PROPOSED MINING PERMIT APPLICATION ON THE REMAINING EXTENT OF ELANDS SPRUIT NO 5523, UTHUKELA MAGISTERIAL DISTRICT, KWAZULU-NATAL

Wetland Assessment Report





Version 1.1

Date: 3rd May 2024

Prepared by:

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Report No: EP741-01

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SPECIALIST ASSESSMENT REPORT DETAILS AND DECLARATION OF INDEPENDENCE

This is to certify that the following report has been prepared as per the requirements of:

- The NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998 (Act No. 107 OF 1998) ENVIRONMENTAL IMPACT ASSESSMENT REGULATIONS 2014, as amended (The Regulations).
- The Department of Water & Sanitation for Water Use Licensing and wetland/aquatic assessment, as outlined in the 'Regulations Regarding the Procedural Requirements for Water Use License Applications and Appeals' contained in the Government Gazette No. 40713 of 24 March 2017.

Document Title:	Wetland Assessment Report
Project:	Proposed Mining Permit Application
Location:	The Remaining Extent of Elands Spruit NO. 5523, uThukela Magisterial District, KZN
Report No.	741-01
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Date:	3rd May 2024
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Field of study/Expertise:	Wetland and Aquatic Ecology
Professional affiliations:	SACNASP: *Pr.Sci.Nat.* 'Ecological Science' field of practice
Client:	Greenmined Environmental

I, **Ryan Kok**, hereby declare that this report has been prepared independently of any influence or prejudice as may be specified by the relevant environmental authorities.

Signed:  Date: 3rd May 2024

Details of Specialist Team

The relevant experience of specialist team members involved in the compilation of this report are briefly summarized below. *Curriculum Vitae's* of the specialist team are available on request.

Specialist	Role	Details
Ryan Kok Scientist Eco-Pulse *Pr.Sci.Nat.*	Project Manager Field work Lead author & sign-off	Ryan is a Scientist and Wetland / Aquatic and Terrestrial Ecologist at Eco-Pulse with a BSc degree in Environmental Science, BSc Honours and MSc degree in Biological & Ecological Sciences. He is a registered Professional Natural Scientist (Pr. Sci. Nat.) with 7 years' experience, having worked extensively on numerous specialist ecological assessment projects, for wetland/aquatic habitats in KZN, the Free State, Gauteng, Eastern Cape, Northern Cape, the North West and Mpumalanga.

EXECUTIVE SUMMARY

This report sets out the findings of a **Specialist Wetland Assessment** (including both wetlands and rivers) to inform the application for any environmental authorisation and water use licensing requirements for the proposed mining permit application within the remaining extent of farm Elands Spruit No 5523, located in the uThukela Magisterial District of KwaZulu-Natal.

An assessment for the mining permit area was undertaken by Eco-Pulse Environmental Consulting Services in April 2024. The main findings of the assessment have been summarised below.

Verification Outcomes:

This assessment builds upon a prior evaluation (Eco-Pulse, 2023; EP671-01), which determined that the proposed site is approximately 155 meters away from the nearest wetland edge. Given this distance, the classification of 'low impact mining,' and the inclusion of a 40-meter buffer zone, the probability of impact was deemed 'unlikely.' Therefore, from a freshwater perspective no detailed assessments (i.e. PES and EIS) and/or DWS risk assessment are required for the proposed mining permit area.

Licensing & Permitting Requirements:

From a freshwater perspective, the activities associated with the proposed development does not tigger specialist assessment requirements according to NEMA. Furthermore, the proposed activities do not constitute Section 21(c) and 21(i) water uses due to there being no watercourse (wetlands and/or rivers) within the DWS regulated area (i.e. 500m buffer) at risk of potential impacts.

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1.1 Project Background and Locality

Raubex Construction (Pty) Ltd (the client) plans to seek environmental authorization (EA) and a mining permit (MP) for a 4.91-hectare area within the Remaining Extent of farm Elands Spruit No 5523, located in the uThukela Magisterial District of KZN (Figure 1). This property is situated approximately 26 km north-east of Ladysmith, positioned between Collings Pass Road and the N11 national road. The project entails establishing a new mining area in greenfields, using blasting techniques to extract hard rock, and transporting the loosened material to existing stockpile areas. Operations for mining and stockpiling are already in progress at the site.

It's important to note that Eco-Pulse Consulting previously conducted a freshwater assessment of the current mined area and stockpile zone, situated roughly 500 meters east of the proposed mining permit site. However, a specialist assessment is now required to understand the extent, type, sensitivity/importance of watercourses, and the potential risks posed to the freshwater environment by the new mining permit area activities.

