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DETERMINATION OF ECOLOGICAL WATER REQUIREMENTS FOR SURFACE WATER (RIVER, ESTUARIES AND WETLANDS) AND GROUNDWATER IN THE LOWER ORANGE WMA

WETLAND EWR REPORT

water & sanitation

Department:
Water and Sanitation
REPUBLIC OF SOUTH AFRICA

NOVEMBER 2016

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DEPARTMENT OF WATER AND SANITATION

CHIEF DIRECTORATE: WATER ECOSYSTEMS

DETERMINATION OF ECOLOGICAL WATER REQUIREMENTS FOR SURFACE WATER (RIVER, ESTUARIES AND WETLANDS) AND GROUNDWATER IN THE LOWER ORANGE WMA

WETLAND EWR REPORT

Approved for RFA by:

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Delana Louw
Project Manager

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Date

DEPARTMENT OF WATER AND SANITATION (DWS)
Approved for DWS by:

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Chief Director: Water Ecosystems

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REPORT SCHEDULE

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Final	

EXECUTIVE SUMMARY

BACKGROUND

The Chief Directorate: Water Ecosystems (CD: WE) of the Department of Water and Sanitation (DWS) initiated a study for the provision of professional services to undertake the 'Determination of Ecological Water Requirements for Surface Water (Rivers, Estuaries and wetlands) and Groundwater in the Lower Orange Water Management Area (WMA). Rivers for Africa was appointed as the Professional Service Provider (PSP) to undertake this study.

There is a need to undertake detailed Ecological Water Requirement (EWR) and Basic Human Needs (BHN) studies for various water resource components due to mainly:

- Hydraulic fracturing (HF) that could be undertaken in the Water Management Area (WMA).
- Various water use licence applications.
- The conservation status of various Resources in this catchment; and
- The associated impacts of proposed developments will have on the availability of water.

STUDY AREA

The focus area of the study comprises only the South African portion of the Lower Orange River Catchment. The Eastern Boundary starts where the Vaal River enters the Orange River, and the Western Boundary is the Atlantic Ocean. The study area is downstream of the Upper Orange, Senqu, and the Integrated Vaal River System and as such, affected by the upstream activities in the highly developed river basin. The Orange River forms the border between the Republic of South Africa (RSA) and Namibia to the west of 20 degrees longitude over a distance of approximately 550 km.

PURPOSE OF REPORT

The purpose of this report is to:

- Provide a desktop assessment of the EcoClassification for wetlands at the sub-quaternary (SQ) scale.
- Provide a refinement of the wetland priorities to include potential fracking.
- To establish Ecological Water Requirements (EWRs) for high priority wetlands.

WETLAND ECOSTSTUS, PRIORITY AND RESERVE

The desktop EcoClassification of wetlands was summarised at the SQ level and formed the basis of a preliminary prioritisation (Table 3.1). This prioritisation showed that the ecologically important wetlands (Figure 4.1) were also mostly those with low Water Resource Use Importance (WRUI) (Figure 4.2) and vice versa, resulting in priority wetlands mostly confined to the main stem of the Orange River (Figure 4.3). This prioritisation process did not however consider highly important groundwater resource units (GRUs), or possible future fracking in the catchment. Quaternary catchments associated with potential fracking and highly important Groundwater Resource Units were subsequently assigned HIGH values for Water Resource Use Importance (WRUI), which then altered wetland priority in those areas. The refined wetland priorities resulted in more wetlands scoring High or Very High (Figure 4.4 and Table 4.1), which then required the determination of a wetland EWR.

High and Very High priority wetlands formed three distinct groupings of wetland HGM types (Figure 5.1). These were floodplain wetlands associated with the main stem of the Orange River,

depressions (some large but mostly small pans) towards the southern part of the catchment and higher density channelled and unchannelled valley bottom wetlands in quaternary catchments D62C (Elandsfontein), D62D (Brak) and D55E (Sak and Sout; insets in Figure 5.1).

Floodplains along the Orange River are mostly in-channel features such as inset benches, flood benches or terraces and are not comparable to meandering floodplains outlined by Rountree *et al*. in DWA (2012). These floodplains are assessed when the riparian zone is assessed e.g. EWR 3 and 4 at Augrabies and Vioolsdrift respectively. The EWR for floodplain wetlands will therefore be a quantitative flow regime, mostly related to specific flood events that are required for floodplain inundation and sediment and nutrient dynamics. Such a flow regime could be adjusted for extrapolation to upstream and downstream similar floodplains (as per procedures used in the determination of the EWR for rivers).

High priority pans are numerous in the catchment, particularly in and around the fracking areas (Figure 5.1). Some of these pans are extensive e.g. Verneuk Pan, Grootvloer, Boesmankop, Bitterputs etc., can be in excess of thousands of hectares. Procedures outlined in DWA (2012; Figure 5.2) for the desktop Reserve of pans outline Fluvius (2007) as the method to use (see Appendix A8.4. in Rountree *et al*., 2013 for the example). The example (of a single pan) in Fluvius (2007) merely relates annual rainfall (September to August) to area of pan inundated at end of the dry season. It was decided instead that for each of the large pans a Level 1 WET-Health would be conducted using Google Earth © to assess the vegetation PES (which is based on current land use within each pan) as a measure of the wetland PES (MacFarlane *et al*., 2007). The EWR of high priority pans is expressed through ecological specifications that protect the habitat. To provide these specifications, the EWRs were expressed in terms of a REC (see Table 5.2), which is dependent on the Present Ecological State (PES), and the ecological importance denotes whether the Recommended Ecological Category (REC) is the same as the PES or an improvement, if at all possible. Where the REC is an improvement of the PES, this will involve management of land use. The most common method to achieve the REC where it is higher than the PES is the removal of alien vegetation (notably *Prosopis glandulosa*), reduced agricultural encroachment of wetlands and management of grazing pressures and watering points for livestock.

Channelled and unchannelled valley bottom wetlands in quaternary catchments D62C (Elandsfontein), D62D (Brak) and D55E (Sak and Sout) were assessed during the PESEIS project (DWS, 2014) as part of the riparian / wetland component assessment. These metrics were used in this study to denote values for the Ecological Importance, Ecological Sensitivity and PES and verified using Google Earth © (Tables 5.1, 5.2 and 5.3). The EWR of high priority channelled and unchannelled valley bottom wetlands are also expressed through ecological specifications that protect the habitat. To provide these specifications, the EWRs are expressed in terms of a REC (see Table 5.3). This table also outlines the strategy required in order to achieve the REC.

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ABBREVIATIONS

BHN	Basic Human Needs
CD: WE	Chief Directorate: Water Ecosystems (Name change from CD: RDM)
CBA	Critical Biodiversity Area
DWS	Department of Water and Sanitation (Name change applicable after March 2014)
DWA	Department Water and Sanitation (Name change applicable after April 2009)
DWAF	Department Water and Sanitation and Forestry
EI	Ecological Importance
EIS	Ecological Importance and Sensitivity
ES	Ecological Sensitivity
EWR	Ecological Water Requirements
FEPA	Freshwater Ecosystem Priority Areas
GRU	Groundwater Resource Unit
HF	Hydraulic Fracturing
HGM	Hydro-geomorphic
I & S	Importance and Sensitivity
IEI	Integrated Environmental Importance
NFEPA	National Freshwater Ecosystem Priority Area
PES	Present Ecological State
PESEIS	Present Ecological State, Ecological Importance and Ecological Sensitivity
PSP	Professional Service Provider
REC	Recommended Ecological Category
RDM	Resource Directed Measures
RU	Resource Unit
SCI	Socio-Cultural Importance
SQ	Sub Quaternary
TOR	Terms of Reference
WMA	Water Management Area
WRUI	Water Resource Use Importance

1 INTRODUCTION

1.1 BACKGROUND

The Chief Directorate: Water Ecosystems (CD: WE) of the Department of Water and Sanitation (DWS) initiated a study for the provision of professional services to undertake the 'Determination of Ecological Water Requirements for Surface Water (Rivers, Estuaries, and Wetlands) and Groundwater in the Lower Orange Water Management Area (WMA). The appointed Professional Service Provider (PSP) to undertake this study was Rivers for Africa.

As per the Terms of Reference (TOR), there is a need to undertake detailed Ecological Water Requirement (EWR) and Basic Human Needs (BHN) studies for various water resource components due to mainly:

- Planned hydraulic fracturing (HF) undertaken in the WMA.
- Various water use licence applications.
- The conservation status of various Resources in this catchment; and
- The associated impacts of proposed developments will have on the availability of water.

1.2 STUDY AREA

As indicated in the TOR, the study area is the Lower Orange River WMA (the old WMA 14). It is the largest WMA in the country, and covers almost the entire Northern Cape Province. This core area forms part of the Orange-Senqu River Basin, which straddles four International Basin States with the Senqu River originating in the highlands of Lesotho, Botswana in the north-eastern part of the Basin, the Fish River in Namibia and the largest area situated in South Africa. The focus area of the study comprises only the South African portion of the Lower Orange River Catchment. The Eastern Boundary starts where the Vaal River Tributary enters the Orange River, and the Western Boundary is the Atlantic Ocean. The study area is downstream of the Upper Orange, Senqu and the Integrated Vaal River System and as such, is affected by the upstream activities in the highly developed river basin. The Orange River forms the border between the Republic of South Africa (RSA) and Namibia to the west of the 20 degrees longitude over a distance of approximately 550 km.

1.3 PURPOSE OF THIS REPORT

The purpose of this report is to:

- Provide a desktop assessment of the EcoClassification for wetlands at the sub-quaternary (SQ) scale.
- Provide a refinement of the wetland priorities to include potential fracking.
- To establish EWRs for high priority wetlands.

1.4 OUTLINE OF THIS REPORT

The report outline is provided below.

Chapter 1: Introduction
This Chapter provides general background to the project, study area and purpose of the report.

Chapter 2: Methods and Approach
This chapter outlines the methods used and approaches taken to achieve the objective.

Chapter 3: Desktop EcoClassification for Wetlands

This chapter outlines a desktop assessment of the EcoClassification for wetlands at SQ scale using more updated information that has become available since 2010.

Chapter 4: Refinement of Wetland Priorities

This chapter outlines a refinement of the wetland priorities within the already established wetland RUs, to include areas where fracking is a possibility.

Chapter 5: Quantification of the Wetland EWR

This chapter outlines the EWR for high priority wetlands. EWRs will be determined for high priority wetlands only. In most cases, these EWRs will consist of wetland specific EcoClassification using more detailed tools such as WET-Health to provide Ecological Specifications were possible.

Chapter 6: Conclusion

This chapter outlines the main conclusions of the work.

Chapter 7: References

This chapter outlines references cited in the text.

Chapter 8: Comments Register

Comments from the Client are provided.

2 METHODS AND APPROACH

2.1 PRESENT ECOLOGICAL STATE

The assessment of wetland Present Ecological State (PES) relied on both of the riparian/wetland metrics rated in the Present Ecological State, Ecological Importance and Ecological Sensitivity (PESEIS) database (DWS, 2014): Riparian/wetland zone and zone continuity modification. Riparian/wetland zone modification relates to "modifications that indicate the potential that wetland zones may have been changed from reference (condition) in terms of structure and composition that may influence these zones regarding functioning and processes occurring within these zones", and also refers to these zones as habitat for biota.

Riparian/wetland zone continuity modification relates to "modifications that indicate the potential that riparian/wetland connectivity may have changed from the reference (condition)". Physical fragmentation (both longitudinal and lateral) is the indicator used for wetland continuity and includes for example inundation by weirs and dams, physical removal for farming, mining, overgrazing etc., and the presence of roads or other human structure e.g. urban areas. The underlying assumption is that these two metrics incorporate wetlands within each SQ (where SQs exist), and as such should provide a useful measure of a more detailed investigation (visual assessment by specialist using satellite imagery) of overall ecological state. Furthermore, it is assumed that although these metrics include the riparian area, they remain a more realistic assessment of PES than the "wetcon" condition values within National Freshwater Ecosystem Priority Area (NFEPA) data (Nel et al., 2011).

2.2 WETLAND PRIORITISATION

Wetland prioritisation incorporated the desktop determination and linking of socio-economic and ecological values and condition of the resource (wetlands) within each SQ and surrounding areas perhaps associated with a particular SQ. Wetland biodiversity and functional value, sensitivity, and risk were identified and rated within a matrix in order to facilitate prioritisation. Ratings were done for each wetland Resource Unit (RU) and wetland unit as far as available desktop data allowed. Data from the PESEIS project (DWS, 2014) were used as a starting point and as a reference guide using SQ codes. Not all wetlands however, were associated with an SQ code but were nevertheless included in the evaluation. The following criteria were used to filter existing data in order to produce a list of priority wetlands at various scales:

- Quaternary catchments with moderate or high importance (Rountree in Louw *et al*., 2010).
- Quaternary catchments where wetland integrated Ecological Importance (EI) was high or very high (Rountree in Louw *et al*., 2010).
- Any wetland denoted as or associated with a RAMSAR site.
- NFEPA wetlands highlighted as important for cranes.
- NFEPA wetlands highlighted as important for amphibians.
- Wetlands denoted as Freshwater Ecosystem Priority Areas (FEPAs) or clusters.
- PESEIS data (DWS, 2014): where EI was high, or Ecological Sensitivity (ES) was high or very high, or PES was an A or B.
- Critical Biodiversity Areas (CBAs) at the regional scale (Namakwa District Biodiversity Sector Plan (NDBSP), 2009).
- Wetland unit extent and type were used to assess wetland sensitivity.

This prioritisation process did not however consider highly important Groundwater Resource Units (GRUs), or possible future fracking in the catchment, which is most likely to occur where the Prince

Albert and Whitehill formations (DWS, 2016a) that occur at depths of more than a kilometre. Quaternary catchments associated with these formations and highly important GRUs, were assigned HIGH values for Water Resource Use Importance (WRUI), which then altered wetland priority in this area. This refinement of wetland priorities resulted in more wetlands with High or Very High priorities than before.

2.3 WETLAND EWR

The approach is in keeping with outlined techniques for the Rapid ecological Reserve determination of inland wetlands (Rountree *et al.*, 2013), and is to provide conditions that support the hydrological functioning of wetlands for the maintenance of a desired ecological state (DWS, 2016b). These conditions will vary depending on wetland type from quantified flow volumes and distribution or inundation regimes (i.e. quantification of the reserve) to setting of criteria for the protection of wetland condition where the hydrological requirements cannot be quantified.

For each priority wetland RU, the EWR is determined according to the following steps:

- Determine dominant wetland Hydrogeomorphic (HGM) type.
- Determine appropriate level of RDM study for wetlands according to HGM type.
- Assess / validate EcoStatus of priority wetlands.
- Determine EWR (or other Resource Directed Measure - RDM) to achieve Recommended Ecological Category (REC).

2.3.1 Determine dominant wetland HGM type

The HGM wetland type dictates the method of RDM study, as there are different types of assessment methods and EWR determination approaches for different types of wetlands. For the Rapid Reserve methods for wetlands, HGM types were taken from NFEPA spatial data (Nel *et al.*, 2011) and included wetlands in highly important GRUs and where fracking might take place.

2.3.2 Determine appropriate level of RDM study for wetlands

Rountree *et al.* in DWAF (2012) provide a framework for selecting the appropriate level of RDM study for wetlands. This approach uses the type of wetland and main impact or threat to identify an appropriate level of RDM assessment. The RDM assessment may be either a quantitative EWR determination, a qualitative EWR determination or, in the most simple (low risk) situations, the determination of simple conditions to achieve the REC.

2.3.3 Assess / validate EcoStatus of priority wetlands

This is achieved by the validation of the PES, the determination of the Ecological Importance and Sensitivity (EIS) and the determination of the REC. WET-Health (Version 2) (MacFarlane *et al.*, 2007) was used to determine the PES for pans. PESEIS (DWS, 2014) metrics for the riparian / wetland assessments were used as a starting point for Channelled and unchannelled valley bottom wetlands and were verified using Google Earth ©.

2.3.4 Determine EWR (or other RDM) to achieve REC

The methods for determining wetland EWR vary according to the HGM type of wetland and level of study. It may not be necessary to quantify the reserve in the same sense that it is determined for rivers, and in some cases may only require the setting of conditions for the maintenance of the hydrological functioning of a specific wetland RU.

The EWR of high priority floodplain wetlands were aligned to river processes since these wetlands are an integral component of the channel. The EWR of high priority pans and Channelled and unchannelled valley bottom wetlands was expressed through ecological specifications that protect the habitat. To provide these specifications, the EWRs were expressed in terms of a REC, which is dependent on the PES and the ecological importance denotes whether the REC is the same as the PES or an improvement, if at all possible.

3 DESKTOP ECOCLASSIFICATION FOR WETLANDS

The purpose of this chapter is to summarise the desktop EcoClassification results at SQ level. The EcoClassification results and preliminary prioritisation are summarised in Table 3.1. The columns in the Table 3.1 are described as follows:

- Column 1: SQ number from the PESEIS study (DWS, 2014).
- Column 2: River name. Where names appear blank, the SQ refers to an unnamed stream.
- Column 3: Wetland EI obtained from an integration of RAMSAR status, wetland FEPA status, provision of habitats for rare and endangered species (birds, frogs, plants), Namakwa District Biodiversity Sector Plan status (CBAs; NDBSP, 2009) and wetland extent (area).
- Column 4: Wetland ES based on natural land cover data within wetlands and within a 100 m buffer around wetlands (data from NFEPA; Nel *et al*., 2011), as well as the extent of wetlands. The assessment was based on the assumption that smaller wetlands with less natural cover within and surrounding them will likely be more sensitive to further degradation, given current pressures (Table 3.1).
- Column 5: Socio-Cultural Importance (SCI) based on the 2010 EWR study (Louw *et al*. (2010). Note, this was a quaternary catchment assessment and all SQs within a quaternary were provided the same assessment score.
- Column 6: Integrated Importance and Sensitivity, which represents the maximum of the EI, ES and SCI.
- Column 7: PES obtained from both of the riparian/wetland metrics rated in the PESEIES database (DWS, 2014), some of which were updated. Table 3.1 does not show SQs without wetlands or those that were not rated in the PESEIES study (mostly because they were ephemeral).
- Column 8: Integrated Importance and Sensitivity (I & S) (based on a rating from 1 – 5 where 1 is Very Low and 5 is Very High): The integrated importance and sensitivity (I&S) considers both the integrated importance and sensitivity and the PES.
- Column 9: Water Resource Use Importance (WRUI) (based on a rating from 0 – 4 where 0 is Very Low and 4 is Very High) based on the 2010 EWR study (Louw *et al*., 2010). Note, this was a quaternary catchment assessment and all SQs within a quaternary were provided the same assessment score. This will be updated when fracking information becomes available, which will likely increase several WRUI scores and also therefore increase the priority of many wetlands.
- Column 10: Wetland Priority (based on a rating from 0 – 4 where 0 is Very Low and 4 is Very High) and considers the IEI and the WRUI. This prioritisation must be seen as preliminary and will be updated based on the updated WRUI.

Table 3.1 Summarised data using data from the national PESEIS study (DWS, 2014) for each SQ with applicable criteria. Only SQs that were rated for PES and contained wetlands are shown

SQ	River Name[1]	Wetland EI	Wetland ES	SCI Evaluation	Integrated I&S (EI,ES,SCI) (max)	SQ [Wetland] PES	IEI	WRUI	Wetland Priority
C51M-03519	Riet	LOW	LOW	N/A	LOW	C/D	2	0	1
D31B-05091		HIGH	LOW	LOW	HIGH	A	5	1	2
D33J-03947		HIGH	VERY LOW	LOW	HIGH	A	5	1	2
D33K-03723	Orange	LOW	VERY LOW	LOW	LOW	C/D	2	4	3
D42A-01082	Nossob	HIGH	VERY LOW	HIGH	HIGH	B/C	4	0	2
D42A-01198	Auob	HIGH	VERY LOW	HIGH	HIGH	B/C	4	0	2
D42B-01652	Nossob	HIGH	VERY LOW	MODERATE	HIGH	C/D	3	0	1
D42C-01754	Molopo	HIGH	VERY LOW	MODERATE	HIGH	C/D	3	0	1
D42C-01918	Kuruman	LOW	VERY LOW	MODERATE	MODERATE	C	3	0	1
D42C-01940	Molopo	HIGH	VERY LOW	MODERATE	HIGH	C	3	0	1
D42D-01899	Molopo	HIGH	VERY LOW	LOW	HIGH	C	3	0	1
D42D-02123	Molopo	HIGH	VERY LOW	LOW	HIGH	C	3	0	1
D42D-02283	Molopo	VERY HIGH	VERY LOW	LOW	VERY HIGH	C/D	3	0	1
D42E-02491		HIGH	VERY LOW	LOW	HIGH	C/D	3	0	1
D42E-02598		LOW	MODERATE	LOW	MODERATE	C	3	0	1
D42E-02606		LOW	LOW	LOW	LOW	C/D	2	0	1
D42E-02655		HIGH	HIGH	LOW	HIGH	C	3	0	1
D42E-02656	Doringdam	HIGH	VERY LOW	LOW	HIGH	C/D	3	0	1
D42E-02674		HIGH	LOW	LOW	HIGH	C	3	0	1
D42E-02709		HIGH	VERY LOW	LOW	HIGH	C	3	0	1
D42E-02723		HIGH	VERY LOW	LOW	HIGH	C	3	0	1
D42E-02738	Molopo	HIGH	VERY LOW	LOW	HIGH	C	3	0	1
D42E-02774		LOW	VERY HIGH	LOW	VERY HIGH	D	3	0	1
D42E-02787		HIGH	VERY LOW	LOW	HIGH	C	3	0	1
D42E-02812	Molopo	HIGH	VERY LOW	LOW	HIGH	C/D	3	0	1
D42E-02891		HIGH	LOW	LOW	HIGH	C	3	0	1
D42E-02893	Molopo	HIGH	VERY LOW	LOW	HIGH	C/D	3	0	1

[1] A blank space indicates that the DWS river coverage has no name for the river. These are usually small tributaries with no names in the database.

