INVENTORY OF NATIONAL RIVER HEALTH PROGRAMME MONITORING SITES

VOLUME 1

November 2005

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Prepared for:

Environmentek (CSIR) and Resource Quality Services,

Department of Water Affairs and Forestry

THE RIVER HEALTH PROGRAMME

DEPT. OF WATER AFFAIRS & FORESTRY

WATER RESEARCH COMMISSION

DEPT. OF ENVIRONMENTAL AFFAIRS & TOURISM

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1. INTRODUCTION

The CSIR was appointed by the Department of Water Affairs and Forestry (DWAF) as principal consultants for the project: Planning, Management and Coordination of the River Health Programme (RHP) in October 2003. The scope of this project includes an Inception phase which was initiated in May 2004 and which will be completed in March 2006. The main purpose of the Inception phase is to revisit and revise the design of the River Health Programme and to align the design with the National Water Act (1998) and DWAF's National Water Resources Strategy and to further ensure that Programme's design is in accordance with DWAF's Strategic Framework for National Water Resource Quality Monitoring Programmes. Since the start of the Inception Phase various workshops have been and still will be conducted which require expertise and specialist input in data acquisition, data management and storage, and information generation and dissemination. These will be dealt with as part of two components of the Inception phase, namely Conceptual Design and the development of an Implementation Protocol.

One component of the Implementation Protocol component of the Inception Phase deals with the selection / identification of biomonitoring sites, including reference sites where possible. This report summarizes the process followed in the selection of national River Health Programme (RHP) sites and presents the results of this component of the Inception Phase.

2. SELECTION OF NATIONAL RHP SITES

Four regional workshops were held between 22 February and 25 May 2005, at which regional experts, representing a broad range of organizations including government departments (regional and national), local authorities, Parks Board and Conservation agencies, universities and the private sector, identified potential national sites for the RHP. Appendices 1.1 to 1.4 provides a list of participants at each workshop, in addition to experts who contributed to site attribute data after the workshops.

Prior to the workshops, participants completed standardised spreadsheet templates designed to capture relevant data for existing sites considered to be suitable candidates for national sites. These sites often formed part of existing River Health Programmes at provincial or local level. Table 1 summarizes the data captured in the final site attribute tables and provides an explanation of the details pertaining to each site attribute. Note that the RHP Site code allocated to each site is likely to change for macro sites and where details related to site location are presently unknown.

Three types of sites were identified at the workshops. These have been differentiated in the report (tables and maps) as follows:

- **Existing sites (E)** – these are mostly monitoring sites that existed prior to the workshops, mostly as provincial or local monitoring sites. Supporting attribute data for many of these sites have been provided by regional experts, although in some instances data are missing.
- **Proposed macro sites (P)** - macro site locations were identified at the river reach scale when no sites existed. Supporting attribute data for these sites was generally not available and specific site locations for these sites will be determined during ground-truthing and site validation.
- **Reference sites (R)** – these are existing sites that represent the "least impacted" condition and which may be used to generate future reference conditions for specific ecoregions, longitudinal zones and/or river types. Reference conditions enable the degree of degradation or deviation from natural conditions to be ascertained, and thereby serve as a foundation for developing biocriteria (Dallas 2002) and evaluating monitoring sites. The process by which reference conditions are derived will vary with biotic component, i.e. invertebrates, fish, riparian vegetation. It is likely that additional reference sites will need to be identified within ecoregions which are not represented or under represented.

Data from the workshops was consolidated into the standardised spreadsheets and maps showing sites were generated per Water Management Area. The final selection of sites was undertaken at a workshop in October 2005 (Appendix 1.5 is list of participants).

This report comprises 2 volumes, namely:

- Volume 1: Introduction, selection of RHP site, results presented as tables for each Water Management Area, conclusions and references (A4 format), and
- Volume 2: Maps of national RHP sites per Water Management Area (A4 and A3 format).

Electronic data is also provided in the form of Excel Spreadsheets. Both the report (including the tables) and maps are also given as pdf files.

Table 1. Site attributes captured in the standardized spreadsheet template at regional workshops and consolidated in Table 3 to 21.