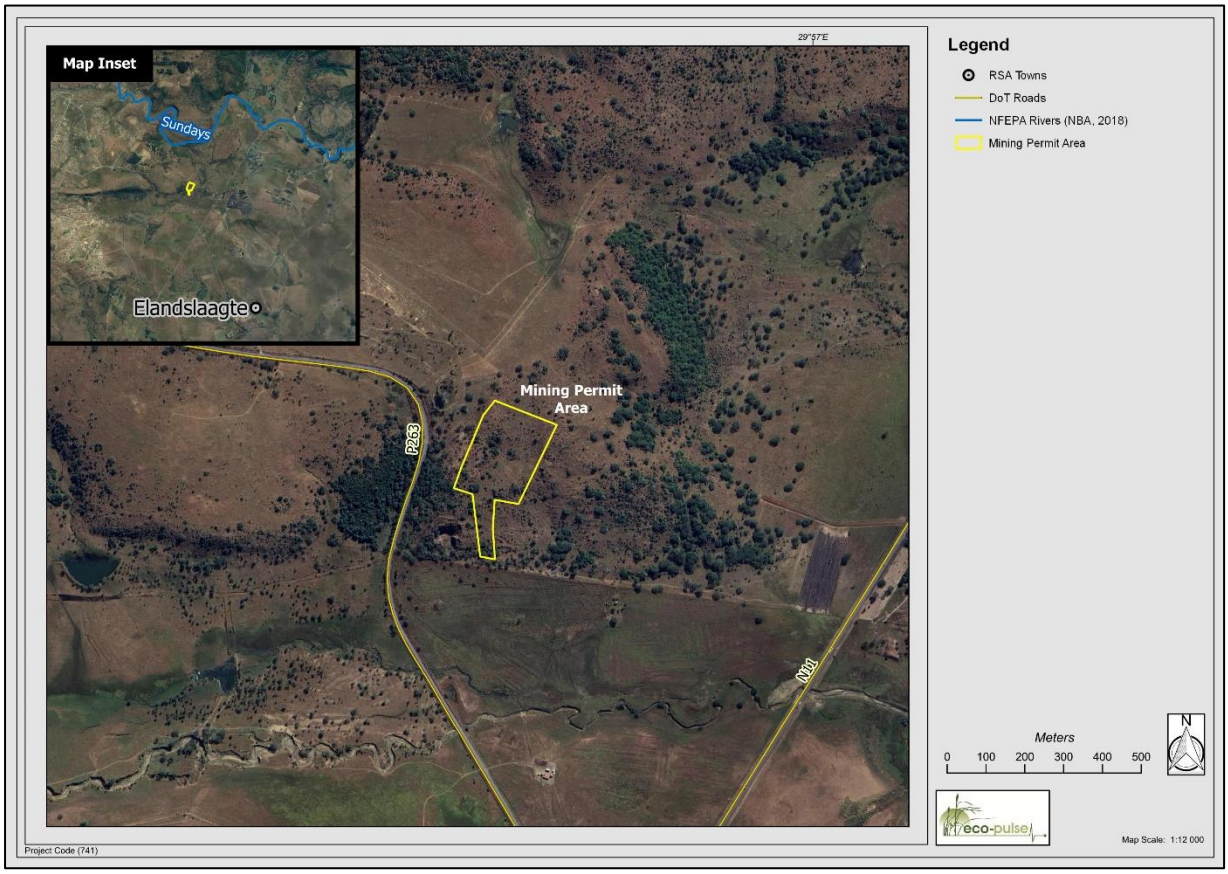


Figure 1 Locality map showing the location of the Mining Permit Area (outlined in "yellow").

The evaluation of the potential impacts on wetland ecosystems within and around the project area, the development activities associated with this project may be classified as water uses under the National

Water Act (NWA). Consequently, Eco-Pulse Consulting Services has been appointed to undertake a wetland assessment to inform both the EA and water use license applications (WULA).

