postal Address:

P. O. Box 90512

Garsfontein Pretoria

0004

Physical Address:

122 Herbert Baker Street

Groenkloof

Pretoria

Gauteng

0181

2.1.5 Project Manager

Mr. Mojalefa. Mongwe

Cell: 079 554 5427

2.1.6 Contact Person

Mr. Mojalefa. Mongwe (Email: douglas@xakwa.com)

2.2 DESCRIPTION OF THE PROPERTY

2.2.1 Name of the property

The proposed Modderfontein Colliery is located on portions 6, 7, 13 and 16 of the farm Modderfontein 236 IR, see Table 1, below. Note that actual mining is planned on portion 6 of the farm Modderfontein 236 IR.

2.2.2 Surveyor General Code

Table 1: Surveyor General Code for the project area

Farm name	Surveyor General Code
Portion 6 of the farm Modderfontein 236 IR	T0IR 000000000236 00006
Portion 7 of the farm Modderfontein 236 IR	T0IR 000000000236 00007
Portion 13 of the farm Modderfontein 236 IR	T0IR 000000000236 00013
Portion 16 of the farm Modderfontein 236 IR	T0IR 000000000236 00016

Refer to Appendix 1, Regulation 2 (2) Plan.

2.2.3 Magisterial District & Regional Services Council

Magisterial: Delmas, Mpumalanga

District Municipality: Nkangala District Municipality

Local Municipality: Victor Khanye Local Municipality

2.2.4 Direction and Distance to Nearest Towns

Table 2: Direction and Distance to Nearest Towns.

Town	Direction	Distance
Delmas	W	14 km
Witbank	W	30 km
Belfast	E	78 km
Bethal	S	70 km

2.3 LOCATION

Modderfontein Colliery is situated approximately 14 km west of the town of Delmas.

2.3.1 Roads

The N12 National road transects the mining right area.

2.3.2 Railway lines

No railway lines within the proposed project area.

2.3.3 Power lines

One electrical power line servitudes were identified during the site visit at the proposed site.

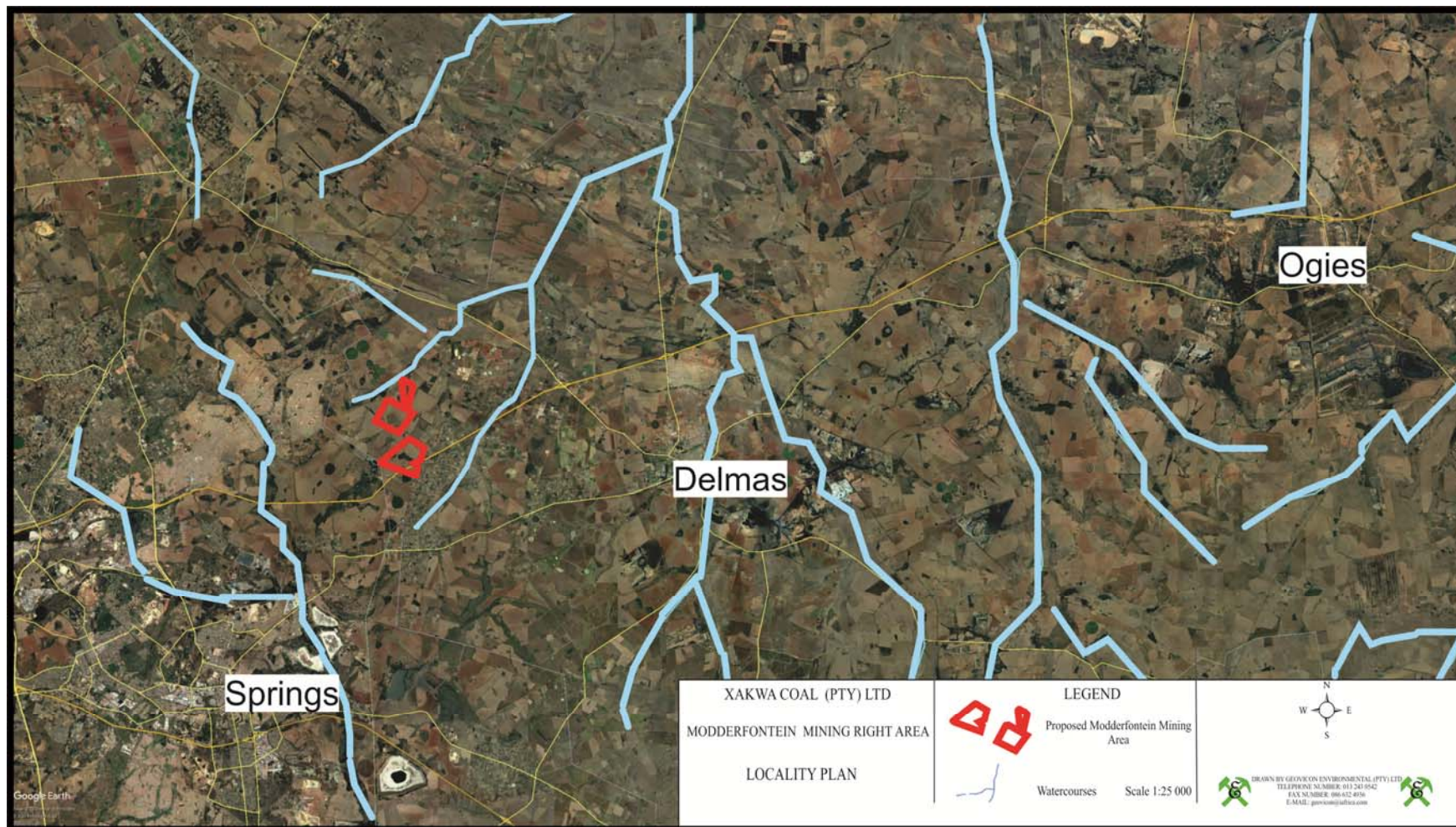


Figure 1: Modderfontein Colliery Locality plan

2.4 LAND TENURE AND USE OF IMMEDIATE ADJACENT LAND

The land where the proposed Modderfontein Colliery is proposed is mainly used for agricultural activities (crop cultivation, grazing and industry), residential (existing farmsteads and one household of a caretaker of a defunct primary school), roads (N12) National Road, secondary and private gravel roads. Figure 2 and Table 3 indicates the immediate and adjacent surface owners on the proposed Modderfontein Colliery area.

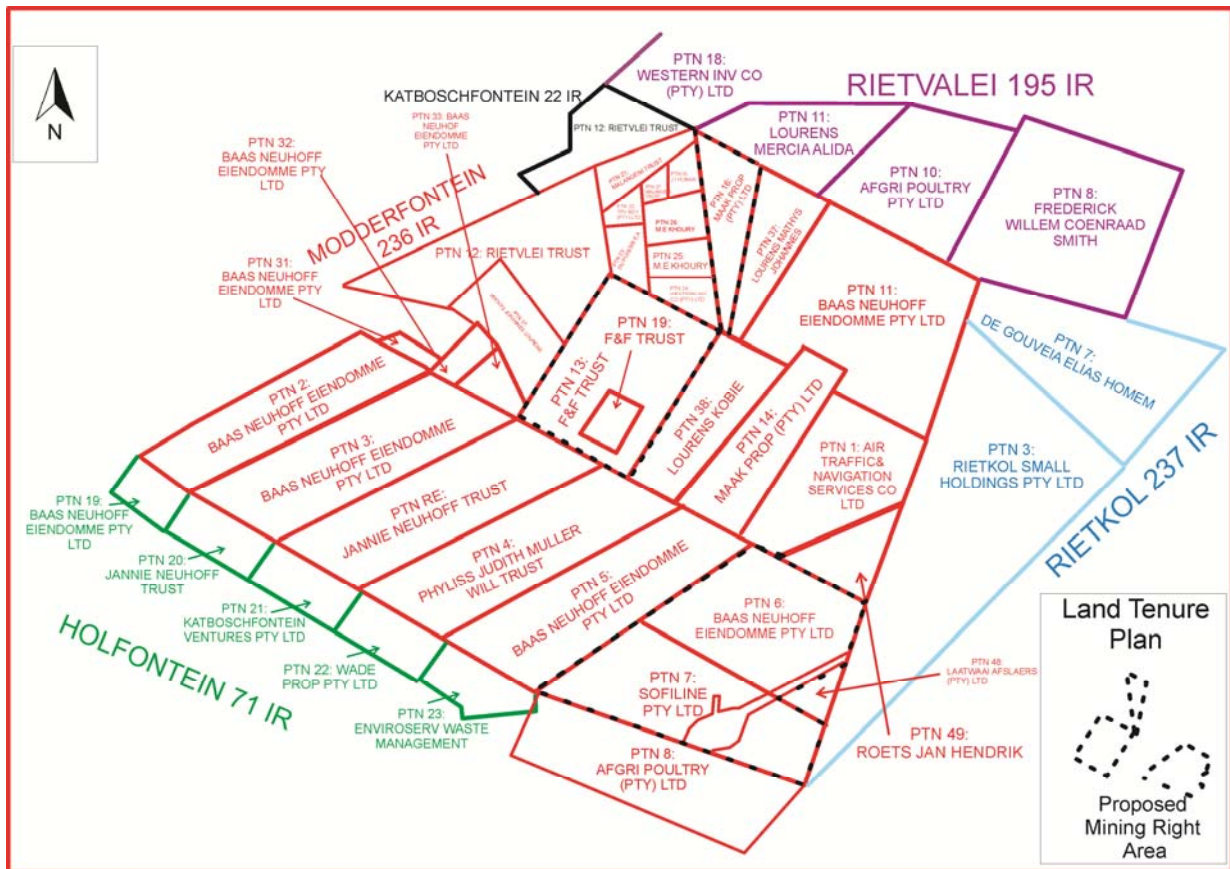


Figure 2: Modderfontein Colliery Land Tenure Plan

Table 3: Description of immediate and adjacent landowners and their property.

FARM NAME AND NUMBER	21 DIGIT SURVEYOR GENERAL CODE	DESCRIPTION OF SUB-DIVISION	SURFACE OWNER
MODDERFONTEIN 236 IR	T0IR0000000002360000	Portion RE	Jannie neuhoff trust
MODDERFONTEIN 236 IR	T0IR00000000023600001	Portion 1	Air Traffic & Navigation Services Co Ltd

FARM NAME AND NUMBER	21 DIGIT SURVEYOR GENERAL CODE	DESCRIPTION OF SUB-DIVISION	SURFACE OWNER
MODDERFONTEIN 236 IR	T0IR00000000023600003	Portion 3	Baas Neuhoff Eiendomme Pty Ltd
MODDERFONTEIN 236 IR	T0IR00000000023600004	Portion 4	Phyllis Judith Muller Will Trust
MODDERFONTEIN 236 IR	T0IR00000000023600005	Portion 5	Baas Neuhoff Eiendomme Pty Ltd
MODDERFONTEIN 236 IR	T0IR00000000023600006	Portion 6*	Baas Neuhoff Eiendomme Pty Ltd
MODDERFONTEIN 236 IR	T0IR00000000023600007	Portion 7*	Sofiline Pty Ltd
MODDERFONTEIN 236 IR	T0IR00000000023600008	Portion 8	Afgri Poultry Pty Limited
MODDERFONTEIN 236 IR	T0IR00000000023600012	Portion 12	Rietvlei Trust
MODDERFONTEIN 236 IR	T0IR00000000023600013	Portion 13*	F & F Trust
MODDERFONTEIN 236 IR	T0IR00000000023600015	Portion 15	Human Johannes Lodewikus
MODDERFONTEIN 236 IR	T0IR00000000023600016	Portion 16*	Maak Prop Pty Limited
MODDERFONTEIN 236 IR	T0IR00000000023600019	Portion 19	F & F Trust
MODDERFONTEIN 236 IR	T0IR00000000023600021	Portion 21	Malangeni Trust
MODDERFONTEIN 236 IR	T0IR00000000023600023	Portion 23	Du Plessis Elizabeth Anna
MODDERFONTEIN 236 IR	T0IR00000000023600024	Portion 24	Western Inv Co Pty Limited
MODDERFONTEIN 236 IR	T0IR00000000023600025	Portion 25	Khoury Mark Edward

FARM NAME AND NUMBER	21 DIGIT SURVEYOR GENERAL CODE	DESCRIPTION OF SUB-DIVISION	SURFACE OWNER
MODDERFONTEIN 236 IR	T0IR00000000023600026	Portion 26	Khoury Edward Michael
MODDERFONTEIN 236 IR	T0IR00000000023600029	Portion 29	Kims Trading
MODDERFONTEIN 236 IR	T0IR00000000023600033	Portion 33	Baas Neuhoff Eiendomme Pty Ltd
MODDERFONTEIN 236 IR	T0IR00000000023600037	Portion 37	Mathys Johannes Lourens
MODDERFONTEIN 236 IR	T0IR00000000023600038	Portion 38	Kobie Lourens
MODDERFONTEIN 236 IR	T0IR00000000023600048	Portion 48	Laatwaai Afslaers (Pty) Ltd
MODDERFONTEIN 236 IR	T0IR00000000023600049	Portion 49	Jan Hendrik Roets
KATBOSCHFONTEIN 22 IR	T0IR00000000022000012	Portion 12	De- Limers Boerdery (Pty) Ltd
HOLFFONTEIN 71 IR	T0IR00000000007100023	Portion 23	Enviroserv Waste Management
RIETKOL 237 IR	T0IR00000000023700003	Portion 3	Rietkol Small Holdings Pty Limited
RIETVALEI 195 IR	T0IR00000000019500011	Portion 11	Lourens Mericia Alida
RIETVALEI 195 IR	T0IR00000000019500018	Portion 18	Western Inv Co (Pty) Ltd

* Indicate farm portions on which the proposed Modderfontein Colliery activities will be undertaken

2.4.1 Surface Infrastructure

Surface infrastructure will include administration buildings i.e. offices, workshops, stores and ablution facilities (possibly mobile structures), access and haul roads, water management structures (storm water diversion structures and a pollution control dam with a silt trap), overburden material stockpiles, opencast workings (initial box-cuts and subsequent opencast pits), R.O.M./product coal stockpiling areas, crushing/screening plant, Fuel and hydrocarbon liquid storage facility and weighbridge.

