2019

WATER USE LICENCE APPLICATION FOR THE PROPOSED MINING AT THE EXXARO LEEUWPAN COAL MINE BLOCK OI WEST WITHIN THE JURISDICTION OF VICTOR KHANYE LOCAL MUNICIPALITY IN THE MPUMALANGA PROVINCE

NWA SECTION 27 MOTIVATION

FEBRUARY 2019

NSOVO ENVIRONMENTAL CONSULTING

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PROJECT TITLE:		
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Report:	**Compiled By:**	**Peer Reviewed By:**
Water Use Licence Application: NWA Section 27 Motivation	Masala Mugwagwa	Munyadziwa Rikhotso

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LIST OF ACRONYMS AND ABBREVATIONS

CA	Competent Authority
DWS	Department of Water and Sanitation
EA	Environmental Authorisation
EAP	Environmental Assessment Practitioner
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
I&APs	Interested and Affected Parties
WUL	Water Use License
MPRDA	Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002)
NEMA	National Environmental Management Act
NWA	National Water Act, 1998 (Act 36 of 1998)
PPP	Public Participation Process
ROD	Record of Decision
WULA	Water Use Licence Application

1. INTRODUCTION

Nsovo Environmental Consulting (hereafter referred to as Nsovo) has been appointed by Exxaro Resources Limited (hereafter referred to as Exxaro) to undertake a Water Use Licence Application (WULA) in terms of the National Water Act, 1998 (Act No. 36 of 1998) (NWA) for the water uses associated with the mining activities at the Leeuwpan Coal Mine Block OI West within the Victor Khanye Local Municipality in the Mpumalanga province.

In terms of Section 40 of the NWA, each party proposing water usage as defined in Section 21 of the Act, must apply to the responsible authority for Water Use Authorisation (WUA) before such water use activities can commence. This report aims to provide the Department of Water and Sanitation (DWS) with the necessary information associated with the proposed project in order to seek approval for the proposed water uses in terms of the NWA.

The WULA process is being undertaken with the specific objective to integrate the Leeuwpan Coal Mine's water use activities with environmental protection and socially responsible practices. The undertaking of the WULA will ensure the environmental sustainability and seek for solutions that will minimise the biophysical impacts.

2. PROJECT BACKGROUND

Exxaro Leeuwpan is an operational mine that operates in line with their several approved Environmental Management Plans (EMPs), approved by the Department of Mineral Resources (DMR). As a result of the authorisations issued, Leeuwpan is a lawful mining operation in terms of the Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002) (MPRDA). In an effort to ensure effective and efficient compliance monitoring, Leeuwpan consolidated its EMPs into one EMP on 25 April 2017 and this included mining activities at the new area called Block OI. The approved mining method for Block OI is an opencast and operations were planned to commence on the 3rd quarter of 2018. Further, Leeuwpan obtained an Integrated Water Use License (IWUL) in terms of the NWA for all listed activities proposed for Block OI on the 18th December 2015.

During recent exploration, additional reserves were found in a section to the west of Block OI which contains highly impacted wetlands and a pan. Subsequently, a wetland delineation study was undertaken and it indicated that the Present Ecological State (PES) of the wetland and pan is E (low i.e. the change in ecosystem processes and loss of natural habitat and biota is great but some remaining natural habitat features are still recognizable) and D (moderate i.e. Largely modified - A large change in ecosystem processes and loss of natural habitat and biota has occurred). Further, the approved Water Use Licence (WUL) only authorised the placement of a plant at this specific location which is contrary to the current plan which is mining.

In September 2018, two wetland specialists (Limosella Consulting and Watermakers) were appointed to undertake a Risk Assessment at the proposed Block OI West; both Risk Assessments undertaken yielded a medium score and this owes primarily to the fact that the hydrology of the wetlands affected by mining will be permanently changed. Refer to **Appendices 1** and **2** for Risk Assessment reports.

3. OBJECTIVES OF THE WATER USE APPLICATION

The WULA aims to provide information to the DWS on all water uses associated with the proposed mining at Block OI West. The objectives are as follows:

- To provide a detailed description of the proposed project including, the project location, scope of work and motivation of the water uses in terms of section 27 of NWA in order to ensure that a clear and thorough review process has been undertaken;
- To address all water uses, as defined in Section 21 of the NWA which are associated with the operations;
- To identify all positive and negative impacts on water resources and the identification of sustainable mitigation measures that can be adopted as part of the project;
- Provide master layout plan which clearly indicates the delineated sensitive areas;
- Provision of the storm water management plan, civil design, contingency plan and monitoring programme;
- To address all applicable legislative requirements including motivation in terms of Section 27 of the NWA; and

- Undertake a transparent and inclusive public participation process through proper notification of all Stakeholders, Local and Provincial Governments, Landowners and Interested and Affected Parties (I&APs).

4. DETAILS OF THE APPLICANT, EAP AND SPECIALIST

Table 1 below provides the details of the applicant, EAP undertaking the WULA as well as the relevant specialists providing input:

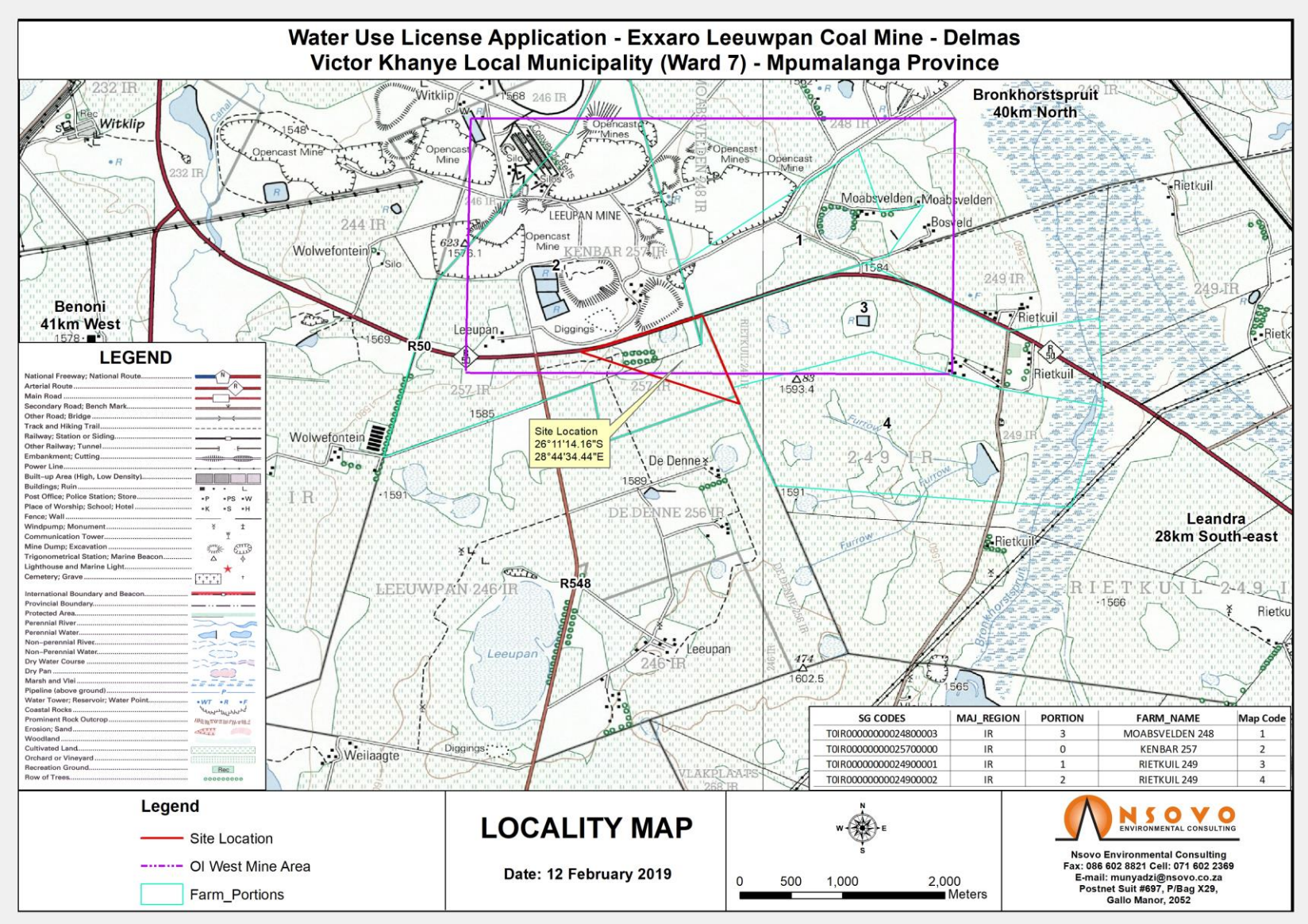
Table 1: Details of the Applicant, EAP and Specialist

