

A rapid assessment of the Habitat, Biodiversity and Wetlands Onspoed Prospecting Feasibility Assessment

Myezo EMS



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EXECUTIVE SUMMARY

BioAssets CC was appointed by Myezo Environmental Management Services (Pty) Ltd to do a rapid assessment of the Habitat, Biodiversity and Wetlands referred to as the “Onspoed Prospecting Feasibility Assessment”.

The objectives were:

- For BioAssets CC to do a general habitat, biodiversity and wetland desktop assessment and rapid field survey in order to determine the legal obligations for an application for an Environmental Authorisation for the proposed prospecting activities for coal, in terms of Regulation 16 of the National Environmental Management Act, 1998 (Act 107 of 1998) (NEMA): Environmental Impact Assessment (EIA) Regulations, 2014, on Portion 28 of the farm Onspoed 500 JR, situated in the Magisterial District of Tshwane.
- The rapid survey was done to confirm the presence of the wetlands and other related biological and habitat elements for the study area and included:
 - Confirmation of the information provided in the Department of Environmental Affairs screening tool pertaining to the conservation status and vegetation types using the desktop maps for illustration of information and a site survey
 - Confirmation of information pertaining to whether the study falls under any of these areas and using such reference material which provides such confirmation that such as South African National Biodiversity Institute National Biodiversity Assessment 2011 (NBA 2011):
 - A protected area identified in terms of NEMPAA, excluding conservancies
 - National Protected Area Expansion Strategy Focus areas
 - Sensitive areas as identified in an Environmental Management Framework as contemplated in Chapter 5 of the Act and as adopted by the competent authority
 - Critical biodiversity areas or ecosystem service areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans
 - Core areas in biosphere reserves
 - Areas within 10 kilometres from National Parks or World Heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core area of a Biosphere Reserve
 - The presence or absence of any “Critical Biodiversity Areas and Ecological Support Areas”

Recommendations:

- The Wetland identified is still in a very good condition and would rate fairly high in terms of sensitivity. The wetland must be conserved, and the applicable buffers must be preserved.
- The main portion of this wetland is in the Wilge River Nature Reserve to the west of the Onspoed property.
- It is thus recommended that a full wetland assessment and detailed delineation be conducted prior to any activity commence on the subject site.
- It is recommended that a full vegetation survey is conducted to determine the current status of the plant communities. As this was a rapid assessment, no detailed survey was conducted. In addition, the late season (end winter/beginning of the spring) resulted in difficulty to

identify many species. In addition, the geophytic herbs were mostly in a dormant state as no sufficient rain has fallen to induce growth.

- Detailed animal studies is needed – especially with regard to the avifauna. It must however include the full spectrum of animal taxa.
- It is recommended that a surface water study is conducted to determine the Present Ecological State (PES) of the Wilge River. This will form the basis of future monitoring baseline data to determine if the proposed activities will have a negative impact of the water resources downstream of the activities. It must include water quality analysis, fish and macro-invertebrate studies, a diatom survey and a riparian vegetation study. Selected sites must be upstream and downstream of the confluence of the Driefontuinspruit with the Wilge River.
- The legal obligations listed in the “Objectives” apply. It must be read with all local regulations and new regulations that may apply during the comprehensive surveys.
- When evaluating the screening tool, it is clear that the study area and adjacent areas (reserves to the west and northwest) are important ecological habitats.
- The biodiversity falls within a “Very Sensitive” Critical Biodiversity area with numerous species list that include *Chrysospalax villosus*, *Tyto capensis* and *Brachycorythis conica subsp. transvaalensis*.
- The proposed development falls within the 10km radius of numerous nature reserves where the threatened biodiversity is protected. These include the Wilge River Nature reserve to the west, the Rhenosterpoort Private Nature Reserve, the Ezemvelo Nature Reserve and the Telperion Nature Reserve to the north.
- Although the aquatic resources are not listed as “Sensitive” in the screening tool, the wetland system is considered very sensitive and water quality concerns within the Wilge River must be noted (PES).

Declaration of Independence

The Environmental Impact Assessment Regulations (Regulation 17 of Government Notice No R354 of 2010), requires that certain information is included in specialist reports. The terms of reference, purpose of the report, methodologies, assumptions and limitations, impact assessment and mitigation (where relevant to the scope of work) and summaries of consultations (where applicable) are included within the main report. Other relevant information is set out below:

Expertise of author:

- Working in the field of ecology since 1996 and in specific vegetation related assessments since 2000.
- Worked in the field of freshwater ecology and wetlands since 2000.
- Involved with visual assessments since 2009.
- Is registered as a Professional Natural Scientist with the South African Council for Natural Scientific Professions (Reg. No. 400109/95).

Declaration of independence:

BioAssets is an independent consultant and hereby declare that it does not have any financial or other vested interest in the undertaking of the proposed activity, other than remuneration for the work performed in terms of the National Environmental Management Act, 1998 (Act 107 of 1998). In addition, remuneration for services provided by BioAssets is not subjected to or based on approval of the proposed project by the relevant authorities responsible for authorising this proposed project.

Disclosure:

BioAssets undertake to disclose, to the competent authority, any material information that has or may have the potential to influence the decision of the competent authority or the objectivity of any report, plan or document required in terms of the National Environmental Management Act, 1998 (Act 107 of 1998) and will provide the competent authority with access to all information at its disposal regarding the application, whether such information is favourable to the applicant or not.

Based on information provided to BioAssets by the client, and in addition to information obtained during the course of this study, BioAssets present the results and conclusion within the associated document to the best of the author's professional judgement and in accordance with best practise.



Dr Wynand Vlok

8 December 2020

Date

Assumptions and limitations

Availability of baseline information

Baseline information for the study of the site was obtained from historic maps, photographs and reports. The desktop survey provided adequate baseline information for the area and therefore this was not a constraint.

Constraints

The survey was conducted during the early summer season and is was a daytime survey only. Most of the different habitats at the site were investigated and it was therefore possible to complete a rapid survey and obtain information on the habitats that are present and the site, or that are likely to occur there. Access to portions of the nature reserve were not possible.

Bio-physical constraints

Weather conditions during the period were warm with a moderate wind blowing. The region has received little rainfall prior to the site visit and the vegetation was still dry (representing the late winter conditions). There was no standing water in the veld during the time of the survey, but the wetlands (seeps, channels and the Wilge River) had water. This will have obvious implications on the biodiversity that are likely to occur in the area. The late winter/early spring survey is not ideal for a more detailed biodiversity survey, but it gave a good indication of the current habitat changes and impacts. Information gathered during the field survey will assist in the rapid survey for the clients need related to the feasibility assessment with regards to the prospecting application and possible future exploration at the site.

Confidentially constraints

There were no confidentially constraints.