2.4.2 Name of River Catchments

In terms of the Department of Water Sanitation demarcations, the proposed Modderfontein Colliery mining project area falls in the Vaal and Olifants River Water Management areas. Modderfontein Colliery falls into tertiary drainage regions B20 and C21 and quaternary drainage regions B20B and C21D. Figure 2 shows the location of the proposed mine in relation to the tertiary and quaternary drainage regions within the Upper Vaal and Olifants River catchments. The Modderfontein Colliery catchment area drains

into

the

Koffierspruit.

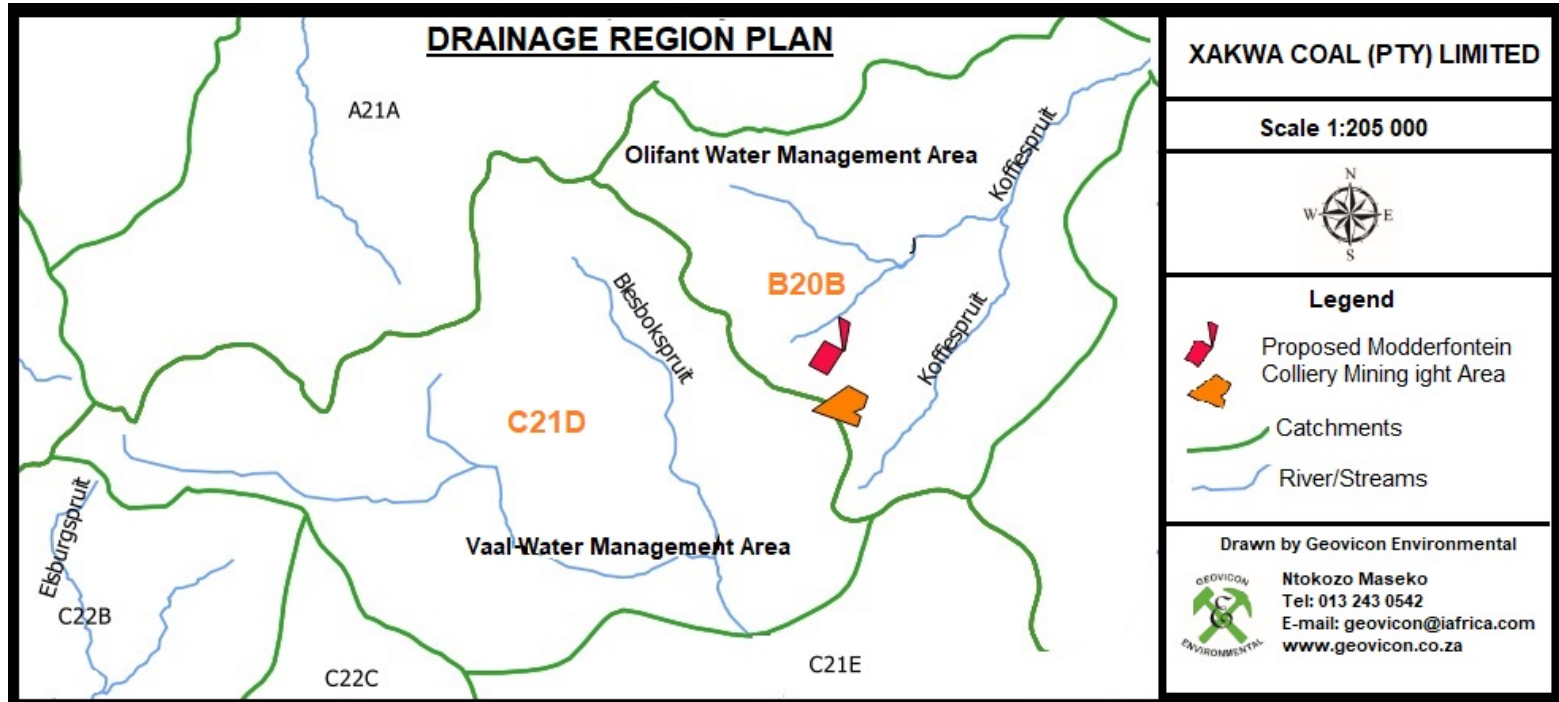


Figure 3: Location of the proposed project in relation to the tertiary and quaternary drainage regions

2.5 BRIEF PROPOSED PROJECT OVERVIEW

2.5.1 Mineral Deposits

Coal from the number 2 coal seam will be mined on the proposed opencast mining area.

2.5.2 Mine Products

Run of Mine Coal (R.O.M), which will be processed at a coal crushing and screening facility.

2.5.3 Mining Method

Opencast mining, using the truck and shovel lateral rollover mining method will be undertaken. Mining will commence from the initial box-cut. Access to the opencast pit will be via a pit ramp. Should the road traversing the mining area be left behind, two initial box cuts will be required.

Access and haul roads will be used to access the opencast mining area and for the haulage of material from the opencast workings.

The soft overburden will be removed by mechanical methods. The hard overburden will be drilled and blasted and then removed to dedicated overburden stockpiling area. The coal will then be drilled and blasted prior to removal to a R.O.M coal stockpiling area for processing and selling.

3 DESCRIPTION OF THE SCOPE OF THE PROPOSED ACTIVITY

3.1 DESCRIPTION OF LISTED ACTIVITIES TO BE UNDERTAKEN

Xakwa Coal (Pty) Limited proposes to mine coal on portions 6, 7, 13 and 16 of the farm Modderfontein 236 IR, at Modderfontein Colliery.

Before the above project can be commenced with, an environmental authorisation and a waste management licence must be obtained by Xakwa Coal (Pty) Limited. In view of the above, Xakwa Coal (Pty) Limited has submitted an application for an environmental authorisation and an application for a waste management licence (integrated environmental authorisation) for all NEMA listed activities and NEMWA waste management activities to be conducted at Modderfontein Colliery's opencast project to the competent authority (DMR). This section will give a description of the NEMA listed activities and NEMWA waste management activities that were included in the application for the integrated environmental authorisation. Table 4, reflects all NEMA listed activities and NEMWA waste management activities triggered by the proposed project and has been applied for.

Table 4: Description of Listed activities to be undertaken

NAME OF ACTIVITY	AERIAL EXTENT OF THE ACTIVITY	LISTED ACTIVITY	APPLICABLE LISTING NOTICE
PROJECT CURRENTLY IDENTIFIED LISTED AND SPECIFIC ACTIVITIES			
NATIONAL ENVIRONMENTAL MANAGEMENT ACT			
The construction and operation of storm water diversion trenches. The dirty water trenches will discharge conveyed water to the pollution control dam and the clean water trench will divert the water to the nearby stream.	The storm water diversion trenches will cover an ±1100.00 m.	<u>Activity 9 of Listing Notice 1:</u> The development of infrastructure exceeding 1000 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 (b) where such development will occur within an urban area.	GNR 327
		<u>Activity 10 of Listing Notice 1:</u> The development and related operation of infrastructure exceeding 1000 metres in length for the bulk transportation of sewage, effluent, process water, waste water, return water, industrial discharge or slimes? (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 sewage, effluent, process water, waste water, return water, industrial discharge or slimes inside a road reserve; or (b) where such development will occur within an urban area.	GNR 327
The construction of storm water diversion trenches and pollution control dam. These may be within the water course or within 32 meters of the watercourse. The storm water diversion trenches will be used for the diversion of dirty and clean water to the pollution control dam and clean water environment, respectively.	The exact extent of the storm water diversion trenches and pollution control dam will be finalised on completion of the civil designs for the facilities.	<u>Activity 12 of Listing Notice 1:</u> The development of- <ul style="list-style-type: none"> • canals exceeding 100 square metres in size; • channels exceeding 100 square metres in size; • bridges exceeding 100 square metres in size; • dams, where the dam, including infrastructure and water surface area, exceeds 100 square metres in size; • weirs, where the weir, including infrastructure and water surface area, exceeds 1200 square metres in size; • bulk storm water outlet structures exceeding 100 square metres in size; 	GNR 327

NAME OF ACTIVITY	AERIAL EXTENT OF THE ACTIVITY	LISTED ACTIVITY	APPLICABLE LISTING NOTICE
The pollution control dam will be constructed for the containment of polluted water emanating from the mining operation.		<ul style="list-style-type: none"> • marinas exceeding 100 square metres in size; • jetties exceeding 100 square metres in size; • slipways exceeding 100 square metres in size; • buildings exceeding 100 square metres in size; • boardwalks exceeding 100 square metres in size; or • infrastructure or structures with a physical footprint of 100 square metres or more; where such development occurs- <ul style="list-style-type: none"> • within a watercourse; • in front of a development setback; or • if no development setback exists, within 32 metres of a watercourse, measures from the edge of a watercourse;- excluding- <ul style="list-style-type: none"> (aa) the development of infrastructure or structures within existing ports or harbours that will not increase the development footprint of the port or harbour; (bb) where such development activities are related to the development of a port or harbour, in which case activity 26 in Listing Notice 2 of 2014 applies; (cc) activities listed in activity 14 in Listing Notice 2 of 2014 or activity 14 in Listing Notice 3 of 2014, in which case that activity applies; (dd) where such development occurs within an urban area; or (ee) where such development occurs within existing roads or road reserves. 	
The pollution control dam will be constructed for the containment of polluted water emanating from the mining operation and will have a capacity of more than 35 000 cubic meters.	The pollution control dam facility will cover an area of approximately one hectare.	<u>Activity 13 of Listing Notice 1:</u> 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.	GNR 327
The development 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	The storage facility will cover an area of approximately 0.02 hectare	<u>Activity 14 of Listing Notice 1:</u> The development 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	
The excavation, removal and moving of soil and rock of more than five cubic meters from the nearby watercourse, wetland for the construction of the dirty water trenches and pollution control dam.	The site where the activity will be undertaken will cover an area of approximately 3 hectares.	<u>Activity 19 of Listing Notice 1:</u> The infilling or depositing of any material of more than 5 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock or more than 5 cubic metres from-	GNR 327

NAME OF ACTIVITY	AERIAL EXTENT OF THE ACTIVITY	LISTED ACTIVITY	APPLICABLE LISTING NOTICE
		<ul style="list-style-type: none"> • a watercourse; • the seashore; or • the littoral active zone, an estuary or a distance of 100 metres inland of the high-water mark of the sea or an estuary, whichever distance is the greater- but excluding where such infilling, depositing, dredging, excavation, removal or moving- <ul style="list-style-type: none"> • will occur behind a development setback; • is for maintenance purposed undertaken in accordance with a maintenance management plan; or falls within the ambit of activity 21 in this Notice, in which case that activity applies. 	
The construction and operation of access roads for accessing the proposed mining operation.	The access and haul roads will cover an area of approximately 0.991 hectares.	<u>Activity 24 of Listing Notice 1:</u> The development of- (i) a road for which an environmental authorisation was obtained for the route determination in terms of activity 5 in 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) roads which are identified and included in activity 27 in Listing Notice 2 of 2014; or (b) roads where the entire road falls within an urban area.	GNR 327
The mining operation and associated infrastructure will require a water use licence in terms of the National Water Act, 1998 (Act no. 36 of 1998), as amended.	The proposed mining operation with its associated infrastructure will cover an area of approximately 401.22 hectares.	<u>Activity 34 of Listing Notice 1:</u> The expansion or changes to existing facilities for any process or activity where such expansion or changes will result in the need for a permit or licence or an amended permit or licence in terms of national or provincial legislation governing the release of emissions or pollution, excluding- (i) where the facility, process or activity is 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; or (ii) the expansion of or changes to existing facilities for the treatment of effluent, wastewater or sewage where the capacity will be increased by less than 15 000 cubic metres per day.	GNR 327

NAME OF ACTIVITY	AERIAL EXTENT OF THE ACTIVITY	LISTED ACTIVITY	APPLICABLE LISTING NOTICE
The development pollution control dam and the associated infrastructure that may potentially have detrimental impacts on the water resource and that may be situated within the regulated area of the nearby watercourse. The above activities will require an integrated water use licence in terms of the National Water Act, 1998 (Act 36 of 1998).	The development of the mining operation with its associated infrastructure will cover an area of approximately 1.50 hectares.	<u>Activity 6 of Listing Notice 2:</u> The development of facilities or infrastructure for any process or activity which requires a permit or licence in terms of national or provincial legislation governing the generation or release of emissions, pollution or effluent, excluding- <ul style="list-style-type: none"> • activities which are identified and included in Listing Notice 1 of 2014; • activities which 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; or • the development of facilities or infrastructure for the treatment of effluent, wastewater or sewage where such facilities have a daily throughput capacity of 2000 cubic metres or less. 	GNR 325
The development of the mining operation and associated infrastructure will result in the clearance of indigenous vegetation from the project area.	The proposed operation with its associated infrastructure will cover an area of approximately 401.22 hectares.	<u>Activity 15 of Listing Notice 2:</u> The clearance of an area of 20 hectares or more of indigenous vegetation, excluding where such clearance of indigenous vegetation is required for- <ol style="list-style-type: none"> (i) the undertaking of a linear activity; or (ii) maintenance purposes undertaken in accordance with a maintenance management plan. 	GNR 325
		<u>Activity 17 of Listing Notice 2:</u> Opencast mining which requires a mining right as contemplated in section 22 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002), including associated infrastructure, structures and earthworks, directly related to the extraction of a mineral resource, including activities for which an exemption has been issued in terms of section 106 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002).	
		<u>Activity 21 of Listing Notice 2:</u> Any activity including the operation of that activity associated with the primary processing of a mineral resource including winning, reduction, extraction, classifying, concentrating, crushing, screening and washing but excluding the smelting, beneficiation, refining, calcining or gasification of the mineral resource.	