SQ	River Name[1]	Wetland EI	Wetland ES	SCI Evaluation	Integrated I&S (EI,ES,SCI) (max)	SQ [Wetland] PES	IEI	WRUI	Wetland Priority
D42E-02896		HIGH	MODERATE	LOW	HIGH	C	3	0	1
D42E-02913	Molopo	HIGH	MODERATE	LOW	HIGH	C	3	0	1
D42E-02931		HIGH	LOW	LOW	HIGH	C	3	0	1
D42E-02938		HIGH	LOW	LOW	HIGH	C	3	0	1
D42E-02958		HIGH	MODERATE	LOW	HIGH	C	3	0	1
D42E-03009		HIGH	VERY LOW	LOW	HIGH	C/D	3	0	1
D42E-03047	Molopo	LOW	MODERATE	LOW	MODERATE	C	3	0	1
D42E-03056		LOW	HIGH	LOW	HIGH	C	3	0	1
D42E-03092		LOW	VERY HIGH	LOW	VERY HIGH	C	5	0	2
D51A-07271		LOW	VERY HIGH	MODERATE	VERY HIGH	C/D	3	1	2
D51A-07302	Renoster	MODERATE	VERY HIGH	MODERATE	VERY HIGH	C/D	3	1	2
D51A-07361	Renoster	LOW	HIGH	MODERATE	HIGH	C/D	3	1	2
D51A-07457	Dorps	LOW	MODERATE	MODERATE	MODERATE	D	2	1	1
D51A-07477		MODERATE	HIGH	MODERATE	HIGH	D	3	1	2
D51B-06782	Renoster	LOW	HIGH	LOW	HIGH	C/D	3	1	2
D51B-06923	Kariega	LOW	HIGH	LOW	HIGH	C/D	3	1	2
D51B-06943	Renoster	HIGH	HIGH	LOW	HIGH	C/D	3	1	2
D51B-07105		LOW	VERY HIGH	LOW	VERY HIGH	C	5	1	2
D51B-07208	Renoster	LOW	HIGH	LOW	HIGH	C/D	3	1	2
D51C-06594	Renoster	LOW	HIGH	LOW	HIGH	C/D	3	1	2
D51C-06793	Boesmanfontein se Laagte	MODERATE	HIGH	LOW	HIGH	C	3	1	2
D52A-07274	Vis	LOW	HIGH	MODERATE	HIGH	D	3	1	2
D52A-07488	Visrivier-Oos	LOW	HIGH	MODERATE	HIGH	C/D	3	1	2
D52A-07492	Visrivier-Wes	LOW	HIGH	MODERATE	HIGH	D	3	1	2
D52B-07118	Vis	LOW	VERY HIGH	LOW	VERY HIGH	D	3	1	2
D52B-07131	Klein-Vis	LOW	VERY HIGH	LOW	VERY HIGH	C	5	1	2
D52B-07166		LOW	HIGH	LOW	HIGH	C/D	3	1	2
D52B-07168	Vis	LOW	VERY HIGH	LOW	VERY HIGH	D	3	1	2
D52B-07250		LOW	HIGH	LOW	HIGH	C/D	3	1	2
D52B-07288		LOW	VERY HIGH	LOW	VERY HIGH	C/D	3	1	2
D52B-07322		LOW	HIGH	LOW	HIGH	D	3	1	2
D52C-06869		LOW	VERY HIGH	LOW	VERY HIGH	B/C	5	1	2
D52C-06874	Vis	LOW	VERY HIGH	LOW	VERY HIGH	D	3	1	2

SQ	River Name[1]	Wetland EI	Wetland ES	SCI Evaluation	Integrated I&S (EI,ES,SCI) (max)	SQ [Wetland] PES	IEI	WRUI	Wetland Priority
D52C-06920	Vis	LOW	VERY HIGH	LOW	VERY HIGH	D	3	1	2
D52C-06927		LOW	VERY HIGH	LOW	VERY HIGH	C	5	1	2
D52D-06761	Muiskraal	LOW	HIGH	MODERATE	HIGH	D	3	1	2
D52D-06975		HIGH	MODERATE	MODERATE	HIGH	D	3	1	2
D52D-06997	Muiskraal	LOW	VERY HIGH	MODERATE	VERY HIGH	C/D	3	1	2
D52E-06638		LOW	VERY HIGH	LOW	VERY HIGH	C/D	3	1	2
D52E-06677	Kookfontein	LOW	HIGH	LOW	HIGH	C/D	3	1	2
D52E-06694		LOW	VERY HIGH	LOW	VERY HIGH	B/C	5	1	2
D52E-06758	Vis	LOW	HIGH	LOW	HIGH	D	3	1	2
D52F-06306	Vis	HIGH	VERY LOW	LOW	HIGH	C/D	3	1	2
D52F-06325	Vis	HIGH	LOW	LOW	HIGH	D	3	1	2
D52F-06327	Rooivlak se Laagte	HIGH	HIGH	LOW	HIGH	B/C	4	1	2
D52F-06455		LOW	HIGH	LOW	HIGH	B/C	4	1	2
D52F-06486	Vis	LOW	HIGH	LOW	HIGH	D	3	1	2
D52F-06580		LOW	VERY HIGH	LOW	VERY HIGH	B/C	5	1	2
D52F-06587	Hottentotsfontein se Laagte	LOW	VERY HIGH	LOW	VERY HIGH	B/C	5	1	2
D52F-06591	Vis	LOW	MODERATE	LOW	MODERATE	D	2	1	1
D52F-06595	Hottentotsfontein se Laagte	LOW	VERY HIGH	LOW	VERY HIGH	B/C	5	1	2
D53A-04033	Mottels	HIGH	VERY LOW	LOW	HIGH	B/C	4	2	3
D53A-04099	Hartbees	LOW	VERY HIGH	LOW	VERY HIGH	D	3	2	2
D53A-04100	Mottels	LOW	VERY LOW	LOW	LOW	C	2	2	2
D53A-04103	Mottels	HIGH	LOW	LOW	HIGH	B/C	4	2	3
D53A-04113	Mottels	HIGH	MODERATE	LOW	HIGH	B/C	4	2	3
D53A-04140	Mottels	LOW	MODERATE	LOW	MODERATE	C	3	2	2
D53A-04197	Hartbees	HIGH	VERY LOW	LOW	HIGH	C	3	2	2
D53A-04206		HIGH	MODERATE	LOW	HIGH	B/C	4	2	3
D53A-04238		HIGH	MODERATE	LOW	HIGH	C	3	2	2
D53A-04285	Hartbees	HIGH	VERY LOW	LOW	HIGH	C	3	2	2
D53A-04286		HIGH	MODERATE	LOW	HIGH	C	3	2	2
D53A-04303	Hartbees	HIGH	VERY LOW	LOW	HIGH	C	3	2	2
D53A-04306	Klein-Lat	LOW	MODERATE	LOW	MODERATE	B/C	3	2	2
D53A-04308	Dam se Leegte	HIGH	LOW	LOW	HIGH	B/C	4	2	3
D53A-04309	Lat	HIGH	VERY LOW	LOW	HIGH	C	3	2	2

SQ	River Name[1]	Wetland EI	Wetland ES	SCI Evaluation	Integrated I&S (EI,ES,SCI) (max)	SQ [Wetland] PES	IEI	WRUI	Wetland Priority
D53A-04345	Lat	HIGH	MODERATE	LOW	HIGH	C	3	2	2
D53A-04382	Hartbees	HIGH	VERY LOW	LOW	HIGH	C	3	2	2
D53A-04387	Hartbees	HIGH	VERY LOW	LOW	HIGH	C	3	2	2
D53B-03712	Rugseers	HIGH	VERY LOW	LOW	HIGH	B/C	4	1	2
D53B-03734		HIGH	LOW	LOW	HIGH	B/C	4	1	2
D53B-03746		HIGH	VERY LOW	LOW	HIGH	B/C	4	1	2
D53B-03801	Rugseers	HIGH	LOW	LOW	HIGH	B/C	4	1	2
D53B-03828	Rooiput se Leegte	HIGH	VERY LOW	LOW	HIGH	B/C	4	1	2
D53B-03858	Rugseers	HIGH	VERY LOW	LOW	HIGH	B/C	4	1	2
D53B-03890	Rooiput se Leegte	HIGH	LOW	LOW	HIGH	B/C	4	1	2
D53B-03892	Rugseers	HIGH	VERY LOW	LOW	HIGH	C	3	1	2
D53B-03895	Rooiput se Leegte	HIGH	MODERATE	LOW	HIGH	B/C	4	1	2
D53B-03907		LOW	MODERATE	LOW	MODERATE	B/C	3	1	2
D53B-03948	Rooiput se Leegte	LOW	VERY HIGH	LOW	VERY HIGH	C	5	1	2
D53B-03958	Rooiput se Leegte	HIGH	MODERATE	LOW	HIGH	B/C	4	1	2
D53B-03972	Rugseers	HIGH	VERY LOW	LOW	HIGH	C	3	1	2
D53B-03980	Rooiput se Leegte	HIGH	LOW	LOW	HIGH	B/C	4	1	2
D53B-03999	Rooiput se Leegte	HIGH	VERY LOW	LOW	HIGH	B/C	4	1	2
D53B-04007	Rooiput se Leegte	LOW	MODERATE	LOW	MODERATE	B/C	3	1	2
D53B-04009	Rooiput se Leegte	HIGH	VERY LOW	LOW	HIGH	B/C	4	1	2
D53B-04049	Rooiput se Leegte	LOW	VERY HIGH	LOW	VERY HIGH	B/C	5	1	2
D53B-04066	Rooiput se Leegte	LOW	VERY HIGH	LOW	VERY HIGH	B/C	5	1	2
D53B-04104	Hartbees	LOW	VERY HIGH	LOW	VERY HIGH	C/D	3	1	2
D53C-03648	Sandnoute	LOW	HIGH	LOW	HIGH	C	3	1	2
D53C-03666		HIGH	MODERATE	LOW	HIGH	B/C	4	1	2
D53C-03682	NRougas se Loop	HIGH	MODERATE	LOW	HIGH	C	3	1	2
D53C-03775	Sandnoute	HIGH	VERY LOW	LOW	HIGH	B/C	4	1	2
D53C-03778	NRougas se Loop	HIGH	VERY LOW	LOW	HIGH	B/C	4	1	2
D53C-03807	Hartbees	LOW	MODERATE	LOW	MODERATE	C	3	1	2
D53C-03847		LOW	MODERATE	LOW	MODERATE	B/C	3	1	2
D53C-03885	Hartbees	HIGH	MODERATE	LOW	HIGH	C	3	1	2
D53C-04093	Driekop se	LOW	LOW	LOW	LOW	C	2	1	1
D53D-03879	Tuins	HIGH	VERY LOW	LOW	HIGH	C	3	1	2

SQ	River Name[1]	Wetland EI	Wetland ES	SCI Evaluation	Integrated I&S (EI,ES,SCI) (max)	SQ [Wetland] PES	IEI	WRUI	Wetland Priority
D53D-03909		LOW	LOW	LOW	LOW	C	2	1	1
D53D-03959	Tuins	HIGH	VERY LOW	LOW	HIGH	C	3	1	2
D53D-04022	Tuins	HIGH	VERY LOW	LOW	HIGH	C	3	1	2
D53D-04031	Graafwaters	HIGH	HIGH	LOW	HIGH	C	3	1	2
D53E-03557	Hartbees	HIGH	LOW	LOW	HIGH	C	3	1	2
D53E-03626		LOW	VERY HIGH	LOW	VERY HIGH	B/C	5	1	2
D53E-03639	Hartbees	LOW	MODERATE	LOW	MODERATE	C	3	1	2
D53E-03640		LOW	MODERATE	LOW	MODERATE	B/C	3	1	2
D53E-03685		HIGH	HIGH	LOW	HIGH	B/C	4	1	2
D53E-03744	Hartbees	HIGH	HIGH	LOW	HIGH	C	3	1	2
D53E-03791	Hartbees	HIGH	VERY LOW	LOW	HIGH	C	3	1	2
D53E-03798		LOW	VERY HIGH	LOW	VERY HIGH	B/C	5	1	2
D53E-03816	Hartbees	HIGH	VERY LOW	LOW	HIGH	C	3	1	2
D53F-04378		HIGH	VERY LOW	LOW	HIGH	B/C	4	1	2
D53F-04579		HIGH	VERY LOW	LOW	HIGH	B/C	4	1	2
D53F-04673		HIGH	LOW	LOW	HIGH	B/C	4	1	2
D53F-04785	Rietfontein	HIGH	VERY LOW	LOW	HIGH	C	3	1	2
D53F-05096		HIGH	VERY LOW	LOW	HIGH	B/C	4	1	2
D53G-03887		HIGH	VERY LOW	LOW	HIGH	B/C	4	1	2
D53G-03944	Brulkolk se Holte	LOW	VERY HIGH	LOW	VERY HIGH	B/C	5	1	2
D53G-03991	Steenkampsvlei se Holte	HIGH	VERY LOW	LOW	HIGH	B/C	4	1	2
D53G-03992		HIGH	VERY LOW	LOW	HIGH	B/C	4	1	2
D53G-03997		HIGH	VERY LOW	LOW	HIGH	B/C	4	1	2
D53G-04025		HIGH	VERY LOW	LOW	HIGH	B/C	4	1	2
D53G-04045	Sout	HIGH	VERY LOW	LOW	HIGH	C/D	3	1	2
D53G-04058	Soutputs se Laagte	HIGH	VERY LOW	LOW	HIGH	B/C	4	1	2
D53G-04077		HIGH	VERY LOW	LOW	HIGH	B/C	4	1	2
D53G-04085		HIGH	VERY LOW	LOW	HIGH	B/C	4	1	2
D53G-04108		HIGH	VERY LOW	LOW	HIGH	B/C	4	1	2
D53G-04132	Soutputs se Laagte	HIGH	VERY LOW	LOW	HIGH	B/C	4	1	2
D53G-04168		HIGH	VERY LOW	LOW	HIGH	B/C	4	1	2
D53G-04176	Soutputs se Laagte	HIGH	VERY LOW	LOW	HIGH	B/C	4	1	2
D53H-03564	Sout	HIGH	VERY LOW	LOW	HIGH	B/C	4	1	2

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D53H-03651	Sout	LOW	MODERATE	LOW	MODERATE	C	3	1	2
D53H-03705		HIGH	HIGH	LOW	HIGH	B/C	4	1	2
D53H-03749	Droegrond se laagte	HIGH	MODERATE	LOW	HIGH	B/C	4	1	2
D53H-03757		HIGH	VERY LOW	LOW	HIGH	B/C	4	1	2
D53H-03836	Sout	HIGH	VERY LOW	LOW	HIGH	C	3	1	2
D53H-03871		HIGH	LOW	LOW	HIGH	B/C	4	1	2
D53H-03875		LOW	LOW	LOW	LOW	B/C	3	1	2
D53H-03897	Sout	HIGH	VERY LOW	LOW	HIGH	C	3	1	2
D53J-03408	Hartbees	LOW	HIGH	LOW	HIGH	D	3	1	2
D53J-03458	Hartbees	HIGH	LOW	LOW	HIGH	C	3	1	2
D53J-03469		LOW	VERY HIGH	LOW	VERY HIGH	B/C	5	1	2
D53J-03512	Marais	LOW	VERY HIGH	LOW	VERY HIGH	B/C	5	1	2
D53J-03542		LOW	VERY HIGH	LOW	VERY HIGH	B/C	5	1	2
D53J-03544		LOW	VERY HIGH	LOW	VERY HIGH	B/C	5	1	2
D53J-03554	Hartbees	HIGH	VERY LOW	LOW	HIGH	C	3	1	2
D54A-05241	Holsloot	LOW	VERY LOW	LOW	LOW	C/D	2	1	1
D54A-05287		HIGH	VERY LOW	LOW	HIGH	C	3	1	2
D54A-05418	Holsloot	LOW	VERY HIGH	LOW	VERY HIGH	C/D	3	1	2
D54A-05421		HIGH	MODERATE	LOW	HIGH	D	3	1	2
D54A-05427	Kalksloot	LOW	LOW	LOW	LOW	C	2	1	1
D54A-05434	Holsloot	HIGH	LOW	LOW	HIGH	C	3	1	2
D54A-05500	Kalksloot	HIGH	VERY LOW	LOW	HIGH	C	3	1	2
D54A-05522		HIGH	MODERATE	LOW	HIGH	B/C	4	1	2
D54A-05572		HIGH	LOW	LOW	HIGH	B/C	4	1	2
D54A-05593		LOW	VERY HIGH	LOW	VERY HIGH	C/D	3	1	2
D54A-05595		HIGH	MODERATE	LOW	HIGH	B/C	4	1	2
D54A-05619		LOW	MODERATE	LOW	MODERATE	B/C	3	1	2
D54A-05653		LOW	VERY HIGH	LOW	VERY HIGH	C/D	3	1	2
D54A-05724		LOW	VERY HIGH	LOW	VERY HIGH	B/C	5	1	2
D54B-04978	Carnarvonleegte	LOW	HIGH	LOW	HIGH	C/D	3	1	2
D54B-05119		LOW	VERY LOW	LOW	LOW	B/C	3	1	2
D54B-05123		HIGH	LOW	LOW	HIGH	B/C	4	1	2
D54B-05125		HIGH	VERY LOW	LOW	HIGH	C	3	1	2

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D54B-05129		HIGH	MODERATE	LOW	HIGH	B/C	4	1	2
D54B-05151		LOW	LOW	LOW	LOW	C/D	2	1	1
D54B-05160	Carnarvonleegte	HIGH	LOW	LOW	HIGH	C/D	3	1	2
D54B-05230		LOW	HIGH	LOW	HIGH	C/D	3	1	2
D54B-05247	Boesak	HIGH	HIGH	LOW	HIGH	B/C	4	1	2
D54B-05266	Bitterpoortloop	HIGH	MODERATE	LOW	HIGH	C	3	1	2
D54B-05293	Carnarvonleegte	HIGH	VERY LOW	LOW	HIGH	C	3	1	2
D54B-05316	Boesak	LOW	VERY HIGH	LOW	VERY HIGH	D	3	1	2
D54B-05341		LOW	VERY HIGH	LOW	VERY HIGH	D	3	1	2
D54B-05381		LOW	HIGH	LOW	HIGH	C/D	3	1	2
D54B-05384	Boesak	LOW	VERY HIGH	LOW	VERY HIGH	C/D	3	1	2
D54B-05429	Renosterpoort se Leegte	HIGH	VERY LOW	LOW	HIGH	B/C	4	1	2
D54B-05431		LOW	HIGH	LOW	HIGH	D	3	1	2
D54B-05436	Carnarvonleegte	LOW	HIGH	LOW	HIGH	C/D	3	1	2
D54B-05482	Boesak	LOW	VERY HIGH	LOW	VERY HIGH	B/C	5	1	2
D54B-05484		LOW	VERY HIGH	LOW	VERY HIGH	B/C	5	1	2
D54B-05533		LOW	VERY HIGH	LOW	VERY HIGH	B/C	5	1	2
D54B-05549		LOW	VERY HIGH	LOW	VERY HIGH	C	5	1	2
D54B-05556		LOW	VERY HIGH	LOW	VERY HIGH	B/C	5	1	2
D54B-05558		LOW	VERY HIGH	LOW	VERY HIGH	B/C	5	1	2
D54B-05618		LOW	VERY HIGH	LOW	VERY HIGH	B/C	5	1	2
D54B-05621		HIGH	MODERATE	LOW	HIGH	C/D	3	1	2
D54B-05661	Carnarvonleegte	HIGH	LOW	LOW	HIGH	C/D	3	1	2
D54B-05662		LOW	HIGH	LOW	HIGH	B/C	4	1	2
D54B-05690		LOW	HIGH	LOW	HIGH	D	3	1	2
D54B-05693		LOW	VERY HIGH	LOW	VERY HIGH	B/C	5	1	2
D54B-05779	Carnarvonleegte	LOW	HIGH	LOW	HIGH	C/D	3	1	2
D54B-05792	Carnarvonleegte	LOW	HIGH	LOW	HIGH	C/D	3	1	2
D54B-05814	Bloudrif	LOW	MODERATE	LOW	MODERATE	B/C	3	1	2
D54C-05087		VERY HIGH	VERY LOW	LOW	VERY HIGH	B/C	5	2	3
D54C-05147		LOW	MODERATE	LOW	MODERATE	C/D	2	2	2
D54C-05162		LOW	VERY LOW	LOW	LOW	D/E	1	2	1
D54C-05185		HIGH	VERY LOW	LOW	HIGH	B/C	4	2	3