Details of the applicant	
Applicant	Exxaro Resources Limited
Contact person	Mangaliso John Sethethi
Telephone number	016 665 7670
Email address	mangaliso.sethethi@exxaro.com
Details of the Environmental Assessment Practitioner	
Name of Company	Nsovo Environmental Consulting
Person Responsible	Masala Mugwagwa
Professional Registration	South African Council for Natural Scientific Professions (SACNASP)
Postal Address	P/Bag x29 Postnet Suite 697 Gallo Manor 2052
Telephone Number	011 041 3689
Fax Number	086 602 8821
Email	masala.mahumela@nsovo.co.za
Qualifications & Experience	• B.Sc. Honours Environmental Management • 10 years of experience
Project Related Expertise	In terms of project related expertise the EAP has undertaken the following projects:

	• WULA for the proposed upgrade of storm water and environmental systems in the Port of Saldanha, Western Cape province • EMPr, WULA and EA amendment for the proposed Juno-Gromis 400kV power line • WULA for the proposed Simmerpan strengthening (Simmerpan MTS) and refurbishment of the Jupiter - Simmerpan 275kV power line • WULA for proposed Firgrove 400/132kV MTS substation upgrade and construction of Palmiet Stikland loop-in and loop-out power line • WULA for the Ekangala Waste Water Treatment Works and the decommissioning of the Ekangala ponds in the Mpumalanga Province
Details of the specialists	
Hydropaedology specialist	
Name of the company	SAS Environmental Group of Companies
Contact person	Braveman Mzila
Contact number	011 616 7893
Fax number	086 724 3132
Email address	brave@sasenvgroup.co.za
Wetland specialist	
Name of the company	Limosella Consulting
Contact person	Rudi Bezuidenhoudt
Mobile number	071 602 2994
Email address	rudi@limosella.co.za

5. LOCALITY OF THE PROPOSED PROJECT

The proposed activity will be undertaken at the Leeuwpan Coal Mine Block OI West located along the R50. The site is located approximately 7km from Delmas Town within the jurisdiction of Victor Khanye Local Municipality in the Mpumalanga Province. In addition, the site falls within Quaternary Catchment B20A Olifants Water Management Area as depicted in Figures 1 below.



SG CODES	MAJ_REGION	PORTION	FARM_NAME	Map Code
T0IR00000000024800003	IR	3	MOABSVELDEN 248	1
T0IR00000000025700000	IR	0	KENBAR 257	2
T0IR00000000024900001	IR	1	RIETKUIL 249	3
T0IR00000000024900002	IR	2	RIETKUIL 249	4

Figure 1: Locality map of the study area

6. SCOPE OF WORK

Exxaro has proposed to mine the coal reserves at Block OI West which is located on the wetlands. The main aim of the proposed project is to undertake WULA to ensure that the proposed mining activities are undertaken within legal requirements as well as best practice. This includes compliance with the environmental legislation such as NWA, NEMA and other relevant legislation. The proposed water uses triggers activities under Section 21 (c) and (i) of NWA and subsequently a WULA is required for mining in the wetlands.

7. IDENTIFICATION OF THE MAIN ASPECTS OF THE PROPOSED ACTIVITY

This section identifies the main aspects associated with the proposed activities within the Block OI West.

7.1 WATER

It is expected that water will be required for mining activities as well as for mine workers. The water to be used at the mine will be from pit dewatering and drinking water will be from the borehole.

7.2 LABOUR

The proposed development forms part of an already existing operation at Leeuwpan mine and authorisation of mining at Block OI West will extend the life of the mine by approximately 2 years. Subsequently, this will ensure job security for a longer period for contractors, both skilled and unskilled labour.

8. APPLICABLE LEGISLATION AND GUIDELINES

This section provides a list of the current South African environmental legislations which are considered pertinent to the proposed development, as indicated in Table 2 below. In accordance with the requirements of the South African legislation, the main environmental legislation which governs the WULA process is the NWA. The DWS is responsible for the equitable allocation and use of the scarce and unevenly distributed water resources of the nation. The proposed project will ensure compliance with the associated regulations of the Republic of South Africa.

Table 2: Regulation and policies associated with the proposed activity

Legislation, policy or guideline:	Administering authority:	Date:
National Water Act, 1998 (Act 107 of 1998)	National Government	1998
Republic of South Africa – Constitution, 1996 (Act 108 of 1996)	National and Provincial Government	1996
National Environmental Management Act, 1998 (Act 107 of 1998 (as amended)	National and Provincial Government	1998
National Environmental Management: Waste Act, 2008 (Act 59 of 2008) as amended.	National Government	2008
National Heritage Resources Act, 1999 (Act No. 25 of 1999)	National Government	1999

9. WATER USE IN TERMS OF SECTION 21

Following the assessment of study area maps, profile documents and site visits undertaken by Nsovo, Exxaro, DWS officials and specialists (Hydropaedology and wetland) between September and December 2018, it was established that the proposed development triggers listed water use activities, thus the requirement of a WUL. Water uses for which authorisation must be obtained is presented in Table 3 below.

Table 3: Applicable water use activities

Applicable water use in terms S21 of NWA	Description of the water use activity
Section 21 (c) - *Impeding or diverting the flow of water in a watercourse.*	The proposed development entails mining of Block OI West which is located on a site characterized that are classified as two pan wetlands surrounded by a hillslope seepage wetland. The proposed mining activities may result in the impeding or diverting the flow of water in the wetlands.

Applicable water use in terms S21 of NWA	Description of the water use activity
Section 21 (i) - *Altering the bed, banks, course or characteristics of a watercourse.*	The proposed development entails mining of Block OI West which is located on a site characterized by two wetlands, one pan wetland and one hillslope seepage wetland. The proposed mining activities may result in the altering of the course or characteristics of the wetlands.

10. DESCRIPTION OF THE RECEIVING ENVIRONMENT

This section provides the description of the environment around and within the proposed location where the activities will be undertaken as follows:

10.1 CLIMATIC CONDITION OF THE STUDY AREA

The climate within the Leeuwpan vicinity is classified as a temperate climate (dry winters and warm summers) with most rainfall occurring during summer. It receives the lowest rainfall (almost nothing) in July and the highest rainfall in January. The average mid-day temperatures for Delmas range from 17°C in June to 26°C in January. The region is the coldest during July, dropping to 0.8°C on average during the night. The rainfall station used to describe rainfall conditions on site was the South African Weather Service (SAWS) Delmas rain station (477309) which has rain data from 1907 to 1999. The station has a Mean Annual Precipitation (MAP) of 681mm.

10.2 LAND USE

The proposed Block OI West site was previously used for agricultural purposes but these have ceased. Further, it is immediately surrounded by active cultivated lands, however, other mining activities are being undertaken within approximately 20km radius from the site.

10.3 PRESENCE OF SENSITIVE AREAS

The total area classified as wetland covers 1 382 hectares, which makes up roughly 32.5% of the study area. Approximately 820 hectares of the site has already been disturbed by surface mining activities, suggesting that the wetland extent on site was likely significantly more prior to the onset of mining activities (WCS, 2012). Three wetlands are located on the proposed area for expansion and these wetlands are classified as two pan wetlands and one hillslope seepage wetland surrounding the pans. Refer to Figure 2 below which indicates wetlands delineations based on the original delineations by WCS in 2012.