1.2 Project Description

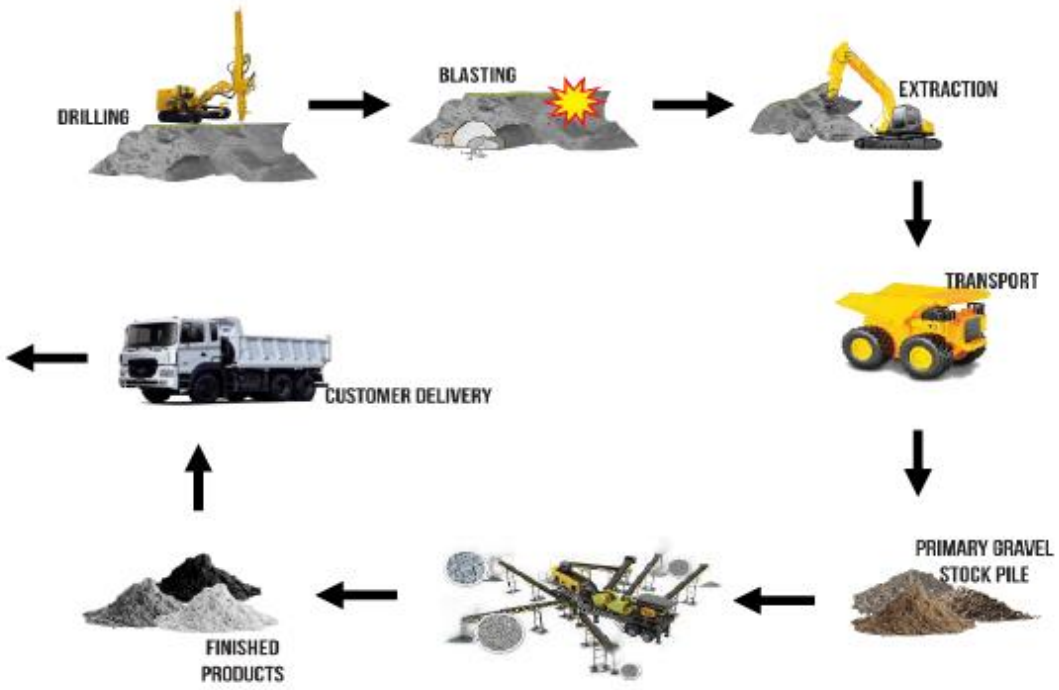
The proposed project will entail opening up the new mining permit area through open-cast mining of hard rock. The recovered material will then be stockpiled, crushed and screened to produce aggregate at the existing stockpile site.

The planned activities intended to be conducted at the site include:

- stripping and stockpiling of the topsoil of the proposed mining footprint area;
- loosening of the hard rock through blasting and excavation;
- transporting the hard rock to be proceed and stockpiled at the existing stockpile site.

In terms of the mining method and operational procedures, the following is proposed:

- The proposed mining method (as depicted below) will make use of blasting to loosen the hard rock.
- The material will then be loaded and hauled out of the excavation to the mobile crushing plant where it will be screened to various sized stockpiles. The material will be stockpiled until it is transported from site using trucks.
- The mine will be reached via the existing mining roads.
- Water requirements will mainly be for dust suppression on the processing plant and access road.
- Any water required for the implementation of the project will be bought and transported to site.
- The proposed project will make use of generators to power the plant.



1.3 Purpose of Assessment

The initial wetland assessment conducted by Eco-Pulse Consulting (Eco-Pulse, 2023; EP671-01)[1] concentrated on the wetland system and associated habitat downstream of the existing mining permit area.

Subsequently, the applicant is now seeking Environmental Authorization and a Mining Permit for a newly identified site. Greenmined Environmental, acting on behalf of the Applicant (Raubex KZN), has requested Eco-Pulse to undertake a wetland assessment for the proposed mining area. The objective is to assess the potential impacts of the proposed mining activities on the downstream wetlands.

1.4 Scope of Work

The following scope of work was completed as part of this assessment:

- Contextualization of the study area in terms of important biophysical characteristics and freshwater conservation planning through a review of available spatial datasets and relevant conservation plans.
- Utilise existing delineated watercourses part of the Eco-Pulse Assessment in 2023 and also desktop map and classification of all watercourses within 500m of the new mining permit area.
- Identification of the watercourses within 500m of the proposed activities that may be measurably negatively impacted (i.e. watercourses at risk) and therefore tiggering the need for a detailed assessment.
- Utilise existing Eco-Pulse data and information from the broader project area.
- Reporting: Compilation of a single Specialist Wetland Assessment Report including all relevant maps and supporting information.

2. APPROACH & METHODS

2.1 General Approach

The specialist wetland assessment was based on the review of available datasets, utilizing existing wetland delineations from the 2023 assessment by Eco-Pulse Consulting and impact screening. Additionally, the wetland assessment report adheres to the protocol contained in Government Gazette No. 43855 dated 30 October 2020.

[1] Eco-Pulse Consulting. 2023. Proposed Mining Permit Application and Stockpile Area on The Remaining Extent of Elands Spruit NO. 5523: Specialist Wetland Assessment Report. Report No. EP671-01 (version 1.1). 16th February 2023.

2.2 Desktop & Baseline Assessment Methods

2.2.1 Data Sources Consulted

The data sources and GIS spatial information listed in Table 1 (below) were consulted to inform the specialist assessment. The data type, relevance to the project and source of the information has been provided.

Table 1. Data sources and GIS information consulted to inform the baseline aquatic assessment.

