Rustenburg Platinum Mines (RPM) - Anglo American Platinum Ltd

AQUATIC BIODIVERSITY ASSESSMENT – COMPLIANCE STATEMENT

Mortimer Smelter - Additional Slag Cleaning and SO2 Abatement

MAY 2025

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1 DETAILS OF SPECIALIST

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SPECIALIST DECLARATION

I, Shavaughn Davis, declare that I –

- Act as the independent specialist in this application;
- Do not have and will not have any financial interest in the undertaking of the activity, other than remuneration for work performed;
- Do not have nor will have a vested interest in the proposed activity proceeding;
- Have no, and will not engage in, conflicting interests in the undertaking of the activity; and
- Undertake to disclose, to the competent authority, any information that have or may have the potential to influence the decision of the competent authority or the objectivity of any report, plan, or document.

2 PROJECT BACKGROUND

Rustenburg Platinum Mines (RPM) - Anglo American Platinum Ltd (herein referred to as AAP), the largest primary platinum producer in the world, currently owns and operates the Mortimer Smelter in the North West Province. The Mortimer Smelter operations include a primary metallurgical furnace used for smelting sulphide ores which is currently under care and maintenance. Slag cleaning operations at AAP's Waterval Smelter have been constrained for many years and as such an additional slag cleaning (ASC) operation is required. To accommodate this, AAP are proposing to develop an ASC Project and associated sulphur dioxide (SO_2) abatement at the Mortimer Smelter. The SO_2 abatement will be required to allow for compliance of the SO_2 emissions with the legislated Minimum Emissions Standards (MES). Currently, since primary smelting is under care and maintenance, it is envisaged operations at Mortimer will predominantly comprise the proposed slag cleaning operations.

The proposed inclusion of the ASC requires an amendment to their existing Atmospheric Emissions Licence (AEL) as additional activities in terms of Section 21 of the National Environmental Management: Air Quality Act (NEM:AQA) will be triggered. In accordance with the Environmental Impact Assessment (EIA) Regulations of 2014 (as amended), any amendment to the AEL necessitates that the AAP must apply for an Environmental Authorisation (EA) for the proposed activities to the Competent Authority (CA), which is the North West Department of Economic Development, Environment, Conservation and Tourism (DEDECT), supported by a Basic Assessment (BA) process. This entails the compilation of a Basic Assessment Report (BAR) and an Environmental Management Programme (EMPr) describing how the environmental impacts of the proposed infrastructure and activities will be managed and mitigated. There are existing related EA's in place for the Mortimer Smelter.

WSP Group Africa (Pty) Ltd (WSP) has been appointed by AAP to undertake an aquatic ecosystem assessment in support of the required basic assessment process due to the proposed slag cleaning operations.

This report describes the baseline aquatic biodiversity of the study area and provides the outcomes of the site sensitivity verification of the potential aquatic environmental sensitivity of the site under consideration for proposed development. Reporting has been undertaken in accordance with the gazetted requirements for an Aquatic Biodiversity Specialist Assessment (Notice No.320 Government Gazette 43110 of March 2020). This report will be submitted as part of the application for Environmental Authorisation, in accordance with the requirements of the Environmental Impact Assessment Regulations.

3 PROPOSED OPERATIONS

3.1.1 CURRENT OPERATIONS

The Mortimer Smelter is one of RPM's three primary smelters in South Africa. It is understood that the Mortimer Smelter is under care and maintenance and is not currently operational. When operational, the site operates a single primary smelting furnace, which was upgraded to 38 MW in 2011. The wet concentrate from the AAP concentrators and third parties in the area is delivered to the Mortimer Smelter where it is dried in a 54 wet ton per hour (nominal at 16% moisture) flash dryer to produce the feed material. The furnace produces slag and matte products. The slag is granulated with high pressure water, dewatered in rake classifiers and sent to the slag mill for further processing. Slag that cannot be utilised is deposited onto an intermediate slag stockpile. The matte is cast into silica sand pits for cooling, after which it is crushed and transported to the Anglo Converter Plant for further processing.