NAME OF ACTIVITY	AERIAL EXTENT OF THE ACTIVITY	LISTED ACTIVITY	APPLICABLE LISTING NOTICE
The development of access and haul roads within the proposed mining area.	The roads to be constructed at the proposed project will cover an area of approximately 0.991 hectares.	<p><u>Activity 4 of Listing Notice 3:</u> The development of a road wider than 4 metres with a reserve less than 13, 5 metres.</p> <p><u>In Free State, Limpopo, Mpumalanga and Northern Cape provinces:</u></p> <ul style="list-style-type: none"> • In an estuary; • Outside urban areas in: <p>(aa) A protected area identified in terms of NEMPAA, excluding disturbed areas; (bb) National Protected Area Expansion Strategy Focus areas; (cc) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority; (dd) Sites or areas identified in terms of an International Convention; (ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans; (ff) Core areas in biosphere reserves; (gg) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core areas of a biosphere reserve, excluding disturbed areas.; or (hh) Areas seawards of the development setback line or within 1 kilometre from the high-water mark of the sea if no such development setback line is determined; or (iii) In urban areas: (aa) Areas zoned for use as public open space; (bb) Areas designated for conservation use in Spatial Development Frameworks adopted by the competent authority or zoned for a conservation purpose; or (cc) Seawards of the development setback line or within urban protected areas.</p>	GNR 325
	The proposed operation with its associated infrastructure will cover an area of approximately 1.50 hectares.	<p><u>Activity 10 of Listing Notice 3:</u> The development 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 30 cubic metres or more but not exceeding 80 cubic metres.</p>	
Clearance of indigenous vegetation for the mining operation and for the construction of infrastructure associated with the mining project.	The land to be cleared of indigenous vegetation will cover an area of approximately 401.22 hectares.	<p><u>Activity 12 of Listing Notice 3:</u> 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.</p> <p><u>(c) in Mpumalanga</u></p>	GNR 324

NAME OF ACTIVITY	AERIAL EXTENT OF THE ACTIVITY	LISTED ACTIVITY	APPLICABLE LISTING NOTICE
		(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 critically biodiversity area identified in bioregional plans; (iii) within the littoral active zone or 100 metres inland from high water mark of the sea or an estuarine functional zone; whichever distance is the greater, excluding where such removal will occur behind the development setback line on erven in urban areas (iv) on land, where, at the time of the coming into effect of this Notice or thereafter such land was zone open space, conservation or had an equivalent zoning or proclamation in terms of NEMPAA.	
The construction of the clean and dirty water channels, pollution control dam and any infrastructure associated with the project within 32 meters of the nearby watercourse.	The proposed mining operation with its associated infrastructure will cover an area of approximately ±1100.00 metres.	<u>Activity 14 of Listing Notice 3:</u> The development of- (i) canals exceeding 10 square metres in size ; (ii) channels exceeding 10 square metres in size; (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; 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. <u>(a) In Free State, Limpopo, Mpumalanga and Northern Cape:</u>	GNR 324

NAME OF ACTIVITY	AERIAL EXTENT OF THE ACTIVITY	LISTED ACTIVITY	APPLICABLE LISTING NOTICE
		(i) In an estuary; (ii) Outside urban areas, in: (aa) A protected area identified in terms of NEMPAA, excluding conservancies; (bb) National Protected Area Expansion Strategy Focus areas; (cc) World Heritage Sites; (dd) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority; (ee) Sites or areas identified in terms of an International Convention; (ff) Critical biodiversity areas or ecosystem service areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans; (gg) Core areas in biosphere reserves; (hh) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core area of a biosphere reserve; (ii) Areas seawards of the development setback line or within 1 kilometre from the high-water mark of the sea if no such development setback line is determined; or (iii) In urban areas: (aa) Areas zoned for use as public open space; (bb) Areas designated for conservation use in Spatial Development Frameworks adopted by the competent authority, zoned for a conservation purpose; or (cc) Areas seawards of the development setback line.	
New access and haul roads will be constructed to connect to the existing road infrastructure. This will result in the extension of the current road by more than one kilometre.	The roads to be constructed at the proposed project will cover an area of approximately 0.991 hectares.	<u>Activity 18 of Listing Notice 3:</u> The widening of a road by more than 4 metres, or the lengthening of a road by more than 1 kilometre. a) In Free State, Limpopo, Mpumalanga and Northern Cape provinces: (i) In an estuary; (ii) Outside urban areas, in: (aa) A protected area identified in terms of NEMPAA, excluding conservancies; (bb) National Protected Area Expansion Strategy Focus areas; (cc) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority; (dd) Sites or areas identified in terms of an International Convention;	GNR 324

NAME OF ACTIVITY	AERIAL EXTENT OF THE ACTIVITY	LISTED ACTIVITY	APPLICABLE LISTING NOTICE
		(ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans; (ff) Core areas in biosphere reserves; (gg) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core area of a biosphere reserve; (hh) Areas seawards of the development setback line or within 1 kilometre from the high-water mark of the sea if no such development setback line is determined; or (ii) Areas on the watercourse side of the development setback line or within 100 metres from the edge of a watercourse where no such setback line has been determined; or iii. Inside urban areas: (aa) Areas zoned for use as public open space; or (bb) Areas designated for conservation use in Spatial Development Frameworks adopted by the competent authority or zoned for a conservation purpose.	
The construction of the clean and dirty water channels, pollution control dam and any infrastructure associated with the mining project within 32 meters of the nearby watercourse.	The proposed mining operation with its associated infrastructure will cover an area of approximately ±1100.00 meters.	<u>Activity 23 of Listing Notice 3:</u> The expansion of- (i) canals where the canal is expanded by 10 square metres or more in size; (ii) channels where the channel is expanded by 10 square metres or more in size; (iii) bridges where the bridge is expanded by 10 square metres or more in size; (iv) dams where the dam is expanded by 10 square metres or more in size; (v) weirs where the weir is expanded by 10 square metres or more in size; (vi) bulk storm water outlet structures where the structure is expanded by 10 square metres or more in size; (vii) marinas where the marina is expanded by 10 square metres or more in size; (viii) jetties where the jetty is expanded by 10 square metres or more in size; (ix) slipways where the slipway is expanded by 10 square metres or more in size; (x) buildings where the building is expanded by 10 square metres or more in size; (xi) boardwalks where the boardwalk is expanded by 10 square metres or more in size; or (xii) Infrastructure or structures where the physical footprint is expanded by 10 square metres or more;	GNR 324

NAME OF ACTIVITY	AERIAL EXTENT OF THE ACTIVITY	LISTED ACTIVITY	APPLICABLE LISTING NOTICE
		<p>where such development occurs-</p> <p>(a) within a watercourse;</p> <p>(b) in front of a development setback adopted in the prescribed manner; or</p> <p>(c) if no development setback has been adopted, within 32 metres of a watercourse, measured from the edge of a watercourse;</p> <p>excluding the expansion of infrastructure or structures within existing ports or harbours that will not increase the development footprint of the port or harbour.</p> <p>a) Free State, Limpopo, Mpumalanga and Northern Cape:</p> <p>(i) In an estuary;</p> <p>(ii) Outside urban areas, in:</p> <p>(aa) A protected area identified in terms of NEMPAA, excluding conservancies;</p> <p>(bb) National Protected Area Expansion Strategy Focus areas;</p> <p>(cc) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5. Of the Act and as adopted by the competent authority;</p> <p>(dd) Sites or areas identified in terms of an International Convention;</p> <p>(ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;</p> <p>(ff) Core areas in biosphere reserves;</p> <p>(gg) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core area of a biosphere reserve; or</p> <p>(hh) Areas seawards of the development setback line or within 1 kilometre from the high-water mark of the sea if no such development setback line is determined; or iii. Inside urban areas:</p> <p>(aa) Areas zoned for use as public open space; or</p> <p>(bb) Areas designated for conservation use in Spatial Development Frameworks adopted by the competent authority or zoned for a conservation purpose.</p>	
Opencast Mining of No 2 coal seam	The proposed mining operation will cover an area of approximately 133.74 hectares.		
NATIONAL ENVIRONMENTAL MANAGEMENT WASTE ACT			
The disposal of overburden waste at the mining area. Disposal of dirty water from the overburden	The proposed mining operation with its associated infrastructure will cover an area of approximately 9.12 hectares.	Activity 7 under category B: Disposal of any quantity of hazardous waste on land.	GNR 921

NAME OF ACTIVITY	AERIAL EXTENT OF THE ACTIVITY	LISTED ACTIVITY	APPLICABLE LISTING NOTICE
area to the new pollution control dam. The proposed mining operation will cover an area of approximately 197.186 hectares.			
The establishment and maintenance of the overburden material and associated pollution control dam.	The proposed mining operation its associated infrastructure will cover an area of approximately 9.12 hectares.	Activity 10 under category B: The construction of a facility for a waste management activity listed under Category B of this Schedule (not in isolation to associated waste management activity).	GNR 921
The establishment and maintenance of the overburden material and associated pollution control dam	The proposed mining operation its associated infrastructure will cover an area of approximately 9.12 hectares.	Activity 11 under category B: 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).	GNR 921/ GNR 633
Reclamation of the overburden material for rehabilitation.	As much of the facility as possible will be reclaimed.		

Note: The above list may change as more activities are identified during the finalisation of the site's mining and surface layout plans. The list of listed activities will be finalised once the environmental specialist studies (including civil designs) and the EIA/EMPr has been completed.

3.2 DETAILED DESCRIPTION OF THE PROJECT

3.2.1 Surface Infrastructure

Surface infrastructure will include administration buildings i.e. offices, workshops, stores and ablution facilities (possibly mobile structures), access and haul roads, water management structures (storm water diversion structures and a pollution control dam with a silt trap), overburden material stockpiles, opencast workings (initial box-cuts and subsequent opencast pits), R.O.M./product coal stockpiling areas, crushing/screening plant, Fuel and hydrocarbon liquid storage facility and weighbridge.

3.2.2 Roads, railways and power lines

There are various main and minor roads, as well as power lines crossing the proposed Modderfontein Colliery mining area. The N12 National road (freeway) is situated adjacent to the proposed Modderfontein Colliery mining area. The R35 and R575 provincial roads occur along the east and west of the mining area respectively.

The existing roads will be used for accessing the mining area. Where necessary these roads will be upgraded/extended before being used to access the mine. An access road will be constructed to connect the mining area to the existing roads. A traffic impact assessment specialist will be appointed to determine the best position for the access road and for routes to be used for the transportation of the coal from the mine.

No siding or power lines will be required for the proposed mining operation as haulage trucks will be used for the transportation of coal and fuel powered plant and a generator will be used at the mine.

3.2.3 Waste Management

3.2.3.1 Solid Waste Management

Industrial and domestic waste arising from the proposed mining area will be collected and disposed of by a contractor at a registered waste disposal sites. Waste that has value will be transported to a nearby Scrap yard where it will be sorted and sold.

Since a crushing/screening plant will be constructed and used at the proposed mining area, no mine residue deposit facility will be required.

3.2.4 Water Management Facilities

Dirty water from the proposed mining area (workings and dirty water areas) will be pumped/drained/diverted to the pollution control facilities to be constructed on site. The pollution control facilities will be designed and constructed to have enough capacity to handle the volumes of the dirty water emanating from the proposed mine including the volumes from a 1:50 year 24 hour storm event.

Potable water supply for the mining area will be sourced from a borehole to be sited and drilled on site. If no suitable supply from the boreholes sittings found, alternatively water supply from the municipality or nearby farms or small holdings will be used.

3.2.5 Mineral Processing

Crushing and screening of coal will be conducted before coal is transported to the inland markets.

3.2.6 Transport of product

Coal from the mining area will be transported via tipper trucks to the R.O.M stockpile area. Front-end loaders will be used to feed the crushing and screening plant with coal from the R.O.M. stockpile.

Haulage trucks will then be used to transport the coal product from the coal product stockpile to the destined clients.

3.2.7 Transport

All employees will be provided with mine vehicles for all transport requirements to and from the proposed Modderfontein Colliery's project area. The ROM coal will be conveyed by using dump trucks.

4 POLICY AND LEGISLATIVE CONTEXT

4.1 CONSTITUTION OF THE REPUBLIC OF SOUTH AFRICA (ACT NO. 108 OF 1996)

Section 24 of the Constitution of the Republic of South Africa (Act No.108 of 1996) states that everyone has the right:

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

In terms of Section 24 of the Constitution of the Republic of South Africa (Act No. 108 of 1996), everyone has the right to an environment that is not harmful to their health or well-being. In addition, people have the right to have the environment protected, for the benefit of present and future generations, through applicable legislations and other measures that prevent pollution, ecological degradation and promote conservation and secure ecological sustainable development through the use of natural resources while prompting justifiable economic and social development. The needs of the environment, as well as affected parties, should thus be integrated into the overall project in order to fulfil the requirements of Section 24 of the Constitution. In view of the above, a number of laws pertaining to environmental management were promulgated to give guidance on how the principles set out in section 24 of the Constitution of the Republic of South Africa (Act No. 108 of 1996) would be met. Below are laws applicable to the proposed project that were promulgated to ensure that section 24 of the Constitution of the Republic of South Africa (Act No. 108 of 1996) is complied with.