Table attribute	Explanation
RHP Site Code	Site code assigned according to the River Health Programme protocol (Dallas 2005).
WMA	Water Management Area in which the site is located.
Province	Province in which the site is located.
Site Type	Sites were categorized according to whether they were existing sites (E), proposed macro sites (P) or reference sites (R).
Ecoregion	Ecoregion Level I (One of 31 as identified in Kleynhans *et al.* 2004) and Ecoregion Level II (One of 135 as identified in Kleynhans et al. In prep).
Major Rivers	Major rivers in the Water Management Area (not necessarily main stem).
Tributary	Name of tributary of corresponding major river.
Original Site Name / Site Code	Site name used originally (e.g. local site name, EWR site code, etc.).
Site description	A description of the site giving location details where possible.
Latitude	Latitude (converted to GIS co-ordinates) - GIS co-ordinates for some existing sites and all proposed macro sites were generated in ArcView and will require field validation.
Longitude	Longitude (converted to GIS co-ordinates).
Historical Data Record	The earliest and latest data record (if known).
RHP Reference Site	Currently a RHP reference site; and/or potentially a future RHP reference site.
RHP Monitoring Site	Currently a RHP monitoring site, and /or potentially a future RHP monitoring site.
Ecological Reserve Site	A site assessed during an Instream Flow Requirements (IFR) or Ecological Water Requirements (EWR) process.
Impact Of Land Use (At Site & Upstream)	Land use at the site and upstream of the site, rated according to the following scale: 0=None; 1=Small; 2=Moderate; 3=Large; 4=Serious; 5=Critical/Extreme).
Presence Of Sass Habitat Types (habitats or biotopes according to the SASS protocol, Dallas 2005)	SASS habitats present at the site, rated according to the following scale: 0=None; 1=Very poor; 2=Poor; 3=Moderate; 4=Good; 5=Excellent). Habitats include: SIC (Stones-in-current), SOC (Stones-out-of-current), VIC (Vegetation-in-current), VOC (Vegetation-out-of-current), GSM (Gravel, sand, mud).

Table attribute	Explanation
Presence Of Fish Flow-Depth Classes (details provided in the fish sampling protocol in Dallas 2005)	The relative abundance velocity-depth classes, rated according to the following scale: 0=None; 1=Very poor; 2=Poor; 3=Moderate; 4=Good; 5=Excellent). Velocity-depth classes include FD (fast, deep), FS (fast, shallow), SD (Slow, deep) and SS (Slow, shallow).
Presence Of Cover Types For Fish (details provided in the fish sampling protocol in Dallas 2005)	The relative abundance of cover classes, rated according to the following scale: 0=None; 1=Very poor; 2=Poor; 3=Moderate; 4=Good; 5=Excellent). Cover classes include marginal vegetation, under cut banks, macrophytes, substrate and water column.
Presence of Riparian Vegetation Zones	The presence of riparian zones, rated according to the following scale: 0=None; 1=Very limited; 2=Limited; 3=Moderate; 4=Good; 5=Excellent). Zones include Marginal zone, Lower Zone and Upper Zone.
Overall suitability considering samplebility and information	An overall rating of the suitability of the site in terms of available information and suitability to monitor fish, invertebrates and riparian vegetation.
General Comments: Safety And Accessibility	Information pertaining to safety and general suitability of the site for sampling.
Wetland(s) upstream or downstream of this site?	Presence of an associated wetland, with details (e.g. Ramsar site).
Contact Person(s)	Name(s) of person(s) who proposed the site, or who have information on the site or macro site.
Priority (1=high, 2=medium, 3=low)	Priority rating for monitoring.

3. RESULTS PRESENTED PER WATER MANAGEMENT AREA

The number of national sites identified varied from Water Management Areas (WMAs) to WMA. As a guideline 35 sites per WMA were recommended, although certain WMA's required more than this, while others were adequately represented with fewer sites. Sites are presented within the framework of ecoregions (levels I, Figure 1, and level II). Rivers, dams, towns and major roads are indicated on each map.