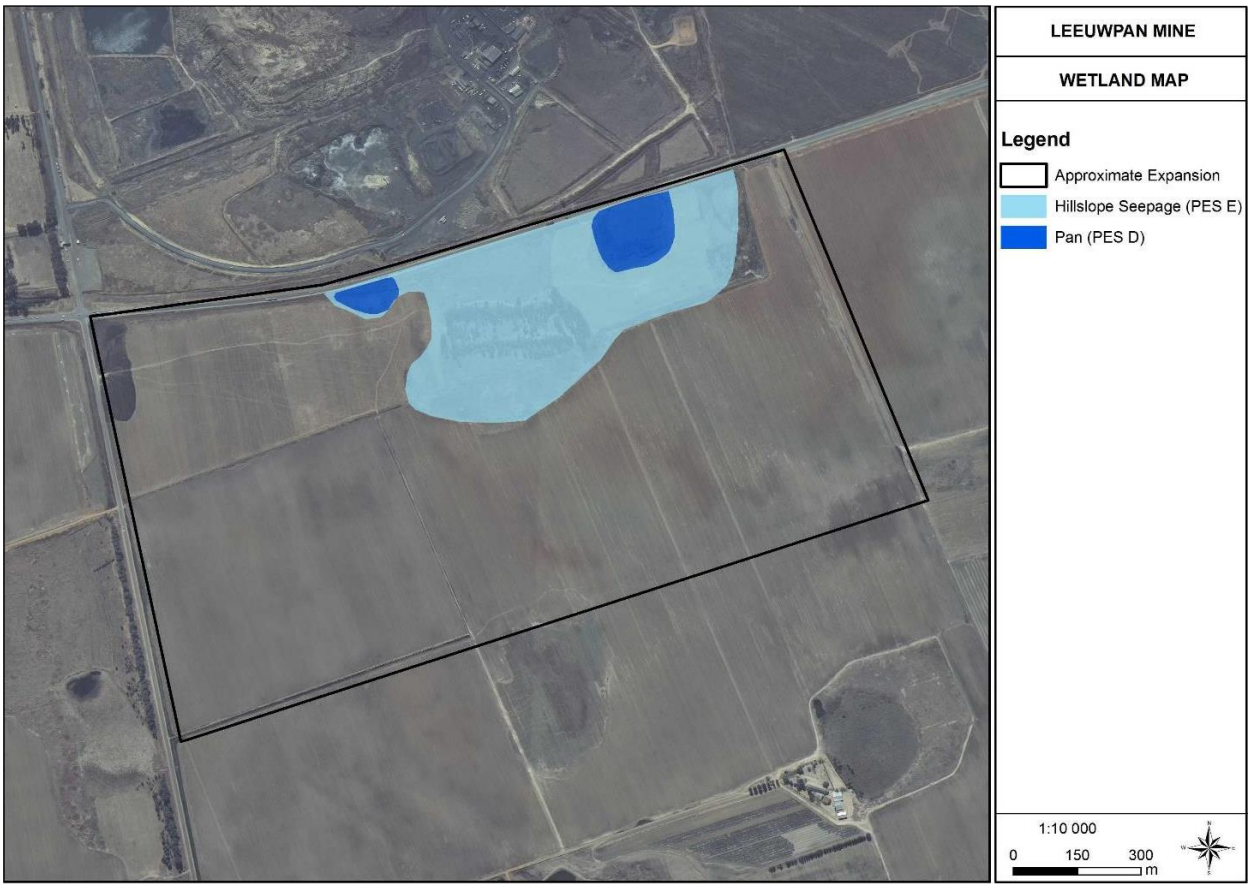


Figure 2: Wetlands located within Block OI West.

Ninety percent (90%) of the site is covered by heavily to moderately modified areas while 10% is covered by other natural areas, further, East Highveld Grassland covers 40 – 45% of the site. Figure 3 below indicates that there is no Critical Biodiversity Area (CBA), Ecological Support Area (ESA) or Conservation/Protected Areas located within the proposed site.

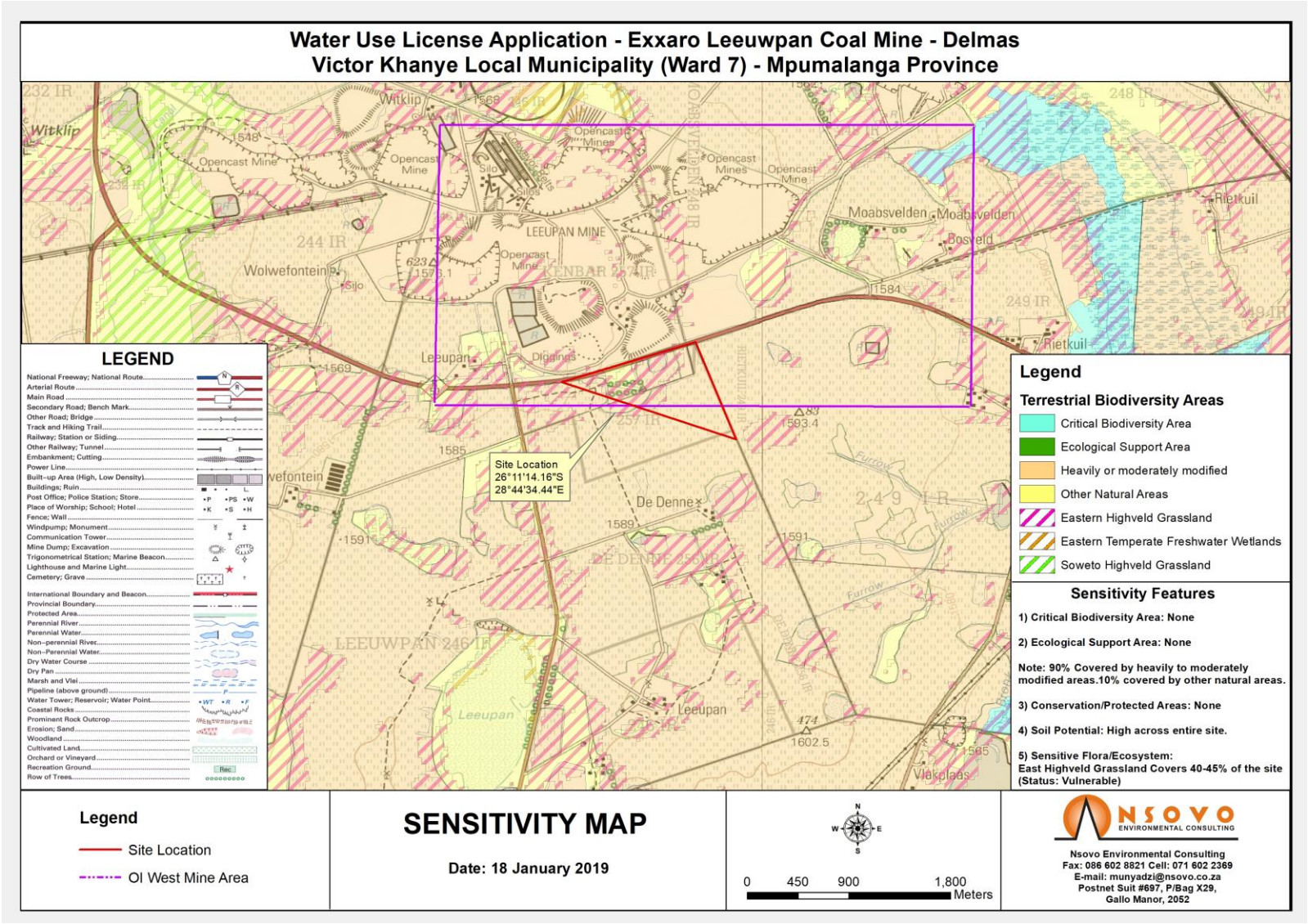


Figure 3: Sensitivity features around and within the site.