Implications for the study

Apart from the prevailing weather conditions at the site and the winter/early spring (limited rainfall) conditions, there were no other significant constraints that would negatively impact upon the assessment for the client (feasibility study to conduct prospecting on site). Access to most areas of the study site was possible, but if the client decides to continue, a detailed biodiversity study and wetland assessment and delineation must be done. There is sufficient good quality data available in the literature that partially negates the negative effect that the type of survey (prospecting feasibility assessment) had on the quality of the evaluation.

Contents

EXECUTIVE SUMMARY	ii
1 INTRODUCTION	1
1.1 Terms of Reference	1
1.2 Objectives of the Survey	1
1.3 The Study Area	2
2 METHODOLOGY	3
2.1 Wetland Assessment	3
2.1.1 Desktop Assessment	3
2.1.2 Field Investigation	3
2.1.3 Mapping	3
2.1.4 Wetland Classification	3
2.2 Biodiversity and associated Habitat Assessment	5
2.2.1 Desktop Assessment	5
3 ASSUMPTIONS, GAPS AND LIMITATIONS	6
4 RESULTS AND FINDINGS	21
4.1 Wetland Delineation	21
4.1.1 Desktop Assessment	21
4.1.2 Field Assessment	21
4.1.3 Mapping	23
4.2 Biodiversity and Habitat Assessment	30
5 REASONED OPINION AND RECOMMENDATIONS	30
6 REFERENCES	31

1 INTRODUCTION

The client expressed the need for a rapid assessment on the farm Onspoed 500 JR (Portion 28) to determine which specialist studies must be carried out in order to comply with the EIA regulations to get the approval for the prospecting and mining rights on the property. This was done after the evaluation of the screening tool outputs (DEA), bioregional plans and critical biodiversity areas assessments. The desktop assessment was followed by the site survey on 1 December 2020.

1.1 Terms of Reference

BioAssets CC was appointed by Myezo Environmental Management Services (Pty) Ltd to do a general habitat, biodiversity and wetland desktop assessment and rapid field survey in order to determine the legal obligations for an application for an Environmental Authorisation for the proposed prospecting activities for coal, in terms of Regulation 16 of the National Environmental Management Act, 1998 (Act 107 of 1998) (NEMA): Environmental Impact Assessment (EIA) Regulations, 2014, on Portion 28 of the farm Onspoed 500 JR, situated in the Magisterial District of Tshwane.

The rapid survey was done to confirm the presence of the wetlands and other related biological and habitat elements for the study area and included:

- Confirmation of the information provided in the Department of Environmental Affairs screening tool pertaining to the conservation status and vegetation types using the desktop maps for illustration of information and a site survey
- Confirmation of information pertaining to whether the study falls under any of these areas and using such reference material which provides such confirmation that such as South African National Biodiversity Institute National Biodiversity Assessment 2011 (NBA 2011):
- A protected area identified in terms of NEMPAA, excluding conservancies
- National Protected Area Expansion Strategy Focus areas
- Sensitive areas as identified in an Environmental Management Framework as contemplated in Chapter 5 of the Act and as adopted by the competent authority
- Critical biodiversity areas or ecosystem service areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans
- Core areas in biosphere reserves
- Areas within 10 kilometres from National Parks or World Heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core area of a Biosphere Reserve
- The presence or absence of any "Critical Biodiversity Areas and Ecological Support Areas"

1.2 Objectives of the Survey

The objectives were:

- To do a rapid desktop assessment to review available reports and legal frameworks for the application for prospecting and mining rights
- To do a rapid survey to determine the presence and extent of wetlands that will be affected by the proposed prospecting and mining activities (no mapping or detailed survey done)

- To assess the current state of the habitat on the property (Portion 28 of farm Onspoed 500 JR)
- To determine the current impacts on the vegetation on the property – no detailed vegetation survey was conducted

1.3 The Study Area

The locality map for the study area is depicted in Figure 1 and 2, approximately 8km northwest of Balmoral in the Magisterial District of Tshwane, Gauteng Province.



Figure 1: Map of the study area – Northwest of Balmoral.



Figure 2: Aerial view of the study area (orange blocked area) with the large wetland system to the west (draining into the Wilge River).

2 METHODOLOGY

2.1 Wetland Assessment

2.1.1 Desktop Assessment

A preliminary delineation of the Wetland boundary was undertaken using aerial photograph interpretation. Historical records and reports were consulted. The Department of Water and Sanitation (DWS) database was also consulted to obtain historical data for the study area. In addition the National Wetland Map version 5 (NWM5) as presented by South African National Biodiversity Institute (SANBI) was scrutinised (Van Deventer *et al*, 2019) and historical data and official approvals were consulted during the assessment.

2.1.2 Field Investigation

The field investigation was undertaken during 1 December 2020 to assess and corroborate the delineated Wetland Zones present on the survey area.

The field procedure for the wetland delineation was mainly based on visual observations as access to the larger wetland within the Wilge River Nature Reserve (adjacent to the Onspoed property to the west) was not possible.

The wetlands were delineated by considering the following wetland indicators (DWAF 2005/8):

- Terrain unit indicator helps identifying those parts of the landscape where wetlands are most likely to occur. Wetlands occupy characteristic positions in the landscape and can occur on the following terrain units: crests, midslopes, footslopes and valley bottoms;
- Soil wetness indicator identifies the morphological signatures developed in the soil profile as a result of prolonged and frequent saturation; and
- The vegetation indicator identifies hydrophytic vegetation associated with frequently saturated soils.

The following procedure was followed during the delineation of the wetland boundaries and zones:

- A desktop delineation of the larger wetland area was undertaken using satellite imagery of the study site;
- Areas for verification were identified; and
- Identified areas were then scouted in the field with boundaries being recorded using a GPS.
- It must be noted that no augering were conducted for this desktop-level delineation.

2.1.3 Mapping

Mapping of the wetland boundaries was done by computerised processing utilising GPS tools, mobile applications and GIS modelling.

2.1.4 Wetland Classification

SANBI's "Further development of a proposed National Classification System for South Africa" was used to verify the classification of the wetlands within the study area (SANBI, 2009). The wetlands were

classified up to level four, which includes the system, regional setting, landscape unit and hydrogeomorphic unit.

Table 1: Wetland classification level 1 - 4.