DATA/COVERAGE TYPE	RELEVANCE	SOURCE
Biophysical Context		
Colour aerial photography	*Desktop mapping of drainage network, wetlands, etc.*	NGI (online)
Latest Google Earth ™ imagery	*To supplement available aerial photography where needed*	Google Earth™ On
South African Vegetation Map (GIS Coverage)	*Classify vegetation types and determination of reference primary vegetation*	Mucina & Rutherford (2012)
NFEPA: river and wetland inventories (GIS Coverage)	*Highlight potential onsite and local rivers and wetlands*	WRC (2011)
Conservation Context		
Inland Aquatic (Freshwater) Realm of the 2018 SANBI National Biodiversity Assessment (GIS Coverage)	*Provides insight into the national conservation planning status of watercourses in the study area*	Van Deventer et al. (2019)
NFEPA: River, wetland, and estuarine FEPAs (GIS Coverage)	*Shows location of national aquatic ecosystems conservation priorities*	WRC (2011)
KZN Aquatic Systematic Conservation Plan (GIS Coverage)	*Provincial conservation planning importance.*	EKZNW (2007)

2.2.2 'Impact Potential' Screening Assessment

The watercourses within a 500-meter radius of the mining permit area, including the already delineated wetlands (Eco-Pulse, 2023; EP671-01), and any remaining watercourses, were initially mapped at a desktop level. The Department of Water and Sanitation (DWS) designates this 500-meter buffer zone for regulatory purposes when licensing new activities and developments.

After the desktop mapping and identification process, preliminary 'likelihood of impact' ratings were assigned to these watercourses. These ratings were based on the potential for activities associated with the current development to cause measurable direct or indirect changes to the mapped watercourse units. Subsequently, the 'impact potential' ratings were further refined during fieldwork. Each identified watercourse unit was then given a qualitative 'impact potential' rating, aligning with the ratings and descriptions provided in Table 2 below.

Table 2. Qualitative 'likelihood of impact' ratings and descriptions.

Likelihood of Impact Rating	Description of Rating Guidelines
High	These resources are likely to require impact assessment and a Water Use License in terms of Section 21 I & (i) of the National Water Act for the following reasons: ➢ resources located **within the footprint** of the proposed development activity and will definitely be impacted by the project; and/or ➢ resources located **within 15m upstream and/or upslope** of the proposed development activity and trigger requirements for Environmental Authorisation according to the NEMA: EIA regulations; and/or ➢ resources located **within 15m or downslope** of the development and trigger requirements for Environmental Authorisation according to the NEMA: EIA regulations; and/or ➢ resources located downstream within the following parameters: o **within 15m downstream** of a low-risk development. o **within 50m downstream** of a moderate risk development; and/or o **within 100m downstream** of a high-risk development e.g. mining large industrial land uses.
Moderate	These resources may require impact assessment and a Water Use License in terms of Section 21 I & (i) of the National Water Act for the following reasons: ➢ resources located **within 32m but greater than 15m upstream, upslope or downslope** of the proposed development; and/or ➢ resources located within a range at which they are likely to incur indirect impacts associated with the development (such as water pollution, sedimentation, and erosion) based on development land use intensity and development area. This is generally resources located downstream within the following parameters: o **within 32m downstream** of a low-risk development. o **within 100m downstream** of a moderate risk development; and/or o **within 500m downstream** of a high-risk development (note that the extent of the affected area downstream could be greater than 500m for high-risk developments or developments that have extensive water quality and flow impacts e.g. dams / abstraction and treatment plants);
Low	These resources are unlikely to require impact assessment or Water Use License in terms of Section 21 I & (i) of the National Water Act for the following reasons: ➢ resources located a distance upstream, upslope or downslope (>32m) of the proposed development and which are unlikely to be impacted by the development project; and/or ➢ resources located downstream but well beyond the range at which they are likely to incur impacts associated with the development (such as water pollution, sedimentation, and erosion). This is generally resources located downstream within the following parameters: o **greater than 32m downstream** of a low-risk development. o **greater than 100m downstream** of a moderate risk development; and/or o **greater than 500m downstream** of a high-risk development (note that the extent of the affected area downstream could be greater than 500m for high-risk developments or developments that have extensive water quality and flow impacts e.g. dams / abstraction and treatment plants);
Very Low / None	These resources will not require impact assessment or a Water Use License in terms of Section 21 I & (i) of the National Water Act for the following reasons: ➢ resources located within another adjacent sub-catchment, and which will not be impacted by the development in any way, shape or form.

2.2.3 Verification of Impact Potential on Freshwater Ecosystems

After conducting the impact potential screening as discussed above, the initial wetland impact assessment conducted by Eco-Pulse Consulting in 2023 (EP671-01) was consulted. Subsequently, a site

verification assessment was carried out to ascertain the potential impact on downstream wetlands and determine if a more detailed assessment is necessary.

2.3 Assumptions and Limitations

The following limitations and assumptions apply to this assessment:

- Although all watercourses within 500m of the mining permit area were either formally delineated as part of the previous 2023 assessment and/or mapped at a desktop level, no wetland or aquatic units were identified as potential impacts at the desktop level. The site visit then focused on verifying the potential impact ratings to ensure that no wetland or aquatic habitats would be impacted.
- The mapping and classification of the watercourse units outside of the study area but occurring within a 500m radius of activities should be considered preliminary and coarse in resolution. These units were not verified in the field.
- The proposed mining activities were rated as low risk mining activities.