4.2 NATIONAL ENVIRONMENTAL MANAGEMENT ACT

Section 24(1) of the NEMA states:

“In order to give effect to the general objectives of integrated environmental management laid down in this Chapter [Chapter 5], the potential consequences for or impacts on the environment of listed activities or specified activities must be considered, investigated, assessed and reported on to the competent authority or the Minister of the Department of Mineral Resources, as the case may be, except in respect of those activities that may commence without having to obtain an environmental authorisation in terms of this Act.”

In order to regulate the procedure and criteria as contemplated in Chapter 5 of NEMA relating to the preparation, evaluation, submission, processing and consideration of, and decision on, applications for environmental authorisations for the commencement of activities, subjected to environmental impact assessment, in order to avoid or mitigate detrimental impacts on the environment, and to optimise positive environmental impacts, and for matters pertaining thereto, Regulations (EIA Regulations, 2014) were promulgated. These Regulations took effect from the 4th of December 2014.

In addition to the above, Section 28 of the NEMA includes a general “Duty of Care” whereby care must be taken to prevent, control and remedy the effect of significant pollution and environmental

degradation. This section stipulates the importance to protect the environment from degradation and pollution irrespective of the operations taking place or activities triggered / not triggered under GN983, GN984 and GN985.

In view of the above, an EIA is being undertaken to comply with the requirements of the NEMA and the NEMA EIAR Regulations, 2014. The NEMA EIAR Regulations of December 2014 determines requirements to be met in order to amend an environmental authorisation. These conditions are listed under Regulations 31, 32 and 33 of the EIAR Regulations, 2014. This report has therefore been compiled in compliance with the above regulations.

4.3 NATIONAL ENVIRONMENTAL MANAGEMENT AIR QUALITY ACT

The National Environmental Management: Air Quality Act (Act No. 39 of 2004) (NEM:AQA) focuses on reforming the law regulating air quality in South Africa in order to protect the environment through the provision of reasonable measures protecting the environment against air pollution and ecological degradation and securing ecological sustainable development while promoting justifiable economic and social developments. This Act provides national norms and standards regulating air quality management and control by all spheres of government. These include the National Ambient Air Quality Standards (NAAQS) and the National Dust Control Regulations (NDCR). The standards are defined for different air pollutants with different limits based on the toxicity of the pollutants to the environment and humans, number of allowable exceedances and the date of compliance of the specific standard.

On 22 November 2013 the list of activities which result in atmospheric emissions which have or may have a significant detrimental effect on the environment, including health, social conditions, economic conditions, ecological conditions or cultural heritage was published under GN R893 in Governmental Gazette No 37054, in terms of Section 21(1)(b) of the NEM: AQA.

The proposed project will not trigger any of the activities listed under the above-mentioned Regulations, however Modderfontein Colliery must ensure that emissions from their activities complies with the standards as set in the above-mentioned regulations.

4.4 THE NATIONAL HERITAGE RESOURCES ACT

The National Heritage Resources Act (Act No. 25 of 1999) (NHRA) focuses on the protection and management of South Africa's heritage resources. The governing authority for this act is the South African Heritage Resources Agency (SAHRA). In terms of the NHRA, historically important features such as graves, trees, archaeology and fossil beds are protected as well as culturally significant symbols, spaces and landscapes. Section 38 of the NHRA stipulates the requirements a developer must undertake prior to development. In terms of Section 38 of the NHRA, SAHRA can call for a Heritage Impact Assessment (HIA) where certain categories of development are proposed.

A Heritage Impact Assessment (HIA) is the process to be followed in order to determine whether any heritage resources are located within the area to be developed as well as the possible impact of the proposed development thereon.

The Act also makes provision for the assessment of heritage impacts as part of an EIA process and indicates that if such an assessment is deemed adequate, a separate HIA is not required. A Heritage Impact Assessment will be undertaken for the proposed project.

4.5 NATIONAL ENVIRONMENTAL MANAGEMENT BIODIVERSITY ACT (ACT 10 OF 2004)(NEMBA)

The National Environmental Management: Biodiversity Act (Act No. 10 of 2004) (NEMBA) provides for the management and protection of South Africa's biodiversity within the framework established by NEMA. The Act aims to legally provide for biodiversity conservation, sustainable, equitable access and benefit sharing and provides for the management and control of alien and invasive species to prevent or minimize harm to the environment and indigenous biodiversity. The Act imposes obligations on landowners (state or private) governing alien invasive species as well as regulates the introduction of genetically modified organisms. The Act encourages the eradication of alien species that may harm indigenous ecosystems or habitats. The NEMBA ensures that provision is made by the site developer to remove any aliens which have been introduced to the site or are present on the site.

The NEMBA also provides for listing of threatened or protected ecosystems, in one of four categories: critically endangered, endangered, vulnerable or protected. The purpose of listing protected ecosystems is primarily to conserve sites of exceptionally high conservation value.

The Act supports South Africa's obligations under sanctioned international agreements regulating international trade in specimens of endangered species, and ensures that the utilization of biodiversity is managed in an ecological sustainable way.

4.6 MPUMALANGA NATURE CONSERVATION ACT (ACT 10 OF 1998)

The Mpumalanga Nature Conservation Act, No. 10 of 1998, aims to consolidate and amend the laws relating to nature conservation within the Province and to provide for matters connected therewith. Provincial legislation relevant to biodiversity conservation comprises of two Provincial Acts, the Mpumalanga Nature Conservation Act (Act 10 of 1998) and the Mpumalanga Tourism and Parks Agency Act (Act 5 of 2005). In relation to nature conservation, the Province has developed the Mpumalanga Biodiversity Conservation Plan (MBCP). This plan has been jointly developed by the Mpumalanga Tourism and Parks Agency (MTPA) and the Department of Agriculture and Land Administration (DALA). The MBCP takes its mandate from the South African Constitution, the National Biodiversity Act (10 of 2004) and the Mpumalanga Nature Conservation Act 10 of 1998. Areas identified under the MBCP as sensitive will be identified and where applicable measures will be proposed for ensuring that the areas are not degraded by the proposed project activities.

4.7 MINERAL AND PETROLEUM RESOURCES DEVELOPMENT ACT (MPRDA)

The Department of Mineral Resources (DMR) is responsible for regulating the mining and minerals industry to achieve equitable access to the country's resources and contribute to sustainable development. The Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002) (MPRDA) requires that an EIA be conducted and that the EMP be drafted for the mitigation of impacts identified during the environmental impact assessment for a mining project. During December 2014, the "One Environmental System" was implemented by Government which initiated the streamlining of the licensing processes for mining, environmental authorisations and water use. Under the One Environmental System, The Minister of Mineral Resources, will issue environmental authorisations and waste management licences in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA), and the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008), respectively, for mining and related activities. The Minister of Environmental Affairs will be the appeal authority for these authorisations. In view of the above the application for the

environmental authorisation for the proposed project will be submitted to the Department of Mineral Resources as the competent authority.

4.8 NATIONAL WATER ACT (NWA)

The National Water Act (Act No. 36 of 1998) (NWA) is the primary regulatory legislation, controlling and managing the use of water resources as well as the pollution thereof in South Africa. The NWA recognises that the ultimate aim of water resource management is to achieve sustainable use of water for the benefit of all users and that the protection of the quality of water resources is necessary to ensure sustainability of the nation's water resources in the interests of all water users. The NWA presents strategies to facilitate sound management of water resources, provides for the protection of water resources, and regulates use of water by means of Catchment Management Agencies, Water User Associations, Advisory Committees and International Water Management. The National Government has overall responsibility for and authority over water resource management, including the equitable allocation and beneficial use of water in the public interest. Further, an industry can only be entitled to use water if the use is permissible under the NWA. The enforcing authority on water users is the Department of Water and Sanitation (DWS).

Further, Regulation 704 of the NWA deals with the control and use of water for mining and related activities aimed at the protection of water resources.

An integrated water use licence application and an application for an exemption to comply with some of the requirements under the GN704 will be submitted to the Department of Water and Sanitation for their consideration.

4.9 NATIONAL ENVIRONMENTAL MANAGEMENT: WASTE ACT (ACT NO. 59 OF 2008)

The National Environmental Management: Waste Act (NEMWA) requires that all waste management activities must be licensed. According to Section 44 of the NEMWA, the licensing procedure must be integrated with an EIAR process in terms of the NEMA.

The objectives of NEMWA involve the protection of health, wellbeing and the environment. The NEMWA provides measures for the minimisation of natural resource consumption, avoiding and minimising the generation of waste, reducing, recycling and recovering waste, and treating and safely disposing of waste.

Waste management activities are triggered by the proposed Modderfontein Colliery, hence an application in terms of the NEMWA was submitted to the Department of Mineral Resources. However where applicable, principles and objectives relating to waste management will be used during the compilation of the EMPr for the proposed project.

4.10 EIA GUIDELINES

A number of national and provincial EIAR guidelines were published by different departments. These guidelines are mainly aimed at assisting relevant stakeholders by providing information and guidance and giving recommendations on a number of aspects relating to the environmental impact assessment process. The guidelines can be used by the competent authority, applicant and the EAP during the EIAR process. It is therefore important that the EAP and the person compiling a specialist report must have relevant expertise when conducting the environmental impact assessments.

A number of guidelines were consulted during the compilation of this report and these include amongst them the following i.e. Guidelines on the Need and Desirability, Department of Environmental Affairs and Tourism Integrated Environmental Management Guidelines, Department of

Water Affairs Best Practice Guidelines and the Western Cape Provincial Department of Environmental Affairs and Development Planning Guidelines on Public Participation.

5 NEED AND DESIRABILITY OF THE PROPOSED PROJECT

In terms of the EIAR Regulations the need and desirability of any development must be considered by the relevant competent authority when reviewing an application. The need and desirability must be included in the reports to be submitted during the environmental authorisation application processes.

Modderfontein Colliery is situated within the Victor Khanye Local Municipality in the Mpumalanga Province. An EIA process for the Environmental Authorisation application will be undertaken and a Scoping Report and an EIAR and EMPr must be submitted to the Department of Mineral Resources. As part of the requirements of the compilation of the Scoping Report, EIR and EMPr, the applicant must determine the Need and Desirability of the proposed project. The need and desirability for the project must be compiled in order to comply with the requirements of the guideline on need and desirability promulgated on the 20th of October 2014 under Government Notice 891 of 2014, which in turn will comply with the requirements of the EIAR Regulations, 2014.

To undertake the 'need and desirability assessment' the following must be considered in accordance with the NEMA EIAR Regulations; Guideline and Information Document Series; Guideline on Need and Desirability (2014).

- The integrated Development Plans for the Victor Khanye Local Municipality

The need and desirability determination for this project will hence be structured such that it determines how the ecological attributes of the area, spatial development of the area, socio-economic profile of the communities within the mining area.

6 CONSIDERATION OF ALTERNATIVES

The amended National Environmental Management Act 107 of 1998, Environmental Impact Assessment Regulations, 2014 requires a Scoping Report to identify alternatives for projects applied for. An alternative in relation to a proposed activity, refers to different means of meeting the general purpose and requirements of the activity, which may include alternatives to the (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.

6.1 LOCATION ALTERNATIVES

The location alternative considered for the proposed opencast project include the site for mining and the associated infrastructure. The location alternatives were selected based on the coal reserve and the mineral right for the applicant.

Since the coal reserves to be mined occurs within an area where Xakwa Coal (Pty) Ltd has exclusive right to apply for a mining right, no alternatives in terms of the location/property were considered since the coal reserve.

The location of the proposed development is the most suitable due to its ideal location in terms of the requirements for coal mining. Prospecting boreholes drilled indicated that the quality of the coal in the

area where the applicant proposes to mine coal, is of the best quality and therefore no alternative site has been investigated.

6.2 DESIGN/LAYOUT ALTERNATIVES

The site design and layout alternatives considered for the proposed opencast project include the site for mining, the associated infrastructure and access to the mine. The site design and layout alternatives were selected based on the desktop sensitivity assessment conducted over the proposed mining area. These alternatives will however be finalised once all environmental specialist work has been conducted over the proposed mining area, which will confirm and delineate all sensitive landscapes and wetland zones.

The following criteria, which include the environmental considerations (how sensitive is the area in terms of wetlands), sensitive receptors (proximity to communities, small holdings and farmsteads) and the dependency to targeted coal reserves, mine design target areas and existing infrastructure.

A desktop assessment over the proposed mining area has indicated that wetlands occur within the coal reserves. Regarding sensitive receptors and with the exception of a defunct primary school (with one household), desktop assessment has indicated that no communities, smallholdings and farmsteads occur within the targeted coal reserves. However receptors occur around the mining hence their consideration.

6.2.1 Mining Area

Alternative 1: Mining the entire coal reserve.

This alternative will include the mining of the entire coal reserve within the currently targeted coal reserve i.e. portion 6 of the farm Modderfontein 236 IR. This alternative will involve the mining of wetlands and the road bisecting the mining, which will require authorisation/permission from relevant authorities i.e. mining of the wetlands and diverting of the current road.

Alternative 2: Mining the reserve excluding the wetland and road bisecting the mining area

This alternative will include a buffer between the mine and the sensitive landscapes. The mining will have to be conducted at two sections divided by the N12 road. An authorisation to mine within a regulated area of the wetlands will still require and integrated water use licence from the DWS.

6.2.2 During the consultation with the DWS, it will be determined which alternative will be decided upon Infrastructure Layout

Alternative 1: Use existing structure for the mine's surface infrastructure requirements.