10.4 TOPOGRAPHY

Block OI West is characterized by a generally flat topography.

10.5 GEOLOGY SETTING

The underlying geology comprises sedimentary rocks of the Karoo Supergroup (including sandstone, shale, coal, and tillite), which overlies the chert and dolomites of the Transvaal Supergroup. Dolerite intrusions (dykes and sills) of late Karoo age are widespread within the project area (Golder, 2018).

10.6 HYDROLOGY

The Block OI West is situated within the Upper Olifants River Catchment (Quaternary Catchment B20A). The main river in the sub-catchment is the Bronkhorstspruit River and associated tributary flowing on the eastern side of the site and western side of the mine respectively. The confluence of the two is approximately 8 kilometres north of the mine before it enters the Bronkhorstspruit Dam (Golder, 2018). Two wetlands, one pan wetland and one hillslope seepage wetland are located on Block OI West (Limosella, 2018) as shown in Figure 4 below.

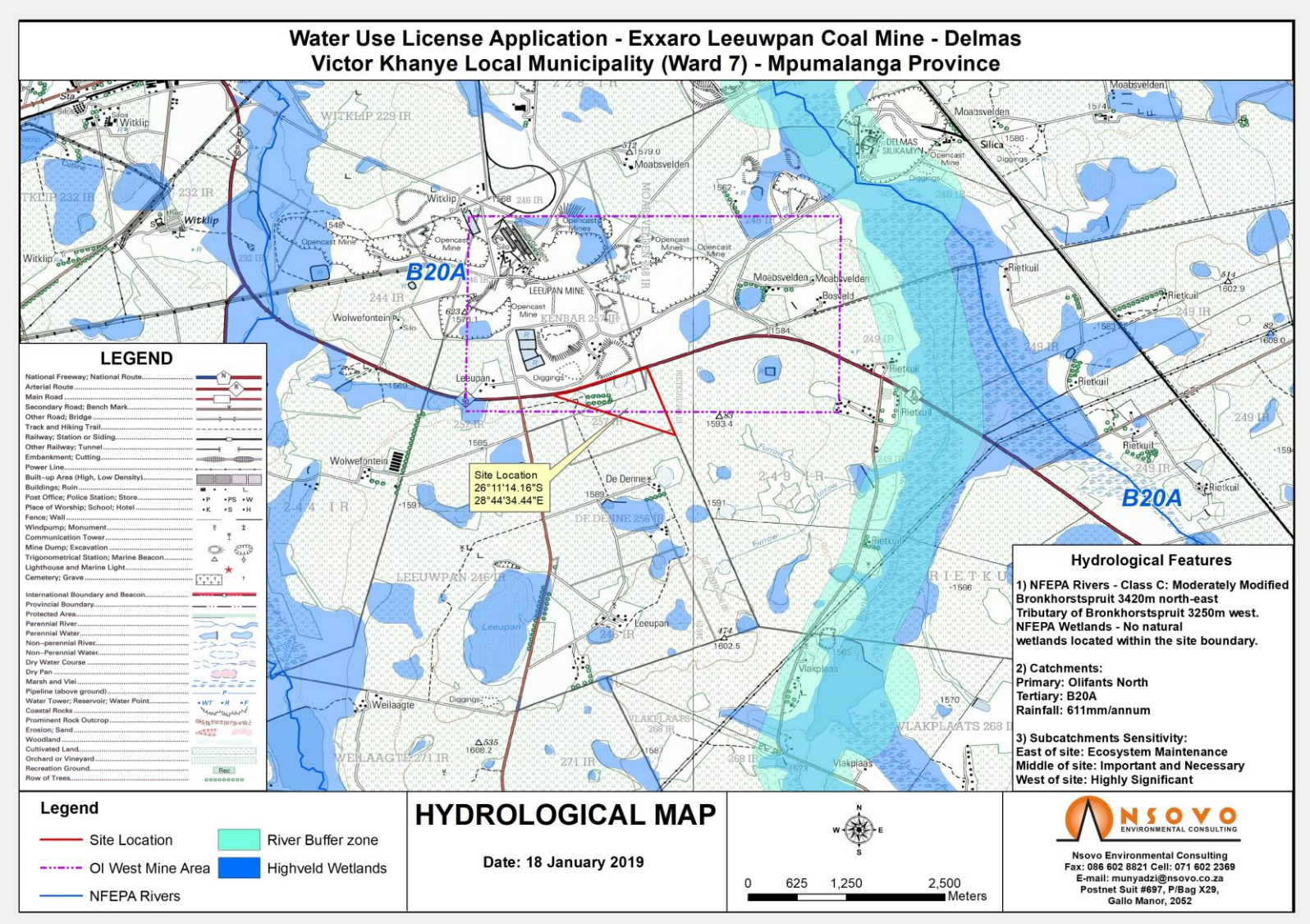


Figure 4: Hydrology Map of the study area.

10.7 NOISE IMPACT

As indicated above, the Block OI West forms part of the already operational Leeuwpan mine; therefore, the proposed site is already exposed to the noise impacts resulting from other mining activities at other locations within the mine as well as the old and new R50 roads which straddle Block OI West. The noise on site is generated by mining activities, vehicles moving on the R50 roads, blasting activities, heavy machinery etc.).

11. INDENTIFIED ENVIRONMENTAL IMPACTS

Due to the nature of the proposed development, it is anticipated that the proposed activities will have various impacts ranging from medium to high. Further, the impacts associated with abovementioned activities are presented and rated in Table 5 and 6 below. The primary impacts associated with the proposed water uses have been assessed and ranked based on the impact assessment methodology described in the Table 4 below.

Table 4: Impact assessment criteria

Status of Impact The impacts are assessed as either having a: Negative effect (i.e. at a `cost' to the environment), Positive effect (i.e. a `benefit' to the environment), or Neutral effect on the environment. **Extent of the Impact** (**1**) Site (site only), (**2**) Local (site boundary and immediate surrounds), (**3**) Regional,
(**4**) National, or (**5**) International. **Duration of the Impact** The length that the impact will last for is described as either: (**1**) Immediate (<1 year) (**2**) Short term (1-5 years), (**3**) Medium term (5-15 years), (**4**) Long term (ceases after the operational life span of the project), (**5**) Permanent.

Magnitude of the Impact
The intensity or severity of the impacts is indicated as either:
(**0**) none,
(**2**) Minor,
(**4**) Low,
(**6**) Moderate (environmental functions altered but continue),
(**8**) High (environmental functions temporarily cease), or
(**10**) Very high / unsure (environmental functions permanently cease).

Probability of Occurrence
The likelihood of the impact actually occurring is indicated as either:
(**0**) None (the impact will not occur),
(**1**) Improbable (probability very low due to design or experience)
(**2**) Low probability (unlikely to occur),
(**3**) Medium probability (distinct probability that the impact will occur),
(**4**) High probability (most likely to occur), or
(5) Definite.

Significance of the Impact
Based on the information contained in the points above, the potential impacts are assigned a significance rating (**S**). This rating is formulated by adding the sum of the numbers assigned to extent (**E**), duration (**D**) and magnitude (**M**) and multiplying this sum by the probability (**P**) of the impact.
S= (E+D+M) P

The significance ratings are given below
(**<30**) low (i.e. where this impact would not have a direct influence on the decision to develop in the area), (**30-60**) medium (i.e. where the impact could influence the decision to develop in the area unless it is effectively mitigated), (**>60**) high (i.e. where the impact must have an influence on the decision process to develop in the area).