3. DESKTOP CONTEXTUALISATION / SETTING ASSESSMENT

Understanding the biophysical and conservation context of the study area and surrounding landscape is important to inform decision making regarding the significance of the area to be affected.

3.1 Biophysical Setting

A summary of key biophysical details for study area and catchment area is presented in Table 3 below.

Table 3. Key biophysical setting details of the study area.

Location	The farm Elands Spruit No 5523, north-east of Ladysmith, KwaZulu-Natal
Ecoregion (DWAF, 2007)	14.02 – North-Eastern Uplands
National Water Act Water Management Area (WMA)	Pongola – Mtamvuna
Quaternary Catchment	V60C & V60B
Main Collecting River in the Catchment	Sundays River
Study Area Watercourse Types	Wetland
NFEPA Planning Unit (WRC, 2011)	3031 (V60C) & 2826 (V60B)
NFEPA Planning Unit Status (WRC, 2011)	Upstream Management Area (V60C) & River FEPA (V60B)

3.2 Review of Freshwater Ecosystem Context

3.2.1 Catchment and Drainage Setting

The study area is located within DWA Quaternary Catchment V60C. This quaternary catchment is primarily drained by the perennial Sundays River (Figure 4). The site is located on a near the catchment divide[2] with the site draining southwards. The local drainage network in the vicinity of the study area consists of two wetland systems located approximately 155m downslope of the mining permit area. The valley bottom wetland drains in a south easterly which forms part of a left bank tributary of the middle Sudays River system.

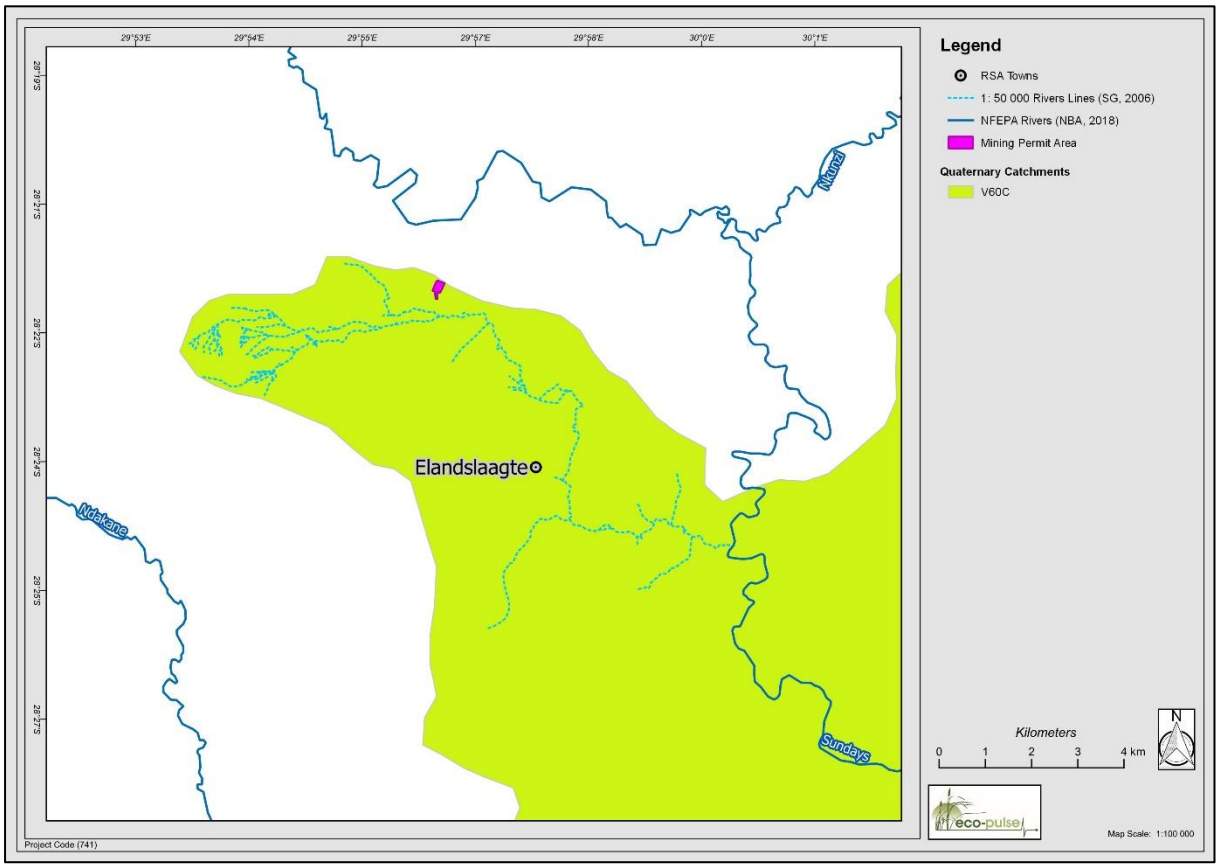


Figure 2 Map showing local drainage setting and catchment in relation to the mining and stockpiling sites.