Alternative 2: Construct new office/workshop facilities.

6.2.3 Access Routes

Since no access roads that lead to mine exist, a new access road will be constructed to connect to the existing roads.

6.2.4 Technology Alternatives

Based on the policies of the Department of Water and Sanitation, the local municipalities and the mine itself, it was determined that the only feasible technological way of undertaking the proposed activities would be to use energy readily available to the mine (fuel), water from the mine workings and constructed waste management facilities for the operation of the proposed project. In view of the above, no technology alternatives were considered for the amendment.

6.2.5 Input Material Alternatives

As mentioned above, water sources used by the mine and available energy will be used for the operation of the proposed project. In view of the above, no alternatives were considered for this project.

6.2.6 Operational Alternatives

Mining methods

Regarding the mining methods, two mining methods were investigated for the proposed project i.e. opencast and underground mining methods.

Mining using opencast mining methods were decided against the underground mining methods. The underground mining methods was ruled out due to the following:

- Changing the current mining methods is undesirable as it requires capital investment on equipment making the underground mining option uneconomic;
- The resource insufficient to warrant this change; and
- The underground mining option will limit the utilisation of existing skills base.

6.2.7 Transportation of coal product

Regarding transportation of the mine coal, the use of an overland conveyor belt or haul roads was looked at. However the option of using a haul and access roads works best. The option of using the overland conveyor belt for coal transportation was ruled out due to the possible disruption on the existing private and provincial road infrastructure in close proximity to the proposed mining area.

6.2.8 No Go Option

If the mine cannot proceed with this project, this may result in the sterilisation of the reserves for an extended period, which will cause loss of revenue to the local municipality and the district at large.

In view of the above, the consequences of not proceeding with this project will have a detrimental impact on the employment opportunities to be created, the surrounding previously disadvantaged community and the owners of the mine.

6.3 OUTCOME OF THE SITE SELECTION MATRIX

Xakwa Coal (Pty) Limited due to the prospecting right they hold over the proposed mining area, is the only company that can exploit the coal reserve. Therefore no other site selection were available.

6.4 CONCLUDING STATEMENT INDICATING THE PREFERRED ALTERNATIVES

Based on the above, the proposed Modderfontein Colliery's project, situated on portions 6, 7, 13 and 16 of the farm Modderfontein 236 IR is the preferred location for the proposed project based on the following:

- If the mine cannot proceed with this project, this may result in the sterilisation of the reserves for an extended period, which will cause loss of revenue to the local municipality and the district at large.
- In view of the above, the consequences of not proceeding with this project will have a detrimental impact on the employment opportunities to be created, the surrounding previously disadvantaged community and the owners of the mine

7 DETAILS OF THE PUBLIC PARTICIPATION PROCESS FOLLOWED

In terms of Chapter 6 of the NEMA regulations (GN R543), all potential Interested and Affected Parties should be informed of the project and be given a chance to register as an Interested and Affected Party in order to raise any comments and concerns which relates to the proposed project.

7.1 THE CONSULTATION PROCESS UNDERTAKEN

7.1.1 Registration phase

Immediate and adjacent landowners, local municipality, state departments and the greater public were notified via emails (individual notices), site notices and a local newspaper of the proposed Modderfontein Colliery. The Draft Scoping report was made available for comment to all relevant stakeholders during the registration phase.

6.3.1.1 Registered Interested and Affected Parties (I&AP's)

The interested and affected parties identified are as follows:

- Department of Mineral Resources (Mpumalanga Regional Office)
- Department of Water and Sanitation (Mpumalanga Regional Office)
- Department Agriculture, Forestry and Fisheries
- Department of Economic Development, Environment and Tourism
- Mpumalanga Tourism and Parks Agency
- Victor Khanye Local Municipality
- Immediately adjacent landowners
- Ward Councillor
- ESKOM
- Transnet
- SANRAL

More interested and affected parties will be added should more parties register their names or send comments on the report.

7.1.2 Scoping Phase

The draft Scoping report was submitted to relevant State Departments on the 6th of April 2021. The draft Scoping report was also placed at the Victor Khanye Public Library on the 6th of April 2021 for evaluation and comment. An advertisement was placed in the local newspaper on the 2nd of April 2021 in accordance with Regulation 41 of Government Notice No. 326 under section 24 of the National Environmental Management Act, 107 (Act no. 107 of 1998) informing the public about the availability of the draft scoping report in the said Library for evaluation and comment.

6.3.3 EIA/EMP Phase

Upon acceptance of the Final Scoping Report, the draft EIR/EMP report, will be compiled and submitted to relevant State Departments, the Victor Khanye Local municipality, and registered I&AP's for evaluations and comment. The draft EIR/EMP will also be placed in the Victor Khanye Public Library for comment. An advert will be placed in the local newspaper in accordance with Regulation 41 of Government Notice No. 326 under section 24 of the National Environmental Management Act, 1998 (Act no. 107 of 1998) informing the public about the availability of the draft EIR/EMP report in the said Library for evaluation and comments and inviting the public to a public meeting. Once the commenting period lapses, the final EIR/EMP including comments from registered I&AP's, will be submitted to the DMR FOR their evaluation and decision-making.

6.3.4 Record of Decision (ROD)

Once a decision on the application has been taken and communicated to the applicant by the competent authority, all registered I&AP's will be informed directly in writing, via email or fax and indirectly through advertisement in local newspaper.

8 BASELINE INFORMATION

8.1 GEOLOGY

8.1.1 Geology

The proposed Modderfontein Colliery project is situated in the Witbank Coalfield of the well-known Middle Ecca stage Coal Province. Several coalmines have been, or are operating within this coalfield. The Witbank coalfield extends from Springs to Belfast and from Middelburg to Rietspruit. The Witbank Coalfield includes the districts of Benoni, Nigel, Brakpan/Springs, Delmas, Dryden, Bronkhorstspuit, Kendal, Ogies, Witbank, Middelburg, Arnot and Belfast encompassing a surface area of approximately 568 000 ha. The Witbank Coalfield bounds the Highveld coalfield to the south, the South Rand coalfield to the south-west and the Ermelo coalfield to the south-east. The coal seams of the Witbank coalfield are at a shallow depth, with the lowest seam seldom reaching 100 metres in the deepest lying parts of the field.

The target seams for the Welgelegen Colliery are the No 2 and No 4 seam. The No. 2 seam total thickness ranges from 0.0 m to 6.0 m and has intra-seam carbonaceous partings, which split it into the No. 2 Seam Upper (S2U) and the No. 2 Seam Lower (S2L) horizons on the southern block and the northern boundary of the northern block. The seam maintains an average thickness of 4.50 m with no intra-seam partings south of the northern section where the coal quality is best. Both horizons of the seam are considered as coal resources.

The No. 4 seam in the southern section attains a maximum thickness of 6.0 m. This seam is predominantly homogeneous and occupies a limited area of the section. The coal quality is generally better than the No. 2 seam in the area. Based on the proposed production rate, the estimated life of mine is to be extended to approximately 10 years. Below is Figure 3, a typical geological log for the geology near the Welgelegen Colliery mining right area.

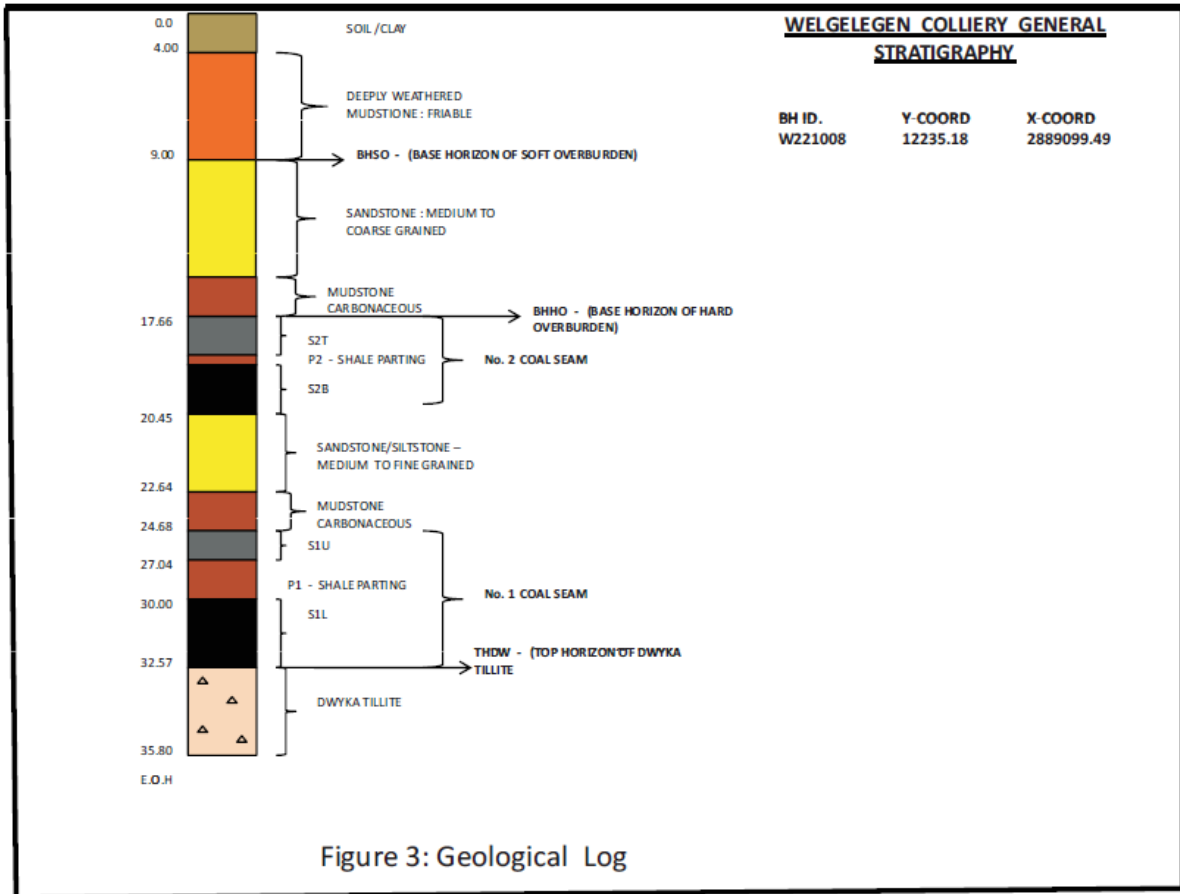


Figure 4: Generalised geological of the mining area

8.2 CLIMATE

8.2.1 Mean Monthly Rainfall and Evaporation

No weather stations are located in close proximity to the proposed opencast project. The closest weather stations are located in Witbank and Springs. Temperature data from the Springs weather station (Station number 0476762 A3) was analysed and a summary of the data is presented in Table 5. The temperature data spanned 2001 to 2010.

Table 5: Mean monthly rainfall, rain days and evaporation data for the proposed opencast project.

Month	Ave Rainfall (mm)	Ave rain days	Ave Evaporation (mm S-Pan)
October	69.1	6.1	180.8
November	105.5	9	170.6
December	118.5	8.9	187.8
January	113.8	9.2	184.5
February	87	6.6	153.8
March	78.3	6	151.8
April	39.6	3.7	116.7
May	17.1	1.8	98.3
June	7.7	0.8	79.8
July	5.4	0.5	87.4
August	67.6	0.8	115.7
September	19.8	1.8	149.9

8.2.2 Mean Monthly Maximum and Minimum Temperatures

No weather stations are located in close proximity to the proposed opencast. The closest weather stations are located in Witbank and Springs. Temperature data from the Springs weather station (Station number 0476762 A3) was analysed and a summary of the data is presented in Table 6. The temperature data spanned 2001 to 2010.

Table 6: Mean monthly temperature data for 0476762 (Springs)

Month	Average daily minimum temperature (°C)	Average daily maximum temperature (°C)
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January	15.2	26.5
February	14.5	26.3
March	12.3	25.0
April	8.8	23.2
May	3.7	20.8
June	1.1	18.4
July	-0.1	18.7
August	3.5	21.6
September	7.8	25.5
October	11.3	26.4
November	13.6	25.3
December	14.8	26.9

8.2.3 Wind Direction and Speed at the Mine

No data on the wind patterns is available for the proposed opencast project. Owing to the location of the site, the gentle undulating topography and the non-existence of mountain ranges and ridges, no localised wind systems (topographically-induced) will be generated. Hence the wind patterns at the mine will conform to the regional wind patterns. The average wind speed and directions as recorded at the closest weather station are presented in Table 7.