3.1.2 PROPOSED OPERATIONS

The Slag Cleaning Furnace (SCF) at Waterval Smelter provides a critical function for recovery of Platinum Group Metals and base metals from the Anglo Converter Plant converter slag (WACS). The SCF capacity has been constrained for many years and will continue to be under capacity pressure, despite a full furnace rebuild that was completed in 2023.

Historically, deficits in slag cleaning capacity have given rise to excess WACS stockpiles containing significant Work In Progress. Crude milling and flotation campaigns of the excess WACS have been carried out for recovery of some metal to a concentrate, however, this resulted in a large WACS tailings (WACSt) stockpile at Waterval Smelter and displaced significant quantities of mixed six-in-line and SCF slag also requiring stockpiling. The WACS flotation allows for substantial values of Platinum Group Metals and limited base metal sulphides to be recovered, however, base metal oxide recoveries are poor. The WACS and WACSt stockpiles contain significant quantities of base and precious metals, and it is important for overall smelting recoveries that there is sufficient slag cleaning capacity to process all the WACS and WACSt. Based on the requirements for reprocessing stockpiles and new WACS arisings, RPM are proposing an Additional Slag Cleaning (ASC) Project be constructed at the Mortimer Smelter to de-risk the metal flow processing circuit.

Associated SO_2 abatement is also proposed, which is required for the converted furnace to allow compliance of the SO_2 emissions with the National Environmental Management: Air Quality Act Minimum Emissions Standards when operating both in slag cleaning and primary smelting phases. Authorisation for the SO_2 abatement plant is already in place, however, the Project was halted due to Mortimer Smelter going on care and maintenance.

The regional location of the Mortimer Smelter is shown in Figure 3-1, and the position of the slag cleaning project and SO_2 abatement terrace within the Mortimer Smelter is shown in Figure 3-2.