Level 1: System	Level 2: Regional setting	Level 3: Landscape unit	Level 4: Hydrogeomorphic (HGM) unit			
Connectivity to open ocean	Ecoregion	Landscape setting	HGM type	Longitudinal zonation / landform	Drainage outflow	Drainage - inflow
			A	B	C	D
INLAND	DWAFL Level 1 Ecoregions	SLOPE	Channel (river)	Mountain headwater stream	Not applicable	Not applicable
				Mountain stream	Not applicable	Not applicable
				Transitional river	Not applicable	Not applicable
				Rejuvenated bedrock fall	Not applicable	Not applicable
			Hillslope seep	Not applicable	With channel inflow	Not applicable
					Without channel inflow	Not applicable
			Depression	Not applicable	Exorheic	With channel inflow
						Without channel inflow
					Endorheic	With channel inflow
						Without channel inflow
					dammed	With channel inflow
						Without channel inflow
		VALLEY FLOOR	Channel (river)	Mountain stream	Not applicable	Not applicable
				Transitional river	Not applicable	Not applicable
				Rejuvenated bedrock fall	Not applicable	Not applicable
				Upper foothill river	Not applicable	Not applicable
				Lower foothill river	Not applicable	Not applicable
				Lowland river	Not applicable	Not applicable
				Rejuvenated foothill river	Not applicable	Not applicable
				Upland floodplain river	Not applicable	Not applicable
			Channelled valley-bottom wetland	Valley-bottom depression	Not applicable	Not applicable
				Valley-bottom flat	Not applicable	Not applicable
			Unchannelled valley-bottom wetland	Valley-bottom depression	Not applicable	Not applicable
				Valley-bottom flat	Not applicable	Not applicable
			Floodplain wetland	Floodplain depression	Not applicable	Not applicable
				Floodplain flat	Not applicable	Not applicable
			Depression	Not applicable	Exorheic	With channel inflow
						Without channel inflow

Level 1: System	Level 2: Regional setting	Level 3: Landscape unit	Level 4: Hydrogeomorphic (HGM) unit			
					Endorheic	With channel inflow
						Without channel inflow
					dammed	With channel inflow
						Without channel inflow
		PLAIN	Valleyhead seep	Not applicable	Not applicable	Not applicable
			Channel (river)	Lowland river	Not applicable	Not applicable
				Upland floodplain river	Not applicable	Not applicable
			Floodplain wetland	Floodplain depression	Not applicable	Not applicable
				Floodplain flat	Not applicable	Not applicable
			Unchannelled valley-bottom wetland	Valley-bottom depression	Not applicable	Not applicable
				Valley-bottom flat	Not applicable	Not applicable
			Depression	Not applicable	Exorheic	With channel inflow
						Without channel inflow
					Endorheic	With channel inflow
						Without channel inflow
			Flat	Not applicable	Not applicable	Not applicable
		BENCH (Hilltop/saddle/shelf)	Depression	Not applicable	Exorheic	With channel inflow
						Without channel inflow
			Flat	Not applicable	Endorheic	With channel inflow
						Without channel inflow
			Flat	Not applicable	Not applicable	Not applicable

The Hydrogeomorphic wetland units identified will be describe individually (Marneweck and Batchelor, 2002).

2.2 Biodiversity and associated Habitat Assessment

2.2.1 Desktop Assessment

For this rapid assessment to determine the feasibility of the prospecting potential for the client, a general literature survey was conducted with regards to the mammals, amphibians, reptiles and birds associated with the area (quarter degree square – 2528DD). Although there were not any red data mammals, reptiles or amphibians listed, this must be confirmed in a detailed study if the process of prospecting and mining is considered. A number of red data bird species are present and most are associated with grasslands and wetlands (e.g. owls and cranes).

The area is listed and a biodiversity important area in the Gauteng C-Plan documents, with sections of the farm Onspoed (Portion 28 of Onspoed 500 JR) included as a “Critical Biodiversity Areas (CBA) and Ecological Support Areas (ESA)” (Figure 3). The vegetation unit for the area (Figure 4) indicate that it is referred to as the Rand Highveld Grassland (Gm 11) (Mucina and Rutherford, 2006). This vegetation unit is associated with a “highly variable landscape with extensive sloping plains and a series of ridges slightly elevated over undulating surrounding plains. The vegetation is species-rich, wiry, sour grassland alternating with low, sour shrubland on rocky outcrops and steeper slopes. It is considered to be “Endangered” (Mucina and Rutherford, 2006).

The “NBB-DEFF Screening Report” was assessed as part of the background information available and actions that must be taken for the comprehensive studies. Important animal species listed (seven recorded and listed) include *Chrysospalax villosus* and *Tyto capensis* with 411 sensitive plant species listed and the *Brachycorythis conica subsp. transvaalensis* listed as “threatened with extinction”. With regards to the “Terrestrial Biodiversity” the area is rated as “Very High Sensitivity” with the ecosystem rated as “a Vulnerable Ecosystem”.

3 ASSUMPTIONS, GAPS AND LIMITATIONS

The study was limited to a snapshot view during one site visit. The field investigation was undertaken during 1 December 2020 to assess and confirm the delineated Wetland zones present on the survey area. The wetland could not be surveyed in detail as access was limited to the full wetland due to accessibility to the Wilge River Nature Reserve. Weather conditions during the survey were favourable for recordings. No soil augering was conducted for this survey and the delineations were recorded by hand held GPS.

It must be noted that, during the process of converting spatial data to final output drawings, several steps are followed that may affect the accuracy of areas delineated. Due care has been taken to preserve accuracy. Printing or other forms of reproduction may distort the scale indicated in maps and it is therefore suggested that the wetland areas identified in this report be pegged in the field in collaboration with the surveyor for precise boundaries.

Detail survey and assessment would be required to fully delineate and describe the wetland functionality as per legislative requirements.

A rapid habitat assessment was conducted to determine the current state of the landscape and if any large negative impacts could be observed. This was done by a walk down through the farm portion (Onspoed Portion 28 of 500 JR) and an observation of the adjacent nature reserve to the west.

During the walk down, any signs of wild animals and rare birds was noted and included visual observations, signs of habitation, tracks and scats/droppings).



Figure 3: Extract of the study area on the Gauteng Conservation (GDARD) C-Plan indicating the Farm falls within the Critical Biodiversity Area (CBA – dark green) and the Ecological Support Area (ESA – light green) with the Wilge River Nature Reserve to the west.