Table 7: Average wind speed and direction

Month	N		NE		E		SE		S		SW		W		NW	
	n	v	n	v	n	v	n	v	n	v	n	v	n	v	n	v
Jan	67	4.3	124	4.0	119	4.5	92	5.1	40	4.6	47	4.3	45	3.8	149	3.8
Feb	48	4.1	108	3.8	139	4.1	135	4.9	61	4.5	48	3.9	41	3.5	91	3.7
Mar	53	3.9	99	3.7	126	3.7	99	4.5	50	4.1	56	4.1	43	3.5	111	3.9
Apr	50	4.0	88	3.5	94	4.0	55	4.2	45	4.3	71	4.4	71	4.5	129	4.0
May	54	4.4	66	3.7	61	3.9	62	4.5	47	4.2	79	4.5	67	4.7	116	4.1
Jun	48	4.1	47	3.7	59	4.1	42	4.8	46	4.7	99	4.5	76	4.3	115	4.3
Jul	43	4.1	66	3.7	64	4.1	62	4.9	54	4.6	84	4.5	57	4.2	121	4.1
Aug	80	4.9	96	4.4	97	4.3	33	5.6	35	4.9	75	4.9	65	4.9	192	4.7
Sept	115	4.8	134	4.8	101	5.0	48	5.7	32	4.1	53	5.1	59	5.0	203	4.8
Oct	115	4.5	139	4.7	116	5.4	58	5.6	41	4.9	54	4.7	47	4.8	223	4.8
Nov	105	4.4	135	4.4	110	5.0	56	5.3	37	4.9	45	4.6	55	4.3	229	4.7
Dec	91	4.2	138	4.1	102	4.8	55	4.9	35	4.5	47	4.9	55	4.2	194	4.2
Avg	72	4.4	103	4.1	98	4.4	66	4.9	44	4.5	64	4.5	57	4.4	156	4.4

8.2.4 Extreme Weather Conditions

Thunderstorms occur frequently during summer (rainy season) and are usually accompanied by lightning, heavy rain, strong winds and occasional hail. Storms are localised and rainfall can vary markedly over short distances. An average of six hail incidents per annum can be expected at a particular site. Frost occurs in the winter months, peaking with an average occurrence of nine days in June.

8.3 TOPOGRAPHY

The area is characterised by a gentle undulating topography. The elevation ranges between 1620 mamsl to 1600 mamsl. A perennial tributary of the Koffiespruit River flows along the northern and southern border of the site then joins the Wilge River.

8.4 SOILS

The proposed Modderfontein Colliery will be undertaken by opencast mining methods, which will have significant impacts on the soils of the area to be mined. Associated mining infrastructure development, which includes a haul roads, access roads, overburden stockpiles and water pipelines will also affect the soils.

In view of the above it is necessary that the pre-mining soil environment be determined. Currently there is no data on the soil within the proposed mining area. A soil survey over the areas to be affected by the proposed mining project will however be conducted. The soil survey will be used to determine the distribution, types, usage and suitability of the soils. This information will be used during the compilation of the Environmental Impact Assessment and Environmental Management Programme Report.

8.5 LAND USE

The pre-mining land use over the immediate proposed mining area and its immediate surround is mainly agricultural activities (crop cultivation, retail, grazing), agri-processing facilities, smallholdings roads (N12) National Road, secondary and private gravel roads. The Holfontein Hazardous Waste Disposal Site occurs approximately 1.5 km west of the proposed mining area. During the environmental impact assessment a thorough land user assessment within and around the mine will be undertaken.

8.6 NATURAL VEGETATION / PLANT LIFE

The proposed Modderfontein Colliery site falls within the Grass Land biome region, more specifically within the Eastern Highveld Grassland (Musina & Rutherford, 2006). Topographically the area encompasses slight to moderate undulating plains, including some low hills and pan depressions. The topography lends itself to the short dense grassland vegetation, dominated by species such as *Aristida*, *Digitaria*, *Eragrostis*, *Themeda*, *Tristachya*, *Diospyros*, with small croppy outcrop with wiry sour grasses and woody species such as *Acacia caffra*, *Celtis Africana*, *Lycioides subsp Lycioides*, *Parinari capensis*, *Protea caffra*, *P. welwitshii* and *Rhus magalismsontanum*. The natural grasslands are classified as endangered and are poorly conserved at present (Mucina & Rutherford, 2006).

Grassland with low species richness is present on the site. Most conspicuous grass species are *Hyparrhenia hirta*, *Eragrostis curvula*, *Cynodon dactylon* and *Sporobolus africana*. Most of the herbaceous plant species are either exotic weeds or indigenous pioneer species. Such herbaceous weeds include *Senecio inaequidens* (canary weed), *Sonchus oleraceus* (sowthistle), *Lepidium africanum* (pepperweed), *Conyza albida* (tall fleabane) and *Plantago lanceolata* (buckhorn plantain).

Exotic trees are found in, but especially around the site and include mainly *Eucalyptus camaldulensis* (red river gum trees/ “bloekoms”).

The proposed Modderfontein Colliery falls within the Delmas Local Municipality in the Mpumalanga Province. Protected species which occur within this habitat type include *Boscia foetida*, *Boscia albitrunca* and *Acacia erioloba*. *Boscia albitrunca* and *Acacia erioloba* are generally restricted to drainage lines and would not be little impacted by the development. *Boscia foetida* is however more widespread and larger but not highly significant numbers of this species are likely to be affected by the development but probably less than 100 plants, which would not be considered highly significant given then abundance in the local area.

In order to ensure that all plant species occurring at the proposed opencast project area are identified, a flora and fauna assessment will be undertaken to characterise the environment likely to be impacted on by the proposed activities. This will determine the presence and distribution of plant species and habitats within the study area.

8.7 ANIMAL LIFE

Currently there is no data on the animal life within the proposed mining area. A biodiversity study over the areas to be affected by the proposed mining project will however be conducted. This information will be used during the compilation of the Environmental Impact Assessment and Environmental Management Programme Report.

8.8 SURFACE WATER

The proposed Modderfontein Colliery area falls within the Wilge catchment management area. Primary drainage region B and C. Secondary drainage region B2 and C2. Tertiary drainage B20 and C21. Quaternary drainage region B20B and C21D (Figure 3).

The proposed Modderfontein Colliery project falls within the catchments of the Koffiespruit. Koffiespruit and an unnamed tributary of the Koffiespruit is found on the south and north of the area, respectively.

8.8.1 River Diversions

No river diversions are planned for the activities covered by this Scoping Report.

8.8.2 Water Authority

The Olifants and Vaal River basins are a government water controlled catchments. The authority in charge is the Department of Water and Sanitation (Mpumalanga Regional Office).

8.9 GROUNDWATER

Since most mining-related activities impact on the groundwater quality and quantity, it is crucial that the prevailing groundwater environment be determined before mining activities could commence. The determined groundwater environment will then be used as reference baseline for quantifying potential impacts on the existing groundwater regime.

A geohydrological study will be conducted on the proposed mining area to determine the prevailing groundwater conditions.

8.10 SENSITIVE LANDSCAPE

Wetlands are sensitive landscapes under statutory protection, and such must not be cultivated, overgrazed or mined. The presence of wetlands within the proposed mining area needs to be

assessed and their status determined which will give the applicant and the authorities the pre-mining conditions of the wetlands. Xakwa Coal (Pty) Ltd recognises that all streams, rivers and wetlands should be treated as sensitive landscapes. To this extent, Geovicon Environmental (Pty) Limited, an independent consultant, undertook a desktop study over the proposed Modderfontein Colliery area to determine the presence of sensitive landscapes.

The proposed Modderfontein Colliery area is situated in the Eastern Highveld grassland vegetation type (Gm 12) / ecosystem in the Mesic Highveld Grassland bioregion (South African National Biodiversity Institute – SANBI).

Vegetation unit / ecosystem

This vegetation unit / ecosystem is vulnerable, but is not regarded as a threatened ecosystem, since only endangered and critically endangered ecosystems are deemed as threatened (NEMBA P. 27).

A threatened ecosystem viz. Blesbokspruit Highveld Grassland ecosystem (GP 1) is situated to the south-west of the proposed prospecting right area. It falls in the Gauteng Province. This ecosystem include parts of seven vegetation types including Andesite Mountain Bushveld, Eastern Highveld Grassland, Eastern Temperate Freshwater Wetlands, Gold Reef Mountain Bushveld, Rand Highveld Grassland, Soweto Highveld Grassland and Tsakane Clay Grassland. This ecosystem is critically endangered.

River - National Freshwater Ecosystem Priority Area

The proposed Modderfontein Colliery Right area is not situated in any River - National Freshwater Ecosystem Priority Area but only in a Wetland - National Freshwater Ecosystem Priority Area (NFEPA) (SANBI).

National Wetlands Inventory

According to the National Wetlands Inventory (SANBI), there are Flat wetland areas and Depression wetland areas within, or in close proximity to the proposed Modderfontein Prospecting Right area, falling into the Mesic Highveld Grassland, Group 4, wetland ecosystem type.

The ecosystem threat status assessment indicates the following categories for wetland types in this wetland ecosystem viz. Channelled valley bottom wetlands – Least threatened; Depression wetlands – Endangered; Flats – Endangered; Floodplain wetlands – Endangered; Seep wetlands – Least threatened; Unchannelled valley bottom wetlands – Least threatened; Valleyhead seep wetlands – Critically endangered (Mbona *et. al.* 2015).

Mpumalanga Biodiversity Sector Plan

According to the Mpumalanga Biodiversity Sector Plan GIS-based electronic application (Mpumalanga Tourism and Parks Agency (MTPA), 2013), the proposed Modderfontein Prospecting Right area is primarily situated in terrestrial assessment categories of “Critical Biodiversity areas (CBA) – Optimal”, meaning areas that are optimally located to meet the various biodiversity conservation targets while avoiding high cost areas as much as possible; “Other Natural Areas (ONAs)”, meaning areas that are not identified to meet biodiversity pattern or process targets; “Modified – Old lands” meaning areas which were modified within the last 80 years but were at some point abandoned, including old mines and old cultivated lands, collectively termed “old lands”; and “Heavily Modified”, meaning areas that are currently transformed and where biodiversity and ecological function has been lost to the point that it is not worth considering for conservation at all.

8.11 AIR QUALITY

The proposed Modderfontein Colliery is situated within the Victor Khanye local municipal area. This area is dominated by mining, agricultural practices, industries and residential areas. These activities have the potential to generate particulates that may cause air pollution.

Potential impacts that the proposed project may have on air quality include the generation of dust during the construction and operation phase. Dust generated will be as a result of vehicle movement over cleared surfaces. Potential sensitive receptors associated with this project will be identified and the impacts of the proposed activities over the receptors determined. A suitably qualified air quality specialist will be appointed to undertake the air quality study.

8.12 SITES OF ARCHAEOLOGICAL AND CULTURAL INTEREST

A detailed Heritage Assessment will be conducted and included in the EIR/EMPr Report. The assessment will ensure that any site of archaeological and cultural interest are identified and assessed.

8.13 VISUAL ASPECTS

Regionally the area is characterised by a gentle undulating topography covered by grasslands and cultivated fields. The proposed Modderfontein Colliery is situated adjacent to the N12 freeway, which is the main artery from the Mpumalanga Province to the Gauteng Province. The proposed Modderfontein Colliery mining area bisects the Katboschfontein Road, which is a road mainly used by locals. The above road makes an intersection with another road (unnamed) which leads to the road connecting to nearby townships, farmsteads and plots. As such, the surface related mining activities will be visible from the above-mentioned roads, farmsteads and small holdings around the proposed Modderfontein Colliery.

8.14 REGIONAL SOCIO-ECONOMIC STRUCTURE

Spatial Distribution

The prominent towns and settlements in the Municipality include Delmas, Botleng, Sundra, Eloff and Delpark. The Municipality is located within the border of the metropolitan areas of Tshwane and Ekurhuleni.

The Municipality is currently characterized by an increase in coal mining and related activities, the mining of silica sand is also done at large scale and other important sectors in this area are agriculture, agricultural product processing, industrial and manufacturing.

Demographics

Victor Khanye Local Municipality is estimated to be 84 151 constituting of a total of 9 wards. From the year 1196 to 2001 the growth rate was estimated at 2.1 % which increased to 2.3 % from the year 2011 to 2016 in accordance to the Victor Khanye Local Municipality IDP. According to Stats SA 2016 a total 72106 were recorded to be African, 417 Coloureds, 75 Indians and 11552 Whites. Victor Khanye Local Municipality population has indicated to be the third largest population in Mpumalanga. The main cause of population growth is the development in the mining industry attracting migration to the municipality for potential work prospects.

Economy

The primary node in the Victor Khanye municipal area is Delmas. The dominant part of the remainder of the Municipality is rural in nature. Smaller economic concentrations exist in a few smaller towns,

namely Botleng and Eloff. The urban areas are dominated by residential areas with complimentary services such as business, social facilities etc. Victor Khanye Local Municipality has a relatively divers economy, Agriculture is the largest sector in terms of output as well as proportion, followed by community services and trade. The Municipality is dependent mostly on the neighbouring Ekurhuleni Metro for job opportunities. The local economy is relatively diversified with the largest sector, in terms of output as well as proportional contribution being the trade sector. The sector that indicated growth is the trade sector followed by the agriculture sector and the mining sector. During recent years the total output of the agriculture sector experienced growth significantly while the mining and minerals sector declined. The sectors which experienced expansion in terms of output in the Victor Khanye Municipal area are. Agriculture, Manufacturing, Trade, Transport and Finance.

Employment

Unemployment level has decreased from 28.2 to 21.6 in terms of Global insight figures this reduction is as a result of an increase in investments in the local economy. The employment situation is expected to improve over the medium term with additional jobs expected in the mining sector. The latest statistic reflects that the employment level in the Victor Khanye Local Municipality is currently at 28, 9%. Based on the 2016 definition of Economically Active Population (EAP) of 30,415 the unemployment rate is reflected at 21.6, this represents an overall gain in employment compared to 2011. This figure is high considering the economic activity in the area, which is heavily impacted by the migration influx of job seekers. Leading industries in employment comprise of Trade (18, 7%), Agriculture (18, 2%) and Community Services contributing (14, 3%). However, the former two sectors are experiencing a decline in employment in the last few years whilst Community Services has increased and Mining as an employer has grown and now contributes 12, 7%.

Average Household income

The average household income level in the Victor Khanye Local Municipality areas is reflected as R80 239 per annum, ranking it the 9th in the overall province statistics. The table below indicates the average income per annum of each ward within the local Victor Khanye Municipalities.