3.2.2 Ecological and Conservation Setting

National and provincial conservation datasets were screened for the study area, the results of which are presented in Table 4.

[2] A catchment divide is the line that separates neighbouring catchments. On rugged land, the divide lies along topographical ridges, and may be in the form of a single range of hills or mountains, known as a dividing range.

Table 4. Key ecological and conservation context details for the study area.

NATIONAL LEVEL CONSERVATION PLANNING CONTEXT			
Conservation Planning Dataset		**Relevant Conservation Feature**	**Conservation Planning Status**
National Freshwater Ecosystem Priority Areas (NFEPA) (WRC, 2011)	Rivers	Catchment Planning Unit 3031	Upstream Management Area[3]
	Wetlands	Onsite NFEPA wetlands	No FEPA wetlands present
		Presence of wetland FEPAs within 500m of the study area	
		NFEPA Wetland Vegetation Groups Sub-Escarpment Grassland Group 4	Channelled valley bottom wetland 'Least Threatened'
			Seep 'Endangered'
2018 National Biodiversity Assessment – Inland Aquatic / Freshwater Realm (GIS Coverage)	Wetlands	**Wetland Ecosystem Bioregions** Sub-Escarpment Grassland Bioregion	Channelled valley bottom wetland 'Critically Endangered'
			Seep 'Critically Endangered'
PROVINCIAL AND REGIONAL LEVEL CONSERVATION PLANNING CONTEXT			
Conservation Planning Dataset		**Relevant Conservation Feature**	**Conservation Planning Status**
KZN Aquatic Systematic Conservation Plan (EKZNW, 2007)		Sub-quaternary catchment & nearby Wetland	Freshwater Planning Unit No. 2353 & 2360 'Available' (no status)

[3] Upstream Management Areas: are sub-quaternary catchments in which human activities need to be managed to prevent degradation of downstream river FEPAs and Fish Support Areas. Upstream Management Areas do not include management areas for wetland FEPAs, which need to be determined at a finer scale.

4. DESKTOP MAPPING AND IMPACT POTENTIAL SCREENING

4.1 Pervious Wetland Delineation and Classification (2023)

The infield sampling of soil and vegetation in conjunction with the recording of diagnostic topographical / terrain indicators and features undertaken part of the 2023 assessment, enabled the delineation of two (2) wetland units (Table 5).

Table 5. Summary of the wetland HGM unit type and the general characteristics encountered part of the 2023 wetland assessment.

Units	Classification (HGM unit)	Distance from Mining Permit Site	Description
Wetland W01	**Channelled Valley Bottom**	±230m	Wetland W01 was identified as a channelled valley bottom wetland (being ~33.82 ha in extent) and located south of the mining permit. The wetland drains in an easterly direction. The vegetation within the wetland itself was found to comprise mix of hydric and dryland grass species and sedges.
Wetland W02	**Seep**	±155m	Wetland W02 was identified as a hillslope seep wetland (being ~5.77 ha in extent) and located south of the mining permit area. The wetland drains in a south easterly direction feeding into to broader valley bottom wetland. The vegetation within the wetland itself was found to comprise mix of short hydric and dryland grass species. Notably, the drier marginal area had been slightly impacted by grazing activities and historic agriculture activities.