Potential environmental impacts identified for the proposed development are described in Table 5 below**.**

Table 5: Hydropaedology Impact Assessment Ratings

Nature of Impact	Corrective measures	Impact rating criteria					Significance
		Nature	Extent	Duration	Magnitude	Probability	
Hydropaedology Impacts Assessment							
The Hydropaedology impact assessment was conducted within the proposed study area and the impacts during construction phase were rated high and medium with and without mitigation measures respectively. The impacts during operational phase were rated high with and without mitigation measures because the impacts during operational phase entails the completely loss of wetlands situated within the proposed footprint of the opencast mining area. The recommendations during the closure and rehabilitation phase were made for this proposed project.							
Construction phase							
Impacts during site preparations prior to commencement of open cast mining.	No	Negative	Local (2)	Short term (2)	Very high (10)	Definite (5)	**High (70)**
	Yes	Negative	Local (2)	Immediate (1)	High (8)	High probability (4)	**Medium (44)**
Removal of topsoil material within wetlands and associated wetland recharge soil.	No	Negative	Site (1)	Short term (2)	Very high (10)	Definite (5)	**High (65)**
	Yes	Negative	Site (1)	Short term (2)	High (8)	High probability (4)	**Medium (44)**
Mitigation measures							

Nature of Impact	Corrective measures	Impact rating criteria					Significance
		Nature	Extent	Duration	Magnitude	Probability	
• All development must take place within the proposed footprint; • Vegetation clearing must be undertaken within proposed footprint and Indigenous vegetation must be preserved as much as possible; • Exposed soils must be protected by means of a suitable covering; • It should be feasible to utilise existing roads to gain access to site, and • Crossing the wetlands in areas where no existing crossing is deceptive should be unnecessary, however, if the crossings of wetlands is necessary, it must be made at right angles.							
Operational phase							
Blasting and ore extraction from the open cast mining block area resulting in complete loss of wetland located within the proposed open cast mining footprint.	No	Negative	National (4)	Permanent (5)	Very high (10)	Definite (5)	**High (95)**
	Yes	Negative	National (4)	Long term (4)	Very high (10)	High probability (4)	**High (72)**
Mitigation measures							
• Mining within the wetlands and associated wetland recharge soils should be strongly reconsidered.							
Closure and rehabilitation							

Nature of Impact	Corrective measures	Impact rating criteria					Significance
		Nature	Extent	Duration	Magnitude	Probability	
Backfilling of the opencast pit area using overburden from overburden stockpiles.	Yes	Positive	Site (1)	Immediate (1)	Minor (1)	Minor (1)	**Low (3)**
Mitigation measures							
• Should the proposed activities be authorised, concurrent rehabilitation is strongly recommended to ensure that the duration that any pit or extent thereof is left un-rehabilitated is minimised; • Restrict the amount of mechanical handling of soils, as each excision increases the compaction level; • A very well designed, managed and executed topsoil (separate from soft overburden) management program is highly recommended where separate stripping, stockpiling and replacing of soil horizons [A (0-30 cm) and B (30-60 cm)] in the original natural sequence to combat hard setting and compaction is ensured; • Separate stockpiling of different soils such that soils which are regarded as important for wetland recharge (i.e. Longlands, Wasbank and Glencoe) are separated from ground water recharge soils (i.e. Hutton); • Stockpile height should be restricted to that which can deposited without additional traversing by machinery; and • A maximum height of 2-3 m is therefore proposed, and the stockpile should be treated with temporary soil stabilisation methods.							

Table 6: Wetland Impact Assessment Ratings

Nature of Impact	Corrective measures	Impact rating criteria					Significance
		Nature	Extent	Duration	Magnitude	Probability	
Wetland Impacts Assessment							
The wetland impact assessment was conducted within the proposed study area and the impacts during construction phase were rated high and medium with and without mitigation measures respectively. The impacts during operational phase were rated high with and without mitigation measures because the impacts during operational phase entails the entirely loss of wetlands situated within the proposed footprint of the opencast mining area.							
Construction phase							
Impacts during site preparations – permanent loss of wetland habitat, vegetation clearance, compaction of soil, sedimentation, pollution and alien invasive plant establishment.	No	Negative	Local (2)	Long term (4)	Very high (10)	High probability (4)	**High (64)**
	Yes	Negative	Local (1)	Immediate (1)	High (8)	High probability (4)	**Medium (40)**
Mitigation measures							

Nature of Impact	Corrective measures	Impact rating criteria					Significance
		Nature	Extent	Duration	Magnitude	Probability	
• The proposed excavations and infilling should be signed off by a hydropedologist; • This is to advice on the impact of moisture displacement that the proposed activities may have on the sustainability of infrastructure development and the infrastructure; and • Development should include measures to ensure that the flow paths and storage mechanisms in the soil should be disturbed as little as possible to sustain hydrological and biogeochemical connectivity.							
Operational phase							
Impacts during operation of opencast mining: permanent loss of wetland habitat, hydrological connectivity in the landscape compaction of soil, sedimentation, pollution and alien invasive plant due to day to day operation of the mine.	No	Negative	National (4)	Permanent (5)	Very high (10)	Definite (5)	**High (95)**
	Yes	Negative	National (4)	Long term (4)	Very high (10)	High probability (4)	**High (72)**
Mitigation measures							

Nature of Impact	Corrective measures	Impact rating criteria					Significance
		Nature	Extent	Duration	Magnitude	Probability	
• Particular note should be taken of the soil characteristics including their erodibility and recharger properties; • Control of alien invasive plants should form part of the maintenance plan; • The likelihood of re-establishment of wetland function after mining through rehabilitation should be investigated in a multi-disciplinary team and should be based on relevant case studies where this has been achieved in the past; and • A wetland offset strategy should be formulated.							

Table 7: The overall impacts associated with the proposed project

Nature of impact	Corrective measures	Impact rating criteria					Significance
		Nature	Extent	Duration	Magnitude	Probability	
Employment Creation							
The planning and design of the proposed development requires input from various individuals, resulting in the employment opportunities for such persons. This additional employment include both direct (e.g. Environmental Consultants, Engineers, Project Managers, Planners, mine labours etc.) and indirect (e.g. reviewing and commenting authorities such as the local authority planning authorities and the environmental authorities). The extent and magnitude of this impact is relatively high as it will affect many skilled and unskilled labourers.							
Employment Creation	No	Positive	3	2	8	4	52 Medium
Mitigation measures							
• No mitigation measures have been identified.							

Nature of Impacts	Corrective Measures	Impact Rating Criteria					Significance
		Nature	Extent	Duration	Magnitude	Probability	
Soils and Erosion							
The loss of topsoil in South Africa is a national concern and thus erosion control should be taken seriously. Ineffective storm water management systems can result in soil erosion. where soils are highly erodible, adequate measures must be implemented to prevent undue soil erosion. Extensive soil erosion is not expected during the site preparation, however, it is anticipated that occurrence of such might occur during wet seasons especially on the stockpiles.							
Soils and Erosion	No	Negative	2	2	4	3	24 Low
	Yes	Negative	1	1	2	1	4 Low
Mitigation measures							
• Topsoil should be removed and properly stored at an area where it will not be infested with weeds or exposed to compaction. • Topsoil stockpiles should be piled up to 2m or less. • In the event of significant erosion occurring, adequate corrective measures must be implemented to prevent any further soil loss. • Proper, adequate storm water management measures must be put in place.							

Issue	Corrective Measures	Impact Rating Criteria					Significance
		Nature	Extent	Duration	Magnitude	Probability	
Impact on Traffic							
Access to site will be via the R50, it is therefore expected that traffic will be negatively impacted as the volume of traffic will increase. Without proper management, such increased traffic loads may negatively impact existing traffic flow. Further, unmanaged mine vehicles may decrease road safety for other road users. This impact is rated as 'Medium' without mitigation and is reduced to 'Low' by implementing the mitigation measures.							

Traffic	No	Negative	2	2	6	5	50 Medium
	Yes	Negative	2	2	4	3	24 Low
Mitigation measures							
• Access roads must be clearly marked; • Transportation of commodities must comply with all traffic laws and bylaws.							