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D54D-04544		HIGH	LOW	LOW	HIGH	B/C	4	1	2
D54D-04630	Carnarvonleegte	HIGH	VERY LOW	LOW	HIGH	C	3	1	2
D54D-04767	Sand	HIGH	LOW	LOW	HIGH	B/C	4	1	2
D54D-04810		HIGH	LOW	LOW	HIGH	B/C	4	1	2
D54D-04896	Carnarvonleegte	HIGH	VERY LOW	LOW	HIGH	C/D	3	1	2
D54E-05143		HIGH	VERY LOW	LOW	HIGH	B/C	4	1	2
D54E-05146		HIGH	VERY LOW	LOW	HIGH	B/C	4	1	2
D54E-05173		HIGH	VERY LOW	LOW	HIGH	B/C	4	1	2
D54E-05180		HIGH	VERY LOW	LOW	HIGH	B/C	4	1	2
D54E-05188	Ysterdoringspan	HIGH	VERY LOW	LOW	HIGH	C/D	3	1	2
D54E-05199	Ysterdoringspan	HIGH	VERY LOW	LOW	HIGH	C/D	3	1	2
D54E-05200		HIGH	VERY LOW	LOW	HIGH	B/C	4	1	2
D54E-05220	Jacoblinks se Laagte	HIGH	VERY LOW	LOW	HIGH	B/C	4	1	2
D54E-05240	Jacoblinks se Laagte	HIGH	VERY LOW	LOW	HIGH	B/C	4	1	2
D54E-05261		HIGH	VERY LOW	LOW	HIGH	B/C	4	1	2
D54E-05283	Ysterdoringspan	HIGH	VERY LOW	LOW	HIGH	C	3	1	2
D54E-05298		HIGH	VERY LOW	LOW	HIGH	C/D	3	1	2
D54E-05310	Ysterdoringspan	HIGH	VERY LOW	LOW	HIGH	C	3	1	2
D54E-05330		HIGH	LOW	LOW	HIGH	C/D	3	1	2
D54E-05334		HIGH	VERY LOW	LOW	HIGH	B/C	4	1	2
D54E-05342	Botterslaagte	HIGH	VERY LOW	LOW	HIGH	B/C	4	1	2
D54E-05380		HIGH	VERY LOW	LOW	HIGH	B/C	4	1	2
D54E-05383		HIGH	VERY LOW	LOW	HIGH	C	3	1	2
D54E-05399		LOW	HIGH	LOW	HIGH	B/C	4	1	2
D54E-05406		HIGH	VERY LOW	LOW	HIGH	C	3	1	2
D54E-05410		HIGH	VERY LOW	LOW	HIGH	B/C	4	1	2
D54E-05428		HIGH	VERY LOW	LOW	HIGH	B/C	4	1	2
D54E-05432		HIGH	HIGH	LOW	HIGH	B/C	4	1	2
D54E-05465		HIGH	HIGH	LOW	HIGH	B/C	4	1	2
D54E-05466	Botterslaagte	HIGH	VERY LOW	LOW	HIGH	B/C	4	1	2
D54E-05479		LOW	VERY HIGH	LOW	VERY HIGH	B/C	5	1	2
D54E-05492		LOW	VERY HIGH	LOW	VERY HIGH	B/C	5	1	2
D54E-05494		LOW	VERY HIGH	LOW	VERY HIGH	B/C	5	1	2

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D54E-05525		HIGH	VERY LOW	LOW	HIGH	B/C	4	1	2
D54E-05538		HIGH	LOW	LOW	HIGH	B/C	4	1	2
D54E-05555		LOW	VERY HIGH	LOW	VERY HIGH	C	5	1	2
D54E-05594		LOW	VERY HIGH	LOW	VERY HIGH	B/C	5	1	2
D54E-05597		HIGH	MODERATE	LOW	HIGH	B/C	4	1	2
D54E-05632		LOW	VERY HIGH	LOW	VERY HIGH	B/C	5	1	2
D54E-05635		LOW	LOW	LOW	LOW	B/C	3	1	2
D54E-05637		LOW	HIGH	LOW	HIGH	B/C	4	1	2
D54E-05727		LOW	VERY HIGH	LOW	VERY HIGH	B/C	5	1	2
D54E-05731		LOW	VERY HIGH	LOW	VERY HIGH	B/C	5	1	2
D54E-05734		LOW	VERY HIGH	LOW	VERY HIGH	B/C	5	1	2
D54F-04592	Bloubosleegte	VERY HIGH	VERY LOW	LOW	VERY HIGH	B/C	5	1	2
D54F-04645	Verneukpan	VERY HIGH	VERY LOW	LOW	VERY HIGH	B/C	5	1	2
D54F-04730		HIGH	VERY LOW	LOW	HIGH	B/C	4	1	2
D54F-04776	Hartogskloof	HIGH	VERY LOW	LOW	HIGH	C/D	3	1	2
D54F-04850		HIGH	VERY LOW	LOW	HIGH	B/C	4	1	2
D54F-04862		HIGH	VERY LOW	LOW	HIGH	B/C	4	1	2
D54F-04863		HIGH	LOW	LOW	HIGH	B/C	4	1	2
D54F-04934	Bloubosleegte	HIGH	VERY LOW	LOW	HIGH	B/C	4	1	2
D54F-04964		HIGH	VERY LOW	LOW	HIGH	B/C	4	1	2
D54F-04996		HIGH	VERY LOW	LOW	HIGH	B/C	4	1	2
D54F-04997		HIGH	LOW	LOW	HIGH	B/C	4	1	2
D54F-05004	Hartogskloof	HIGH	VERY LOW	LOW	HIGH	C	3	1	2
D54F-05036		LOW	MODERATE	LOW	MODERATE	B/C	3	1	2
D54F-05048		LOW	VERY LOW	LOW	LOW	B/C	3	1	2
D54G-04242	Keelafsnyleegte	HIGH	LOW	LOW	HIGH	B/C	4	1	2
D54G-04282		HIGH	LOW	LOW	HIGH	B/C	4	1	2
D54G-04307	Brandholteloop	LOW	HIGH	LOW	HIGH	C	3	1	2
D54G-04325		HIGH	VERY LOW	LOW	HIGH	B/C	4	1	2
D54G-04356		HIGH	MODERATE	LOW	HIGH	B/C	4	1	2
D54G-04365		LOW	VERY LOW	LOW	LOW	B/C	3	1	2
D54G-04383		HIGH	LOW	LOW	HIGH	B/C	4	1	2
D54G-04407	Hartbees	HIGH	LOW	LOW	HIGH	C	3	1	2

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D54G-04412		HIGH	LOW	LOW	HIGH	B/C	4	1	2
D54G-04462		LOW	VERY HIGH	LOW	VERY HIGH	B/C	5	1	2
D54G-04468		LOW	LOW	LOW	LOW	B/C	3	1	2
D54G-04474	Keelafsnyleegte	HIGH	LOW	LOW	HIGH	C/D	3	1	2
D54G-04491		HIGH	LOW	LOW	HIGH	B/C	4	1	2
D54G-04504	Lekkerleleegte	HIGH	LOW	LOW	HIGH	B/C	4	1	2
D54G-04505		LOW	MODERATE	LOW	MODERATE	B/C	3	1	2
D54G-04519		LOW	VERY HIGH	LOW	VERY HIGH	B/C	5	1	2
D54G-04527	Hartbees	HIGH	VERY LOW	LOW	HIGH	C	3	1	2
D54G-04529	Basterspuit se Leegte	LOW	MODERATE	LOW	MODERATE	B/C	3	1	2
D54G-04538		HIGH	LOW	LOW	HIGH	B/C	4	1	2
D54G-04542		HIGH	VERY LOW	LOW	HIGH	B/C	4	1	2
D54G-04575		HIGH	LOW	LOW	HIGH	B/C	4	1	2
D54G-04607	Hartbees	HIGH	VERY LOW	LOW	HIGH	C	3	1	2
D54G-04623	Basterspuit se Leegte	HIGH	VERY LOW	LOW	HIGH	B/C	4	1	2
D54G-04628		LOW	LOW	LOW	LOW	B/C	3	1	2
D54G-04709		HIGH	VERY LOW	LOW	HIGH	B/C	4	1	2
D55A-06617	Elandsfontein se	LOW	HIGH	MODERATE	HIGH	C/D	3	1	2
D55A-06714		MODERATE	VERY HIGH	MODERATE	VERY HIGH	C/D	3	1	2
D55A-06734	Sak	LOW	HIGH	MODERATE	HIGH	D	3	1	2
D55A-06766	Sak	LOW	LOW	MODERATE	MODERATE	C/D	2	1	1
D55A-06774	Sak	LOW	HIGH	MODERATE	HIGH	C/D	3	1	2
D55A-06785	Sak	LOW	HIGH	MODERATE	HIGH	C/D	3	1	2
D55A-06797	Rietfontein	LOW	MODERATE	MODERATE	MODERATE	C/D	2	1	1
D55A-06845		LOW	HIGH	MODERATE	HIGH	B/C	4	1	2
D55A-07039	Sak	LOW	HIGH	MODERATE	HIGH	D	3	1	2
D55A-07097		LOW	VERY HIGH	MODERATE	VERY HIGH	D	3	1	2
D55A-07147		LOW	HIGH	MODERATE	HIGH	C/D	3	1	2
D55A-07176	Sak	LOW	VERY HIGH	MODERATE	VERY HIGH	C/D	3	1	2
D55A-07190		HIGH	HIGH	MODERATE	HIGH	C/D	3	1	2
D55A-07234	Sak	LOW	VERY HIGH	MODERATE	VERY HIGH	C/D	3	1	2
D55B-06615	Sak	HIGH	MODERATE	LOW	HIGH	C/D	3	1	2
D55B-06678		LOW	MODERATE	LOW	MODERATE	B/C	3	1	2

SQ	River Name[1]	Wetland EI	Wetland ES	SCI Evaluation	Integrated I&S (EI,ES,SCI) (max)	SQ [Wetland] PES	IEI	WRUI	Wetland Priority
D55B-06689	Sak	LOW	HIGH	LOW	HIGH	D	3	1	2
D55B-06697		LOW	VERY HIGH	LOW	VERY HIGH	C	5	1	2
D55B-06707	Sak	LOW	HIGH	LOW	HIGH	D	3	1	2
D55B-06750	Damfontein se	MODERATE	HIGH	LOW	HIGH	C/D	3	1	2
D55B-06847	Damfontein se	LOW	HIGH	LOW	HIGH	B/C	4	1	2
D55B-06860		LOW	HIGH	LOW	HIGH	D	3	1	2
D55B-06938		LOW	VERY HIGH	LOW	VERY HIGH	B/C	5	1	2
D55B-06952	Damfontein se	LOW	MODERATE	LOW	MODERATE	B/C	3	1	2
D55B-07043	Damfontein se	HIGH	HIGH	LOW	HIGH	B/C	4	1	2
D55B-07076		LOW	HIGH	LOW	HIGH	B/C	4	1	2
D55C-06421	Brak	LOW	VERY HIGH	LOW	VERY HIGH	C	5	1	2
D55C-06500	Brak	LOW	HIGH	LOW	HIGH	C/D	3	1	2
D55C-06505	Slangfontein se	HIGH	MODERATE	LOW	HIGH	C	3	1	2
D55C-06507	Klein-Brak	LOW	HIGH	LOW	HIGH	C/D	3	1	2
D55C-06584	Slangfontein se	LOW	HIGH	LOW	HIGH	C/D	3	1	2
D55C-06596		LOW	VERY HIGH	LOW	VERY HIGH	C	5	1	2
D55D-06116	Soutpoort	MODERATE	HIGH	LOW	HIGH	C/D	3	1	2
D55D-06194	Brak	MODERATE	HIGH	LOW	HIGH	C/D	3	1	2
D55D-06235		LOW	HIGH	LOW	HIGH	C/D	3	1	2
D55D-06309		LOW	VERY HIGH	LOW	VERY HIGH	B/C	5	1	2
D55D-06378	Brak	MODERATE	MODERATE	LOW	MODERATE	C/D	2	1	1
D55D-06429	Brak	MODERATE	HIGH	LOW	HIGH	C/D	3	1	2
D55D-06524	Brak	LOW	HIGH	LOW	HIGH	C/D	3	1	2
D55D-06547		MODERATE	VERY HIGH	LOW	VERY HIGH	B/C	5	1	2
D55D-06570		LOW	MODERATE	LOW	MODERATE	B/C	3	1	2
D55D-06593		LOW	VERY HIGH	LOW	VERY HIGH	B/C	5	1	2
D55E-06496	Sak	HIGH	MODERATE	LOW	HIGH	C	3	1	2
D55E-06502	Sak	HIGH	HIGH	LOW	HIGH	C	3	1	2
D55E-06529	Sout	HIGH	MODERATE	LOW	HIGH	C/D	3	1	2
D55E-06582	Sak	HIGH	HIGH	LOW	HIGH	C/D	3	1	2
D55E-06610		HIGH	MODERATE	LOW	HIGH	B/C	4	1	2
D55E-06614		LOW	HIGH	LOW	HIGH	B/C	4	1	2
D55E-06663	Sout	HIGH	LOW	LOW	HIGH	C	3	1	2

SQ	River Name[1]	Wetland EI	Wetland ES	SCI Evaluation	Integrated I&S (EI,ES,SCI) (max)	SQ [Wetland] PES	IEI	WRUI	Wetland Priority
D55E-06711		HIGH	VERY LOW	LOW	HIGH	B/C	4	1	2
D55E-06713	Sout	HIGH	VERY LOW	LOW	HIGH	C	3	1	2
D55E-06728		HIGH	MODERATE	LOW	HIGH	B/C	4	1	2
D55E-06729	Sout	HIGH	LOW	LOW	HIGH	C	3	1	2
D55E-06768		HIGH	MODERATE	LOW	HIGH	B/C	4	1	2
D55E-06786		HIGH	HIGH	LOW	HIGH	B/C	4	1	2
D55E-06823		HIGH	MODERATE	LOW	HIGH	B/C	4	1	2
D55E-06825	Sout	HIGH	VERY LOW	LOW	HIGH	C	3	1	2
D55E-06854	Sout	LOW	LOW	LOW	LOW	C/D	2	1	1
D55E-06865		HIGH	HIGH	LOW	HIGH	C/D	3	1	2
D55E-06910		LOW	HIGH	LOW	HIGH	C/D	3	1	2
D55E-06946	Sout	LOW	HIGH	LOW	HIGH	C/D	3	1	2
D55E-06961		LOW	HIGH	LOW	HIGH	B/C	4	1	2
D55E-06967		LOW	HIGH	LOW	HIGH	C/D	3	1	2
D55E-06968		LOW	HIGH	LOW	HIGH	B/C	4	1	2
D55F-05685		LOW	HIGH	LOW	HIGH	B/C	4	1	2
D55F-05692		LOW	HIGH	LOW	HIGH	B/C	4	1	2
D55F-05753		LOW	HIGH	LOW	HIGH	D	3	1	2
D55F-05762		LOW	VERY HIGH	LOW	VERY HIGH	B/C	5	1	2
D55F-05763		LOW	MODERATE	LOW	MODERATE	C/D	2	1	1
D55F-05800		LOW	VERY HIGH	LOW	VERY HIGH	B/C	5	1	2
D55F-05822	Reitzvilleleegte	MODERATE	MODERATE	LOW	MODERATE	B/C	3	1	2
D55F-05830		HIGH	HIGH	LOW	HIGH	B/C	4	1	2
D55F-05850	Kareebergleegte	LOW	HIGH	LOW	HIGH	C/D	3	1	2
D55F-05893	Alarmleegte	MODERATE	HIGH	LOW	HIGH	B/C	4	1	2
D55F-05911	Kareebergleegte	LOW	HIGH	LOW	HIGH	C	3	1	2
D55F-05936	Alarmleegte	MODERATE	LOW	LOW	MODERATE	C/D	2	1	1
D55F-05946	Stofkraalleegte	MODERATE	LOW	LOW	MODERATE	C	3	1	2
D55F-05958	Brak	MODERATE	HIGH	LOW	HIGH	C/D	3	1	2
D55F-05983	Stofkraalleegte	HIGH	LOW	LOW	HIGH	C/D	3	1	2
D55F-06003		LOW	VERY HIGH	LOW	VERY HIGH	B/C	5	1	2
D55F-06004	Platkuil	MODERATE	VERY HIGH	LOW	VERY HIGH	C/D	3	1	2
D55F-06055	Kareebergleegte	LOW	VERY HIGH	LOW	VERY HIGH	C/D	3	1	2

SQ	River Name[1]	Wetland EI	Wetland ES	SCI Evaluation	Integrated I&S (EI,ES,SCI) (max)	SQ [Wetland] PES	IEI	WRUI	Wetland Priority
D55F-06065	Kareebergleegte	HIGH	HIGH	LOW	HIGH	C/D	3	1	2
D55F-06081		HIGH	MODERATE	LOW	HIGH	B/C	4	1	2
D55F-06209	Kareebergleegte	LOW	HIGH	LOW	HIGH	C	3	1	2
D55G-06031	Gansvlei	LOW	HIGH	LOW	HIGH	D	3	1	2
D55G-06300	Gansvlei	LOW	VERY HIGH	LOW	VERY HIGH	C/D	3	1	2
D55G-06308	Gansvlei	LOW	HIGH	LOW	HIGH	C/D	3	1	2
D55G-06406		LOW	HIGH	LOW	HIGH	B/C	4	1	2
D55H-06087		LOW	MODERATE	LOW	MODERATE	D	2	1	1
D55H-06176		MODERATE	HIGH	LOW	HIGH	B/C	4	1	2
D55H-06234	Droe	MODERATE	HIGH	LOW	HIGH	C/D	3	1	2
D55H-06259	Sak	LOW	HIGH	LOW	HIGH	C	3	1	2
D55H-06404	Sak	LOW	VERY HIGH	LOW	VERY HIGH	C/D	3	1	2
D55H-06423		MODERATE	HIGH	LOW	HIGH	B/C	4	1	2
D55H-06481	Palmietfontein se Loop	MODERATE	MODERATE	LOW	MODERATE	B/C	3	1	2
D55J-05539		LOW	HIGH	LOW	HIGH	B/C	4	1	2
D55J-05652		LOW	VERY HIGH	LOW	VERY HIGH	B/C	5	1	2
D55J-05855	Sout	MODERATE	MODERATE	LOW	MODERATE	B/C	3	1	2
D55J-05876	Beeswaterleegte	LOW	VERY HIGH	LOW	VERY HIGH	B/C	5	1	2
D55J-05900		MODERATE	HIGH	LOW	HIGH	C	3	1	2
D55J-05922		MODERATE	HIGH	LOW	HIGH	B/C	4	1	2
D55J-05980	Draaiwal se Leegte	LOW	MODERATE	LOW	MODERATE	B/C	3	1	2
D55J-06117	Beeswaterleegte	MODERATE	LOW	LOW	MODERATE	B/C	3	1	2
D55J-06120	Sak	LOW	MODERATE	LOW	MODERATE	C	3	1	2
D55J-06178	Sout	HIGH	MODERATE	LOW	HIGH	B/C	4	1	2
D55J-06180	Sak	HIGH	LOW	LOW	HIGH	C	3	1	2
D55J-06212	Beeswaterleegte	HIGH	VERY LOW	LOW	HIGH	C	3	1	2
D55J-06243	Sak	HIGH	MODERATE	LOW	HIGH	D	3	1	2
D55J-06284	Sak	HIGH	VERY LOW	LOW	HIGH	C	3	1	2
D55J-06297		HIGH	HIGH	LOW	HIGH	B/C	4	1	2
D55K-06347	Klein-Sak	HIGH	VERY LOW	LOW	HIGH	C	3	1	2
D55K-06357	Klein-Sak	HIGH	LOW	LOW	HIGH	C	3	1	2
D55K-06382		MODERATE	HIGH	LOW	HIGH	B/C	4	1	2
D55K-06417		HIGH	HIGH	LOW	HIGH	B/C	4	1	2

SQ	River Name[1]	Wetland EI	Wetland ES	SCI Evaluation	Integrated I&S (EI,ES,SCI) (max)	SQ [Wetland] PES	IEI	WRUI	Wetland Priority
D55K-06469	Klein-Sak	MODERATE	LOW	LOW	MODERATE	C/D	2	1	1
D55K-06532	Klein-Sak	HIGH	VERY LOW	LOW	HIGH	C/D	3	1	2
D55K-06537		HIGH	HIGH	LOW	HIGH	B/C	4	1	2
D55K-06572	Hongerkloof se Leegte	MODERATE	VERY HIGH	LOW	VERY HIGH	C	5	1	2
D55K-06631	Ploegfontein se Leegte	MODERATE	HIGH	LOW	HIGH	B/C	4	1	2
D55K-06632	Klein Sak	MODERATE	HIGH	LOW	HIGH	C/D	3	1	2
D55L-06115	Sak	HIGH	LOW	LOW	HIGH	C/D	3	1	2
D55L-06175		LOW	VERY HIGH	LOW	VERY HIGH	B/C	5	1	2
D55L-06185		LOW	VERY HIGH	LOW	VERY HIGH	B/C	5	1	2
D55L-06204	Sak	HIGH	LOW	LOW	HIGH	D	3	1	2
D55L-06269	Sak	HIGH	VERY LOW	LOW	HIGH	C/D	3	1	2
D55L-06270	Sak	LOW	LOW	LOW	LOW	C/D	2	1	1
D55L-06278	Sak	LOW	VERY HIGH	LOW	VERY HIGH	C/D	3	1	2
D55L-06299	Witleegte	HIGH	LOW	LOW	HIGH	B/C	4	1	2
D55L-06301	Sak	HIGH	LOW	LOW	HIGH	D	3	1	2
D55L-06307		LOW	MODERATE	LOW	MODERATE	B/C	3	1	2
D55L-06321	Rietfonteinleegte	LOW	VERY HIGH	LOW	VERY HIGH	B/C	5	1	2
D55L-06351	Witleegte	HIGH	HIGH	LOW	HIGH	B/C	4	1	2
D55L-06370		LOW	VERY HIGH	LOW	VERY HIGH	B/C	5	1	2
D55L-06418		MODERATE	VERY HIGH	LOW	VERY HIGH	B/C	5	1	2
D55L-06434		MODERATE	VERY HIGH	LOW	VERY HIGH	B/C	5	1	2
D55M-05697	Sak	HIGH	VERY LOW	LOW	HIGH	C	3	1	2
D55M-05801	Tulbaghlaagte	HIGH	MODERATE	LOW	HIGH	B/C	4	1	2
D55M-05851	Sak	HIGH	VERY LOW	LOW	HIGH	C	3	1	2
D55M-05862	Wielkolkslaagte	LOW	LOW	LOW	LOW	B/C	3	1	2
D55M-05864	Sak	HIGH	LOW	LOW	HIGH	C/D	3	1	2
D55M-05877		HIGH	MODERATE	LOW	HIGH	B/C	4	1	2
D55M-05898		LOW	HIGH	LOW	HIGH	B/C	4	1	2
D55M-05906		LOW	MODERATE	LOW	MODERATE	B/C	3	1	2
D55M-05940	Wielkolkslaagte	HIGH	MODERATE	LOW	HIGH	B/C	4	1	2
D55M-05955		LOW	LOW	LOW	LOW	B/C	3	1	2
D55M-06018		HIGH	LOW	LOW	HIGH	B/C	4	1	2
D55M-06022	Sak	HIGH	VERY LOW	LOW	HIGH	C	3	1	2