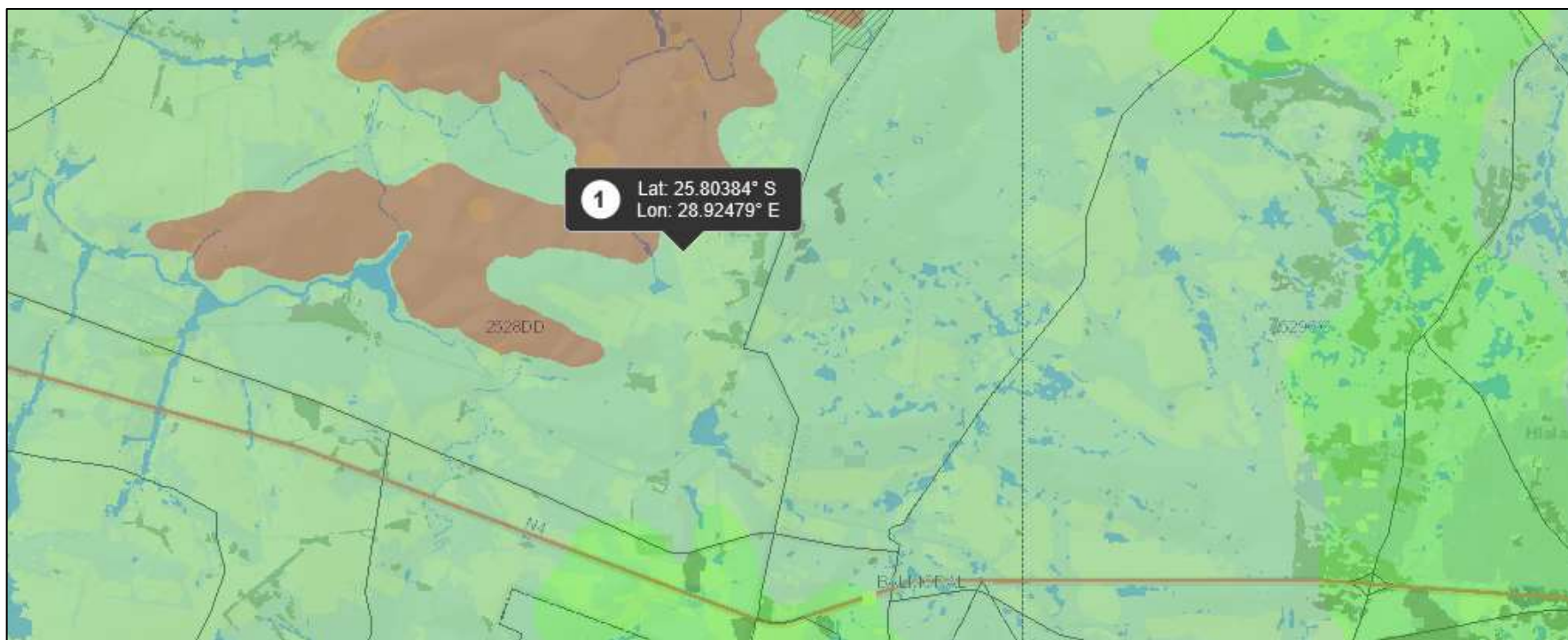


Figure 4: The vegetation map indication the area of the survey site (farm Onspoed – Portion 28 of 500 JR) falling into the Rand Highveld Grassland (Gm 11) (light blue coloured area) with the Loskop Mountain Bushveld (SVcb 13) (brown area) to the west (Mucina and Rutherford, 2006).

4 RESULTS AND FINDINGS

4.1 Wetland Delineation

4.1.1 Desktop Assessment

During the desktop investigation, one (1) possible area where wetlands could occur was identified on or in close proximity to the study site that would be affected by the proposed development activities.

The National Wetland Map version 5 (NWM5) as presented by SANBI was also scrutinised and one wetland area was identified (refer to Figure 5) on or in close proximity to the study site that could be affected by the proposed activities. The wetland as indicated by the NWM5 wetland layers were further investigated on site.

4.1.2 Field Assessment

The field investigation was undertaken on 1 December 2020 to assess and confirm the delineated Wetland zones present on the survey area.

The field investigation concluded that one natural wetland system could be recorded as per the DWAF, 2005 guidelines (Refer to Figure 6).

4.1.2.1 Wetland Indicators

4.1.2.1.1 Terrain Unit Indicator

Terrain unit indicator helps identify those parts of the landscape where wetlands are most likely to occur. Wetlands occupy characteristic positions in the landscape and can occur on the following terrain units:

- crest,
- midslope,
- footslope, and
- valley bottom.

The wetlands identified were also assessed in respect to its location in the landscape. The wetland found:

- 22049_UCVB was found on the valley floor at the head of the catchment, draining towards the North

Refer to Table 2 and Section 2.1.4 Wetland Classification for the classification of the terrain unit.

Table 2: Wetland Classification

Level 1: System	Level 2: Regional setting	Level 3: Landscape unit	Level 4: Hydrogeomorphic (HGM) unit	
Connectivity to open ocean	Ecoregion	Landscape setting	HGM type	Longitudinal zonation / landform
			A	B
INLAND	DWAF Level 1 Ecoregions	VALLEY FLOOR	Unchanneled valley-bottom wetland	Valley-bottom flat

4.1.2.1.2 Soil Form and Soil Wetness Indicator

Soil erodibility in hydrologically transformed environments contributes to the difficulties to precisely determining wetland boundaries. This investigation focussed on the delineation of the wetland features based on soil hydro-morphology and landscape hydrology as observed in the catchment and on the site.

No Soil Augering or analysis was conducted during this survey. Same must be conducted during the detailed wetland assessment to follow in the next phase of environmental impact assessment. This will provide more detail on the wetland boundary and wetland functionality so to refine on this high-level delineation exercise.

4.1.2.1.3 Vegetation Indicator

Upon the assessment of the area, the various wetland vegetation components were assessed and recorded. Dominant species were characterised as either wetland species or terrestrial species. Hydrophytic vegetation species were observed. Predominantly grass, rushes and sedge species were observed. This unit was predominantly utilised to delineate the wetland from distance visual observation.





Figure 5: Wetland vegetation.

4.1.3 Mapping

Figure 6 indicates the National Wetland Map version 5 (NWM5) as presented by SANBI (Van Deventer et al., 2019). NWM5 indicates one wetland to the west of the study site.

Figure 8 illustrates the Flow Accumulation Model that indicates the accumulation of water in the wetland system.

Figure 9 illustrates the Quantitative Flow Model that indicates the flow quantitatively through the wetland system.

Figure 10 serves to conceptually present the location of the wetland that could be affected by the proposed development activities on the site.

Figure 11 presents the conservation buffer zones that are applicable and should be considered during the development to ensure appropriate mitigation and management of the activities.

A 32m buffer was applied to the wetland that is in line with the National Environmental Management Act (NEMA) listed activities and a 50m buffer was applied as per the Gauteng biodiversity and mapping requirements. This wetland is largely intact due to minimal historical impacts and is of high ecological importance. The conservation buffer should be further assessed as part of the full wetland assessment to follow and should be utilised as the control area and will be required to assist with management and mitigation during the construction and operation phase of any development. A 500m buffer was also applied that is in line with the National Water Act (NWA) in terms of the wetland regulated area. A Water Use License Application (WULA) will have to be completed for any development activities in this regulated area.

Also, refer to the associated digital files presenting the wetland boundaries to allow for further planning of the layout of the proposed activity.