The number of existing sites, proposed macro sites and reference sites per WMA are presented in Table 2. A total of 638 sites have been identified, of which 384 are existing sites and 254 are proposed macro sites. Of the 384 existing sites, 122 are considered to be reference sites. Maps indicating the sites within each WMA are provided (M1 to M19), together with tables giving site attribute data for sites within each WMA (Table 3 to 21).

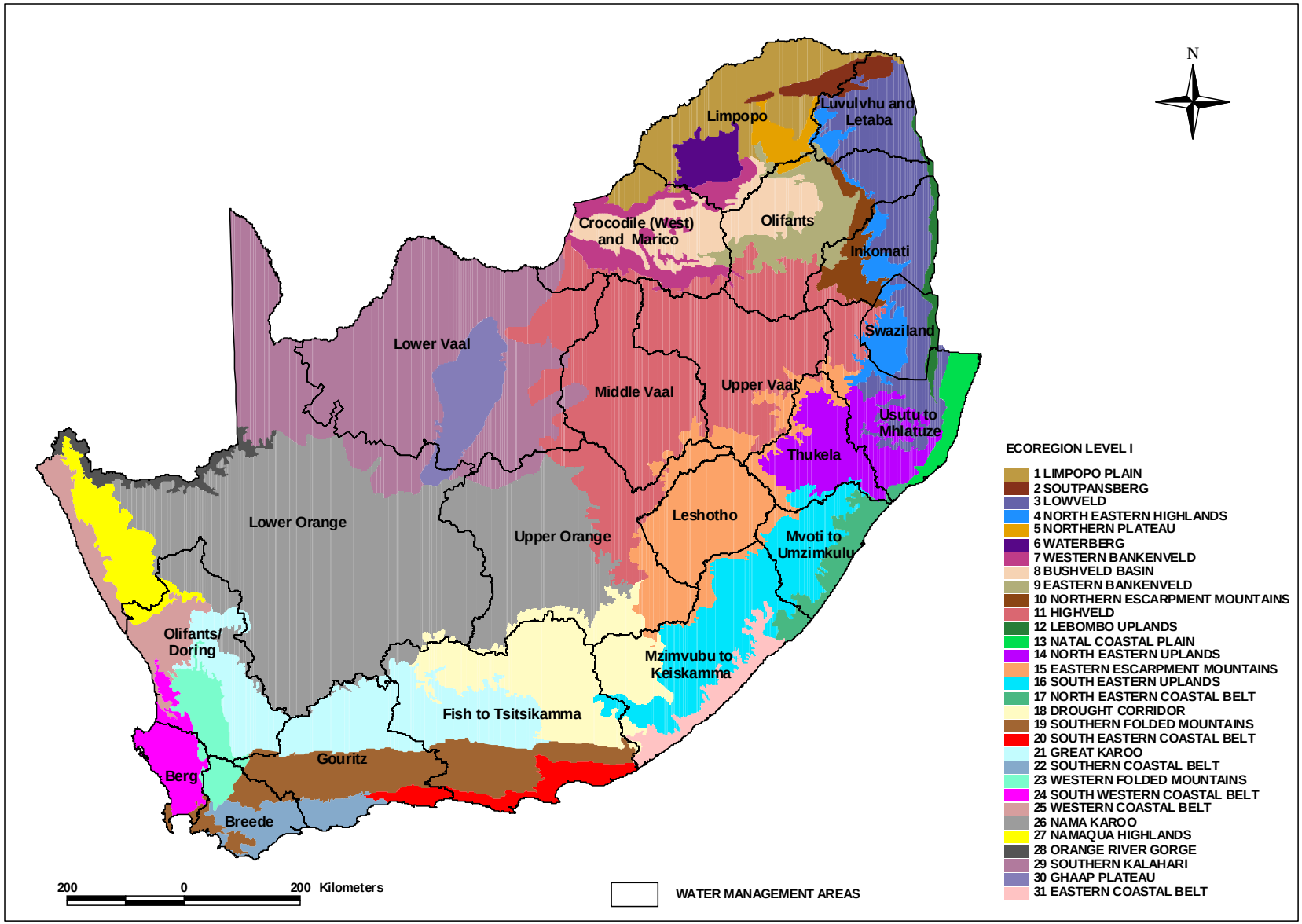

Figure 1. Water Management Areas and Ecoregion Level I's for South Africa

Table 2. Summary site information for each WMA

WMA Number	WMA Name	Number of sites (total)	Number of existing sites	Number of proposed macro sites	Number of reference sites (Existing)
1	Limpopo	36	0	36	0
2	Luvuvhu Letaba	28	27	1	14
3	Crocodile West	48	43	5	10
4	Olifants	40	29	11	8
5	Inkomati	40	31	9	10
6	Usutu Mhlatuze	43	14	29	11
7	Thukela	29	18	11	4
8	Upper Vaal	39	10	29	1
9	Middle Vaal	26	12	14	0
10	Lower Vaal	11	5	6	0
11	Mvoti Umzimkulu	32	23	9	8
12	Mzimvubu to Keiskamma	38	18	20	5
13	Upper Orange	37	18	19	1
14	Lower Orange	19	13	6	1
15	Fish Tsitsikamma	29	6	23	1
16	Gouritz	35	31	4	14
17	Olifants Doring	36	31	5	15
18	Breede	36	22	14	11
19	Berg	36	33	3	8
	Total	638	384	254	122
	Average	34	20	13	6
	Minimum	11	0	1	0
	Maximum	48	43	36	15

4. CONCLUSION AND THE WAY FORWARD

The national RHP sites selected during the workshops and consolidated in this report (together with associated electronic data), provides a broad coverage of South Africa, with all provinces well represented. During the process it became clear that certain regions, particularly the more arid ones, provided additional challenges in selecting appropriate sites. The proposed macro sites will require field verification to identify the specific location of each site and to access the suitability of the site for sampling. It is likely that the location of some of the existing sites, which have not been accessed for a long time period, may also need to be modified, if conditions at the site have changed in recent years.