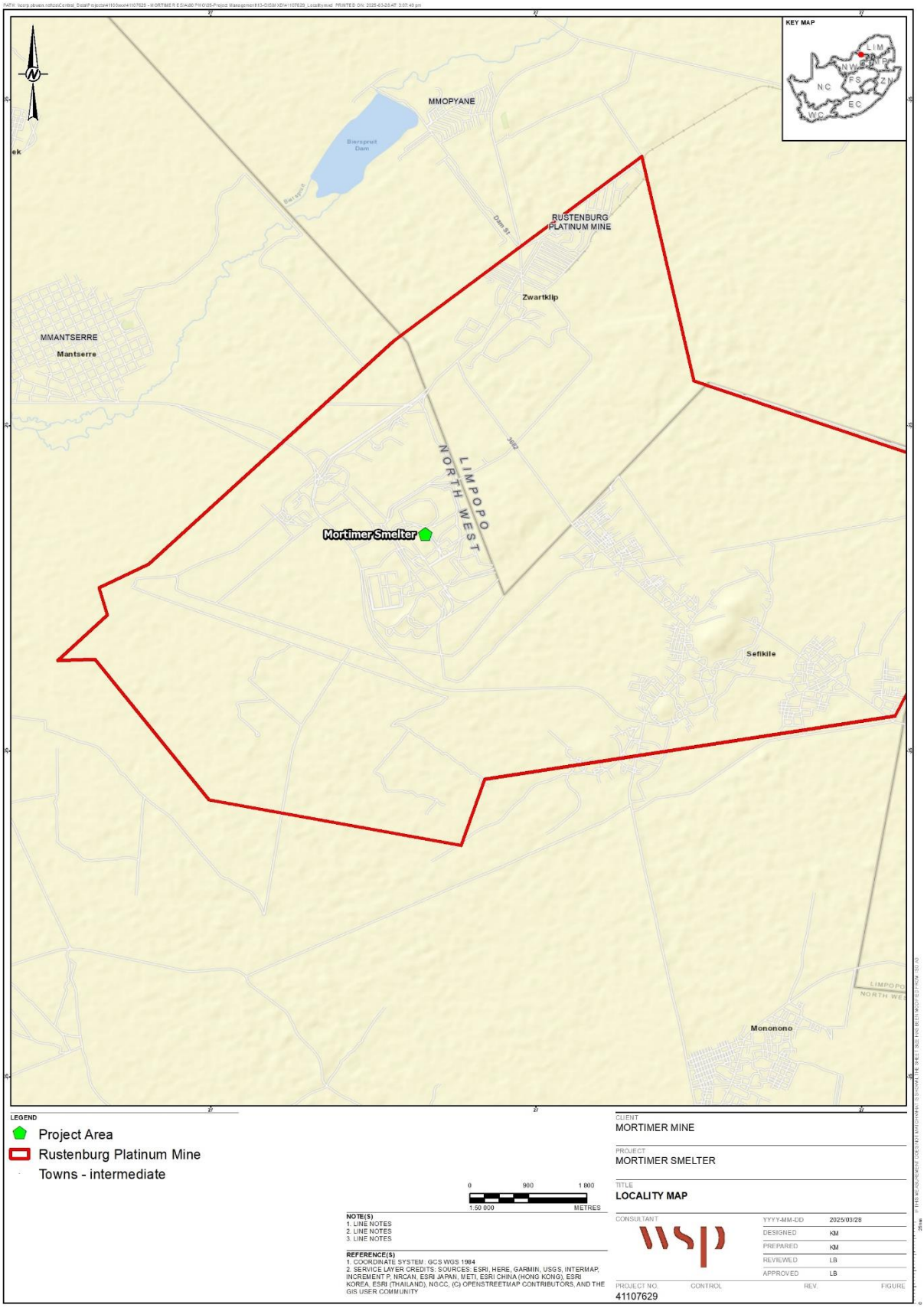

Figure 3-1 – Mortimer Smelter locality

Figure 3-2 – Proposed development footprint for the slag cleaning Project and location of the SO_2 abatement terrace within the Mortimer Smelter property and current disturbance footprint.

4 APPLICABLE SOUTH AFRICAN LEGISLATION, POLICY, AND STANDARDS

Applicable national and provincial legislation, associated regulations and policies that are pertinent to this aquatic biodiversity study include:

- **National Environmental Management Act (NEMA) (Act No. 107 of 1998):** Section 24 (1)(a) and (b) states that "the potential impact on the environment and socio-economic conditions of activities that require authorisation or permission by law and which may significantly affect the environment must be considered, investigated and assessed before their implementation and reported to the organ of state charged by law with authorizing, permitting, or otherwise allowing the implementation of an activity. Section 24 also highlights the procedures for the assessment and minimum criteria for reporting on identified themes in terms of Sections 24(5)(a) and (h) and 44 of the NEMA, when applying for environmental authorisation.
  - Protocol for the specialist assessment and minimum report content requirements for environmental impacts on aquatic biodiversity
- **National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004) (NEM:BA)** – The NEM:BA regulates the management and conservation of the biodiversity of South Africa within the framework provided under NEMA. This Act regulates the protection of species and ecosystems that require national protection and considers the management of alien and invasive species.
  - ToPS – National lists of critically endangered, endangered, vulnerable and protected species (2007).
  - National list of alien and invasive species (2016).
- **National Water Act (Act No. 27 of 2014) (NWA)** – The NWA aims to protect, use, develop, conserve, manage and control water resources including rivers, dams, wetlands, the surrounding land, groundwater, as well as human activities that influence them. The NWA intends to protect these water resources against over exploitation and to ensure that there is water for social and economic development and water for the future.

5 SITE INSPECTION DETAILS

Date: 14 April 2025

Duration: 6 hours.

Season: Early autumn.

Season Relevance: The proposed development footprint was completely transformed at the time of the site inspection. Therefore, seasonality was not considered a crucial factor for the detection of aquatic ecosystems. However, at the time of the survey, surface water was present in the watercourses in the surrounding landscape, and identification of common wetland and aquatic plant species was possible.