Issue	Corrective Measures	Impact Rating Criteria					Significance
		Nature	Extent	Duration	Magnitude	Probability	
Air pollution							
Preparation of site and the undertaking of mining activities will lead to land clearing and disturbance of the soil resulting in dust generation. During site preparation and mining activities, movement of vehicles and equipment will present temporary but important sources of respirable particulates and dust deposition. Given the nature and magnitude of the proposed project it is anticipated that considerable dust quantities will be generated from the mine activities. The potential impact on air quality will be short term and can be controlled. Proper implementation of recommended corrective measures will reduce the impact to Low significance.							
Air Pollution	No	Negative	2	2	8	5	60 Medium
	Yes	Negative	2	2	4	3	24 Low
Mitigation measures							

- Unnecessary clearing of vegetation must be avoided.
- All exposed surfaces subjected to dust generation must be managed with appropriate dust suppression methods including spraying of water, etc.
- Vehicles travelling on the site should not be allowed to exceed recommended speed limit.
- Unnecessarily exposed surfaces should be rehabilitated as the mining activities are in progress.

Issue	Corrective Measures	Impact Rating Criteria					Significance
		Nature	Extent	Duration	Magnitude	Probability	
Waste generation							
During the site preparation and operational phases of the mining activities there will be a variety of waste material generated within the site. In order to reduce this, all types of waste generated must be collected and disposed of appropriately. All reasonable measures must be implemented to ensure there is no littering and that waste is adequately managed. This impact is rated as 'Medium' without mitigation and is reduced to 'Low' by implementing the mitigation measures.							
Waste Generation and Management	No	Negative	2	2	8	5	60 Medium
	Yes	Negative	1	2	4	3	21 Low
Mitigation measures							

- Staff must be regularly trained regarding proper management of waste i.e. suitable handling and disposal protocols must be clearly explained and sign boarded. The 'reduce, reuse, recycle' policy must be implemented.
- No waste will be buried on site.
- The work force must be encouraged to sort waste into recyclable and non-recyclable waste.
- No burning of waste will be allowed on site.
- Waste must be regularly removed from site and disposed of at a registered waste disposal facility.

Issue	Corrective Measures	Impact Rating Criteria					Significance
		Nature	Extent	Duration	Magnitude	Probability	
Fauna							
• Increased levels of noise, pollution, disturbance and human presence during mining will be detrimental to fauna utilising the site. • Sensitive and shy fauna would move away from the area during the mining activities as a result of the noise and human activities present, however, some slow-moving species may not be able to avoid the mining activities and might be killed. • Some mammals and reptiles would also be vulnerable to illegal collection or poaching.							
Habitat Destruction and Alternation During Construction.	No	Negative	2	2	8	4	48 Medium
	Yes	Negative	2	2	4	3	24 Low
Mitigation measures							

- Any active faunal burrows within the development footprint should be located and marked before commencement of mining activities and avoided until the occupant animals can be excluded or have moved away from site.
- Any fauna threatened by construction activities should be removed to safety by the Environmental Officer or other suitably qualified person.
- Existing roads and access routes must be used wherever possible.
- During mining activities, all vehicles must adhere to demarcated tracks or roads and the speed limit must not be exceeded.
- Where necessary, dust suppression should be done to reduce dust impacts on surrounding areas.
- All spills of hazardous material should be cleared in an appropriate manner according to the nature and identity of the spill and all contaminated soil removed from the site and disposed of at a suitable registered waste disposal site.

Issue	Corrective Measures	Impact Rating Criteria					Significance
		Nature	Extent	Duration	Magnitude	Probability	
Heritage							
The proposed Block OI West was previously used for farming activities. It is not expected that any graves or heritage artefacts exist on this site due to historical activities that took place.							
Impact on Heritage Artefacts.	No	Negative	2	2	4	4	32 Medium
	Yes	Negative	2	2	2	2	18 Low
Mitigation measures							

- Should the heritage or archaeological artefacts be discovered during mining activities, all works must be stopped at the affected area and the South African Heritage Resources Agency must be contacted.
- No mining activities should be undertaken outside designated area.
- A heritage-monitoring program must be designed to deal with potential chance finds.

Issue	Corrective Measures	Impact Rating Criteria					Significance
		Nature	Extent	Duration	Magnitude	Probability	
Noise pollution							
In South Africa, the assessment of noise levels in the environment is governed by the South African Bureau of Standards (SABS) noise standard 0103 – 'The measurement and rating of environmental noise with respect to annoyance and to speech communication' (SABS 1994). Additional SABS standards cover the measurement of noise over different distances from the source (SABS 0357 – 'The calculation of sound propagation by the Concave method'), and standards for different sectors (e.g. industry). As indicated above, the nearest community is located approximately 7km away from site, further, the Block OI West forms part of the already operational Leeuwpan mine therefore, the proposed site is already exposed to the noise impacts resulting from other mining activities at other locations within the mine as well as the old and new R50 roads which straddle Block OI West. The noise on site is generated by mining activities, vehicles moving on the R50 roads, blasting activities, heavy machinery etc.).							
Noise Pollution	No	Negative	2	2	6	5	50 Medium
	Yes	Negative	2	2	4	3	24 Low
Mitigation measures							

- Mobile equipment, vehicles and power generation equipment should be subject to noise tests which are measured against manufacturer specifications to confirm compliance before deployment on site.
- Noise emissions from mobile and fixed equipment should be subject to periodic checks as part of regular maintenance programmes to allow for detection of any unacceptable increases in noise.
- Noise levels should conform to the bylaws.

Issue	Corrective Measures	Impact Rating Criteria					Significance
		Nature	Extent	Duration	Magnitude	Probability	
Hazardous substances							
The risk of spillage of a variety of hazardous substances may occur during the use of mining equipment and vehicles. For example, spillage may occur as a result of fuel leaks, refueling, or collision. Hydrocarbons are hazardous and precautions must be taken to prevent them from contaminating the environment. This impact can be mitigated successfully if the contractor implements a rigorous environmental management and control plan to limit spillages.							
Fire Hazards	No	Negative	2	2	8	4	48 Medium
	Yes	Negative	2	2	4	3	24 Low
Mitigation measures							

- All fuel and oil must be stored with adequate spill protection and no leaking vehicles should be permitted on site.
- Drip trays must be placed under stationery mining vehicles and equipment.
- Maintain high safety standards and employ “good housekeeping” practise that incorporate plans for emergencies.
- Accidental diesel and hydrocarbon spills must be immediately cleaned up and disposed of at appropriate registered waste disposal sites accordingly.

The anticipated impacts and their mitigation measures pertaining to hydropedology, ecology and wetland will be included in the Hydropedology and Wetland Reports which will also be submitted to DWS.

12. PUBLIC PARTICIPATION PROCESS

12.1 COMPETENT AUTHORITY CONSULTATION

Three consultation meetings have been held with the DWS as follows:

Date	Attendees	Purpose
15 November 2018	Nsovo, Exxaro and DWS Regional (Bronkhorstspruit) office staff	Pre-consultation and presentation of the findings of the Risk Assessment.
29 November 2018	Nsovo, Exxaro and DWS National (Bothongo office) staff	Pre-consultation and presentation of the findings of the Risk Assessment.
06 December 2018	Nsovo, Exxaro and DWS	Site visit

Minutes of the meetings have been distributed to all the stakeholders as well as uploaded on the Electronic Water Use Licence Application and Authorisation System (EWULAAS), further, DWS has indicated that "*this is a clear cut WULA and the region must now start the WULA process as per business process*".

13. PUBLIC CONSULTATION

A Public Participation Process (PPP) will be undertaken as part of this process and will be in accordance with the 2014 EIA Regulations (as amended) as well as the provisions of the NWA Regulations. The relevant governmental organizations, non-government organizations, and other Interested and Affected Parties (I&AP's) will be informed of the project and afforded the opportunity to comment on the proposed project within 60 days. Advertisement will be placed on the newspapers in both IsiZulu and English languages.

14. SECTION 27: MOTIVATION FOR GRANTING LICENSE

This section must be read in conjunction with the attached motivation for mining of Block OI West as well as the Offset Plan to be submitted to the DWS.