SQ	River Name[1]	Wetland EI	Wetland ES	SCI Evaluation	Integrated I&S (EI,ES,SCI) (max)	SQ [Wetland] PES	IEI	WRUI	Wetland Priority
D55M-06054	Sak	HIGH	VERY LOW	LOW	HIGH	C	3	1	2
D55M-06060		HIGH	LOW	LOW	HIGH	B/C	4	1	2
D56A-07453	Portugals	HIGH	LOW	LOW	HIGH	C	3	1	2
D56A-07624		HIGH	MODERATE	LOW	HIGH	C	3	1	2
D56A-07650		HIGH	LOW	LOW	HIGH	C	3	1	2
D56A-07652	Portugals	LOW	MODERATE	LOW	MODERATE	C	3	1	2
D56B-07416		LOW	HIGH	LOW	HIGH	B/C	4	1	2
D56B-07486	Riet	LOW	HIGH	LOW	HIGH	C/D	3	1	2
D56B-07731		LOW	HIGH	LOW	HIGH	B/C	4	1	2
D56B-07733	Riet	LOW	HIGH	LOW	HIGH	C/D	3	1	2
D56C-07248		HIGH	HIGH	LOW	HIGH	B/C	4	1	2
D56C-07254	Riet	HIGH	VERY LOW	LOW	HIGH	C	3	1	2
D56C-07273		LOW	HIGH	LOW	HIGH	B/C	4	1	2
D56C-07304		HIGH	VERY LOW	LOW	HIGH	C	3	1	2
D56C-07325	Riet	LOW	MODERATE	LOW	MODERATE	C/D	2	1	1
D56C-07342		HIGH	HIGH	LOW	HIGH	C/D	3	1	2
D56C-07389		MODERATE	VERY HIGH	LOW	VERY HIGH	C	5	1	2
D56C-07420		LOW	HIGH	LOW	HIGH	C/D	3	1	2
D56D-06822	Riet	LOW	MODERATE	LOW	MODERATE	C	3	1	2
D56D-07055		MODERATE	VERY HIGH	LOW	VERY HIGH	B/C	5	1	2
D56D-07081	Riet	HIGH	VERY LOW	LOW	HIGH	C	3	1	2
D56D-07091	Riet	LOW	MODERATE	LOW	MODERATE	C/D	2	1	1
D56D-07121	Wolwe	HIGH	HIGH	LOW	HIGH	B/C	4	1	2
D56E-07285	Klein-Riet	HIGH	HIGH	LOW	HIGH	C/D	3	1	2
D56E-07320	Spinnekopkraal se	HIGH	HIGH	LOW	HIGH	C	3	1	2
D56E-07337		LOW	VERY HIGH	LOW	VERY HIGH	B/C	5	1	2
D56E-07456		LOW	HIGH	LOW	HIGH	B/C	4	1	2
D56E-07461		LOW	VERY HIGH	LOW	VERY HIGH	B/C	5	1	2
D56F-06883	Klein	HIGH	MODERATE	LOW	HIGH	B/C	4	1	2
D56F-06969	Nuweveld	HIGH	VERY LOW	LOW	HIGH	B/C	4	1	2
D56F-07000	Nuweveld	LOW	HIGH	LOW	HIGH	B/C	4	1	2
D56F-07018	Klein-Riet	HIGH	VERY LOW	LOW	HIGH	C	3	1	2
D56F-07034		HIGH	VERY LOW	LOW	HIGH	B/C	4	1	2

SQ	River Name[1]	Wetland EI	Wetland ES	SCI Evaluation	Integrated I&S (EI,ES,SCI) (max)	SQ [Wetland] PES	IEI	WRUI	Wetland Priority
D56F-07048		HIGH	HIGH	LOW	HIGH	B/C	4	1	2
D56F-07050	Klein-Riet	HIGH	VERY LOW	LOW	HIGH	C	3	1	2
D56F-07067	Karee	LOW	VERY HIGH	LOW	VERY HIGH	B/C	5	1	2
D56F-07144	Klein-Riet	LOW	HIGH	LOW	HIGH	C	3	1	2
D56F-07151		LOW	HIGH	LOW	HIGH	B/C	4	1	2
D56G-06753	Klein-Riet	LOW	MODERATE	LOW	MODERATE	C/D	2	1	1
D56G-06780		MODERATE	HIGH	LOW	HIGH	B/C	4	1	2
D56G-06815		MODERATE	HIGH	LOW	HIGH	B/C	4	1	2
D56G-06857	Klein-Riet	HIGH	LOW	LOW	HIGH	C/D	3	1	2
D56G-06917	Klein-Riet	HIGH	VERY LOW	LOW	HIGH	C/D	3	1	2
D56G-06932	Klein-Riet	HIGH	MODERATE	LOW	HIGH	C/D	3	1	2
D56G-06940		HIGH	HIGH	LOW	HIGH	B/C	4	1	2
D56H-06719	Riet	LOW	VERY LOW	LOW	LOW	C	2	1	1
D56H-06773	Elands	HIGH	VERY LOW	LOW	HIGH	B/C	4	1	2
D56H-06776		LOW	VERY HIGH	LOW	VERY HIGH	B/C	5	1	2
D56H-06779	Elands	HIGH	MODERATE	LOW	HIGH	B/C	4	1	2
D56H-06882	Elands	MODERATE	VERY HIGH	LOW	VERY HIGH	B/C	5	1	2
D56H-06887	Valslaagte	MODERATE	HIGH	LOW	HIGH	B/C	4	1	2
D56J-06520		LOW	VERY HIGH	LOW	VERY HIGH	B/C	5	1	2
D56J-06522	Riet	HIGH	MODERATE	LOW	HIGH	C/D	3	1	2
D56J-06555	Leenderts	LOW	HIGH	LOW	HIGH	D	3	1	2
D56J-06597	Riet	LOW	LOW	LOW	LOW	C	2	1	1
D56J-06649	Riet	HIGH	HIGH	LOW	HIGH	C/D	3	1	2
D57A-05387	Sak	HIGH	VERY LOW	LOW	HIGH	C/D	3	1	2
D57A-05452		HIGH	VERY LOW	LOW	HIGH	B/C	4	1	2
D57A-05497	Sak	HIGH	VERY LOW	LOW	HIGH	C	3	1	2
D57A-05517		HIGH	VERY LOW	LOW	HIGH	B/C	4	1	2
D57A-05552	Sak	HIGH	VERY LOW	LOW	HIGH	C/D	3	1	2
D57B-05197		LOW	VERY LOW	LOW	LOW	B/C	3	1	2
D57B-05305	Swartbosleegte	HIGH	VERY LOW	LOW	HIGH	B/C	4	1	2
D57B-05309	Rooidam se Laagte	HIGH	VERY LOW	LOW	HIGH	D/E	3	1	2
D57B-05325	Rooidam se Laagte	HIGH	VERY LOW	LOW	HIGH	C/D	3	1	2
D57B-05365		HIGH	VERY LOW	LOW	HIGH	B/C	4	1	2

SQ	River Name[1]	Wetland EI	Wetland ES	SCI Evaluation	Integrated I&S (EI,ES,SCI) (max)	SQ [Wetland] PES	IEI	WRUI	Wetland Priority
D57B-05457	Soutsloot	HIGH	VERY LOW	LOW	HIGH	B/C	4	1	2
D57B-05567		HIGH	VERY LOW	LOW	HIGH	B/C	4	1	2
D57B-05571		HIGH	VERY LOW	LOW	HIGH	B/C	4	1	2
D57B-05665		HIGH	VERY LOW	LOW	HIGH	B/C	4	1	2
D57B-05687		HIGH	LOW	LOW	HIGH	B/C	4	1	2
D57B-05691		LOW	VERY HIGH	LOW	VERY HIGH	B/C	5	1	2
D57B-05695		HIGH	LOW	LOW	HIGH	B/C	4	1	2
D57B-05757		LOW	VERY HIGH	LOW	VERY HIGH	B/C	5	1	2
D57B-05882		LOW	VERY HIGH	LOW	VERY HIGH	B/C	5	1	2
D57C-05215	Sak	HIGH	VERY LOW	LOW	HIGH	C	3	1	2
D57C-05254	Sak	HIGH	VERY LOW	LOW	HIGH	C	3	1	2
D57C-05267		HIGH	VERY LOW	LOW	HIGH	B/C	4	1	2
D57C-05321		HIGH	VERY LOW	LOW	HIGH	B/C	4	1	2
D57C-05323	Rooidam se Laagte	HIGH	VERY LOW	LOW	HIGH	C/D	3	1	2
D57C-05333		HIGH	VERY LOW	LOW	HIGH	B/C	4	1	2
D57C-05363	Sak	HIGH	VERY LOW	LOW	HIGH	C/D	3	1	2
D57C-05396		HIGH	VERY LOW	LOW	HIGH	B/C	4	1	2
D57D-04419		HIGH	VERY LOW	LOW	HIGH	B/C	4	1	2
D57D-04512		VERY HIGH	VERY LOW	LOW	VERY HIGH	B/C	5	1	2
D57D-04526		VERY HIGH	VERY LOW	LOW	VERY HIGH	B/C	5	1	2
D57D-04694	Sak	HIGH	VERY LOW	LOW	HIGH	C/D	3	1	2
D57D-04815	Sak	HIGH	VERY LOW	LOW	HIGH	C/D	3	1	2
D57D-04877		HIGH	VERY LOW	LOW	HIGH	B/C	4	1	2
D57D-04897		HIGH	VERY LOW	LOW	HIGH	B/C	4	1	2
D57D-04927		HIGH	VERY LOW	LOW	HIGH	B/C	4	1	2
D57D-04962		HIGH	MODERATE	LOW	HIGH	B/C	4	1	2
D57D-04972	Sak	HIGH	VERY LOW	LOW	HIGH	C	3	1	2
D57D-05037	Kettingkop se Laagte	HIGH	VERY LOW	LOW	HIGH	B/C	4	1	2
D57D-05050	Sak	HIGH	VERY LOW	LOW	HIGH	C	3	1	2
D57D-05064		HIGH	VERY LOW	LOW	HIGH	B/C	4	1	2
D57D-05090	Sak	HIGH	VERY LOW	LOW	HIGH	C	3	1	2
D57D-05092		HIGH	VERY LOW	LOW	HIGH	B/C	4	1	2
D57D-05098		HIGH	VERY LOW	LOW	HIGH	B/C	4	1	2

SQ	River Name[1]	Wetland EI	Wetland ES	SCI Evaluation	Integrated I&S (EI,ES,SCI) (max)	SQ [Wetland] PES	IEI	WRUI	Wetland Priority
D57D-05127	Sak	HIGH	VERY LOW	LOW	HIGH	C	3	1	2
D57D-05128		HIGH	VERY LOW	LOW	HIGH	B/C	4	1	2
D57D-05166		HIGH	VERY LOW	LOW	HIGH	B/C	4	1	2
D57D-05249		HIGH	VERY LOW	LOW	HIGH	B/C	4	1	2
D57D-05250		HIGH	VERY LOW	LOW	HIGH	B/C	4	1	2
D57D-05289		HIGH	VERY LOW	LOW	HIGH	B/C	4	1	2
D57E-04304	Knapsaklaagte	HIGH	LOW	LOW	HIGH	B/C	4	1	2
D57E-04338	Bosduiflaagte	VERY HIGH	VERY LOW	LOW	VERY HIGH	C	5	1	2
D57E-04351		HIGH	MODERATE	LOW	HIGH	B/C	4	1	2
D57E-04374	Sak	HIGH	VERY LOW	LOW	HIGH	C	3	1	2
D57E-04423	Sak	HIGH	VERY LOW	LOW	HIGH	C	3	1	2
D57E-04534	Sak	VERY HIGH	LOW	LOW	VERY HIGH	C	5	1	2
D57E-04535	Sak	HIGH	LOW	LOW	HIGH	C	3	1	2
D58A-06302	Renoster	HIGH	HIGH	LOW	HIGH	D	3	1	2
D58B-06059	Dassiesstraatlaagte	HIGH	MODERATE	LOW	HIGH	B/C	4	1	2
D58B-06102	Vis	HIGH	LOW	LOW	HIGH	C/D	3	1	2
D58B-06170	Vis	HIGH	MODERATE	LOW	HIGH	D	3	1	2
D58B-06183	Klein-Vis	HIGH	MODERATE	LOW	HIGH	B/C	4	1	2
D58C-05390	Vis	VERY HIGH	VERY LOW	LOW	VERY HIGH	D	3	1	2
D58C-05720		HIGH	MODERATE	LOW	HIGH	B/C	4	1	2
D58C-05818		HIGH	VERY LOW	LOW	HIGH	B/C	4	1	2
D58C-05832		HIGH	LOW	LOW	HIGH	B/C	4	1	2
D58C-05889		HIGH	HIGH	LOW	HIGH	B/C	4	1	2
D58C-05932	Vis	HIGH	LOW	LOW	HIGH	C/D	3	1	2
D58C-05945		HIGH	HIGH	LOW	HIGH	B/C	4	1	2
D61A-06062	Ongers	LOW	HIGH	LOW	HIGH	C/D	3	2	2
D61A-06083	Ongers	LOW	VERY HIGH	LOW	VERY HIGH	C/D	3	2	2
D61A-06094		LOW	VERY HIGH	LOW	VERY HIGH	B/C	5	2	3
D61A-06128		LOW	HIGH	LOW	HIGH	B/C	4	2	3
D61A-06166	Ongers	LOW	VERY HIGH	LOW	VERY HIGH	C	5	2	3
D61A-06213	Ongers	LOW	VERY HIGH	LOW	VERY HIGH	C/D	3	2	2
D61A-06244	Ongers	LOW	HIGH	LOW	HIGH	C/D	3	2	2
D61A-06245	Ongers	LOW	LOW	LOW	LOW	C	2	2	2

SQ	River Name[1]	Wetland EI	Wetland ES	SCI Evaluation	Integrated I&S (EI,ES,SCI) (max)	SQ [Wetland] PES	IEI	WRUI	Wetland Priority
D61A-06246		LOW	VERY HIGH	LOW	VERY HIGH	B/C	5	2	3
D61A-06277		LOW	VERY HIGH	LOW	VERY HIGH	B/C	5	2	3
D61A-06368		LOW	VERY HIGH	LOW	VERY HIGH	C/D	3	2	2
D61B-05795		HIGH	HIGH	LOW	HIGH	B/C	4	2	3
D61B-05841	Lakenrivier	LOW	VERY HIGH	LOW	VERY HIGH	C/D	3	2	2
D61B-05891	Laken	LOW	HIGH	LOW	HIGH	C/D	3	2	2
D61B-05926		LOW	VERY HIGH	LOW	VERY HIGH	C/D	3	2	2
D61B-05957		LOW	HIGH	LOW	HIGH	B/C	4	2	3
D61B-06028	Laken	LOW	VERY HIGH	LOW	VERY HIGH	C/D	3	2	2
D61B-06050		LOW	VERY HIGH	LOW	VERY HIGH	B/C	5	2	3
D61B-06058		LOW	VERY HIGH	LOW	VERY HIGH	B/C	5	2	3
D61B-06066		LOW	HIGH	LOW	HIGH	B/C	4	2	3
D61C-05765		LOW	HIGH	LOW	HIGH	B/C	4	2	3
D61C-05771		LOW	VERY HIGH	LOW	VERY HIGH	B/C	5	2	3
D61C-05836		LOW	VERY HIGH	LOW	VERY HIGH	B/C	5	2	3
D61C-05840		LOW	VERY HIGH	LOW	VERY HIGH	B/C	5	2	3
D61C-05866	Ongers	HIGH	LOW	LOW	HIGH	C	3	2	2
D61C-05885	Ongers	HIGH	MODERATE	LOW	HIGH	C/D	3	2	2
D61C-05905	Ongers	LOW	HIGH	LOW	HIGH	C/D	3	2	2
D61C-05912	Ongers	LOW	VERY HIGH	LOW	VERY HIGH	C	5	2	3
D61C-05947	Ongers	LOW	HIGH	LOW	HIGH	C/D	3	2	2
D61C-05991		LOW	MODERATE	LOW	MODERATE	B/C	3	2	2
D61C-06056		LOW	VERY HIGH	LOW	VERY HIGH	B/C	5	2	3
D61D-06156	Brakpoort	LOW	HIGH	LOW	HIGH	C/D	3	2	2
D61D-06215	Brakpoort	LOW	HIGH	LOW	HIGH	C	3	2	2
D61D-06256		LOW	VERY HIGH	LOW	VERY HIGH	B/C	5	2	3
D61D-06298		LOW	HIGH	LOW	HIGH	B/C	4	2	3
D61D-06353	Brakpoort	LOW	HIGH	LOW	HIGH	C/D	3	2	2
D61D-06355	Pretoriuskuil se Leegte	LOW	HIGH	LOW	HIGH	B/C	4	2	3
D61E-06164	Brak	LOW	HIGH	LOW	HIGH	C/D	3	2	2
D61E-06230	Brak	LOW	HIGH	LOW	HIGH	C/D	3	2	2
D61E-06262	Visgatspruit	LOW	HIGH	LOW	HIGH	B/C	4	2	3
D61E-06276		LOW	HIGH	LOW	HIGH	C/D	3	2	2

SQ	River Name[1]	Wetland EI	Wetland ES	SCI Evaluation	Integrated I&S (EI,ES,SCI) (max)	SQ [Wetland] PES	IEI	WRUI	Wetland Priority
D61E-06332		LOW	VERY HIGH	LOW	VERY HIGH	B/C	5	2	3
D61E-06362	Visgatspruit	LOW	LOW	LOW	LOW	B/C	3	2	2
D61E-06379		LOW	HIGH	LOW	HIGH	B/C	4	2	3
D61E-06410		LOW	VERY HIGH	LOW	VERY HIGH	B/C	5	2	3
D61E-06413	Visgatspruit	LOW	HIGH	LOW	HIGH	B/C	4	2	3
D61E-06466		LOW	HIGH	LOW	HIGH	B/C	4	2	3
D61E-06470		LOW	HIGH	LOW	HIGH	B/C	4	2	3
D61F-06130		LOW	HIGH	LOW	HIGH	B/C	4	2	3
D61F-06222		LOW	HIGH	LOW	HIGH	C	3	2	2
D61F-06258	Klein Brak	LOW	HIGH	LOW	HIGH	C/D	3	2	2
D61F-06271		HIGH	HIGH	LOW	HIGH	C/D	3	2	2
D61F-06294		HIGH	VERY LOW	LOW	HIGH	B/C	4	2	3
D61F-06338		LOW	VERY HIGH	LOW	VERY HIGH	C	5	2	3
D61F-06342		HIGH	HIGH	LOW	HIGH	B/C	4	2	3
D61F-06348		LOW	LOW	LOW	LOW	C/D	2	2	2
D61F-06371		LOW	VERY HIGH	LOW	VERY HIGH	C/D	3	2	2
D61G-06077		LOW	HIGH	LOW	HIGH	B/C	4	2	3
D61G-06109	Klein Brak	LOW	HIGH	LOW	HIGH	C/D	3	2	2
D61G-06181		HIGH	MODERATE	LOW	HIGH	B/C	4	2	3
D61G-06223	Klein Brak	LOW	VERY HIGH	LOW	VERY HIGH	C	5	2	3
D61H-05824		LOW	LOW	LOW	LOW	B/C	3	2	2
D61H-05854		HIGH	MODERATE	LOW	HIGH	B/C	4	2	3
D61H-05865	Brak	HIGH	VERY LOW	LOW	HIGH	C/D	3	2	2
D61H-05878	Brak	HIGH	MODERATE	LOW	HIGH	C	3	2	2
D61H-05960	Klein Brak	LOW	HIGH	LOW	HIGH	B/C	4	2	3
D61H-05963	Brak	HIGH	VERY LOW	LOW	HIGH	C	3	2	2
D61H-05974	Brak	HIGH	VERY LOW	LOW	HIGH	C	3	2	2
D61H-05984	Visgat	LOW	VERY LOW	LOW	LOW	B/C	3	2	2
D61H-05998	Brak	HIGH	VERY LOW	LOW	HIGH	C	3	2	2
D61H-06014		HIGH	LOW	LOW	HIGH	B/C	4	2	3
D61H-06070	Visgat	LOW	VERY HIGH	LOW	VERY HIGH	C	5	2	3
D61H-06079		HIGH	HIGH	LOW	HIGH	B/C	4	2	3
D61H-06191		LOW	VERY HIGH	LOW	VERY HIGH	B/C	5	2	3