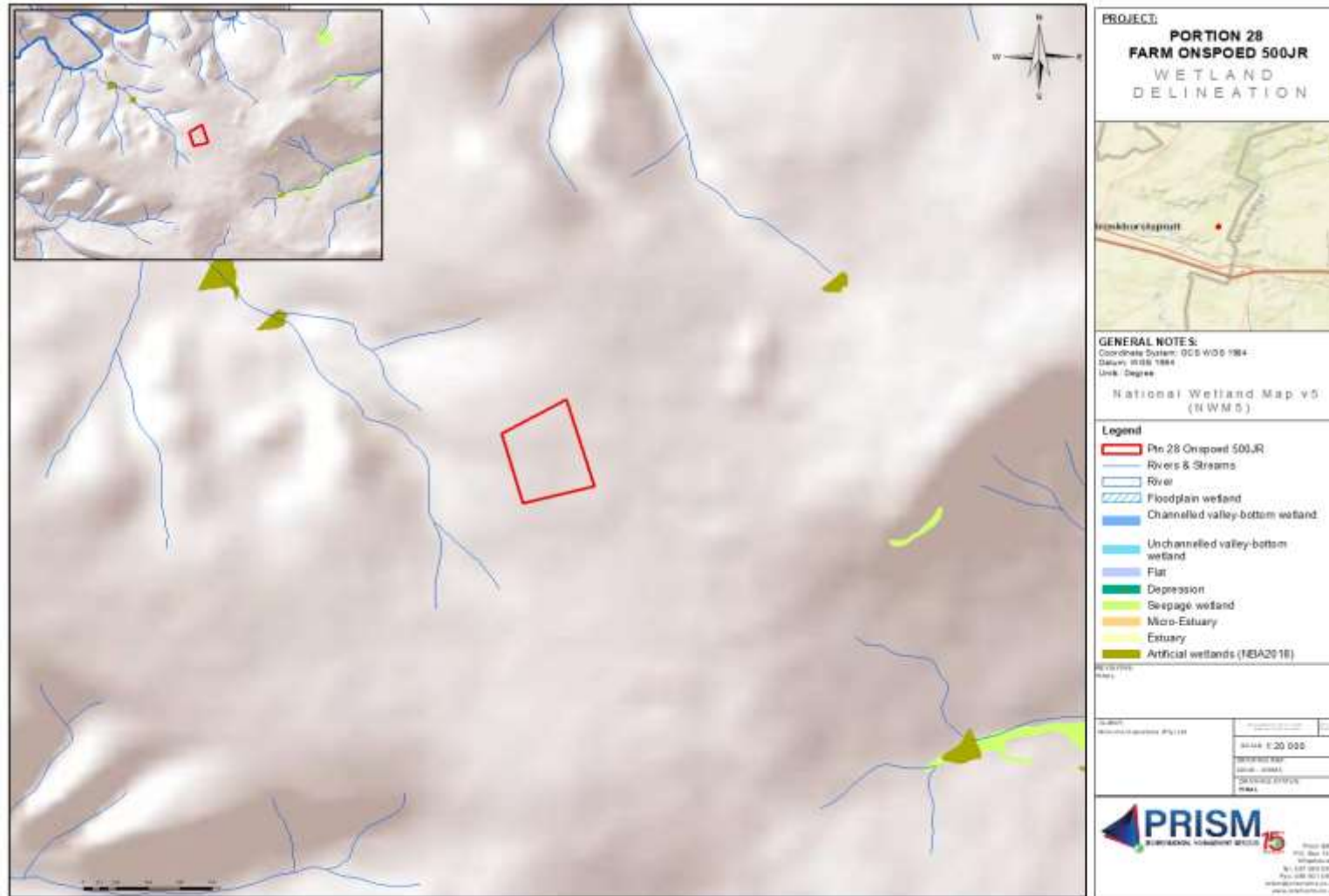


Figure 6: National Wetland Map version 5 (NWM5) (Van Deventer *et al.*, 2019).

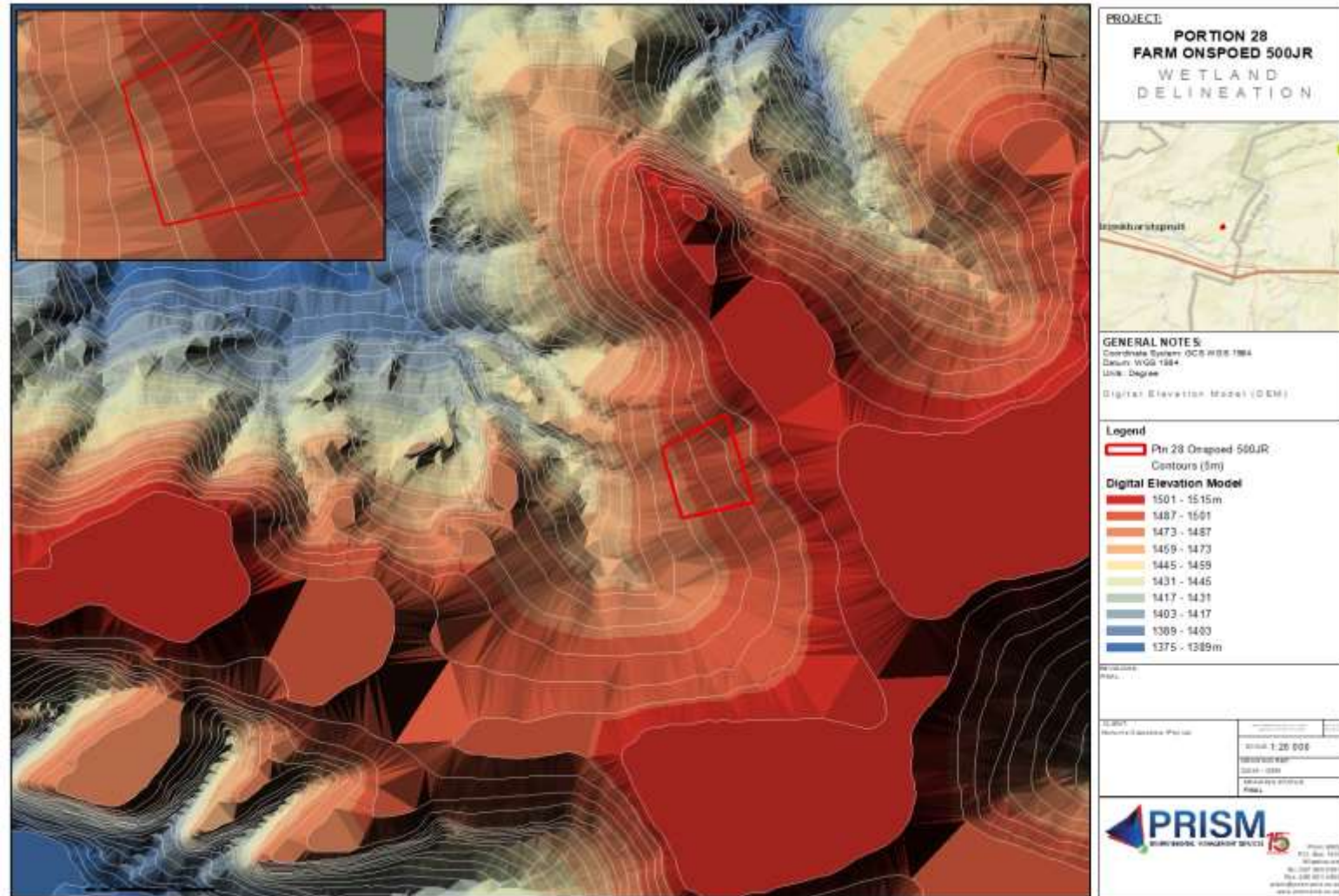


Figure 7: Digital Elevation Model (DEM).