Exxaro is one of the leading coal mining companies in South Africa. The company contributes to the country's economy through generation of income from the mining and distribution of coal thus creating employment opportunities within the country. Subsequently, Exxaro proposes to undertake the WULA for the mining of Block OI West which is located within areas characterized by wetlands.

This WULA will ensure compliance with the environmental legislation and embraced by the mine as a valuable tool to help manage water resources and make mining operations more cost-efficient. Obtaining of the WUL for the proposed water use activities will integrate the Exxaro activities with environmental protection and socially responsible practices. This WUL will ensure environmental sustainability, seek for solutions that will minimise the biophysical impacts and comply with the environmental legislation, principles and standards. Further, it will result in effective operations of the Exxaro activities, hence, contributing more to the country's economy.

It is Exxaro' s intention to avoid causing any irreversible impacts on the watercourses identified at the site by identifying positive and negative impacts on water resources as well as providing sustainable mitigation measures. In order for Exxaro mining activities to commence at Block OI West, the proposed water uses must be authorized and licensed by the DWS.

14.1 SECTION 27(A) – EXISTING LAWFUL WATER USES

An existing lawful water use is a water use which has taken place any time during a period of two years immediately before the date of the commencement of the NWA. This allows any water use that lawfully took place to continue until such time as it can be converted into a license. Therefore, no existing lawful uses exist or were previously authorized or implemented for the project under any water/environmental related legislation.

14.2 SECTION 27(B) – THE NEED TO REDRESS THE RESULTS OF PAST RACIAL AND GENDER DISCRIMINATION

The proposed project will subscribe to Exxaro' s socio economic objectives and demonstrate exemplary corporate citizenship and harmony with society through continued focus on affirmative action and actively promoting women and disability equity. Further, Exxaro continues to adhere to the BBBEE requirements by awarding contracts to black, women and youth owned emerging companies. Key performance indicators of Exxaro to redress the results of past and gender discrimination are indicated as follows:

Key performance indicators are:

- Black management professional and supervisory staff;

- Women management professional and supervisory staff;
- People with disabilities;
- Procurement expenditure and supply of services, both capital and operating for Black Economic Empowerment and Women Empowerment.

14.3 SECTION 27(C) – EFFICIENT AND BENEFICIAL USE OF WATER IN THE PUBLIC INTEREST

The primary goals of the project are to ensure that the high quality coal reserves identified at Block OI West are mined and distributed. As indicated above, this will result in the extension of the life of the Leeuwpan Mine with about two years. Consequently, this will ensure job security for many skilled and unskilled workers and improved livelihood within communities.

When undertaking the proposed activities, the mine will ensure that any other disturbance to the water resources are avoided, minimized or reduced. The mitigation measures recommended by the specialists and conditions in the Environmental Management Programme (EMPr) will be implemented to ensure environmental protection, sustainability and management. Exxaro will provide information to the surrounding landowners as and when requested. Further, an open door policy will be maintained for dealing with any complaints and/or issues.

14.4 SECTION 27 (D) – THE SOCIO-ECONOMIC IMPACT

(i) Socio-economic impact of the water use if authorised

In order to ensure the environmental compliance, efficient and effective operation, Exxaro proposes to undertake WULA for water uses in terms of section 21 (c) and (i) of NWA. The proposed activity will ensure the following:

- Extended job security during the additional 2 years of mining of the Block OI West.;
- Increased amount of coal to be supplied to various companies which will in turn will generate more income;
- The project will aid economic growth which will in turn benefit the locals, society and the country of South Africa as a whole; and
- Necessary equipment and working material and labour will be sourced locally as far as possible.

(ii) Socio-economic impact of the failure to authorise the water use

If the proposed activities are not authorised, mining of Block OI West will not be undertaken. As such the socio-economic benefits outlined above will not be achieved. Consequently, the South African economy will be negatively affected and the livelihood of communities will not improve as expected.

14.5 SECTION 27(E) – ANY CATCHMENT MANAGEMENT STRATEGY APPLICABLE TO THE RELEVANT WATER RESOURCES

The proposed site falls within Quaternary Catchment B20A under Olifants Water Management Area. The moderately modified Bronkhorstspruit River is located approximately 3420m north-east of the site while a tributary of the Bronkhorstspruit is located 3250m from site. The area receives approximately 611mm of rain per annum (refer to the hydrological and the Master Plan on Figures 5 and 6 below).