6 METHODOLOGY

This report has been drafted in accordance with the Procedures for the Assessment and Minimum Criteria for Reporting on Identified Environmental Themes in Terms of Sections 24(5)(a) and (h) and 44 of NEMA (G.NR. 1150 of 2020) – Protocol for the specialist assessment and minimum report content requirements for environmental impacts on aquatic biodiversity.

6.1 DESKTOP STUDY

6.1.1 ENVIRONMENTAL SCREENING TOOL

The National Web-based Environmental Screening Tool is a geographically based web-enabled application which allows a proponent intending to submit an application for environmental authorisation in terms of the Environmental Impact Assessment (EIA) Regulations 2014, as amended to screen their proposed site for any environmental sensitivity. Based on the sensitivity rating, a suitably qualified specialist must prepare the relevant report or opinion memo which is to be submitted as part of the EA application.

According to the guidelines, an applicant intending to undertake an activity on a site identified as being of “very high sensitivity” for an aquatic biodiversity theme must submit an Aquatic Biodiversity Impact Assessment or if the area is identified as being of “low sensitivity” then an Aquatic Biodiversity Compliance Statement must be compiled and submitted to the competent authority. Where the information gathered from the site sensitivity verification differs from the screening tool designation of “very high” aquatic biodiversity sensitivity, and it is found to be of a “low” sensitivity, an Aquatic Biodiversity Compliance Statement must be submitted. Similarly, where the information gathered from the site sensitivity verification differs from the screening tool designation of “low” aquatic biodiversity sensitivity, and it is found to be of a “very high” sensitivity, an Aquatic Biodiversity Specialist Assessment must be submitted.

For this proposed Project, the Screening Tool generated a Screening Report which identified the aquatic biodiversity sensitivity theme relative to the proposed Project development footprint to be of ‘low’ sensitivity (Figure 6-1). Therefore, both a desktop and site-based assessment was undertaken to confirm or refute the low sensitivity attributed to any freshwater aquatic features present within the project footprint or surroundings that may be affected by the proposed Project.

MAP OF RELATIVE AQUATIC BIODIVERSITY THEME SENSITIVITY

Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
			X

Sensitivity Features:

Sensitivity	Feature(s)
Low	Low sensitivity

Figure 6-1 - Screening Tool- Aquatic Biodiversity Theme Sensitivity

6.1.2 DESKTOP DATASETS

In line with the assessment and reporting requirements set out in the protocol, this freshwater aquatic biodiversity assessment included a desktop literature review to aid in developing a baseline description of the site. The following datasets were reviewed to identify/confirm any freshwater aquatic sensitivities that may be present within the Project footprint:

- The South African National Wetland Map version 5 (NWM5) (Van Deventer et al., 2019), and
- The National Freshwater Ecosystem Priority Area database
- Department of Water and Sanitation datasets, including available information on surface water resources, water management areas, and quaternary catchments.
- The North West Province Biodiversity Sector Plan (2015) “NWBSP2015_Aquatic_CBA_v1” (MBSP, 2014)

6.1.3 SATELLITE IMAGERY

Available satellite imagery of the project area was screened to identify any colour signatures or features that may suggest the potential presence of freshwater aquatic features within the development footprint and surroundings.

6.2 FIELD SURVEY

A site survey was conducted on the 14th March 2025 to confirm the presence and potential sensitivity of any freshwater aquatic ecosystems present within the study area (development footprint of the proposed slag cleaning area and a 500m buffer thereof) (Figure 6-2). The 500m buffer was included in the study area assessed to ensure that any wetlands, and/or the regulated areas of such would be captured. The regulated area of a wetland is defined in General Notice 4167 (Gazette No. 49833, Notice 4167, 8 December 2023 - General Authorisation in terms of Section 39 of the National Water Act, 1998 (Act No. 36 of 1998) for water uses as defined in Section 21(c) or Section 21(i)).