SQ	River Name[1]	Wetland EI	Wetland ES	SCI Evaluation	Integrated I&S (EI,ES,SCI) (max)	SQ [Wetland] PES	IEI	WRUI	Wetland Priority
D61J-05622		LOW	HIGH	LOW	HIGH	B/C	4	2	3
D61J-05628		LOW	MODERATE	LOW	MODERATE	B/C	3	2	2
D61J-05649		LOW	LOW	LOW	LOW	B/C	3	2	2
D61J-05654	Groen	LOW	VERY HIGH	LOW	VERY HIGH	C	5	2	3
D61J-05669		LOW	VERY HIGH	LOW	VERY HIGH	C/D	3	2	2
D61J-05671		HIGH	HIGH	LOW	HIGH	B/C	4	2	3
D61J-05705		LOW	VERY HIGH	LOW	VERY HIGH	B/C	5	2	3
D61J-05740		LOW	VERY HIGH	LOW	VERY HIGH	B/C	5	2	3
D61J-05761		LOW	VERY HIGH	LOW	VERY HIGH	B/C	5	2	3
D61J-05816		LOW	VERY HIGH	LOW	VERY HIGH	B/C	5	2	3
D61J-05849	Groen	LOW	LOW	LOW	LOW	C	2	2	2
D61J-05860	Groen	LOW	VERY HIGH	LOW	VERY HIGH	C/D	3	2	2
D61J-05883		LOW	VERY HIGH	LOW	VERY HIGH	C	5	2	3
D61J-05895		LOW	VERY HIGH	LOW	VERY HIGH	B/C	5	2	3
D61J-05921		LOW	VERY HIGH	LOW	VERY HIGH	C	5	2	3
D61J-05924	Groen	LOW	HIGH	LOW	HIGH	C	3	2	2
D61J-05939	Groen	LOW	HIGH	LOW	HIGH	C	3	2	2
D61J-05961		LOW	VERY HIGH	LOW	VERY HIGH	B/C	5	2	3
D61J-05965	Groen	LOW	HIGH	LOW	HIGH	C/D	3	2	2
D61J-05966		LOW	VERY HIGH	LOW	VERY HIGH	B/C	5	2	3
D61J-05972		LOW	HIGH	LOW	HIGH	B/C	4	2	3
D61K-05388	Groen	LOW	MODERATE	LOW	MODERATE	C/D	2	2	2
D61K-05505		LOW	MODERATE	LOW	MODERATE	B/C	3	2	2
D61K-05639	Groen	LOW	VERY HIGH	LOW	VERY HIGH	C	5	2	3
D61K-05678		LOW	VERY HIGH	LOW	VERY HIGH	B/C	5	2	3
D61K-05681	Biesiekuilleegte	HIGH	MODERATE	LOW	HIGH	B/C	4	2	3
D61K-05833		LOW	HIGH	LOW	HIGH	B/C	4	2	3
D61K-05846		LOW	VERY HIGH	LOW	VERY HIGH	B/C	5	2	3
D61L-05453	Graafwaterspruit	HIGH	HIGH	LOW	HIGH	C/D	3	2	2
D61L-05546		LOW	HIGH	LOW	HIGH	B/C	4	2	3
D61L-05624		HIGH	HIGH	LOW	HIGH	B/C	4	2	3
D61L-05689		LOW	VERY HIGH	LOW	VERY HIGH	B/C	5	2	3
D61L-05710		LOW	HIGH	LOW	HIGH	B/C	4	2	3

SQ	River Name[1]	Wetland EI	Wetland ES	SCI Evaluation	Integrated I&S (EI,ES,SCI) (max)	SQ [Wetland] PES	IEI	WRUI	Wetland Priority
D61M-05343	Ongers	LOW	VERY HIGH	LOW	VERY HIGH	D	3	2	2
D61M-05417	Ongers	LOW	MODERATE	LOW	MODERATE	C	3	2	2
D61M-05469	Ongers	LOW	HIGH	LOW	HIGH	C	3	2	2
D61M-05660		LOW	HIGH	LOW	HIGH	B/C	4	2	3
D61M-05749	Ongers	LOW	LOW	LOW	LOW	C	2	2	2
D62A-04951		HIGH	LOW	LOW	HIGH	B/C	4	1	2
D62A-05078	Ongers	HIGH	MODERATE	LOW	HIGH	C/D	3	1	2
D62A-05138		HIGH	HIGH	LOW	HIGH	B/C	4	1	2
D62A-05205	Ongers	LOW	MODERATE	LOW	MODERATE	C/D	2	1	1
D62A-05235		LOW	MODERATE	LOW	MODERATE	B/C	3	1	2
D62A-05252		HIGH	LOW	LOW	HIGH	B/C	4	1	2
D62A-05306		LOW	HIGH	LOW	HIGH	C/D	3	1	2
D62A-05339		LOW	LOW	LOW	LOW	B/C	3	1	2
D62A-05344		LOW	HIGH	LOW	HIGH	B/C	4	1	2
D62B-04701	Ongers	LOW	LOW	LOW	LOW	C/D	2	1	1
D62B-04987		HIGH	VERY LOW	LOW	HIGH	B/C	4	1	2
D62B-05002		LOW	LOW	LOW	LOW	B/C	3	1	2
D62B-05057	Sand	LOW	MODERATE	LOW	MODERATE	B/C	3	1	2
D62B-05070		LOW	VERY HIGH	LOW	VERY HIGH	B/C	5	1	2
D62B-05081		HIGH	VERY LOW	LOW	HIGH	B/C	4	1	2
D62B-05082		HIGH	LOW	LOW	HIGH	B/C	4	1	2
D62B-05095		LOW	LOW	LOW	LOW	B/C	3	1	2
D62B-05105		LOW	MODERATE	LOW	MODERATE	B/C	3	1	2
D62B-05153		HIGH	VERY LOW	LOW	HIGH	B/C	4	1	2
D62B-05158		HIGH	VERY LOW	LOW	HIGH	B/C	4	1	2
D62B-05209		HIGH	LOW	LOW	HIGH	B/C	4	1	2
D62B-05308		LOW	VERY HIGH	LOW	VERY HIGH	B/C	5	1	2
D62B-05357		HIGH	VERY LOW	LOW	HIGH	B/C	4	1	2
D62B-05379		LOW	HIGH	LOW	HIGH	B/C	4	1	2
D62B-05400		LOW	VERY HIGH	LOW	VERY HIGH	B/C	5	1	2
D62C-05303	Elandsfontein	HIGH	HIGH	LOW	HIGH	C/D	3	1	2
D62C-05419		HIGH	HIGH	LOW	HIGH	B/C	4	1	2
D62C-05422	Elandsfontein	LOW	HIGH	LOW	HIGH	C	3	1	2

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D62C-05523		LOW	HIGH	LOW	HIGH	B/C	4	1	2
D62C-05526		HIGH	HIGH	LOW	HIGH	B/C	4	1	2
D62C-05528		LOW	VERY HIGH	LOW	VERY HIGH	B/C	5	1	2
D62C-05550		LOW	VERY HIGH	LOW	VERY HIGH	B/C	5	1	2
D62C-05564		HIGH	MODERATE	LOW	HIGH	B/C	4	1	2
D62C-05576	Elandsfontein	HIGH	HIGH	LOW	HIGH	C/D	3	1	2
D62C-05581		LOW	VERY HIGH	LOW	VERY HIGH	B/C	5	1	2
D62C-05583		LOW	VERY HIGH	LOW	VERY HIGH	B/C	5	1	2
D62C-05663		LOW	HIGH	LOW	HIGH	B/C	4	1	2
D62C-05694		LOW	VERY HIGH	LOW	VERY HIGH	B/C	5	1	2
D62C-05696		LOW	VERY HIGH	LOW	VERY HIGH	B/C	5	1	2
D62C-05774		LOW	HIGH	LOW	HIGH	B/C	4	1	2
D62C-05847	Elandsfontein	LOW	MODERATE	LOW	MODERATE	C/D	2	1	1
D62C-05852		LOW	VERY HIGH	LOW	VERY HIGH	B/C	5	1	2
D62C-05872	Elandsfontein	LOW	HIGH	LOW	HIGH	D	3	1	2
D62C-05927	Elandsfontein	LOW	VERY HIGH	LOW	VERY HIGH	C/D	3	1	2
D62C-05929		LOW	VERY HIGH	LOW	VERY HIGH	B/C	5	1	2
D62D-05175		LOW	HIGH	LOW	HIGH	B/C	4	1	2
D62D-05183	Brak	LOW	MODERATE	LOW	MODERATE	C	3	1	2
D62D-05194		LOW	HIGH	LOW	HIGH	B/C	4	1	2
D62D-05227	Brak	LOW	MODERATE	LOW	MODERATE	C	3	1	2
D62D-05245		LOW	HIGH	LOW	HIGH	B/C	4	1	2
D62D-05255		LOW	VERY HIGH	LOW	VERY HIGH	B/C	5	1	2
D62D-05332	Brak	HIGH	HIGH	LOW	HIGH	C	3	1	2
D62D-05391	Brak	LOW	MODERATE	LOW	MODERATE	C	3	1	2
D62D-05392		LOW	HIGH	LOW	HIGH	B/C	4	1	2
D62D-05416		LOW	VERY HIGH	LOW	VERY HIGH	B/C	5	1	2
D62D-05486	Brak	HIGH	MODERATE	LOW	HIGH	C/D	3	1	2
D62D-05508		LOW	HIGH	LOW	HIGH	B/C	4	1	2
D62D-05553	Brak	HIGH	VERY LOW	LOW	HIGH	C/D	3	1	2
D62D-05569		LOW	HIGH	LOW	HIGH	B/C	4	1	2
D62D-05610		HIGH	HIGH	LOW	HIGH	B/C	4	1	2
D62D-05613	Brak	HIGH	HIGH	LOW	HIGH	D	3	1	2

SQ	River Name[1]	Wetland EI	Wetland ES	SCI Evaluation	Integrated I&S (EI,ES,SCI) (max)	SQ [Wetland] PES	IEI	WRUI	Wetland Priority
D62E-04834		HIGH	LOW	LOW	HIGH	B/C	4	1	2
D62E-04867	Renostervleispruit	LOW	MODERATE	LOW	MODERATE	D	2	1	1
D62E-04914	Brak	LOW	MODERATE	LOW	MODERATE	C/D	2	1	1
D62E-04938	Hondeblafspruit	HIGH	MODERATE	LOW	HIGH	B/C	4	1	2
D62E-05114		LOW	MODERATE	LOW	MODERATE	B/C	3	1	2
D62E-05118	Brak	LOW	HIGH	LOW	HIGH	C/D	3	1	2
D62E-05169		LOW	VERY HIGH	LOW	VERY HIGH	B/C	5	1	2
D62F-04509		HIGH	LOW	LOW	HIGH	B/C	4	1	2
D62G-04397		MODERATE	LOW	LOW	MODERATE	B/C	3	1	2
D62G-04703		LOW	HIGH	LOW	HIGH	C	3	1	2
D62G-04755	Brak	LOW	HIGH	LOW	HIGH	C	3	1	2
D62G-04811		LOW	HIGH	LOW	HIGH	B/C	4	1	2
D62J-04231	Brak	LOW	LOW	LOW	LOW	C	2	1	1
D62J-04379		LOW	MODERATE	LOW	MODERATE	B/C	3	1	2
D62J-04430	Brak	LOW	LOW	LOW	LOW	C	2	1	1
D71A-03610	Orange	LOW	LOW	LOW	LOW	C/D	2	4	3
D71A-03865	Orange	LOW	MODERATE	LOW	MODERATE	B/C	3	4	4
D71A-03870	Orange	LOW	MODERATE	LOW	MODERATE	C/D	2	4	3
D71C-03874	Orange	HIGH	VERY LOW	MODERATE	HIGH	C/D	3	4	4
D71D-04003	Orange	LOW	MODERATE	LOW	MODERATE	C/D	2	4	3
D71D-04075	Orange	LOW	VERY LOW	LOW	LOW	C	2	4	3
D71D-04124	Orange	LOW	MODERATE	LOW	MODERATE	C	3	4	4
D71D-04165	Orange	LOW	MODERATE	LOW	MODERATE	C/D	2	4	3
D71D-04218	Orange	LOW	VERY LOW	LOW	LOW	C/D	2	4	3
D72A-04169	Orange	LOW	VERY LOW	LOW	LOW	C/D	2	4	3
D72A-04276	Orange	LOW	HIGH	LOW	HIGH	C/D	3	4	4
D72A-04313	Orange	LOW	MODERATE	LOW	MODERATE	D	2	4	3
D72B-03941	Orange	MODERATE	MODERATE	MODERATE	MODERATE	B/C	3	4	4
D72B-04035	Orange	LOW	MODERATE	MODERATE	MODERATE	B/C	3	4	4
D72B-04059	Orange	LOW	HIGH	MODERATE	HIGH	C/D	3	4	4
D72B-04070	Orange	LOW	MODERATE	MODERATE	MODERATE	B	4	4	4
D72B-04106	Orange	LOW	MODERATE	MODERATE	MODERATE	B/C	3	4	4
D72B-04158	Orange	LOW	MODERATE	MODERATE	MODERATE	B/C	3	4	4

SQ	River Name[1]	Wetland EI	Wetland ES	SCI Evaluation	Integrated I&S (EI,ES,SCI) (max)	SQ [Wetland] PES	IEI	WRUI	Wetland Priority
D72B-04268	Orange	LOW	MODERATE	MODERATE	MODERATE	B/C	3	4	4
D72B-04273	Orange	LOW	VERY LOW	MODERATE	MODERATE	B/C	3	4	4
D72C-03720	Orange	MODERATE	MODERATE	LOW	MODERATE	B/C	3	4	4
D72C-03877	Orange	LOW	MODERATE	LOW	MODERATE	B	4	4	4
D72C-03891	Orange	LOW	MODERATE	LOW	MODERATE	B/C	3	4	4
D72C-03924	Orange	LOW	MODERATE	LOW	MODERATE	B	4	4	4
D72C-04000	Orange	LOW	MODERATE	LOW	MODERATE	B/C	3	4	4
D73B-03617	Orange	MODERATE	LOW	MODERATE	MODERATE	B/C	3	1	2
D73B-03630	Orange	MODERATE	MODERATE	MODERATE	MODERATE	B	4	1	2
D73D-03158	Orange	MODERATE	MODERATE	LOW	MODERATE	D	2	4	3
D73D-03202	Orange	MODERATE	MODERATE	LOW	MODERATE	D	2	4	3
D73D-03234	Orange	MODERATE	HIGH	LOW	HIGH	D	3	4	4
D73D-03267	Orange	MODERATE	LOW	LOW	MODERATE	D	2	4	3
D73E-02740	Orange	HIGH	LOW	LOW	HIGH	D	3	4	4
D73E-02957	Orange	MODERATE	LOW	LOW	MODERATE	D/E	2	4	3
D73E-03072	Orange	MODERATE	MODERATE	LOW	MODERATE	D/E	2	4	3
D73F-03000	Orange	MODERATE	LOW	MODERATE	MODERATE	D/E	2	4	3
D73F-03032	Orange	MODERATE	LOW	MODERATE	MODERATE	D	2	4	3
D73F-03151	Orange	MODERATE	MODERATE	MODERATE	MODERATE	E	2	4	3
D73F-03193	Orange	MODERATE	LOW	MODERATE	MODERATE	D	2	4	3
D73F-03235	Orange	MODERATE	LOW	MODERATE	MODERATE	D/E	2	4	3
D73F-03291	Orange	LOW	MODERATE	MODERATE	MODERATE	D	2	4	3
D73F-03297	Orange	MODERATE	MODERATE	MODERATE	MODERATE	D	2	4	3
D73F-03347	Orange	MODERATE	MODERATE	MODERATE	MODERATE	E	2	4	3
D73F-03358	Orange	MODERATE	LOW	MODERATE	MODERATE	D	2	4	3
D73F-03393	Orange	MODERATE	LOW	MODERATE	MODERATE	C/D	2	4	3
D81A-03148	Orange	LOW	MODERATE	LOW	MODERATE	B	4	4	4
D81A-03199	Orange	HIGH	MODERATE	LOW	HIGH	C/D	3	4	4
D81A-03239	Orange	HIGH	LOW	LOW	HIGH	A/B	5	4	4
D81A-03269	Orange	LOW	LOW	LOW	LOW	D/E	1	4	3
D81A-03311	Orange	LOW	MODERATE	LOW	MODERATE	D/E	2	4	3
D81A-03367	Orange	LOW	MODERATE	LOW	MODERATE	D/E	2	4	3
D81B-03079	Orange	LOW	MODERATE	LOW	MODERATE	C	3	4	4

SQ	River Name[1]	Wetland EI	Wetland ES	SCI Evaluation	Integrated I&S (EI,ES,SCI) (max)	SQ [Wetland] PES	IEI	WRUI	Wetland Priority
D81B-03130	Orange	LOW	MODERATE	LOW	MODERATE	C/D	2	4	3
D81B-03140	Orange	LOW	HIGH	LOW	HIGH	C/D	3	4	4
D81D-03093	(only Orange)	LOW	HIGH	LOW	HIGH	B/C	4	4	4
D81D-03118	(only Orange)	LOW	MODERATE	LOW	MODERATE	B/C	3	4	4
D81D-03164	(only Orange)	LOW	MODERATE	LOW	MODERATE	B	4	4	4
D81E-03200	(only Orange)	LOW	MODERATE	MODERATE	MODERATE	B	4	4	4
D81E-03349	(only Orange)	LOW	MODERATE	MODERATE	MODERATE	B	4	4	4
D81F-03445	(only Orange)	LOW	LOW	LOW	LOW	B	4	4	4
D81G-03731	T_Goob se Laagte	HIGH	LOW	MODERATE	HIGH	B	5	4	4
D82A-03580	(only Orange)	LOW	LOW	LOW	LOW	B	4	4	4
D82A-03588	(only Orange)	HIGH	LOW	LOW	HIGH	B/C	4	4	4
D82A-03595	(only Orange)	LOW	LOW	LOW	LOW	B	4	4	4
D82A-03607	Fontein se	HIGH	MODERATE	LOW	HIGH	B	5	4	4
D82A-03653	Orange	LOW	MODERATE	LOW	MODERATE	B/C	3	4	4
D82A-03675	(only Orange)	HIGH	VERY LOW	LOW	HIGH	B	5	4	4
D82D-03653	(only Orange)	LOW	MODERATE	LOW	MODERATE	B/C	3	4	4
D82E-03540	(only Orange)	LOW	LOW	MODERATE	MODERATE	B	4	4	4
D82E-03546	(only Orange)	LOW	LOW	MODERATE	MODERATE	B	4	4	4
D82F-03531	Orange	LOW	LOW	MODERATE	MODERATE	B/C	3	4	4
D82G-03477	(only Orange)	LOW	LOW	LOW	LOW	C/D	2	4	3
D82G-03508	(only Orange)	LOW	VERY LOW	LOW	LOW	B	4	4	4
D82G-03522	Orange	LOW	LOW	LOW	LOW	C	2	4	3
D82H-03279	(only Orange)	LOW	VERY LOW	LOW	LOW	B	4	4	4
D82H-03355	(only Orange)	LOW	VERY LOW	LOW	LOW	B	4	4	4
D82J-02869	(only Orange)	LOW	VERY LOW	MODERATE	MODERATE	B/C	3	4	4
D82J-02886	Orange	LOW	VERY LOW	MODERATE	MODERATE	B/C	3	4	4
D82J-03022	(only Orange)	LOW	VERY LOW	MODERATE	MODERATE	B/C	3	4	4
D82J-03026	(only Orange)	LOW	VERY LOW	MODERATE	MODERATE	B/C	3	4	4
D82J-03124	(only Orange)	LOW	VERY LOW	MODERATE	MODERATE	B/C	3	4	4
D82K-00000	Orange	VERY HIGH	VERY LOW	MODERATE	VERY HIGH	B	5	4	4
D82K-02994	(only Orange)	LOW	VERY LOW	MODERATE	MODERATE	B	4	4	4
D82K-03084	(only Orange)	LOW	MODERATE	MODERATE	MODERATE	B/C	3	4	4
D82K-03175	Orange	HIGH	VERY LOW	MODERATE	HIGH	B	5	4	4