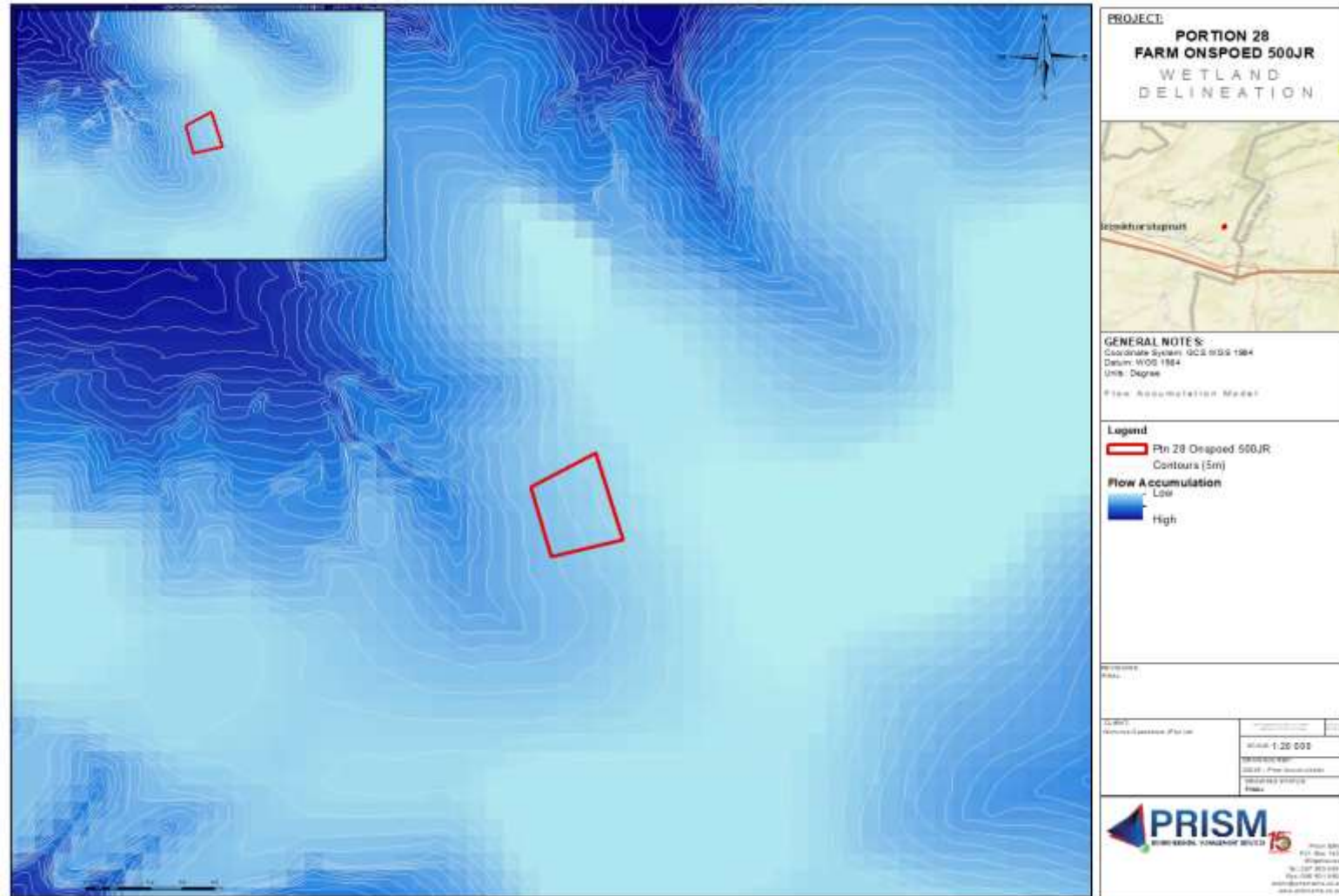


Figure 8: Flow Accumulation Model.