Figure 6-2 - Study area for the aquatic assessment (proposed slag cleaning area and 500m buffer) in relation to the local river network

6.3 STUDY ASSUMPTIONS AND LIMITATIONS

- The Aquatic Biodiversity assessment was prepared based on the site sensitivity verification process undertaken in response to the national web-based screening report. The site sensitivity verification was completed via a combination of desktop analysis of existing literature and a ground truthing survey of potential freshwater watercourses likely to be impacted by the proposed Project.
- This study is considered a once off assessment, which can only take into consideration the current condition, with some speculation of historical events based on evidence observed in field and with the aid of satellite imagery. Since vegetation and habitats often vary temporally and spatially, there must be recognition of fact that certain aspects or features may not have been present on the day of the site visit.
- Whilst the assessment techniques applied in this report are used to standardise and 'objectify' the assessment of the systems' function, potential impacts, and services, it must be noted that much of the information is subjectively collected based on the assessor's experience and training. The assessor will, if additional information or counter arguments are provided and verified, hold the right to amend the report if necessary.
- The results of any other specialist reports reviewed and referenced in this report are assumed to be accurate and undertaken according to best practice.

7 FRESHWATER AQUATIC BIODIVERSITY RESULTS

7.1 REGIONAL SETTING

The following sections describe the physical and biological characteristics of the region within which the proposed Project is located.

7.1.1 CATCHMENT AND FRESHWATER ECOREGION

The Project area falls within the A24E quaternary catchment of the Crocodile (West) and Marico Water Management Area (WMA) (Figure 7-1). The proposed Project area is located within the Bushveld Basin freshwater ecoregion. The Mortimer Smelter property is drained by a non-perennial, unnamed tributary of the Brakspruit, which is in turn a tributary of the Bierspruit, which discharges to the Crocodile River to the north. Details of the relevant quaternary catchment are provided in Table 7-1.

Table 7-1 - Quaternary catchment details

Quaternary Catchment	Catchment Area (km^2)	Mean Annual Precipitation [MAP] (mm)	Mean Annual Evaporation [MAE] (mm)	MAP:MAE ratio [MAP:PET ratio]	Mean Annual Runoff [MAR] (mm)
A24E	688	592	1801	0.3	15.1