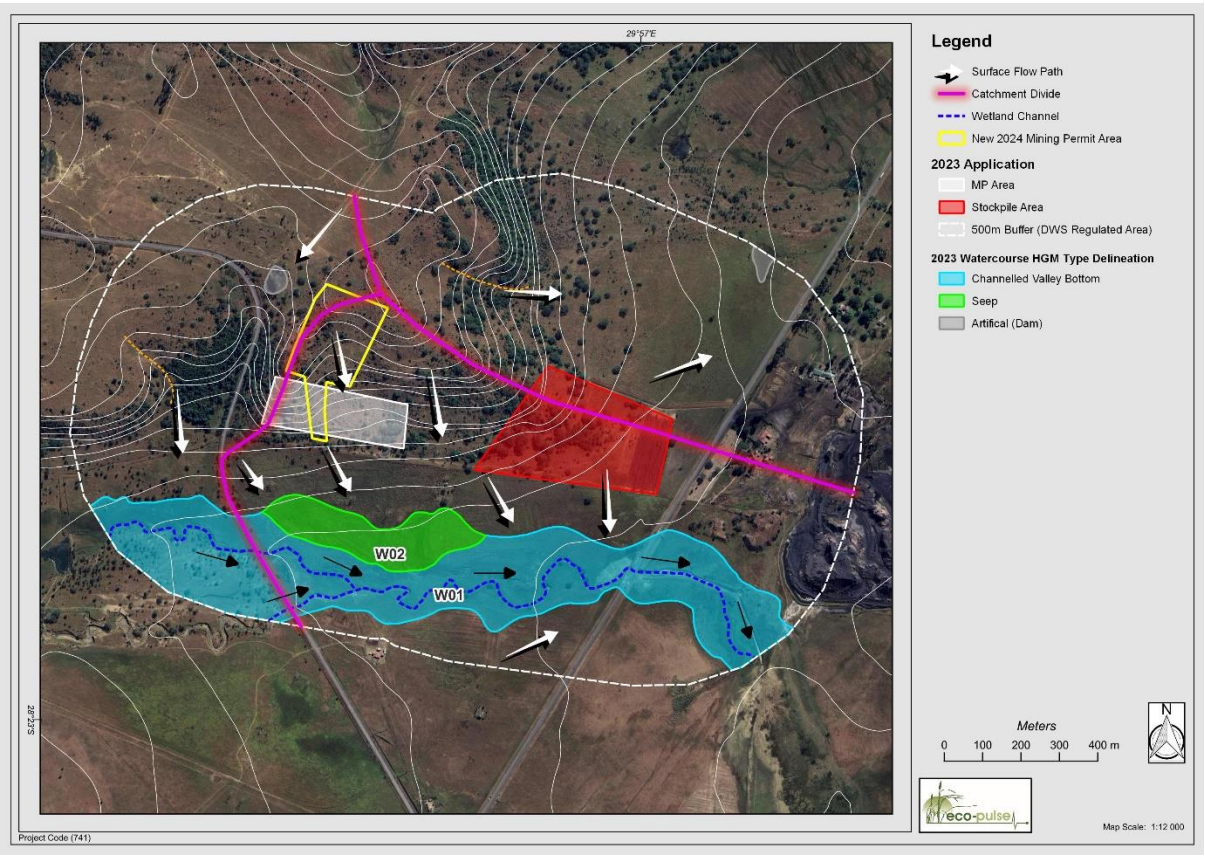


Figure 3 2023 wetland delineation map by Eco-Pulse (EP671-01) in relation to the new 2024 MP Area.

4.2 Current Watercourse Impact Potential (2024)

Watercourses within a 500m radius of the mining permit area, falling under the Department of Water and Sanitation's (DWS) regulated zone for Section 21 (c) and/or (i) wetland water use, underwent mapping [utilizing existing delineations (see section 4.1) and desktop methods] and were classified according to their Hydrogeomorphic (HGM) type, following the national wetland/river classification by Ollis et al. (2013). This process involved GIS (Geographical Information Systems) software analysis of available aerial imagery (Google Earth™ and aerial photography), elevation contours, and existing wetland and river coverages specific to the region.

An initial desktop screening for 'impact potential' was conducted on identified watercourse units within the 500m radius of the mining permit area, with subsequent verification in the field. The primary risks associated with mining activities include alterations to catchment surface water processes, potential erosion and sedimentation impacts, as well as surface runoff contamination leading to local watercourse water quality deterioration.

Considering these risks, it's important to note that all watercourse units within the 500m radius of the mining permit site were either located in separate sub-catchments from the mining site or were sufficiently distant (>155m) from the site, making direct or indirect impacts unlikely. Therefore, a formal impact assessment for these watercourses is deemed unnecessary. The outcomes of the likelihood of impact screening are illustrated in Figure 5.