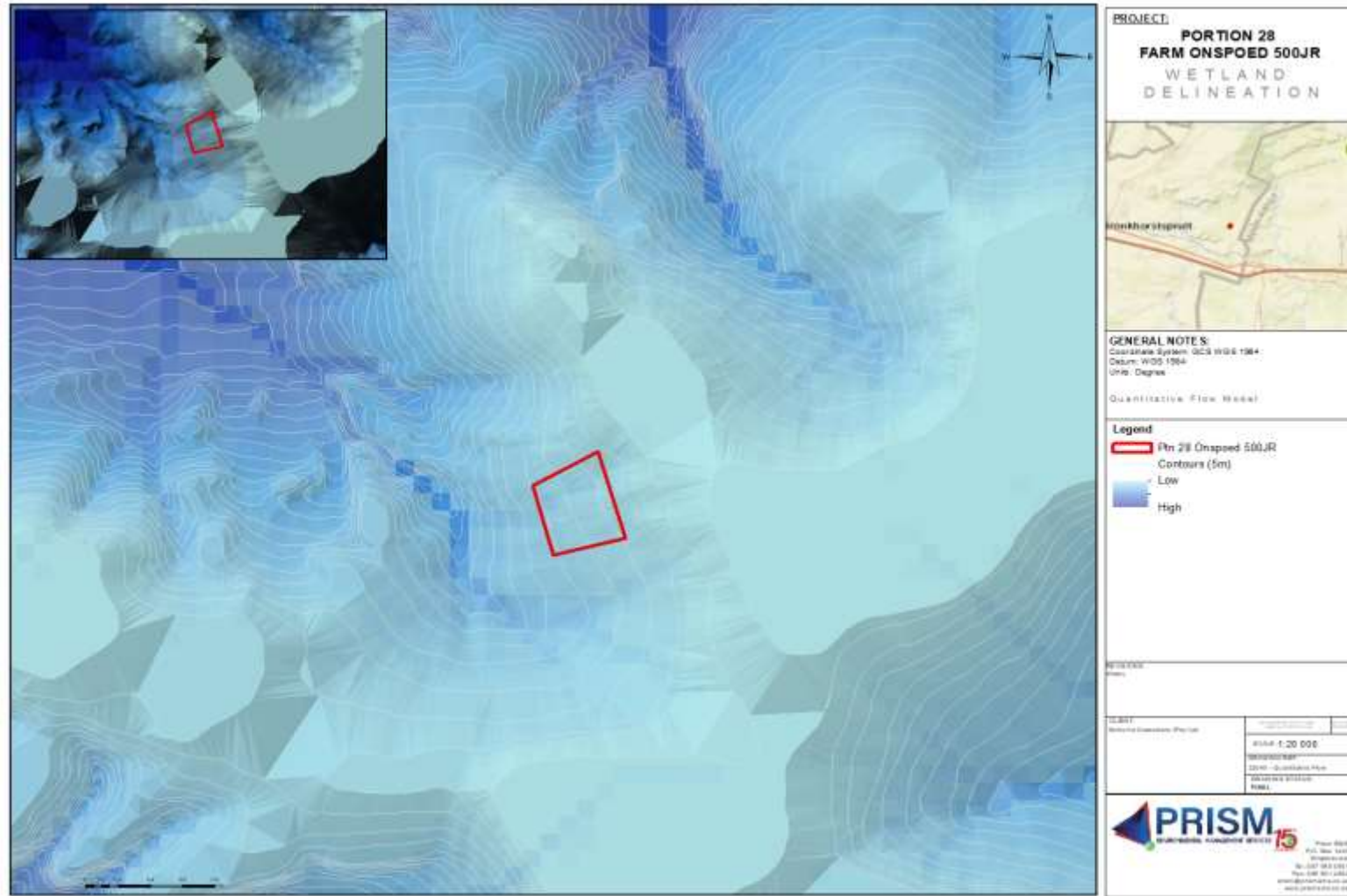


Figure 9: Quantitative Flow Model.

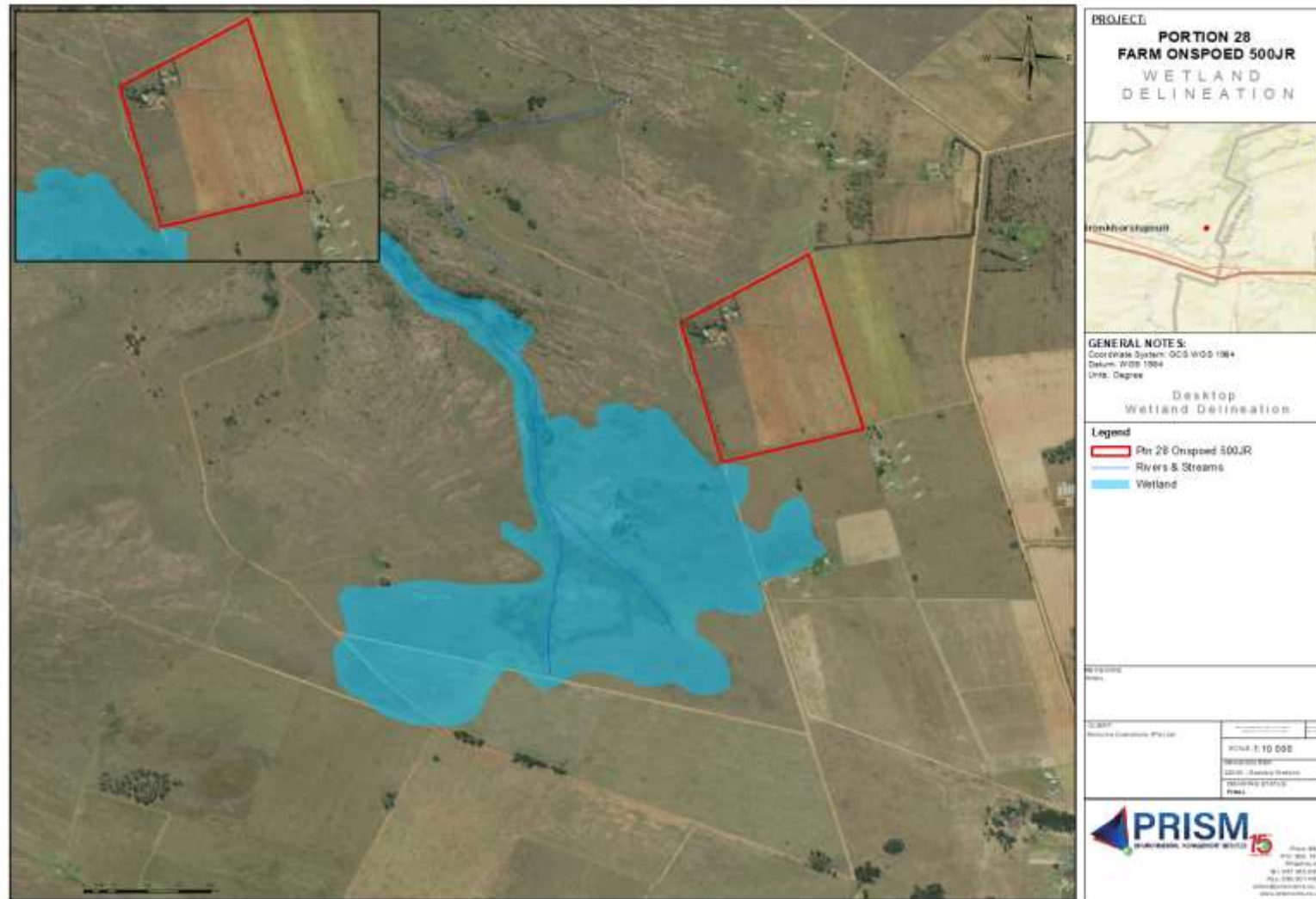


Figure 10: Desktop Wetland Delineation (*limited field verification).