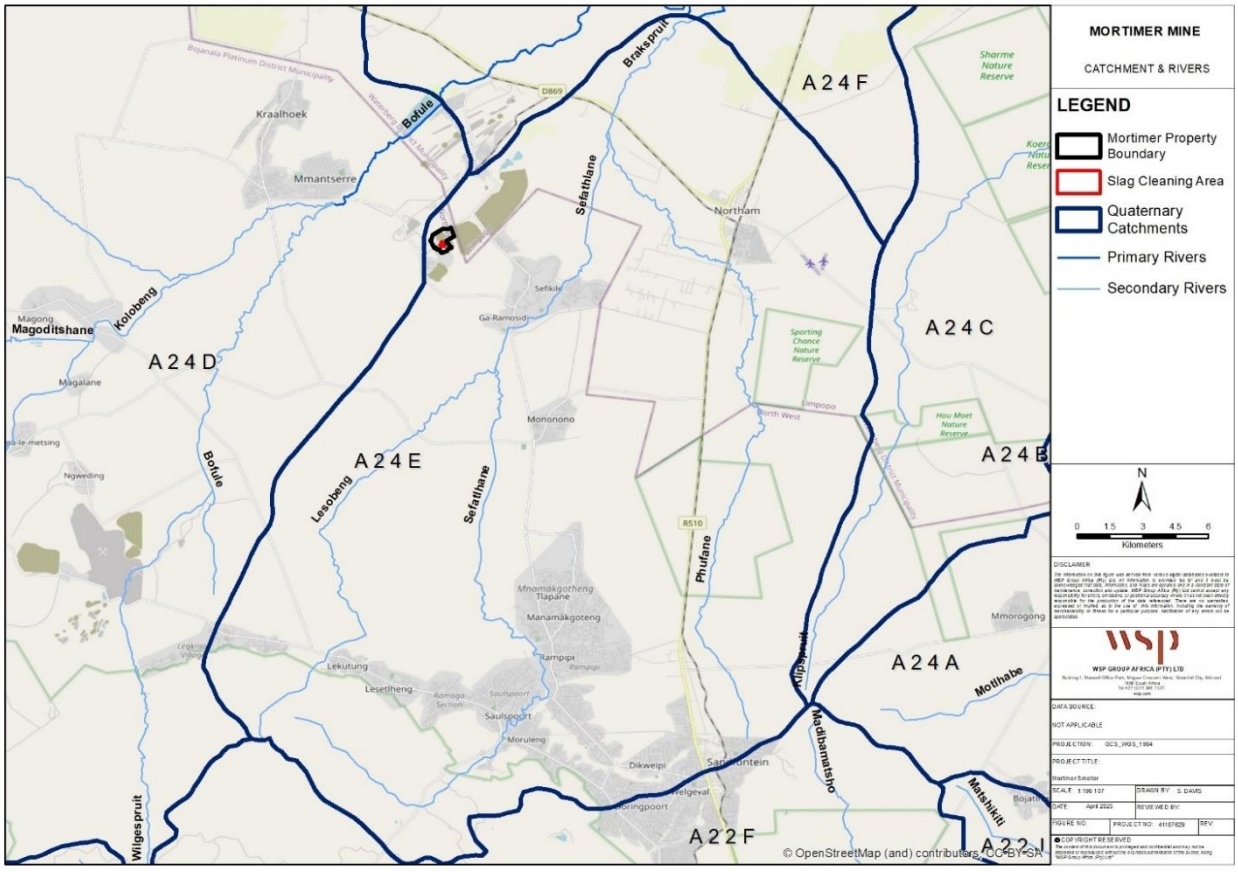

Figure 7-1 - Mortimer Smelter property in relation to catchments and primary and secondary rivers.

7.1.2 NATIONAL WETLAND MAP 5

The South African National Wetland Map version 5 (NWM5) portrays the most up-to-date spatial data for the extent and types of estuarine and inland aquatic (freshwater) ecosystems of South Africa (Van Deventer et al., 2019). The project strives to conserve a sample of freshwater ecosystems and diversity of species as well as the ecosystem processes which generate and maintain diversity (Nel et al., 2011).

The study area in relation to wetlands mapped as part of the National Wetland Map 5 project is illustrated in Figure 7-2.The National Wetland Map 5 identified two depression wetlands within a 500m radius of the development footprint. However, based on a review of current satellite imagery of the area, it is apparent that the identified “wetlands” are artificial ponds that form part of the existing Mortimer Smelter infrastructure footprint.

Figure 7-2 - Wetland features according to the National Wetland Map 5 dataset in relation to the study area.

7.1.3 NATIONAL FRESHWATER ECOSYSTEM PRIORITY AREAS

No National Freshwater Ecosystem Priority Areas (NFEPA) occur in the study area.

7.1.4 STRATEGIC WATER SOURCE AREAS

No Strategic Water Resource Areas (SWSA) occurs in the study area.

7.1.5 NORTH WEST PROVINCE BIODIVERSITY SECTOR PLAN

The North West Province Biodiversity Sector Plan (NWBSP 2015) – Aquatic CBA layer divides the landscape into Critical Biodiversity Areas (CBA), and Ecological Support Areas (ESA). Based on the NWBSP, the proposed development footprint does not intersect with any aquatic CBA or ESA areas.