SQ	River Name[1]	Wetland EI	Wetland ES	SCI Evaluation	Integrated I&S (EI,ES,SCI) (max)	SQ [Wetland] PES	IEI	WRUI	Wetland Priority
D82L-03166	Orange	HIGH	VERY LOW	HIGH	HIGH	C	3	4	4
D82L-03238	(only Orange)	HIGH	VERY LOW	HIGH	HIGH	B/C	4	4	4
D82L-03298	ORANGE	HIGH	LOW	HIGH	HIGH	C	3	4	4
D82L-03314	(only Orange)	HIGH	VERY LOW	HIGH	HIGH	B/C	4	4	4
F10B-03391	Holgat	HIGH	VERY LOW	LOW	HIGH	B	5	0	2
F10B-03605		HIGH	VERY LOW	LOW	HIGH	B	5	0	2
F10C-03476		HIGH	MODERATE	LOW	HIGH	A	5	0	2
F20A-03983		LOW	VERY LOW	LOW	LOW	B/C	3	0	1
F20A-04038		HIGH	VERY LOW	LOW	HIGH	B/C	4	0	2
F20A-04112		HIGH	VERY LOW	LOW	HIGH	B	5	0	2
F20C-04012	Kamma	HIGH	VERY LOW	LOW	HIGH	B	5	0	2
F20D-03937	Kamma	HIGH	VERY LOW	LOW	HIGH	C	3	0	1
F20E-04290	Kwaganap	LOW	LOW	LOW	LOW	C	2	0	1
F30A-04782	Buffels	HIGH	VERY LOW	LOW	HIGH	B/C	4	0	2
F30A-04803	Buffels	HIGH	VERY LOW	LOW	HIGH	B	5	0	2
F30A-04839	Buffels	HIGH	VERY LOW	LOW	HIGH	B/C	4	0	2
F30A-04858		HIGH	VERY LOW	LOW	HIGH	B	5	0	2
F30A-04894	Buffels	HIGH	VERY LOW	LOW	HIGH	B/C	4	0	2
F30A-04943	Buffels	HIGH	VERY LOW	LOW	HIGH	B	5	0	2
F30A-05001	Buffels	HIGH	LOW	LOW	HIGH	C/D	3	0	1
F30A-05047	Buffels	HIGH	VERY LOW	LOW	HIGH	B/C	4	0	2
F30A-05054	Buffels	HIGH	VERY LOW	LOW	HIGH	B/C	4	0	2
F30A-05069	Papkuils	HIGH	VERY LOW	LOW	HIGH	B	5	0	2
F30A-05077	Buffels	HIGH	VERY LOW	LOW	HIGH	B/C	4	0	2
F30A-05084	Klein-Nou	HIGH	VERY LOW	LOW	HIGH	B/C	4	0	2
F30B-04578	Brak	HIGH	VERY LOW	LOW	HIGH	B	5	0	2
F30B-04610	Brak	HIGH	VERY LOW	LOW	HIGH	A/B	5	0	2
F30B-04650	Brak	HIGH	VERY LOW	LOW	HIGH	B	5	0	2
F30B-04741	Brak	HIGH	LOW	LOW	HIGH	B	5	0	2
F30B-04742	Brak	HIGH	VERY LOW	LOW	HIGH	B	5	0	2
F30C-04521	Drodab	LOW	VERY HIGH	LOW	VERY HIGH	B	5	0	2
F30C-04634	Buffels	HIGH	VERY LOW	LOW	HIGH	B	5	0	2
F30C-04829	Buffels	HIGH	VERY LOW	LOW	HIGH	A/B	5	0	2

SQ	River Name[1]	Wetland EI	Wetland ES	SCI Evaluation	Integrated I&S (EI,ES,SCI) (max)	SQ [Wetland] PES	IEI	WRUI	Wetland Priority
F30C-04855	Ybeep	HIGH	VERY LOW	LOW	HIGH	B/C	4	0	2
F30C-04900	Wolwepoort	HIGH	LOW	LOW	HIGH	B/C	4	0	2
F30C-04963	Haas	HIGH	LOW	LOW	HIGH	B/C	4	0	2
F30C-05008	Wolwepoort	HIGH	MODERATE	LOW	HIGH	B	5	0	2
F30D-04502	Eselsfontein	HIGH	VERY HIGH	LOW	VERY HIGH	C	5	0	2
F30D-04684	Buffels	HIGH	VERY LOW	LOW	HIGH	A/B	5	0	2
F30E-04042	Doring	LOW	MODERATE	LOW	MODERATE	B/C	3	0	1
F30F-04348	Buffels	LOW	LOW	LOW	LOW	B	4	0	2
F30G-04318	Buffels	HIGH	VERY LOW	LOW	HIGH	B	5	0	2
F30G-04409	Buffels	HIGH	VERY LOW	LOW	HIGH	B	5	0	2
F30G-04517	Komaggas	HIGH	VERY LOW	LOW	HIGH	B	5	0	2
F30G-04539	Buffels	HIGH	VERY LOW	LOW	HIGH	C	3	0	1
F40B-04698	Wildeperdehoek se Brak	HIGH	VERY LOW	LOW	HIGH	B	5	0	2
F40B-04917	Wildeperdehoek se Brak	HIGH	VERY LOW	LOW	HIGH	B	5	0	2
F40C-04882	Swartlintjies	HIGH	VERY LOW	LOW	HIGH	A/B	5	0	2
F40C-05007	Swartlintjies	HIGH	VERY LOW	LOW	HIGH	A/B	5	0	2
F40D-04789	Swartlintjies	HIGH	LOW	LOW	HIGH	B	5	0	2
F40D-05029	Swartlintjies	HIGH	VERY LOW	LOW	HIGH	A/B	5	0	2
F40E-05132	Horees	HIGH	VERY LOW	LOW	HIGH	B	5	0	2
F40E-05135	Spoeg	HIGH	LOW	LOW	HIGH	B	5	0	2
F40E-05208		HIGH	LOW	LOW	HIGH	B/C	4	0	2
F40E-05318	Spoeg	HIGH	MODERATE	LOW	HIGH	B	5	0	2
F40E-05331	Spoeg	HIGH	MODERATE	LOW	HIGH	B	5	0	2
F40F-05159	Spoeg	HIGH	LOW	LOW	HIGH	B	5	0	2
F40G-05320	Bitter	HIGH	MODERATE	LOW	HIGH	B/C	4	0	2
F40H-05480	Bitter	HIGH	LOW	LOW	HIGH	D	3	0	1
F50A-05191	Hartbees	HIGH	LOW	LOW	HIGH	B/C	4	0	2
F50A-05426	Hartbees	HIGH	VERY LOW	LOW	HIGH	B/C	4	0	2
F50A-05586	Hartbees	HIGH	VERY LOW	LOW	HIGH	B	5	0	2
F50A-05626	Hartbees	HIGH	LOW	LOW	HIGH	B/C	4	0	2
F50B-05307	Swart-Doring	HIGH	LOW	LOW	HIGH	B	5	0	2
F50B-05397		HIGH	LOW	LOW	HIGH	B	5	0	2
F50B-05502	Swart-Doring	HIGH	MODERATE	LOW	HIGH	B/C	4	0	2

SQ	River Name[1]	Wetland EI	Wetland ES	SCI Evaluation	Integrated I&S (EI,ES,SCI) (max)	SQ [Wetland] PES	IEI	WRUI	Wetland Priority
F50B-05515	Swart-Doring	HIGH	LOW	LOW	HIGH	B/C	4	0	2
F50B-05636	Swart-Doring	HIGH	VERY LOW	LOW	HIGH	B	5	0	2
F50C-05612	Swart-Doring	HIGH	LOW	LOW	HIGH	B	5	0	2
F50C-05735	Swart-Doring	HIGH	VERY LOW	LOW	HIGH	B	5	0	2
F50C-05764	Swart-Doring	HIGH	VERY LOW	LOW	HIGH	B	5	0	2
F50D-05726	Swart-Doring	HIGH	VERY LOW	LOW	HIGH	B	5	0	2
F50D-05729	Groen	HIGH	VERY LOW	LOW	HIGH	B	5	0	2
F50E-05142	Kys	HIGH	VERY LOW	LOW	HIGH	C	3	0	1
F50E-05260	Wilgerhouts	HIGH	VERY LOW	LOW	HIGH	B	5	0	2
F50F-05447	Groen	HIGH	MODERATE	LOW	HIGH	B/C	4	0	2
F50F-05560	Groen	HIGH	MODERATE	LOW	HIGH	B/C	4	0	2
F50F-05562		HIGH	LOW	LOW	HIGH	B	5	0	2
F50G-05620	Groen	HIGH	LOW	LOW	HIGH	B	5	0	2
F50G-05755	Groen	HIGH	VERY LOW	LOW	HIGH	A/B	5	0	2
F60A-05886	Brak	LOW	LOW	LOW	LOW	B	4	0	2
F60C-06045		LOW	VERY HIGH	LOW	VERY HIGH	B	5	0	2
F60D-06231	Sout	LOW	VERY LOW	LOW	LOW	B	4	0	2

4 REFINEMENT OF WETLAND PRIORITIES

The prioritisation process conducted before showed that the ecologically important wetlands (Figure 4.1) were also mostly those with low WRUI (Figure 4.2) and vice versa, resulting in priority wetlands mostly confined to the main stem of the Orange River (Figure 4.3 and results outlined in Table 3.1). This prioritisation process did not however consider highly important GRUs, or possible future fracking in the catchment, which is most likely to occur where the Prince Albert and Whitehill formations (DWS, 2016a) that occur at depths of more than a kilometre. Quaternary catchments associated with these formations and highly important GRUs, were assigned HIGH values for WRUI, which then altered wetland priority in this area. This refinement of wetland priorities resulted in more wetlands with High or Very High priorities. Updated wetland priority is shown in Figure 4.4 and Table 4.1. Values in Table 4.1 supersede those shown in Table 3.1.

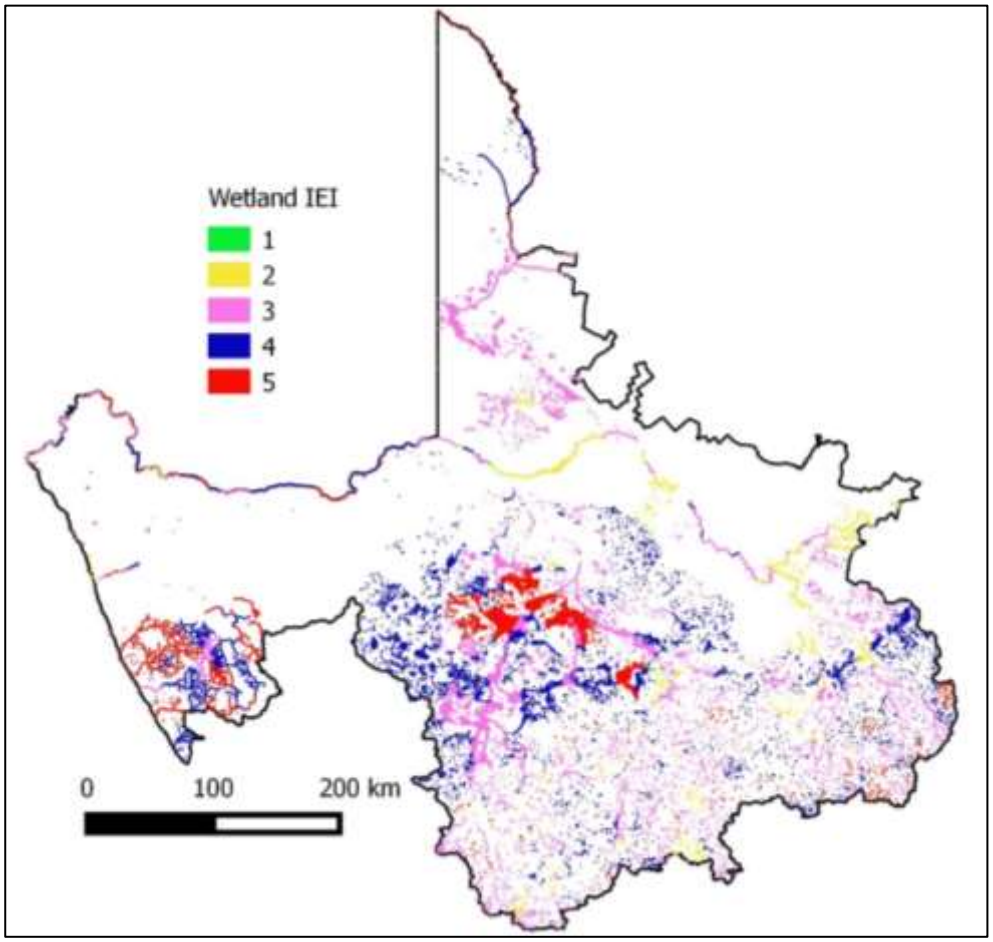

Figure 4.1 Wetland integrated ecological importance (IEI), where 1 = Very Low and 5 = Very High

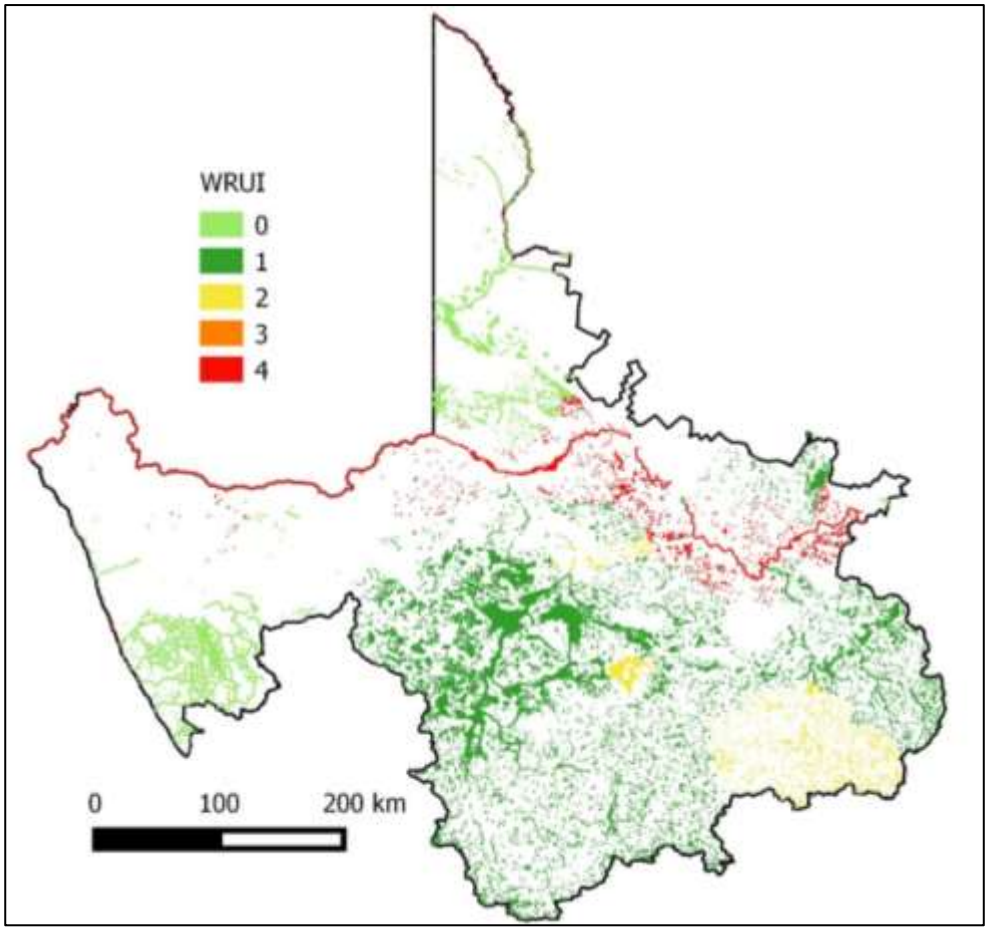

Figure 4.2 Water resource use importance (WRUI), where 0 = Very Low and 4 = Very High

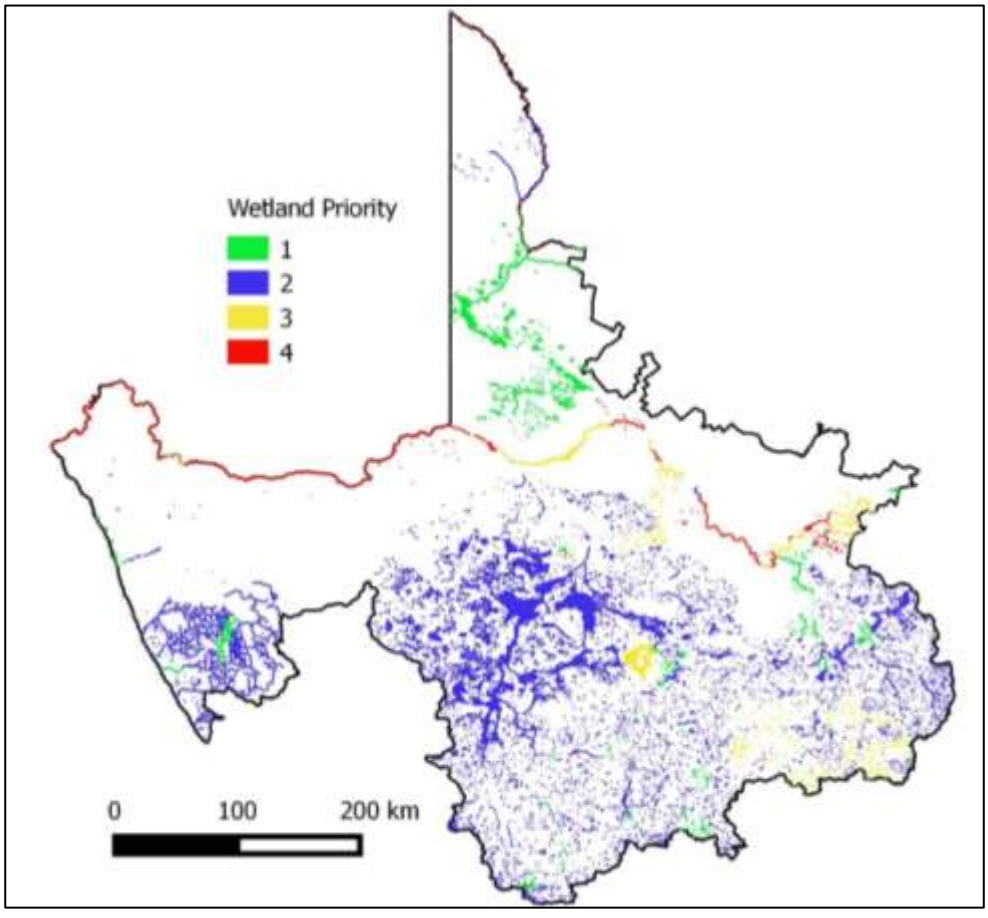

Figure 4.3 Wetland priority, where 1 = Low and 4 = Very High

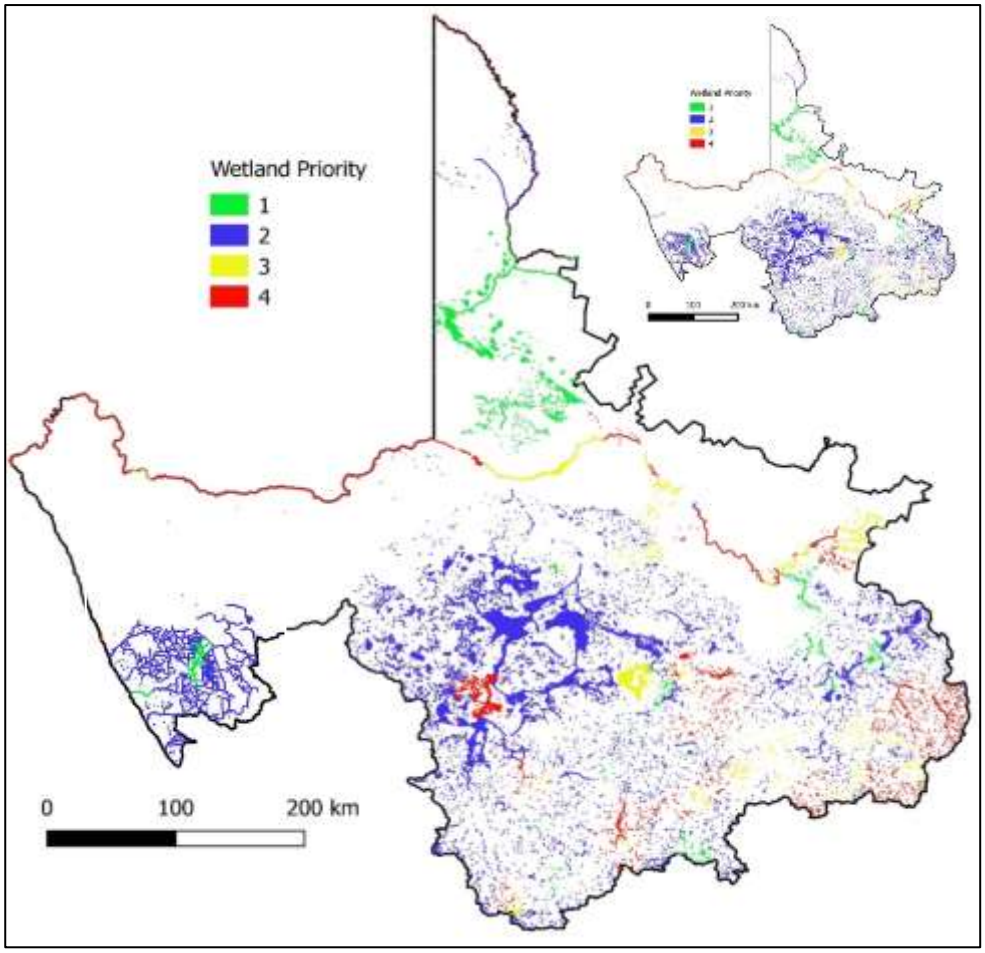

Figure 4.4 Wetland priority, where 1 = Low and 4 = Very High with the inclusion of fracking and highly important GRUs. (Inset shows previous wetland priority)

Table 4.1 Updated wetland priority, after the consideration of possible fracking. (Only wetlands with High (3) or Very High (4) priority are shown)

SQ PESEIS	River Name[2]	Integrated Environmental Importance (IEI)	Previous WRUI	Previous Wetland Priority	WRUI	Wetland Priority
D33K-03723	Orange	2	4	3	4	3
D51A-07271		3	1	2	4	4
D51A-07302	Renoster	3	1	2	4	4
D51A-07361	Renoster	3	1	2	4	4
D51A-07457	Dorps	2	1	1	4	3
D51A-07477		3	1	2	4	4
D53A-04033	Mottels	4	2	3	2	3
D53A-04103	Mottels	4	2	3	2	3
D53A-04113	Mottels	4	2	3	2	3
D53A-04206		4	2	3	2	3
D53A-04308	Dam se Leegte	4	2	3	2	3
D54B-04978	Carnarvonleegte	3	1	2	4	4
D54B-05119		3	1	2	4	4
D54B-05123		4	1	2	4	4

[2] A blank space indicates that the DWS river coverage has no name for the river. These are usually small tributaries with no names in the database.