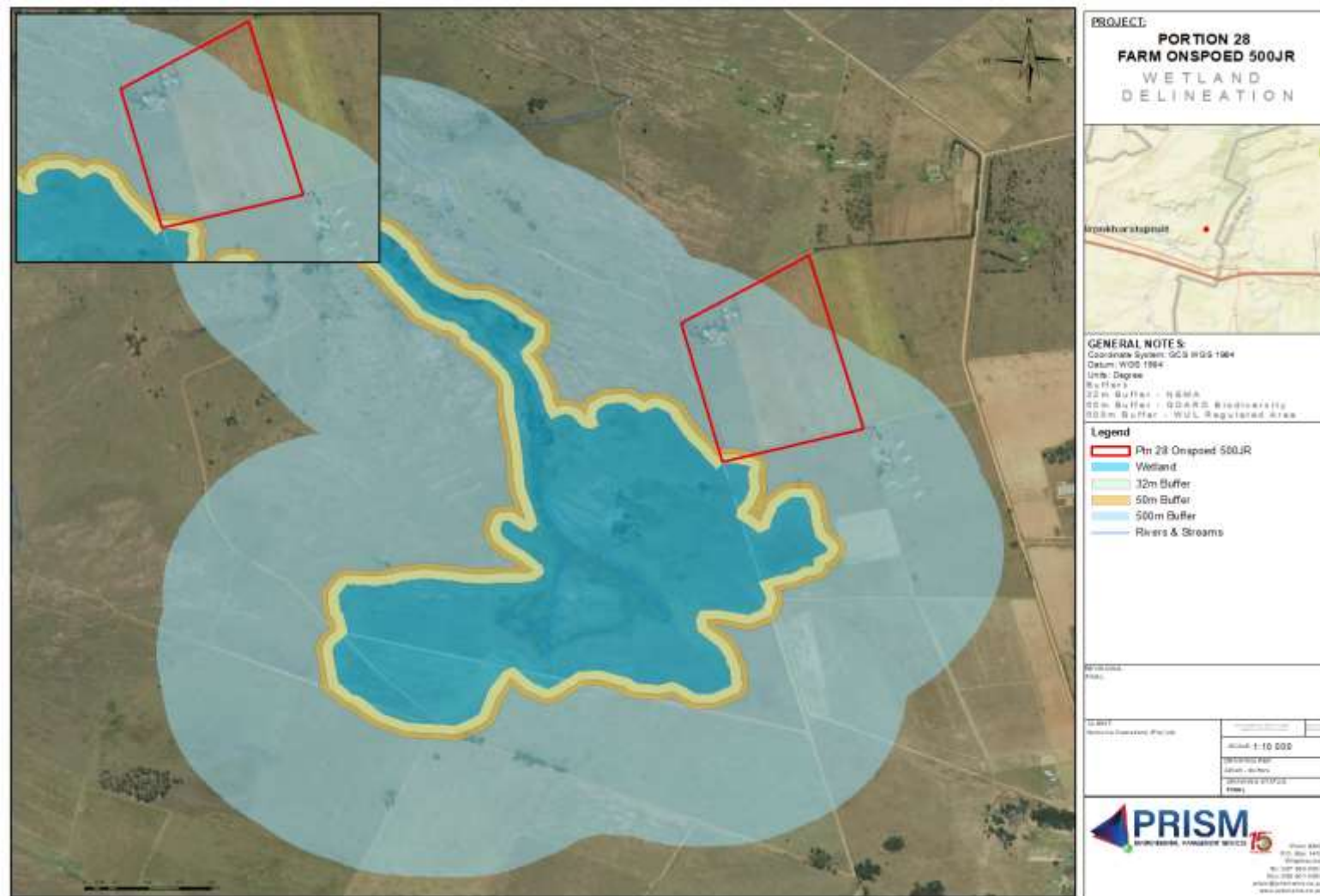


Figure 11: Wetland Buffers.

4.2 Biodiversity and Habitat Assessment

The assessment of the habitat on the farm Onspoed (Portion 28 of 500 JR) indicate some historical cultivation of the property (Figure 13 – 18). The eastern section (approximately 66% - excluding the homestead and other structures) was used for cultivation of cash crops and the furrows are still present (Figure 12). The vegetation is modified and the grass is dominated by pioneer species (e.g. *Eragrostis curvula*), some plant species for fodder (e.g. *Digitaria eriantha*) and some exotic weeds. The smaller portion (approximately 15%) consists of the more natural vegetation similar in composition to the reserve to the west. A number of exotic trees are present around the homestead and along the western boundary fence (including some fruit trees). The vegetation unit (Rand Highveld Grassland – Figure 4, Section 2.2.1) is considered to be protected and are therefore listed as a “Critical Biodiversity Area” in the Gauteng C-Plan with the area to the east (cultivated areas) considered as an “Ecological Support Area” (Figure 3, Section 2.2.1).

The rapid survey and time of the year must be taken into consideration when reporting no red data birds were observed. A detailed study is needed to confirm the presence or absence of any species of concern. No other signs or visual observations of mammals, reptiles or amphibians were made. The close proximity to the nature reserves to the west and northwest will suggest that animals will utilise the property to forage. More permanent residency may not occur due to the cultivation and grass cutting that is practiced on the site.

In general, the habitat was in a fair to good condition with the historic cultivation causing minimal impacts (e.g. erosion) on the property. The alien invasive trees and forbs can be considered as a major change to the vegetation. It is linked to the planting of alien trees and the invasive nature of the forbs on the exposed soils (cultivated areas). From an ecological perspective, the vegetation and habitat (eroded areas) can be rehabilitated.

5 REASONED OPINION AND RECOMMENDATIONS

- The Wetland identified is still in a very good condition and would rate fairly high in terms of sensitivity. The wetland must be conserved, and the applicable buffers must be preserved.
- Main portion of the wetland falls within the Wilge River Nature Reserve.
- It is thus recommended that a full wetland assessment and detailed delineation be conducted prior to any activity commence on the subject site.
- It is recommended that a full vegetation survey is conducted to determine the current status of the plant communities. As this was a rapid assessment, no detailed survey was conducted. In addition, the late season (end winter/beginning of the spring) resulted in difficulty to identify many species. In addition, the geophytic herbs were mostly in a dormant state as no sufficient rain has fallen to induce growth.
- Detailed animal studies is needed – especially with regard to the avifauna. It must however include the full spectrum of animal taxa.
- It is recommended that a surface water study is conducted to determine the Present Ecological State (PES) of the Wilge River. This will form the basis of future monitoring baseline data to determine if the proposed activities will have a negative impact of the water resources

downstream of the activities. It must include water quality analysis, fish and macro-invertebrate studies, a diatom survey and a riparian vegetation study. Selected sites must be upstream and downstream of the confluence of the Driefontuinspruit with the Wilge River.

- The legal obligations listed in the “Objectives” apply. It must be read with all local regulations and new regulations that may apply during the comprehensive surveys.
- When evaluating the screening tool, it is clear that the study area and adjacent areas (reserves to the west and northwest) are important ecological habitats.
- The biodiversity falls within a “Very Sensitive” Critical Biodiversity area with numerous species list that include *Chrysospalax villosus*, *Tyto capensis* and *Brachycorythis conica subsp. transvaalensis*.
- The proposed development falls within the 10km radius of numerous nature reserves where the threatened biodiversity is protected. These include the Wilge River Nature reserve to the west, the Rhenosterpoort Private Nature Reserve, the Ezemvelo Nature Reserve and the Telperion Nature Reserve to the north.
- Although the aquatic resources are not listed as “Sensitive” in the screening tool, the wetland system is considered very sensitive and water quality concerns within the Wilge River must be noted (PES).

6 REFERENCES

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Figure 12 General view of the study area blocked in blue – the more natural section to the west with the cultivated fields to the east. The hedge of remaining fruit trees are along the western boundary of the property.



Figure 13: The condition of the basal layer in a fair condition in the undisturbed area (small western section).



Figure 14: The remaining exotic trees and fruit trees on the western boundary.



Figure 15: A view of the modified grassland (cultivated fields) with a good basal layer, yet dominated by pioneer species and planted fodder species.



Figure 16: Example of the current vegetation over the larger modified area with new cultivation (ploughing) started after the first rains.



Figure 17: A view of the upper reaches of the wetlands – associated with the Driefonteinspruit draining into the Wilge River.



Figure 18: The wetland with some impacts (trampling) outside the reserve area.