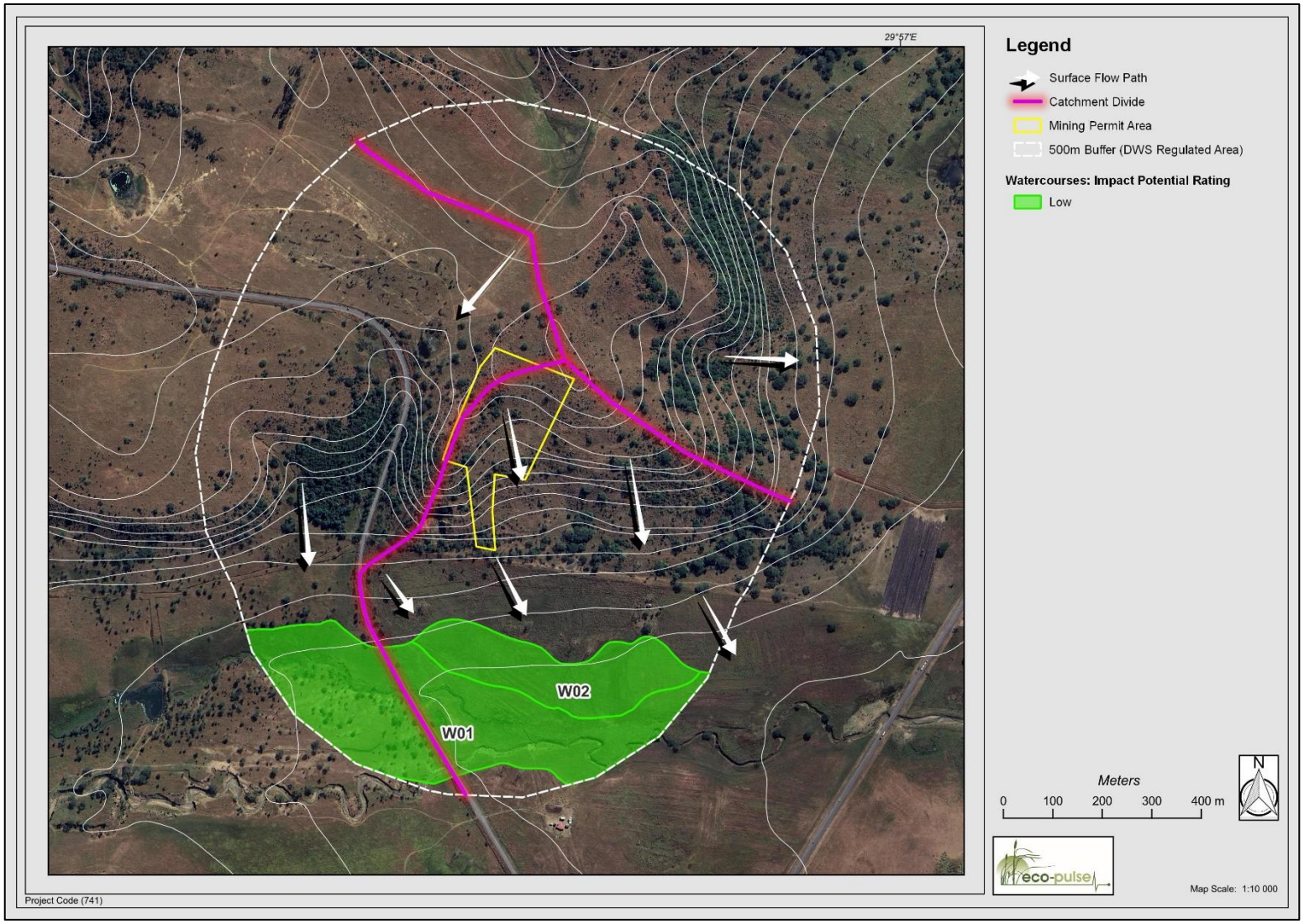


Figure 4 Outputs of the initial watercourse 'impact potential' assessment undertaken for the mining permit area. The map shows the positioning of the area footprint ("Yellow" boundary line – mining permit area), with watercourses assessed with a 500m radius [i.e., the DWS regulated area for (c) & (i) water use – "white" dashed circle outline).

4.3 Summary of Findings

Based on the combined desktop assessment, including the 2023 wetland assessment, and field verification exercise, NO WETLANDS OR RIVERS WERE IDENTIFIED within the area of study and downstream as being at risk of potential impact by the new mining permit area. The only wetlands identified remain a sufficient distant from the site, outside of the sub-catchment and/or the 500m regulated area where the site is located. Therefore, from a freshwater perspective no detailed assessments (i.e. PES and EIS) and/or DWS risk assessment are required for the proposed mining permit area.

5. OPINION ON LEGISLATIVE IMPLICATIONS

National Environmental Management Act (No. 2017 of 1998)

From a freshwater perspective, the proposed mining permit activities do not constitute listed activities under NEMA because they do not occur in or within 32m of natural freshwater ecosystems (i.e., wetland and rivers/streams).

National Water Act (No. 36 of 1998)

Provided that the construction and operational activities are well managed, no negative impacts to downstream natural freshwater ecosystems is expected. Therefore, **the proposed activities do not constitute Section 21(c) and 21(i) water uses**.

6. CONCLUSION

The findings of the specialist wetland assessment conducted by Eco-Pulse Consulting in April 2024, revealed that no freshwater wetlands or rivers at risk of potential impact from the proposed mining permit area, both within the study area and downstream. This assessment builds upon a prior evaluation (Eco-Pulse, 2023; EP671-01), which determined that the proposed site is approximately 155 meters away from the nearest wetland edge. Given this distance, the classification of 'low impact mining,' and the inclusion of a 40-meter buffer zone, the probability of impact was deemed 'unlikely.'

As a result, the proposed mining activities do not fall under listed activities according to NEMA because they are not located within or within 32 meters of natural freshwater ecosystems, such as wetlands, rivers, or streams. Additionally, these activities do not fall under Section 21(c) and 21(i) water uses since there are no wetlands or rivers within the regulated area defined by the Department of Water and Sanitation (DWS), which includes a 500-meter buffer, at risk of potential impact.