SQ PESEIS	River Name[2]	Integrated Environmental Importance (IEI)	Previous WRUI	Previous Wetland Priority	WRUI	Wetland Priority
D54B-05125		3	1	2	4	4
D54B-05129		4	1	2	4	4
D54B-05151		2	1	1	4	3
D54B-05160	Carnarvonleegte	3	1	2	4	4
D54B-05230		3	1	2	4	4
D54B-05247	Boesak	4	1	2	4	4
D54B-05266	Bitterpoortloop	3	1	2	4	4
D54B-05293	Carnarvonleegte	3	1	2	4	4
D54B-05316	Boesak	3	1	2	4	4
D54B-05341		3	1	2	4	4
D54B-05381		3	1	2	4	4
D54B-05384	Boesak	3	1	2	4	4
D54B-05429	Renosterpoort se Leegte	4	1	2	4	4
D54B-05431		3	1	2	4	4
D54B-05436	Carnarvonleegte	3	1	2	4	4
D54B-05482	Boesak	5	1	2	4	4
D54B-05484		5	1	2	4	4
D54B-05533		5	1	2	4	4
D54B-05549		5	1	2	4	4
D54B-05556		5	1	2	4	4
D54B-05558		5	1	2	4	4
D54B-05618		5	1	2	4	4
D54B-05621		3	1	2	4	4
D54B-05661	Carnarvonleegte	3	1	2	4	4
D54B-05662		4	1	2	4	4
D54B-05690		3	1	2	4	4
D54B-05693		5	1	2	4	4
D54B-05779	Carnarvonleegte	3	1	2	4	4
D54B-05792	Carnarvonleegte	3	1	2	4	4
D54B-05814	Bloudrif	3	1	2	4	4
D54C-05087		5	2	3	2	3
D54C-05185		4	2	3	2	3
D55D-06116	Soutpoort	3	1	2	4	4
D55D-06194	Brak	3	1	2	4	4
D55D-06235		3	1	2	4	4
D55D-06309		5	1	2	4	4
D55D-06378	Brak	2	1	1	4	3
D55D-06429	Brak	3	1	2	4	4
D55D-06524	Brak	3	1	2	4	4
D55D-06547		5	1	2	4	4
D55D-06570		3	1	2	4	4
D55D-06593		5	1	2	4	4
D55E-06496	Sak	3	1	2	4	4
D55E-06502	Sak	3	1	2	4	4
D55E-06529	Sout	3	1	2	4	4
D55E-06582	Sak	3	1	2	4	4
D55E-06610		4	1	2	4	4
D55E-06614		4	1	2	4	4

SQ PESEIS	River Name[2]	Integrated Environmental Importance (IEI)	Previous WRUI	Previous Wetland Priority	WRUI	Wetland Priority
D55E-06663	Sout	3	1	2	4	4
D55E-06711		4	1	2	4	4
D55E-06713	Sout	3	1	2	4	4
D55E-06728		4	1	2	4	4
D55E-06729	Sout	3	1	2	4	4
D55E-06768		4	1	2	4	4
D55E-06786		4	1	2	4	4
D55E-06823		4	1	2	4	4
D55E-06825	Sout	3	1	2	4	4
D55E-06854	Sout	2	1	1	4	3
D55E-06865		3	1	2	4	4
D55E-06910		3	1	2	4	4
D55E-06946	Sout	3	1	2	4	4
D55E-06961		4	1	2	4	4
D55E-06967		3	1	2	4	4
D55E-06968		4	1	2	4	4
D55L-06115	Sak	3	1	2	4	4
D55L-06175		5	1	2	4	4
D55L-06185		5	1	2	4	4
D55L-06204	Sak	3	1	2	4	4
D55L-06269	Sak	3	1	2	4	4
D55L-06270	Sak	2	1	1	4	3
D55L-06278	Sak	3	1	2	4	4
D55L-06299	Witleegte	4	1	2	4	4
D55L-06301	Sak	3	1	2	4	4
D55L-06307		3	1	2	4	4
D55L-06321	Rietfonteinleegte	5	1	2	4	4
D55L-06351	Witleegte	4	1	2	4	4
D55L-06370		5	1	2	4	4
D55L-06418		5	1	2	4	4
D55L-06434		5	1	2	4	4
D57A-05387	Sak	3	1	2	4	4
D57A-05452		4	1	2	4	4
D57A-05497	Sak	3	1	2	4	4
D57A-05517		4	1	2	4	4
D57A-05552	Sak	3	1	2	4	4
D57C-05215	Sak	3	1	2	4	4
D57C-05254	Sak	3	1	2	4	4
D57C-05267		4	1	2	4	4
D57C-05321		4	1	2	4	4
D57C-05323	Rooidam se Laagte	3	1	2	4	4
D57C-05333		4	1	2	4	4
D57C-05363	Sak	3	1	2	4	4
D57C-05396		4	1	2	4	4
D61A-06062	Ongers	3	2	2	4	4
D61A-06083	Ongers	3	2	2	4	4
D61A-06094		5	2	3	4	4
D61A-06128		4	2	3	4	4

SQ PESEIS	River Name[2]	Integrated Environmental Importance (IEI)	Previous WRUI	Previous Wetland Priority	WRUI	Wetland Priority
D61A-06166	Ongers	5	2	3	4	4
D61A-06213	Ongers	3	2	2	4	4
D61A-06244	Ongers	3	2	2	4	4
D61A-06245	Ongers	2	2	2	4	3
D61A-06246		5	2	3	4	4
D61A-06277		5	2	3	4	4
D61A-06368		3	2	2	4	4
D61B-05795		4	2	3	2	3
D61B-05957		4	2	3	2	3
D61B-06050		5	2	3	2	3
D61B-06058		5	2	3	2	3
D61B-06066		4	2	3	2	3
D61C-05765		4	2	3	2	3
D61C-05771		5	2	3	2	3
D61C-05836		5	2	3	2	3
D61C-05840		5	2	3	2	3
D61C-05912	Ongers	5	2	3	2	3
D61C-06056		5	2	3	2	3
D61D-06256		5	2	3	2	3
D61D-06298		4	2	3	2	3
D61D-06355	Pretoriuskuil se Leegte	4	2	3	2	3
D61E-06164	Brak	3	2	2	4	4
D61E-06230	Brak	3	2	2	4	4
D61E-06262	Visgatspruit	4	2	3	4	4
D61E-06276		3	2	2	4	4
D61E-06332		5	2	3	4	4
D61E-06362	Visgatspruit	3	2	2	4	4
D61E-06379		4	2	3	4	4
D61E-06410		5	2	3	4	4
D61E-06413	Visgatspruit	4	2	3	4	4
D61E-06466		4	2	3	4	4
D61E-06470		4	2	3	4	4
D61F-06130		4	2	3	2	3
D61F-06294		4	2	3	2	3
D61F-06338		5	2	3	2	3
D61F-06342		4	2	3	2	3
D61G-06077		4	2	3	2	3
D61G-06181		4	2	3	2	3
D61G-06223	Klein Brak	5	2	3	2	3
D61H-05854		4	2	3	2	3
D61H-05960	Klein Brak	4	2	3	2	3
D61H-06014		4	2	3	2	3
D61H-06070	Visgat	5	2	3	2	3
D61H-06079		4	2	3	2	3
D61H-06191		5	2	3	2	3
D61J-05622		4	2	3	2	3
D61J-05654	Groen	5	2	3	2	3
D61J-05671		4	2	3	2	3

SQ PESEIS	River Name[2]	Integrated Environmental Importance (IEI)	Previous WRUI	Previous Wetland Priority	WRUI	Wetland Priority
D61J-05705		5	2	3	2	3
D61J-05740		5	2	3	2	3
D61J-05761		5	2	3	2	3
D61J-05816		5	2	3	2	3
D61J-05883		5	2	3	2	3
D61J-05895		5	2	3	2	3
D61J-05921		5	2	3	2	3
D61J-05961		5	2	3	2	3
D61J-05966		5	2	3	2	3
D61J-05972		4	2	3	2	3
D61K-05639	Groen	5	2	3	2	3
D61K-05678		5	2	3	2	3
D61K-05681	Biesiekuilleegte	4	2	3	2	3
D61K-05833		4	2	3	2	3
D61K-05846		5	2	3	2	3
D61L-05546		4	2	3	2	3
D61L-05624		4	2	3	2	3
D61L-05689		5	2	3	2	3
D61L-05710		4	2	3	2	3
D61M-05660		4	2	3	2	3
D62C-05303	Elandsfontein	3	1	2	4	4
D62C-05419		4	1	2	4	4
D62C-05422	Elandsfontein	3	1	2	4	4
D62C-05523		4	1	2	4	4
D62C-05526		4	1	2	4	4
D62C-05528		5	1	2	4	4
D62C-05550		5	1	2	4	4
D62C-05564		4	1	2	4	4
D62C-05576	Elandsfontein	3	1	2	4	4
D62C-05581		5	1	2	4	4
D62C-05583		5	1	2	4	4
D62C-05663		4	1	2	4	4
D62C-05694		5	1	2	4	4
D62C-05696		5	1	2	4	4
D62C-05774		4	1	2	4	4
D62C-05847	Elandsfontein	2	1	1	4	3
D62C-05852		5	1	2	4	4
D62C-05872	Elandsfontein	3	1	2	4	4
D62C-05927	Elandsfontein	3	1	2	4	4
D62C-05929		5	1	2	4	4
D62D-05175		4	1	2	4	4
D62D-05183	Brak	3	1	2	4	4
D62D-05194		4	1	2	4	4
D62D-05227	Brak	3	1	2	4	4
D62D-05245		4	1	2	4	4
D62D-05255		5	1	2	4	4
D62D-05332	Brak	3	1	2	4	4
D62D-05391	Brak	3	1	2	4	4

SQ PESEIS	River Name[2]	Integrated Environmental Importance (IEI)	Previous WRUI	Previous Wetland Priority	WRUI	Wetland Priority
D62D-05392		4	1	2	4	4
D62D-05416		5	1	2	4	4
D62D-05486	Brak	3	1	2	4	4
D62D-05508		4	1	2	4	4
D62D-05553	Brak	3	1	2	4	4
D62D-05569		4	1	2	4	4
D62D-05610		4	1	2	4	4
D62D-05613	Brak	3	1	2	4	4
D71A-03610	Orange	2	4	3	4	3
D71A-03865	Orange	3	4	4	4	4
D71A-03870	Orange	2	4	3	4	3
D71C-03874	Orange	3	4	4	4	4
D71D-04003	Orange	2	4	3	4	3
D71D-04075	Orange	2	4	3	4	3
D71D-04124	Orange	3	4	4	4	4
D71D-04165	Orange	2	4	3	4	3
D71D-04218	Orange	2	4	3	4	3
D72A-04169	Orange	2	4	3	4	3
D72A-04276	Orange	3	4	4	4	4
D72A-04313	Orange	2	4	3	4	3
D72B-03941	Orange	3	4	4	4	4
D72B-04035	Orange	3	4	4	4	4
D72B-04059	Orange	3	4	4	4	4
D72B-04070	Orange	4	4	4	4	4
D72B-04106	Orange	3	4	4	4	4
D72B-04158	Orange	3	4	4	4	4
D72B-04268	Orange	3	4	4	4	4
D72B-04273	Orange	3	4	4	4	4
D72C-03720	Orange	3	4	4	4	4
D72C-03877	Orange	4	4	4	4	4
D72C-03891	Orange	3	4	4	4	4
D72C-03924	Orange	4	4	4	4	4
D72C-04000	Orange	3	4	4	4	4
D73D-03158	Orange	2	4	3	4	3
D73D-03202	Orange	2	4	3	4	3
D73D-03234	Orange	3	4	4	4	4
D73D-03267	Orange	2	4	3	4	3
D73E-02740	Orange	3	4	4	4	4
D73E-02957	Orange	2	4	3	4	3
D73E-03072	Orange	2	4	3	4	3
D73F-03000	Orange	2	4	3	4	3
D73F-03032	Orange	2	4	3	4	3
D73F-03151	Orange	2	4	3	4	3
D73F-03193	Orange	2	4	3	4	3
D73F-03235	Orange	2	4	3	4	3
D73F-03291	Orange	2	4	3	4	3
D73F-03297	Orange	2	4	3	4	3
D73F-03347	Orange	2	4	3	4	3

SQ PESEIS	River Name[2]	Integrated Environmental Importance (IEI)	Previous WRUI	Previous Wetland Priority	WRUI	Wetland Priority
D73F-03358	Orange	2	4	3	4	3
D73F-03393	Orange	2	4	3	4	3
D81A-03148	Orange	4	4	4	4	4
D81A-03199	Orange	3	4	4	4	4
D81A-03239	Orange	5	4	4	4	4
D81A-03269	Orange	1	4	3	4	3
D81A-03311	Orange	2	4	3	4	3
D81A-03367	Orange	2	4	3	4	3
D81B-03079	Orange	3	4	4	4	4
D81B-03130	Orange	2	4	3	4	3
D81B-03140	Orange	3	4	4	4	4
D81D-03093	(only Orange)	4	4	4	4	4
D81D-03118	(only Orange)	3	4	4	4	4
D81D-03164	(only Orange)	4	4	4	4	4
D81E-03200	(only Orange)	4	4	4	4	4
D81E-03349	(only Orange)	4	4	4	4	4
D81F-03445	(only Orange)	4	4	4	4	4
D81G-03731	T_Goob se Laagte	5	4	4	4	4
D82A-03580	(only Orange)	4	4	4	4	4
D82A-03588	(only Orange)	4	4	4	4	4
D82A-03595	(only Orange)	4	4	4	4	4
D82A-03607	Fontein se	5	4	4	4	4
D82A-03653	Orange	3	4	4	4	4
D82A-03675	(only Orange)	5	4	4	4	4
D82D-03653	(only Orange)	3	4	4	4	4
D82E-03540	(only Orange)	4	4	4	4	4
D82E-03546	(only Orange)	4	4	4	4	4
D82F-03531	Orange	3	4	4	4	4
D82G-03477	(only Orange)	2	4	3	4	3
D82G-03508	(only Orange)	4	4	4	4	4
D82G-03522	Orange	2	4	3	4	3
D82H-03279	(only Orange)	4	4	4	4	4
D82H-03355	(only Orange)	4	4	4	4	4
D82J-02869	(only Orange)	3	4	4	4	4
D82J-02886	Orange	3	4	4	4	4
D82J-03022	(only Orange)	3	4	4	4	4
D82J-03026	(only Orange)	3	4	4	4	4
D82J-03124	(only Orange)	3	4	4	4	4
D82K-00000	Orange	5	4	4	4	4
D82K-02994	(only Orange)	4	4	4	4	4
D82K-03084	(only Orange)	3	4	4	4	4
D82K-03175	Orange	5	4	4	4	4
D82L-03166	Orange	3	4	4	4	4
D82L-03238	(only Orange)	4	4	4	4	4
D82L-03298	ORANGE	3	4	4	4	4
D82L-03314	(only Orange)	4	4	4	4	4

5 QUANTIFICATION OF THE WETLAND EWR

The purpose of this chapter is to quantify the EWRs for wetland recommended ecological states. Once the desired Ecological Category (based on a set of DWS rules; DWS, 2014) has been set, thereafter called the REC, the EWR is determined according to wetland type, for high priority wetlands. The process for determining wetland priority is ultimately adjusted by WRUI, which frequently produces higher priority wetlands that are less ecologically important and vice versa. What follows is the determination of the EWR for high priority wetlands, with the inclusion of possible fracking in the catchment and highly important GRUs (Figure 4.4 and Table 4.1).

5.1 APPROACH

The approach is in keeping with outlined techniques for the rapid ecological reserve determination of inland wetlands (Rountree *et al.*, 2013), and is to provide conditions that support the hydrological functioning of wetlands for the maintenance of a desired ecological state (DWS, 2016). These conditions will vary depending on wetland type from quantified flow volumes and distribution or inundation regimes (i.e. quantification of the reserve) to setting of criteria for the protection of wetland condition where the hydrological requirements cannot be quantified.

The previous chapter outlines the identification of High and Very High priority wetlands within the study area (Figure 4.4 and Table 4.1). For each priority wetland RU, the EWR will be determined according to the following steps:

- Determine dominant wetland HGM type
- Determine appropriate level of RDM study for wetlands according to HGM type
- Assess / validate EcoStatus of priority wetlands
- Determine EWR (or other RDM) to achieve REC

5.1.1 Determine dominant wetland HGM type

The HGM wetland type dictates the method of RDM study, as there are different types of assessment methods and EWR determination approaches for different types of wetlands. For the Rapid Reserve methods for wetlands, DWAF (2007), and Rountree and Batchelor (2013) HGM wetland classification has been used.

5.1.2 Determine appropriate level of RDM study for wetlands

Rountree *et al.* in DWA (2012) provide a framework for selecting the appropriate level of RDM study for wetlands. This approach uses the type of wetland and main impact or threat to identify an appropriate level of RDM assessment. The RDM assessment may be either a quantitative EWR determination, a qualitative EWR determination or, in the most simple (low risk) situations, the determination of simple conditions to achieve the REC.

5.1.3 Assess / validate EcoStatus of priority wetlands

This is achieved by the validation of the PES, the determination of the EIS and the determination of the REC.

5.1.4 Determine EWR (or other RDM) to achieve REC

The methods for determining wetland EWR vary according to the HGM type of wetland and level of study. It may not be necessary to quantify the reserve in the same sense that it is determined for rivers, and in some cases may only require the setting of conditions for the maintenance of the hydrological functioning of a specific wetland RU.

5.2 RESULTS

5.2.1 Determination of the dominant HGM type

The HGM types of wetlands with High or Very High priority are shown in Figure 5.1, including types that occur in association with deep Prince Albert and Whitehill formations, where fracking is most probable, or where GRUs are highly important. HGM types were taken from NFEPA spatial data (Nel *et al.*, 2011) and include wetlands in highly important GRUs and where fracking might take place.

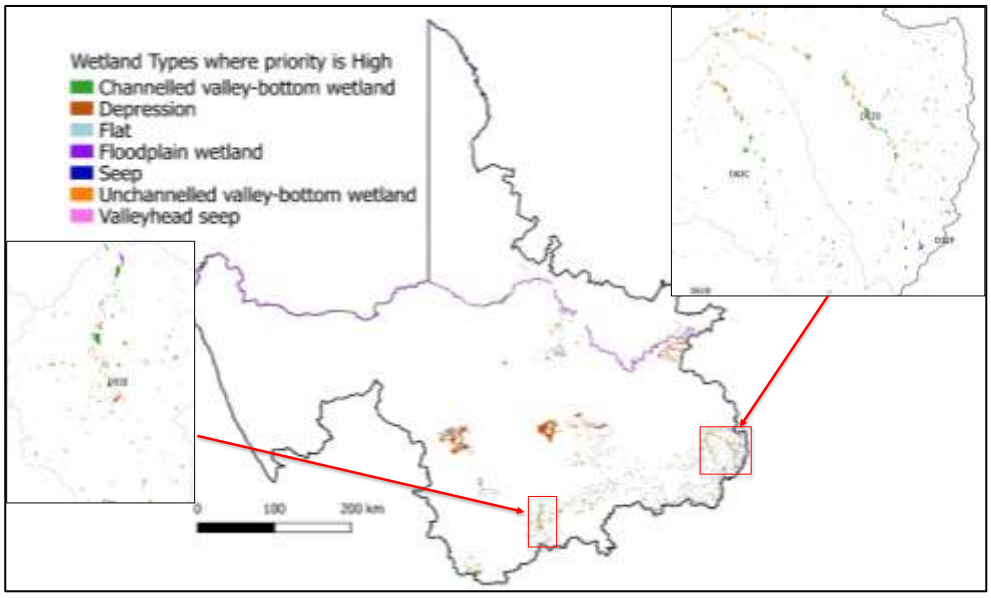

Figure 5.1 Wetland HGM types of high and very high priority wetlands only

High and Very High priority wetlands form three distinct groupings of wetland HGM types (Figure 5.1). These are mainly 1) floodplain wetlands and a few channelled valley bottoms associated with the main stem of the Orange River, 2) depressions (some large but mostly small pans) towards the southern part of the catchment and 3) higher density Channelled and unchannelled valley bottom wetlands in quaternary catchments D62C (Elandsfontein), D62D (Brak) and D55E (Sak and Sout; insets in Figure 5.1). There are also scattered seep wetlands associated with parts of the escarpment, but all are small in extent.

5.2.2 Determine the Appropriate Level of RDM study for the wetlands

The characteristics of the various levels of RDM assessments (according to published methods) associated with wetland type and level of Reserve study are shown in Figure 5.2.

Floodplains along the Orange River are mostly in-channel features such as inset benches, flood benches or terraces and are not comparable to meandering floodplains outlined by Rountree *et al*. in DWA (2012) (Figure 5.2). These floodplains are assessed when the riparian zone is assessed (including EcoStatus and flow requirements) e.g. EWR O3 and O4 at Augrabies and Vioolsdrift respectively, and are thus best assessed with procedures used for rivers. The EWR will be a quantitative flow regime, mostly related to specific flood events that are required for floodplain inundation and sediment and nutrient dynamics, and can be extrapolated to up/downstream similar floodplains (see river procedure).