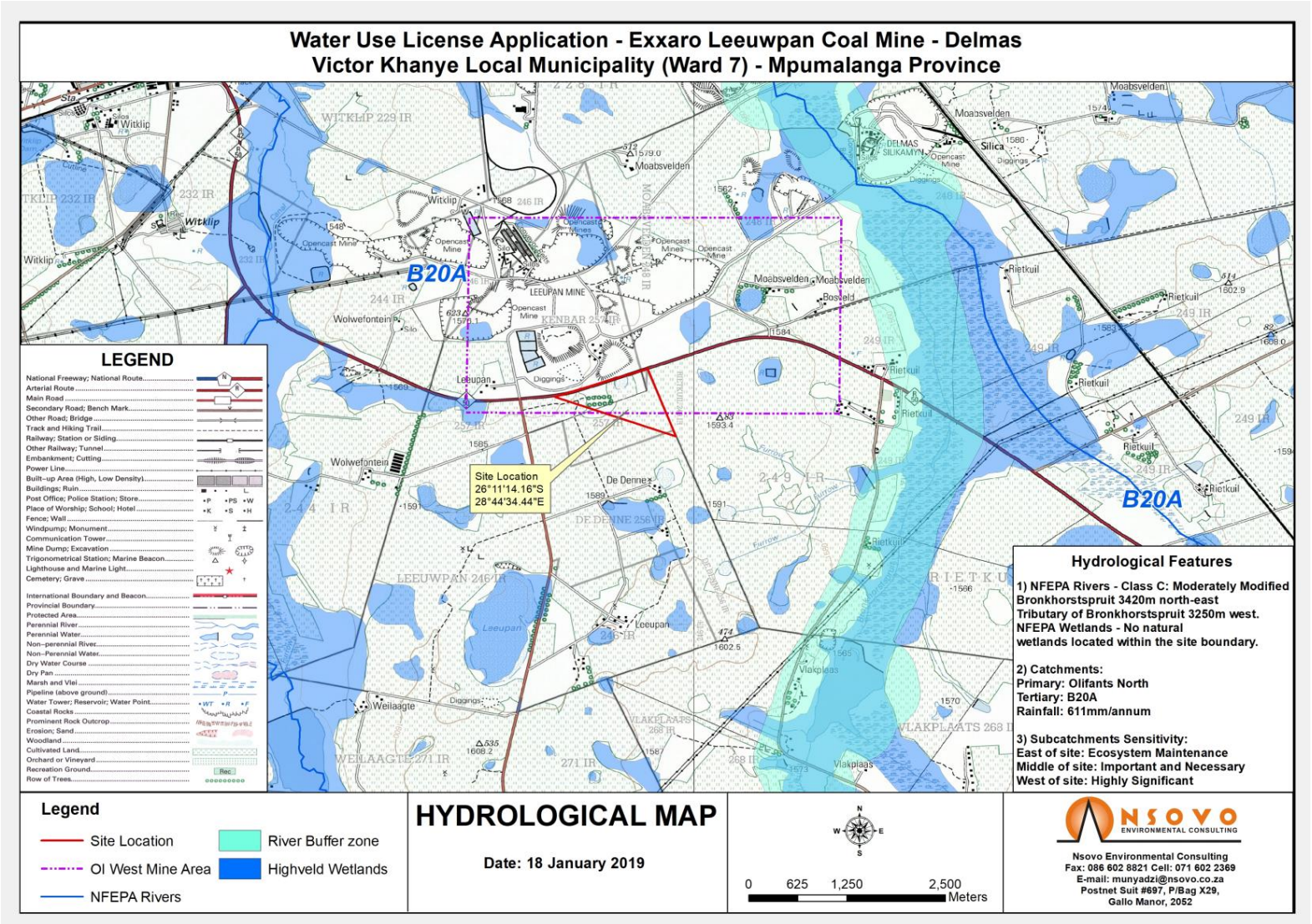


Figure 5: Hydrological Map of the study area

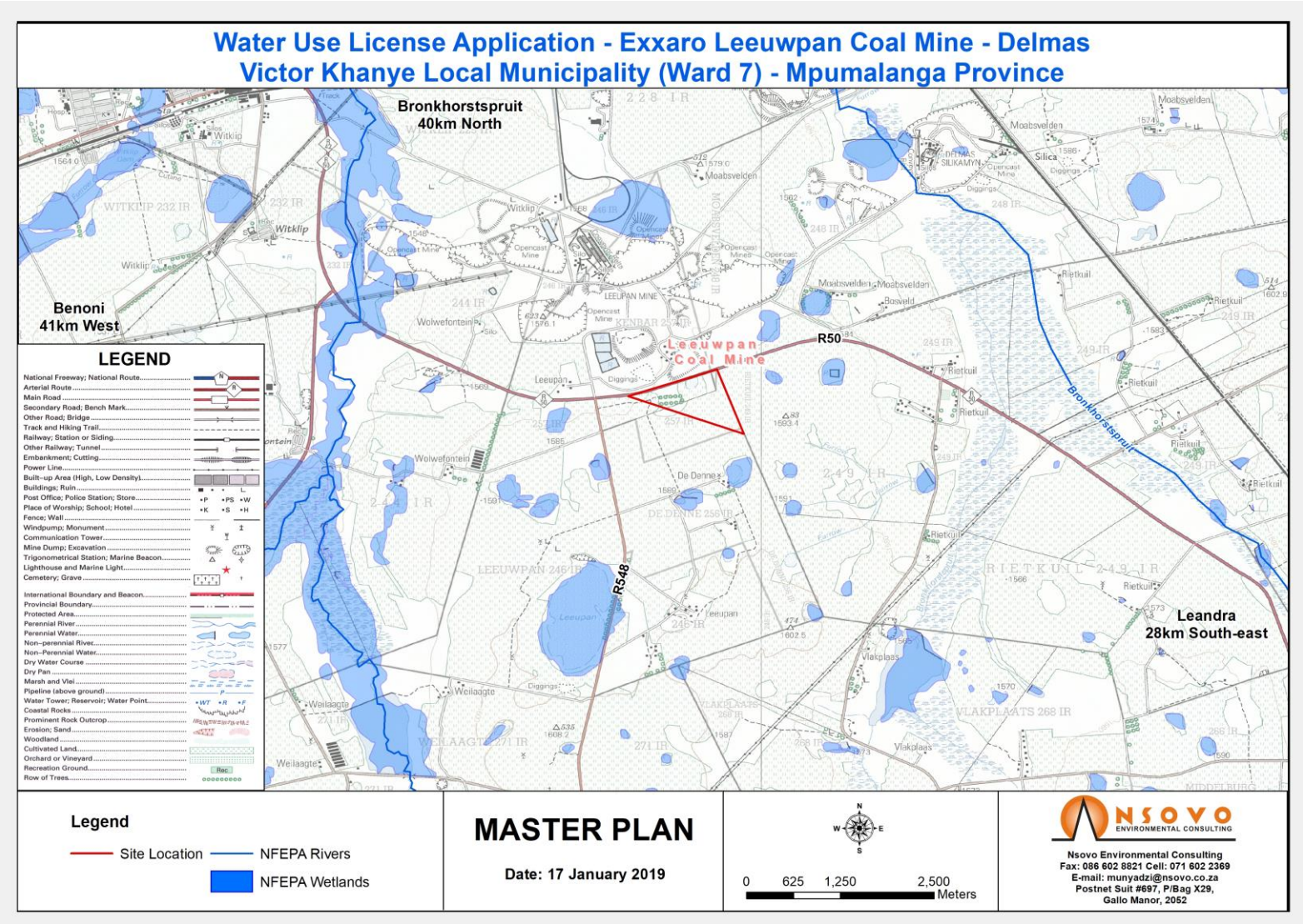


Figure 6: Master Plan of the study area

14.6 SECTION 27 (F) – THE LIKELY EFFECT OF THE WATER USE TO BE AUTHORISED ON WATER RESOURCES AND OTHER WATER USERS

14.6.1 EFFECT OF THE WATER USE TO BE AUTHORISED ON WATER RESOURCES

It is anticipated that the impact of the proposed water use will be of high significance due to the nature of the activities to be undertaken i.e. mining the wetland areas. Refer to the Hydropaedology and wetland reports for the impacts associated with water uses to be authorized on water resources.

14.6.2 EFFECT OF THE WATER USE ON OTHER WATER USERS

The proposed mining activities will be undertaken within the site owned by the Exxaro and entail the mining of Block OI West which is located on wetland areas. Block OI West site is situated approximately 7km from the nearest communities. The wetland report includes the impact/effects that will be experienced by other water users.

14.7 SECTION 27(G) – THE CLASS AND THE RESOURCE QUALITY OBJECTIVES OF THE WATER RESOURCE

The DWS introduced measures to protect water resources by planning and setting objectives for the desired condition of resources and putting measures in place to control water use to limit impacts to sustainable levels, thereby ensuring a healthy functioning aquatic ecosystem together with water that is fit for use for recognised water users. Resource water quality objectives form the basis for management of the water resources quality and support various activities such as scenario analysis, water quality allocations and strategy development.

14.8 SECTION 27(H) – INVESTMENTS ALREADY MADE AND TO BE MADE BY THE WATER USER IN RESPECT OF THE WATER USE IN QUESTION

Exxaro supplies coal to local and international customers which leads to a great investment in terms of the income generation, foreign exchange, increase employment opportunities and improvement in the economy of South Africa. The proposed mining of Block OI West for an additional two years it will be an

investment in the local community as it will result in extension of job security and use of local suppliers/contractors. Further, the planned retrenchments will be delayed.

14.9 SECTION 27(I) – THE STRATEGIC IMPORTANCE OF THE WATER USE TO BE AUTHORISED

It is anticipated that at the completion of mining activities, the wetlands may be highly disturbed, however, the wetlands users will benefit from the Water Use Authorisation (WUA) through the planned off-set of other wetlands in the area. Further, as indicated above, authorising the proposed water uses will result in increase in the life of the mine as well as extension of job security for skilled and unskilled workers.

14.10 SECTION 27 (J) – THE QUALITY OF WATER IN THE WATER RESOURCE WHICH MAY BE REQUIRED FOR THE RESERVE AND FOR MEETING INTERNATIONAL OBLIGATIONS

Refer to the Hydropaedology and wetland reports.

14.11 SECTION 27 (K) – THE PROBABLE DURATION OF ANY UNDERTAKING FOR WHICH A WATER USE IS TO BE AUTHORISED

The mining activities at Block OI West will take place for approximately two years.

15. CONCLUSION

This is an urgent project for Exxaro, particularly given the ongoing supply demand that it needs to meet and the socio-economic benefit it will have for the end users. The primary aim is to ensure that the proposed project proceeds in a sustainable manner. It is therefore recommended that the WUL for the proposed water use activities be granted.

The proposed water uses will ensure compliance with the South African legislation and will seek for environmental protection, sustainability and management. These water uses will ensure effectiveness of Exxaro activities which in turn will contribute to the local economy through income generation and employment. When undertaking the proposed water use activities, Exxaro intends, where possible, to avoid causing any irreversible impacts on the watercourses identified at the proposed site by identifying positive

and negative impacts on water resources as well as providing sustainable mitigation measures. In order for Exxaro to commence with the proposed water use activities, the WUL must be obtained from the DWS.

16. REFERENCE

Golder, 2018: Leeuwpan Coal Mine Quarterly Water Monitoring Report June 2018

Limosella Consulting, 2018: Risk Assessment: Proposed Exxaro Leeuwpan Mine Expansion, Delmas, Putfontein AH, Mpumalanga Province.