7.2 SITE-SPECIFIC FINDINGS

A site visit was conducted on the 14th of March 2025. The study area, as shown in Figure 6-2 was assessed. The following observations were made:

- Recent satellite imagery of the proposed development area is shown in Figure 7-3. It is evident on the imagery that the development areas are fully transformed, with no natural habitat remaining. The area proposed for the slag cleaning project is currently covered by material stockpiles. The site survey confirmed these findings. Photographs illustrating the current condition of the slag cleaning project footprint are provided in Table 7-2 (Site 1).
- A non-perennial stream (locally identified as the Mortimerspruit) lies to the northeast of the Mortimer Smelter property, however it does not extend into the study area (see Figure 6-2). Within the study area, areas of wetness were identified, however these were found to be artificial in origin and are associated with the mine dam (Fraser Alexander dam) along the eastern edge of the Mortimer Smelter, and outflow from the Mortimer Smelter water management infrastructure to the dam. An area of surface water colonised by *Phragmites australis* – an obligate wetland gras species – was noted adjacent to the slag cleaning project development footprint. However, it was determined that ponding of flows at this location has resulted from transformation of the landscape and does not represent natural wetland habitat. See photographs of the area of ponding in Table 7-2. The artificial wet features identified within the study area, and associated with the Fraser Alexander dam impoundment and localised ponding of surface water, are illustrated in Figure 7-4.
- The Fraser Alexander dam lies on a drainage path that directs surface flow into the Mortimerspruit. Wetness signatures evident on satellite imagery suggest that overflows and/or seepage from the dam have led to increased wetness in the non-perennial stream downstream. It is uncertain the level of connectivity between the dirty water catchment reporting to the dam, and the clean water catchment and drainage network downstream.

Figure 7-3 - Proposed development areas on recent satellite imagery.

Figure 7-4 – Identified artificial wet features within the study area and in relation to the development footprint.

Table 7-2 – Sample site descriptions

Site	Description	Photo	Photo
Site 1 -24.971045° 27.143997°	Transformed habitat within the proposed development footprint		

Site	Description	Photo	Photo
Site 2 -24.972375° 27.145503°	Surface ponding on disturbed footprint colonised by *Phragmites australis*		

8 SITE SENSITIVITY VERIFICATION

Table 8-1 - Site sensitivity verification

Theme	Screening tool sensitivity	Site-based sensitivity	Motivation
Aquatic Biodiversity	Low	Low	The development footprints are fully transformed due to existing activities at the Mortimer Smelter. Wet features identified within the larger study area include an artificial dam that forms part of the Mortimer Smelter infrastructure, seepage from various mine infrastructure reporting to the dam and ponding on uneven surfaces. No natural wetlands or rivers are present within the study area. The proposed project remains outside of any sensitive natural wetland or watercourse habitat and the applicable regulated area's thereof.

9 PROPOSED IMPACT MANAGEMENT ACTIONS

Although the proposed slag cleaning area remains outside of any sensitive wetland or aquatic features, there remains a risk that surface runoff from the project footprint could transport pollutants into downstream watercourses lying beyond the study area. To avoid this risk, the following management measures should be included in the project's environmental management plan:

- All construction activities and infrastructures associated with the project must remain within the existing disturbance footprint associated with the Mortimer Smelter property.
- All surface runoff from the slag cleaning area must be contained within an established dirty water area that is contained and separate from the surrounding clean water catchment.
- No release of polluted runoff to the downstream river network should be permitted.
- Areas where potentially contaminating materials will be stored should include appropriate barrier systems in their design to prevent leaching of contaminants into the environment.
- An aquatic biomonitoring programme should be initiated (if not already undertaken as part of the mine's current environmental management programme) within the Mortimerspruit to monitor for any adverse water quality impacts arising from activities proposed at Mortimer Smelter.

10 CONCLUSIONS

- Due to the Low aquatic biodiversity sensitivity identified for the development footprint at a desktop level and confirmed through the site survey, this report serves as a compliance statement, in accordance with the gazetted requirements for an Aquatic Biodiversity Specialist Assessment (Notice No.320 Government Gazette 43110 of March 2020).

- This compliance statement is applicable to the study area as described in the BA/EIA documentation and shown in Figure 6-2.
- Due to its transformed habitat and lack of very high sensitivity features, the study area is of a low sensitivity for aquatic ecosystems
- The proposed development will not have an impact on sensitive aquatic ecosystems, assuming that the proposed impact management actions are integrated into the projects EMPr and implemented to avoid the risk of water quality deterioration in downstream watercourses.

11 REFERENCES

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