High priority pans are numerous in the catchment, particularly in and around the fracking areas (Figure 5.1). Some of these pans are extensive, e.g. Verneuk Pan, Grootvloer, Boesmankop,

Bitterputs etc., can be in excess of thousands of hectares. Procedures outlined in DWA (2012; Figure 5.2) for the desktop Reserve of pans outline Fluvius (2007) as the method to use (see appendix A8.4. in Rountree *et al*., 2013 for the example). The example (of a single pan) in Fluvius (2007) merely relates annual rainfall (September to August) to area of pan inundated at end of the dry season. It was decided instead that for each of the large pans a Level 1 WET-Health would be conducted using Google Earth © to assess the vegetation PES (which is based on current land use within each pan) as a measure of the wetland PES (MacFarlane *et al*., 2007). The aim of the EWR would then be to maintain (or improve, depending on the REC) the PES, and quantification of land use cover within each pan / pan system would lend itself to the quantification of EcoSpecs.

Channelled and unchannelled valley bottom wetlands in quaternary catchments D62C (Elandsfontein: D62C-05303, D62C-05419, D62C-05422, D62C-05576), D62D (Brak; D62D-05183, D62D-05227, D62D-05332, D62D-05391, D62D-05486, D62D-05553, D62D-05613) and D55E (Sak and Sout: D55E-06496, D55E-06529, D55E-06663, D55E-06713, D55E-06728, D55E-06729, D55E-06768, D55E-06825, D55E-06854) were assessed during the PESEIS project (DWS, 2014) as part of the riparian / wetland component assessment. These metrics were used in this study to denote values for the EI, ES and PES and verified using Google Earth © (Table 5.2).

	RQO's only		Reserve Study			
	Generic RQO's/conditions	*EcoStatus and specific RQO's*	*Desktop Reserve*	*Rapid Reserve*	*Intermediate Reserve*	*Comprehensive Reserve*
Amount of data collection	*increasing cost, time and complexity* →					
	Low	Low	Low	Moderate	High	Very high
No. of site visits required	0	1	0	1	2	2 to 3
Type of wetland:	**Description/Citation of method:**					
Seepage wetlands	Standard conditions/RQO's	EcoStatus and RQOs				
Pans	Standard conditions/RQO's	EcoStatus and RQOs	Fluvius, 2007 (summarised in Rountree, 2012)	Rountree *et al.*, 2012	(not yet developed)	
Wetland Flats	Standard conditions/RQO's	EcoStatus and RQOs	*Undertake Groundwater Reserve and monitor wetlands as indicator of groundwater resource condition (similarly for other wetlands that are primarily groundwater fed).*			
Lakes	Standard conditions/RQO's	EcoStatus and RQOs			DWAF, 1999	DWAF, 1999
Unchannelled Valley Bottoms	Standard conditions/RQO's	EcoStatus and RQOs	Use current desktop model	Rountree *et al.*, 2012	(not yet developed)	
Channelled Valley Bottoms	Standard conditions/RQO's	EcoStatus and RQOs	Use current desktop model	Rountree *et al.*, 2012	No formal publication, but refer to approaches used on Nyl floodplain by Birkhead *et al.* (2007).	
Floodplains	Standard conditions/RQO's	EcoStatus and RQOs	Use current desktop model	Rountree *et al.*, 2012	No formal publication, but refer to approaches used at EWR site 7 on the large Wilge Floodplain (DWA, 2010).	

Figure 5.2 Characteristics of the various levels of RDM assessments (published methods) according to wetland type and level of Reserve study (DWA, 2012)

5.2.3 Assess / Validate EcoStatus of Priority Wetlands

The EcoStatus was assessed, or where an assessment existed, validated for wetlands with High and Very High priority (ratings of 3 or 4 in Figure 4.4), and where wetland density or extent was notable i.e. small isolated wetlands that had High priority were too numerous to assess. WET-Health (Version 2) was used to determine the PES for pans (WET-Health spreadsheets and Google Earth kml shapes are available in electronic format). PESEIS (DWS, 2014) metrics for the riparian / wetland assessments were used as a starting point for channelled and unchannelled valley bottom wetlands and were verified using Google Earth ©.

An example of a pan assessment is shown in Figures 5.3 and 5.4 for Van Wyksvlei (although all pans were assessed in this way), results for all pans assessed are shown in Table 5.1, and

summary results in Table 5.2. Results of PES assessments for channelled and unchannelled valley bottom wetlands are shown in Table 5.3.

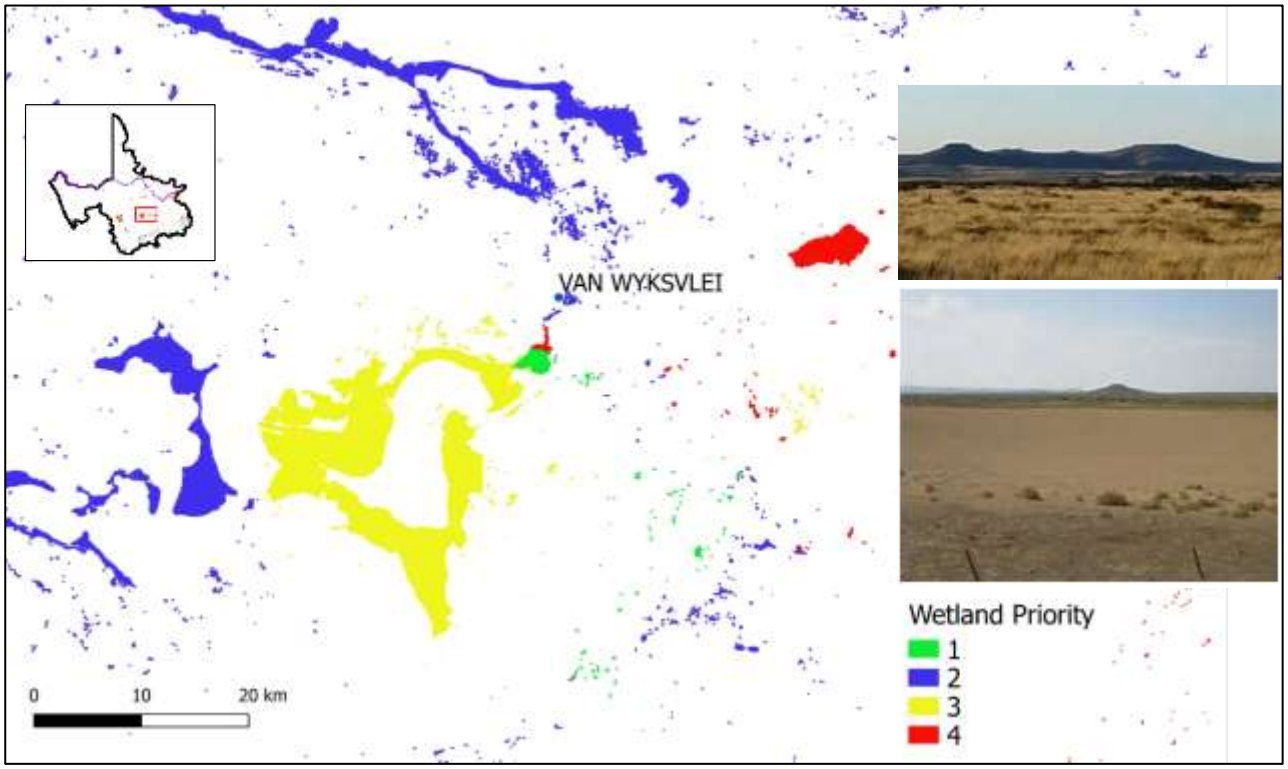

Figure 5.3 An example (Van Wyks Vlei) of a High priority pan system that was assessed with WET-Health Level 1 using Google Earth ©. Insets show examples of grass-covered and bare areas within portions of the pan

Present Vegetation State	C
Trajectory of change	↓

Disturbance class	Brief description of disturbance class	Extent (%)
1	Infrastructure	5
2	Shallow flooding by dams	6
3	Agricultural activities / Crop lands	10
4	Perennial pastures	10
5	Canals / trenching /furrows	3
6	Watering points	2
7	Dense alien vegetation patches	8
		44

Figure 5.4 An example (Van Wyks Vlei) of a High priority pan system that was assessed with WET-Health Level 1 using Google Earth © (left). Land use and present vegetation state are shown to the right

Table 5.1 Updates PES using vegetation component of WET-Health and links to SQs where applicable. (WET-Health areas assessed exceed SQ areas)

SQ PESEIS	River Name[3]	HQ	Wetland EI	Wetland ES	SCI evaluation	FINAL IS (EI,ES,SCI)	Wetland PES	IEI	Frack-ing	WRUI	Wetland priority	WET-Health Name	WET-Health Score	Updated PES (Wet Health EC)
D57D-04512		D57D	VERY HIGH	VERY LOW	LOW	VERY HIGH	B/C	5	1	4	4	Verdostkolk	0.8	A
D54F-04592	Bloubosleegte	D54F	VERY HIGH	VERY LOW	LOW	VERY HIGH	B/C	5	1	4	4	Verneukpan	2.8	C
D54F-04645	Verneukpan	D54F	VERY HIGH	VERY LOW	LOW	VERY HIGH	B/C	5	1	4	4			
D54F-04776	Hartogskloof	D54F	HIGH	VERY LOW	LOW	HIGH	C/D	3	1	4	4			
D54F-04997		D54F	HIGH	LOW	LOW	HIGH	B/C	4	1	4	4			
D54F-05004	Hartogskloof	D54F	HIGH	VERY LOW	LOW	HIGH	C	3	1	4	4			
D54F-04730		D54F	HIGH	VERY LOW	LOW	HIGH	B/C	4	1	4	4	Grootvloer-Sak	2	B
D57D-04526		D57D	VERY HIGH	VERY LOW	LOW	VERY HIGH	B/C	5	1	4	4			
D57D-04694	Sak	D57D	HIGH	VERY LOW	LOW	HIGH	C/D	3	1	4	4			
D57D-04815	Sak	D57D	HIGH	VERY LOW	LOW	HIGH	C/D	3	1	4	4			
D57D-04877		D57D	HIGH	VERY LOW	LOW	HIGH	B/C	4	1	4	4			
D57D-04897		D57D	HIGH	VERY LOW	LOW	HIGH	B/C	4	1	4	4			
D57D-04927		D57D	HIGH	VERY LOW	LOW	HIGH	B/C	4	1	4	4			
D57D-04972	Sak	D57D	HIGH	VERY LOW	LOW	HIGH	C	3	1	4	4			
D57E-04534	Sak	D57E	VERY HIGH	LOW	LOW	VERY HIGH	C	5	1	4	4	Grootvloer B	1.3	B
D54C-05087		D54C	VERY HIGH	VERY LOW	LOW	VERY HIGH	B/C	5	1	4	4	Van Wyksvlei	3.7	C
D54C-05147		D54C	LOW	MODERATE	LOW	MODERATE	C/D	2	1	4	3			
D54C-05162		D54C	LOW	VERY LOW	LOW	LOW	D/E	1	1	4	3			
D54C-05185		D54C	HIGH	VERY LOW	LOW	HIGH	B/C	4	1	4	4			
D57E-04338	Bosduiflaagte	D57E	VERY HIGH	VERY LOW	LOW	VERY HIGH	C	5	1	4	4	Bosduiflaagte	1.1	B
No SQ												Grootvloer NW	3.5	C
D57D-04512		D57D	VERY HIGH	VERY LOW	LOW	VERY HIGH	B/C	5	1	4	4	Skerpionkolk	3	C

[3] A blank space indicates that the DWS river coverage has no name for the river. These are usually small tributaries with no names in the database

Table 5.2 Summary results for High priority pans

Name	HGM	Size (Ha)	PES	EI	ES	SCI	Trajectory of change	REC
Bosduiflaagte	Depression (Pans)	24029	B	VERY HIGH	VERY LOW	LOW	→	B
Grootvloer B	Depression (Pans)	17069	B	VERY HIGH	LOW	LOW	↓	B
Grootvloer NW	Depression (Pans)	7556	C	HIGH	LOW	LOW	↓	B/C
Grootvloer-Sak	Depression (Pans)	74429	B	HIGH	VERY LOW	LOW	↓	B
Skerpionkolk	Depression (Pans)	1470	C	VERY HIGH	VERY LOW	LOW	↓	B/C
Van Wyksvlei	Depression (Pans)	24435	C	HIGH	LOW	LOW	↓	B/C
Verdorstkolk	Depression (Pans)	4208	A	VERY HIGH	VERY LOW	LOW	→	A
Verneukpan	Depression (Pans)	57656	C	VERY HIGH	VERY LOW	LOW	↓	B/C

Table 5.3 Results of PES and REC assessment for High priority channelled and unchannelled valley bottom wetlands (note that values in this Table supersede those in Tables 2.1 or 3.1)

SQ PESEIS	Name	PES	Reason for PES	REC	Strategy to achieve REC
D55E-06496	Sak	C	Alien vegetation, grazing	B	Can improve wetland modification by reducing alien vegetation and grazing pressure
D55E-06529	Sout	D/E	Alien vegetation, grazing, agricultural encroachment, small to medium dams	D	Can improve wetland modification by reducing alien vegetation and grazing pressure
D55E-06663	Sout	C	Alien vegetation, grazing	B/C	Can improve wetland modification by reducing alien vegetation and grazing pressure
D55E-06713	Sout	C	Alien vegetation, grazing	B/C	Can improve wetland modification by reducing alien vegetation and grazing pressure
D55E-06728		C/D	Alien vegetation, small dams	C	Can improve wetland modification by reducing alien vegetation
D55E-06729	Sout	C/D	Alien vegetation, grazing, agricultural encroachment, small to medium dams	C	Can improve wetland modification by reducing alien vegetation and grazing pressure
D55E-06768		C/D	Agricultural encroachment, small dams, infrastructure, alien vegetation	C	Can improve wetland modification by reducing alien vegetation and agricultural encroachment
D55E-06825	Sout	C	Alien vegetation, grazing, agricultural encroachment	B/C	Can improve wetland modification by reducing alien vegetation and grazing pressure
D55E-06854	Sout	C/D	Alien vegetation, grazing, agricultural encroachment	C	Can improve wetland modification by reducing alien vegetation and grazing pressure
D62C-05303	Elandsfontein	C/D	Small dams, watering points, infrastructure, alien vegetation, grazing	C	Can improve wetland modification by reducing alien vegetation
D62C-05419		C	Small dams, watering points, alien vegetation, grazing	B/C	Can improve wetland modification by reducing alien vegetation, and continuity by removal unnecessary infrastructure
D62C-05422	Elandsfontein	C	Small to medium dams, watering points, pivot	B/C	Can improve wetland modification by reducing alien vegetation and encroaching agriculture, and

SQ PESEIS	Name	PES	Reason for PES	REC	Strategy to achieve REC
			agriculture, infrastructure, grazing, alien vegetation		continuity by removal unnecessary infrastructure
D62C-05576	Elandsfontein	D	Small to medium dams, watering points, pivot agriculture, infrastructure, grazing, alien vegetation	C/D	Can improve wetland modification by reducing alien vegetation
D62D-05183	Brak	C	Alien vegetation, grazing, infrastructure	B/C	Can improve wetland modification by reducing alien vegetation and grazing pressure
D62D-05227	Brak	C	Alien vegetation, grazing, infrastructure, small dams	B/C	Can improve wetland modification by reducing alien vegetation and grazing pressure
D62D-05332	Brak	C/D	Alien vegetation, grazing, infrastructure, small dams, agricultural encroachment	C	Can improve wetland modification by reducing alien vegetation and encroaching agriculture
D62D-05391	Brak	C/D	Alien vegetation, grazing, infrastructure, small dams, agricultural encroachment	C	Can improve wetland modification by reducing alien vegetation and encroaching agriculture
D62D-05486	Brak	D	small and medium dams, alien vegetation, infrastructure, grazing	C/D	Can improve wetland modification by reducing alien vegetation and grazing pressure
D62D-05553	Brak	D	small dams, encroaching agriculture, alien vegetation, overgrazing	C/D	Can improve wetland modification by reducing alien vegetation and grazing pressure
D62D-05613	Brak	D/E	small dams, encroaching agriculture, alien vegetation, overgrazing	C/D	Can improve wetland modification by reducing alien vegetation and grazing pressure

5.2.4 Determine EWR (or other RDM) to Achieve REC

Floodplains

The EWR of high priority floodplain wetlands will be a quantitative flow regime, mostly related to specific flood events that are required for floodplain inundation, and sediment and nutrient dynamics, and can be extrapolated to up- or downstream similar floodplains utilising procedures outlined as part of the river process.

Pans

The EWR of high priority pans is expressed through ecological specifications that protect the habitat. To provide these specifications, the EWRs are expressed in terms of a REC (see Table 5.2), which is dependent on the PES and the ecological importance denotes whether the REC is the same as the PES or an improvement, if at all possible. Where the REC is an improvement of the PES, this will involve management of land use. The most common method to achieve the REC where it is higher than the PES is to remove alien vegetation (notably *Prosopis glandulosa*), reduce agricultural encroachment of wetlands and manage (usually reduce) grazing pressures and watering points for livestock.

Valley bottoms

The EWR of high priority channelled and unchannelled valley bottom wetlands is also expressed through ecological specifications that protect the habitat. To provide these specifications, the EWRs are expressed in terms of a REC (see Table 5.3). This table also outlines the strategy required in order to achieve the REC.

6 CONCLUSION

The desktop EcoClassification of wetlands was summarised at the SQ level and formed the basis of a preliminary prioritisation (Table 3.1). This prioritisation showed that the ecologically important wetlands (Figure 4.1) were also mostly those with low WRUI (Figure 4.2) and vice versa, resulting in priority wetlands mostly confined to the main stem of the Orange River (Figure 4.3). This prioritisation process did not however consider highly important GRUs, or possible future fracking in the catchment. Quaternary catchments associated with potential fracking and highly important GRUs were subsequently assigned HIGH values for WRUI, which then altered wetland priority in those areas. The refined wetland priorities resulted in more wetlands scoring High or Very High (Figure 4.4 and Table 4.1), which then required the determination of a wetland EWR.

High and Very High priority wetlands formed three distinct groupings of wetland HGM types (Figure 5.1). These were floodplain wetlands associated with the main stem of the Orange River, depressions (some large but mostly small pans) towards the southern part of the catchment and higher density channelled and unchannelled valley bottom wetlands in quaternary catchments D62C (Elandsfontein), D62D (Brak) and D55E (Sak and Sout; insets in Figure 5.1).

Floodplains along the Orange River are mostly in-channel features such as inset benches, flood benches or terraces and are not comparable to meandering floodplains outlined by Rountree *et al*. in (DWA, 2012). These floodplains are assessed when the riparian zone is assessed e.g. EWR 3 and 4 at Augrabies and Vioolsdrift respectively. The EWR for floodplain wetlands will therefore be a quantitative flow regime, mostly related to specific flood events that are required for floodplain inundation and sediment and nutrient dynamics. Such a flow regime could be adjusted for extrapolation to upstream and downstream similar floodplains (as per procedures used in the determination of the EWR for rivers).

High priority pans are numerous in the catchment, particularly in and around the fracking areas (Figure 5.1). Some of these pans are extensive e.g. Verneuk Pan, Grootvloer, Boesmankop, Bitterputs etc., can be in excess of thousands of hectares. Procedures outlined in DWA (2012; Figure 5.2) for the desktop Reserve of pans outline Fluvius (2007) as the method to use (see Appendix A8.4. in Rountree *et al*., 2013 for the example). The example (of a single pan) in Fluvius (2007) merely relates annual rainfall (Sep to Aug) to area of pan inundated at end of the dry season. It was decided instead that for each of the large pans a Level 1 WET-Health would be conducted using Google Earth © to assess the vegetation PES (which is based on current land use within each pan) as a measure of the wetland PES (MacFarlane *et al*., 2007). The EWR of high priority pans is expressed through ecological specifications that protect the habitat. To provide these specifications, the EWRs were expressed in terms of a REC (see Table 5.2), which is dependent on the PES, and the ecological importance denotes whether the REC is the same as the PES or an improvement, if at all possible. Where the REC is an improvement of the PES, this will involve management of land use. The most common method to achieve the REC where it is higher than the PES is the removal of alien vegetation (notably *P. glandulosa*), reduced agricultural encroachment of wetlands and management of grazing pressures and watering points for livestock.

Channelled and unchannelled valley bottom wetlands in quaternary catchments D62C (Elandsfontein), D62D (Brak) and D55E (Sak and Sout) were assessed during the PESEIS project (DWS, 2014) as part of the riparian / wetland component assessment. These metrics were used in this study to denote values for the EI, ES and PES and verified using Google Earth © (Tables 5.1,

5.2 and 5.3). The EWR of high priority channelled and unchannelled valley bottom wetlands are also expressed through ecological specifications that protect the habitat. To provide these specifications, the EWRs are expressed in terms of a REC (see Table 5.3). This table also outlines the strategy required in order to achieve the REC.

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8 APPENDIX A: COMMENTS REGISTER

	Section	Report statement	Comments	Changes made?	Author comment
	Comments received from RDM:				
1	Executive Summary	Gonah Tichatonga	WRUI: Write in full since is the first time you are mentioning this abbreviation	Yes	Acknowledged, changes made in report
2	Table 3.1; Table 4.1; Table 5.1	Gonah Tichatonga	River names are missing in places in respective tables	Yes	An explanation was included in Table captions: Where river names appear blank, the SQ refers to an unnamed stream.
3					