Ward	Ward 1	Ward 2	Ward 3	Ward 4	Ward 5	Ward 6	Ward 7	Ward 8	Ward 9
No income	191	290	711	348	256	251	470	182	355
R1-R4800-R4801-R9600	144	159	655	224	234	165	212	87	184
R96012-R19600-R2457 or more	1313	1174	3004	983	1351	1362	2332	1486	2426

Income Levels per ward (Stats SA 2016) income Levels per ward 3.3.4 Education Outcome 1 of the Delivery Agreement requires the improvement of the quality of basic education in general and in Maths and Science in particular. The Victor Khanye Local Municipality has an inherited problem namely that the low-income levels per household in the community correlate to the low education levels in the area. 2016 Survey shows that 25% of the population above 15 years of age has had no schooling or did not complete primary school. Of this number 5,528 are basically illiterate and therefore future meaningful employment prospects are virtually impossible. A further 41% of the population did not complete the schooling curriculum and therefore did not reach the level of matric.

Education

According to Statistics SA 2016, 25% of the population above 15 years of age has had no formal schooling or did not complete primary school. Of this number 5,528 are illiterate and therefore. A further 41% of the population did not complete High school and therefore did not reach the level of matric.

9 DESCRIPTION OF ENVIRONMENTAL ISSUES AND POTENTIAL IMPACTS

This section will only highlight anticipated impacts at the proposed Modderfontein Colliery. Note that impacts discussed in this section are only briefly highlighted. A detailed impact assessment in terms of the above-mentioned evaluation method will be given in the Environmental Impact Assessment and Environmental Management Programme report to be submitted.

9.1 CONSTRUCTION PHASE

During the construction phase, the following activities, which are likely to have a detrimental effect on the environmental, social and cultural aspects will be conducted:

- Construction of mine surface infrastructure (offices, workshops, access/haul roads, and other related mining infrastructure);
- Construction of crushing and screening plant
- Excavation of an initial box-cut;
- Preparation and formation of the topsoil, subsoil and overburden stockpiling areas;
- Preparation of R.O.M. stockpiling area;
- Construction of water management facilities

9.1.1 Geology

Mining of the No 2 coal seam will have an impact on the geological profile. No mitigation measures can prevent the impact on the geological profile, however replacing the disturbed strata will through backfilling will ensure that the significance of the impact is minimised.

9.1.2 Topography

The construction of the mine surface infrastructure, R.O.M. and overburden stockpiles and pollution control dam and the excavation of the initial box cut will form topographical highpoints and topographical voids, which will have an impact on the topography of the proposed mining area. This will change the drainage patterns of the affected areas.

9.1.3 Soils

All construction phase activities will result in the stripping of soil, which will result in the removal of the useable topsoil. The stockpiling of the topsoil may also result in the topsoil being leached out and in the compaction of the topsoil layer, which will affect the fertility of the soil.

Mitigation for the predicted impacts will involve the use of the stripped soil for the rehabilitation of the disturbed area. The rehabilitation should be conducted in accordance with the procedure recommended by a soil specialist.

9.1.4 Land Use

As described above, the area is predominantly used for crop cultivation. All construction phase activities will result in the land use changing from the above-mentioned land uses to the mining land use. Note that the impacts during the construction phase will be limited to the initial box cut and infrastructure areas, hence will be less when compared to the operational phase. The construction

phase may have impacts on the surrounding land uses, which will be determined during the EIA phase.

9.1.5 Land capability

All construction phase activities will result in the reduction of the land capability through disruption of soil profile. The area in question is predominantly used for cultivation. Note also that some of the surrounding areas are already altered due to the existence of defunct opencast and underground mine workings.

9.1.6 Sensitive Landscapes

The proposed project may be sited within or in close proximity to sensitive areas. The siting, construction and operation of the opencast and associated surface infrastructure may result in the damage or even destruction of the wetland system. These may occur via establishment of the opencast and associated infrastructure over wetland systems, contamination of the wetlands with acidified leachate, dirty water spills and silted water from the proposed project area.

Mitigation for the predicted impacts will involve siting the proposed opencast and associated infrastructure away from sensitive environments.

9.1.7 Natural vegetation

The stockpiling of topsoil may result in the covering of the natural vegetation, which will in turn result in the loss of the vegetation. The construction phase activities on virgin ground will result in the removal of the topsoil layer, which will result in removal of vegetation cover. All mining activities will result in the removal of soils, which in turn, will result in loss of vegetation cover.

9.1.8 Animal Life

All construction phase activities will result in the migration of animals away from the proposed mining area. Disruption of the topsoil profile may also lead to loss of animal burrows/microhabitats. Note however that due to the current state of the area and the land uses most of the naturally occurring animals would have already fled the area.

9.1.9 Surface water

The activities undertaken during the construction phase will result in the formation of voids, which will decrease surface water runoff within the mine-affected catchments. Exposure of soils may lead to increased silt loads in surface water runoff. Rainfall captured within the pit will be exposed to carbonaceous material, resulting in elevation of some chemical components of the water. This water may impact negatively on the surface water of streams, if released.

9.1.10 Groundwater

A dewatering cone may develop around the opencast mining areas as groundwater will be flowing towards the said mining areas.

Seepage from the dirty water areas within the proposed project area may enter the groundwater table, resulting in pollution of the surrounding groundwater aquifer.

Mitigation for the predicted impacts will involve the following: ensuring that the management of the clean and dirty water is undertaken in accordance with the requirements of the regulations under GN704 and that monitoring of the groundwater regime is undertaken.

9.1.11 Air Quality

Movement of mining machinery during the construction phase of the proposed project will generate dust and diesel fumes. Dust will be generated by wind blowing over exposed soil, movement of

vehicles and machinery on bare ground. The generated particulates will migrate mostly towards the predominant wind direction. This may eventually land on surrounding properties (vegetation, farming and residential areas). This may have impacts on vegetation including cultivated crops; residents of the mine villages and farmsteads and nearby road users. These impacts would most likely be limited to the local area and will exist for the duration of the proposed project. Based on the possible health effects and nuisance the dust can have on the surrounding residences the impacts may have high significance.

Mitigation measures for the impacts may include dust suppression on areas with high generation of dust and monitoring of particulates from the proposed project site.

9.1.12 Visual Aspects

The mine activities will be visible from the surrounding farms, Kriel and the nearby roads. The visibility of the mine may have visual impacts on the surrounding properties.

9.1.13 Noise

Machine operators in close proximity to mine machinery will be exposed to noise levels in excess of 85 dBA. Noise generated from the site may affect the neighbouring property owners and occupiers.

9.1.14 Social Aspects

Commencement of mining activities may result in the following i.e. Creation of jobs in the Kriel area, Development of mine employees in terms of skills and career development, injection of capital into the local/regional economy, support of the infrastructure development, community development and poverty eradication projects. It must however be noted that the social well-being of the community within and adjacent to the proposed mining area will be affected by the commencement of the mine.

9.1.15 Sites of Archaeological and Cultural Importance

The development of the opencast project might be sited on an area with site of archaeological and cultural importance, which may be affected by the said project. In view of the above and in order to ensure that the identified sites are protected, an archaeologist was appointed to undertake a heritage impact study to determine the most appropriate manner of management of the potentially affected heritage sites. This study will be used in the assessment of impacts on the identified heritage sites.

9.2 OPERATIONAL PHASE

The following activities, which may impact on the health of people and the environment, will occur at the proposed Modderfontein Colliery project during the operational phase:

- Construction of the adit from established opencast pit,
- Systematic removal of the coal seams by means of opencast mining method;
- Crushing and screening of coal
- Stockpiling and transporting of R.O.M material;
- Disposal of mine affected water into the pollution control facilities; and
- Use of the mine surface infrastructure

The activities listed above are likely to have a detrimental effect on the following environmental/social aspects:

9.2.1 Geology

Removal of the targeted coal seam will result in the disturbance of the geological layers overlying the target coal seams. No mitigation can be undertaken for this impact, however replacement of the disturbed strata through backfilling will be undertaken.

9.2.2 Topography

Removal of coal by opencast mining methods and the stockpiling of the R.O.M. coal at the coal stockpile area will result in the formation of voids and highpoints which will impact on the topography at the proposed mining area.

9.2.3 Soils

Removal of the coal layer during the operational phase will require that the top and sub-soil layers, be removed for access to the coal layer. The above, will result in the disturbance of top- and sub-soil layers, which will have an impact on the physical and chemical structure of the soil layers.

9.2.4 Land capability

All operational phase activities will result in the reduction of land capability as a result of disruption of soil profiles. Except for the opencast area to be mined during the operational phase, no areas additional to those identified during the construction phase will be impacted on by the proposed mining operation.

9.2.5 Land Use

As described in the construction phase, the area is predominately used as grazing land. Land-use will change from grazing to land-use for mining.

9.2.6 Natural Vegetation

The systematic removal of the coal material by opencast mining methods will result in the removal of soil layers, which will in turn result in loss of vegetation.

9.2.7 Animal Life

The removal of the coal layer by opencast mining methods may result in the loss of animal burrows/microhabitats due to disruption of the soil profile and stripping of vegetation. This will result in the migration of animals away from the proposed mining area. Note however that the surroundings of the area has been disturbed already by previous mining operations and agricultural activities, hence no significant animal life exist in the area.

9.2.8 Surface water

Removal of coal material by opencast mining methods will result in the formation of a void, which will result in loss of MAR. Runoff from the upslope area may enter the mine workings, giving rise to an increased loss of potential surface water runoff.

9.2.9 Sensitive landscapes

The erosion and/or sedimentation of the seasonal wetland as a result of poor storm water management. This may result in alien vegetation encroachment within the surrounding wetland.

9.2.10 Groundwater

The construction of the mine workings and removal of water from the workings will result in the formation of a dewatering cone. Borehole water levels within a certain radius from the mining area may be affected by the proposed mining operation.

9.2.11 Air Quality

During the operational phase of the proposed mining operation, mine machinery movement may result in air pollution due to dust and diesel fumes generated. These air pollutants will have a tendency to travel towards the prevailing wind direction. Note however that dust and fuel particulates tend to attenuate within a distance of approximately 500 meters. This situation may however differ in situations where wind speed is stronger than usual.

9.2.12 Noise

Noise will be generated from mine machinery, which may be a nuisance to the nearby residents. Noise generated by the mine machinery will however attenuate to allowable levels within approximately one kilometre.

9.2.13 Visual Aspects

All surface activities will be visible from a certain distance from the mine. Dust generated from the mine may be visible from a certain distance from the mine. The potential visual impact sites will include the nearby town Kriel and several farm roads. All potential visual impact sites will be identified and discussed in the EIA report.

9.2.14 Regional Socio-Economic Structure

The commencement of the proposed Modderfontein Colliery will have a positive impact on the socio-economic structure by creating employment both directly and indirectly through the multiplier effect and by uplifting the economic levels of the surrounding areas through the implementation of the local economic development projects (Social and Labour Plan).

9.2.15 Interested and Affected Parties

All interested and affected persons will be identified and consulted during the environmental impact assessment. Through this consultation all concerns will be recorded and measures to address the concerns identified. During the operational phase the mine will continue to apply an open door policy with the public, hence the public will have access to the mine and documentation through relevant channels. Any concerns/complaints raised by any Interested and Affected Party will be considered and suitably addressed in a prompt manner.

9.3 DECOMMISSIONING AND CLOSURE PHASE

The decommissioning and closure phase is taken to begin once all economically exploitable coal reserves have been extracted. This section then attempts to identify all possible impacts that may arise as a result of activities to be conducted during the decommissioning phase.

These include:

- Removal of all mine infrastructures;
- Ripping of all infrastructure areas (concrete slabs, floors and foundations);
- Filling of the final void and final shaping of the rehabilitated adit area;
- Ripping and rehabilitating of all haul roads;
- Seeding of ripped and rehabilitated surfaces.
- Rehabilitation of all R.O.M/product coal stockpiling area
- Rehabilitation of the dirty water management facilities;

The activities listed above are likely to have a detrimental effect on the following environmental/social aspects:

9.3.1 Topography

The removal of infrastructure and filling of voids will re-instate the topography of the area, hence a positive impact will result.

9.3.2 Soils, land capability and use

Removal of the carbonaceous layer from the R.O.M stockpiling area, ripping and rehabilitating of all haul roads and seeding of ripped and rehabilitated surfaces will re-instate the soils, land use and land capability. The above will result in a positive impact.

9.3.3 Natural vegetation

Seeding of ripped and rehabilitated surfaces will re-instate the natural vegetation of the area, hence a positive impact will result.

9.3.4 Animal life

Depending on the final land use, the general rehabilitation of the disturbed areas will see animal life migrating back to the area.

9.3.5 Animal life

Depending on the final land use, the general rehabilitation of the disturbed areas will see animal life migrating back to the area.

9.3.6 Surface water

Rehabilitation and shaping of the disturbed areas and removing of the possible pollution control facilities and diversion trenches/berms will result in the re-establishing of the surface water run-off patterns.

9.3.7 Groundwater

No additional impacts on the groundwater of the study area other than the impacts discussed in the operational phase are expected during the decommissioning phase of the project.

9.3.8 Air Quality

Removal of the carbonaceous layer from the R.O.M stockpiling area, ripping and rehabilitating of all haul roads and seeding of ripped and rehabilitated surfaces will result in the generation of dust. Wind blowing over exposed areas will also result in the generation of dust. In view of this, the generation of dust during the decommissioning phase will impact on the air quality of the area.

9.3.9 Noise

Movement of mining machinery during this phase of mining due to the rehabilitation work being conducted will generate noise. Machine operators and other employees in close proximity to mine machinery will be exposed to noise levels in excess of 85 dBA.

9.3.10 Visual Aspects

All mine surface activities during this phase of mining will be visible from a certain distance from the mine. Dust generated from the mine may be visible from a certain distance from the mine. The potential visual impact sites will include the nearby town (Kriel) and several farm roads.

9.3.11 Interested and Affected Parties

All interested and affected persons would have been identified and consulted during the environmental impact assessment. Through this consultation all concerns will be recorded and measures to address the concerns identified. During the decommissioning phase the mine will continue to apply an open door policy with the public, hence the public will have access to the mine and documentation through relevant channels. Any concerns/complaints raised will be addressed promptly.

9.4 CUMULATIVE IMPACTS

This section of the Environmental Impact Assessment will attempt to determine if the proposed Modderfontein Colliery will contribute towards any cumulative impacts. For the purpose of this document, cumulative impacts will be described as the impacts (including those that has been assessed as being insignificant) that would be significant when combined with the same impact arising from another activity within and around the area of the proposed project.

It must however be mentioned that the assessment of the cumulative impacts is a difficult exercise that requires a combined effort from the different role stakeholders (farmers, mines, industries, individuals etc.) that would contribute to the cumulative impacts identified. Accurate data from the contributing parties will be a key for a thorough and accurate impact assessment.

10 PLAN OF STUDY FOR UNDERTAKING THE ENVIRONMENTAL IMPACT ASSESSMENT PROCESS

10.1 DESCRIPTION OF ALTERNATIVES TO BE CONSIDERED AS PART OF THE ENVIRONMENTAL IMPACT ASSESSMENT

Based on the outcomes of the alternatives measured in the draft Scoping Report (see section 7), no alternatives will be considered as part of the Environmental Impact Assessment.

The option of not proceeding with the proposed Modderfontein Colliery was assessed in this draft Scoping report (see section 5). However, during the EIA phase, consultation with Interested and Affected Parties and studies undertaken will be considered when investigating the option of not proceeding with the proposed project.

10.2 DESCRIPTION OF ASPECTS TO BE ASSESSED BY THE SPECIALISTS AS PART OF THE ENVIRONMENTAL IMPACT ASSESSMENT PROCESS

The following environmental specialist studies that will be assessed and will be included in the EIA.

- Soil Study
- Vegetation Survey
- Faunal Survey
- Hydrological Study
- Geo-hydrological Study
- Heritage Impact Assessment
- Air Quality Impact Assessment
- Wetland Assessment
- Noise Impact Assessment
- Ground vibration and Air blast
- Traffic Impact Assessment
- Visual Impact Assessment
- Socio-economic Impact Assessment

10.3 DESCRIPTION OF THE PROPOSED METHOD OF ASSESSING THE ENVIRONMENTAL ASPECTS

The following prediction and evaluation of impacts is based on the proposed Modderfontein Colliery to be conducted at the proposed development area.

The evaluation distinguishes between significantly adverse and beneficial impacts and allocates significance against national regulations, standards and quality objectives governing:

- Health & Safety;
- Protection of Environmentally Sensitive Areas;

- Land use; and
- Pollution levels.

Irreversible impacts are also identified.

The significance of the impacts is determined through the consideration of the following criteria:

Probability	: likelihood of the impact occurring
Area (Extent)	: the extent over which the impact will be experienced.
Duration	: the period over which the impact will be experienced.
Intensity	: the degree to which the impact affects the health and welfare of humans and the environment (includes the consideration of unknown risks, reversibility of the impact, violation of laws, precedents for future actions and cumulative effects).

The above criteria are expressed for each impact in tabular form according to the following definitions:

Probability (P)	Definition
Low	There is a slight possibility (0 – 30%) that the impact will occur.
Medium	There is a 30 –70% possibility that the impact will occur.
High	The impact is definitely expected to occur (70% +) or is already occurring.
Area/Extent (E)	Definition
Small	0 – 40 ha
Medium	40 – 200 ha
Large	200 + ha
Duration (D)	Definition
Short	0 – 5 years
Medium	6 – 25 years
Long	26 – 100 years or impact cease after operational life of project
Permanent	101 + years
Intensity (I)	Definition
Low	Does not contravene any laws. Is within environmental quality standards, thresholds, targets or objectives. Will not constitute a precedent for future actions. Effects observable and is reversible with time without human intervention. Will not result in the loss of irreplaceable resources or will result in the loss of least concerned resourced. Will have a slight impact on the health and welfare of humans or the environment.
Medium	Does not contravene any laws. Will not constitute a precedent for future actions. Is not within environmental quality standards, thresholds, targets or objectives. Effects observable and is reversible through rehabilitation or human intervention. Will result in the loss of irreplaceable resources (Vulnerable and Near Threatened). Will have a moderate impact on the health and welfare of humans or the environment.
High	Contravene laws. May constitute a precedent for future actions. Is not within environmental quality standards, thresholds, targets or objectives.

Extensive effects – irreversible alteration to the environment.

Will result in the loss of irreplaceable resources (Endangered or critically endangered).

Will have a significant impact on the health and welfare of humans or the environment.

Significance and Risk Category (S)	Definition
Negligible	The impact/risk is insubstantial and does not require management
Low	The impact/risk is of little importance, but requires management
Medium	The impact/risk is important; management is required to reduce negative impacts to acceptable levels
High	The impact/risk is of great importance, negative impacts could render options or the entire project unacceptable if they cannot be reduced or counteracted by significantly positive impacts, and management of these impacts is essential
Positive (No risk identified)	The impact, although having no significant negative impacts, may in fact contribute to environmental or economical health

10.4 STAGES AT WHICH THE COMPETENT AUTHORITY WILL BE CONSULTED

The final Scoping report is submitted to include comments received from I&AP's. On acceptance of the final Scoping Report, a draft EIR/EMP will be compiled. After consultation with I&AP's, including the competent authority, the final EIR/EMP will then be submitted to the competent authority including comments (if any) received from I&AP's.

10.5 PUBLIC PARTICIPATION PROCESS

10.5.1 Interested and Affected Parties

The following have been identified as the Interested and Affected Parties (IAP'S) for the proposed project development:

- Department of Mineral Resources (Mpumalanga Regional Office)
- Department of Water and Sanitation (Mpumalanga Regional Office)
- Department Agriculture, Forestry and Fisheries
- Mpumalanga Tourism and Parks Agency
- Victor Khanye Local Municipality
- Transnet
- Sanral
- Immediately direct and adjacent landowners
- Library
- Eskom
- Ward Councillor

10.5.2 The Consultation Process

During the consultation process, the public will be offered an opportunity to register as I& AP's as well as comment on the draft Scoping Report. Should more parties register their names will be added on to the above-mentioned list.

10.5.3 Advertisements

An advert was placed in the local newspaper (Streek News) in accordance with Regulation 41 of Government Notice No. 326 under section 24 of the National Environmental Management Act, 1998 (Act no. 107 of 1998) informing the public about the availability of the draft scoping report at Middelburg public Library and the opportunity to peruse and comment thereof.

10.5.4 Identification of issues and alternatives

During consultation process issues and alternatives might be raised and will be addressed as required regarding the proposed development activities.

10.5.5 Evaluation of concerns

Concerns will be addressed by relevant specialists including the company's consultant according to their significance as indicated in the impact rating.

10.5.5.1 Strategy to address concerns

Key environmental and social concerns will be evaluated through open communication with the relevant authorities and registered I&AP's who lodged concerns / complaints.

10.5.5.2 Registration & Scoping Phase

- Offer an opportunity to I&AP's to register and simultaneously comment on the Draft Scoping Report.
- Notify I&AP via adverts, posters, email and personal consultation.
- Draft Scoping Report was submitted to I&AP's for comment.
- Final Scoping Report is completed to include comments from registered I&AP's

10.5.5.3 EIA Phase

- Ongoing communication with registered I&AP's
- Draft EIR/EMPr Report will be submitted to registered I&AP's for comment.
- Final EIR/EMPr Report will be completed including comments from I&AP's

10.5.5.4 Integrated Environmental Authorisation Decided On

- Inform registered I&AP's of decision by the competent authority directly in writing, via email or fax and indirectly through advertisement in local newspapers.

10.6 DESCRIPTION OF TASKS THAT WILL BE UNDERTAKEN AS PART OF THE ENVIRONMENTAL IMPACT ASSESSMENT PROCESS

The Modderfontein Colliery mining operation will be developed mainly on agricultural land, which will result in the change of the areas land use. It will be necessary for Xakwa Coal (Pty) Limited to undertake detailed environmental studies.

The key findings of the above-mentioned studies will be discussed and summarised in the (EIR/EMPr). These studies will also be made available as attachments to the EIR.

11 UNDERTAKING

Herewith I, the person whose full names is stated below, confirm that I am the EAP authorised to act as representative of Geovicon Environmental (Pty) Ltd, the company commissioned by the applicant in terms of Regulation 12 of the Environmental Impact Assessment Regulations, 2014 of the National Environmental Management Act, 1998 (Act No. 107 of 1998), and confirm that:

- The above report is compiled with all relevant available information pertaining to the proposed project.
- All relevant stakeholders and Interested and Affected Parties will be consulted and any comments received will be included in the compilation of the final report.
- Any responses provided to Interested and Affected Parties by the EAP will be included in this report.
- The plan of study for the proposed project will be included in this report and will be provided to all Interested and Affected Parties to ensure that they are aware and agree to the plan of study for undertaking the Environmental Impact Assessment.

Full Names and Surname	Mr O. T. Shakwane
Date	06/04/2021

CO-ORDINATES FOR PROSPECTING RIGHT AREA		
DECIMAL DEGREES		
	LATITUDE	LONGITUDE
A	-26.103509	28.53296
B	-26.106079	28.53787
C	-26.118577	28.535575
D	-26.118208	28.534884
E	-26.113967	28.526762
F	-26.124574	28.519947
G	-26.128825	28.528067
D	-26.118208	28.534884
A	-26.103509	28.53296

AREA TO BE EXCLUDED - PTN 19		
DECIMAL DEGREES		
	LATITUDE	LONGITUDE
U	-26.123338	28.526548
V	-26.124196	28.52818
W	-26.126406	28.526754
X	-26.125547	28.525122
U	-26.123338	28.526548

CO-ORDINATES FOR PROSPECTING RIGHT AREA		
DECIMAL DEGREES		
	LATITUDE	LONGITUDE
H	-26.1336125	28.53721777
J	-26.13806625	28.54569392
K	-26.14332975	28.54393661
L	-26.14517075	28.5395053
M	-26.14552722	28.54014062
N	-26.14697352	28.54271869
P	-26.15145085	28.54122142
Q	-26.1489027	28.53395617
R	-26.14796599	28.53128173
S	-26.14447434	28.5213292
T	-26.13925579	28.52896348
H	-26.1336125	28.53721777

AREA TO BE EXCLUDED - PTN 46		
DECIMAL DEGREES		
	LATITUDE	LONGITUDE
L	-26.1451707	28.5395053
M	-26.14552722	28.54014062
Y	-26.1463048	28.5382533
Z	-26.1470639	28.5367854
A1	-26.1474128	28.5362784
B1	-26.1484032	28.535279
C1	-26.148706	28.5347544
Q	-26.1489027	28.53395617
R	-26.14796599	28.53128173
D1	-26.1474126	28.5316557
E1	-26.146979	28.5323701
F1	-26.1467034	28.5333975
G1	-26.1454528	28.5334284
H1	-26.1454755	28.5338018
J1	-26.1466808	28.5337766
K1	-26.1466953	28.5345907
L1	-26.1466306	28.5353788
M1	-26.1464551	28.5361533
N1	-26.1460635	28.5373562
L	-26.1451707	28.5395053

XAKWA COAL (PTY) LTD





APPLICATION FOR A PROSPECTING RIGHT IN TERMS OF SECTION 22

PLAN PREPARED IN ACCORDANCE WITH REGULATION 2(2) OF THE MINERAL & PETROLEUM RESOURCES DEVELOPMENT ACT, 2002 (ACT 28 OF 2002) AS AMENDED

SURVEY SYSTEM WGS84/29
NATIONAL GRID DEGREE SQUARE TOPO SHEETS 2628 BA & 2628AB

SCALE 1 : 20 000

LEGEND

-  Proposed prospecting right areas
-  Secondary roads
-  Excavations
-  Streams
-  Cultivated lands

THE FIGURES LETTERED A, B, C, D, E, F, G, D, A; AND H, J, K, L, M, N, P, Q, R, S, T, H; REPRESENT A PROSPECTING RIGHT AREA IN EXTENT APPROXIMATELY 401,22 HECTARE COMPRISING OF PORTIONS 6, 7, 13 & 16 OF THE FARM MODDERFONTEIN 236 IR; (BUT SUBJECT TO REGULATION 17 OF THE MINE HEALTH AND SAFETY ACT, 1996, EXCLUDING ANY AREA WITHIN 100 METRES OF ANY PUBLIC ROAD, RAILWAY, CEMETARY, RESIDENTIAL AREA OR PUBLIC AREA) SITUATED IN THE MAGISTERIAL DISTRICT OF VICTOR KHANYE, MPUMALANGA, FOR WHICH XAKWA COAL (PTY) LIMITED WITH REG No.2012/193022/07, HAS APPLIED FOR A PROSPECTING RIGHT IN TERMS OF SECTION 22 OF THE MINERAL AND PETROLEUM RESOURCES DEVELOPMENT ACT, 2002 (ACT 28 OF 2002).

APPLICANT: _____ SURVEYOR: _____ REGIONAL MANAGER
DATE: _____ DATE: _____ MPUMALANGA REGION
DATE: _____

DRAWN BY GEOVICON ENVIRONMENTAL (PTY) LTD
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FAX NUMBER: 086 632 4936
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