This report, which forms part of the Inception phase, will provide a basis for the follow-on phase, namely Conceptual Design and the development of an Implementation Protocol.

5. REFERENCES

Dallas HF. 2002. *Spatial and temporal heterogeneity in lotic systems: implications for defining reference conditions for riverine macroinvertebrates*. Water Research Commission Report No.KV138/03 Pretoria, 218pp.

Dallas HF. 2005. *River Health Programme: Site charactersation field-manual and field-data sheets.* National Biomonitoring Programme Report Series No 18. Institute for Water Quality Studies, Department of Water Affairs and Forestry, Pretoria.

Kleynhans CJ, Thirion C and J Moolman. 2004. *A Level I River Ecoregion classification System for South Africa, Lesotho and Swaziland.* Report No. N/0000/00/REQ0104. Resource Quality Services, Department of Water Affairs and Forestry, Pretoria, South Africa (DRAFT).

Kleynhans CJ, Thirion C and J Moolman. In prep. *A Level II River Ecoregion classification System for South Africa, Lesotho and Swaziland.* Resource Quality Services, Department of Water Affairs and Forestry, Pretoria, South Africa.

Table 3. WMA 01 Limpopo

RHP Site Code	PROVINCE	Site Type	ECOREGION	MAJOR RIVERS	TRIBUTARY	Original Site Name / Site Code	Site description	LATITUDE	LONGITUDE	HISTORICAL DATA RECORD	
										EARLIEST	LATEST
A4LIMP-CROCC	Limpopo	P	1.02	Limpopo		Proposed macro site (L1)	Below Crocodile River confluence	-24.09569	26.88330		
A4LIMP-MOGOL	Limpopo	P	1.02	Limpopo		Proposed macro site (L3)	Below Mogolo Dam	-23.19002	27.75643		
A4LIMP-STOCK	Limpopo	P	1.02	Limpopo		Proposed macro site (L2)	Stockpoort, below wetland	-23.38649	27.46062		
A5LIMP-PALAL	Limpopo	P	1.02	Limpopo		Proposed macro site (L4)	Below Palala	-23.00561	27.93679		
A6LIMP-EENDE	Limpopo	P	1.02	Limpopo		Proposed macro site (L6)	Below Mogalakwena; Eendvogelpan	-22.42488	28.94544		
A6LIMP-USUTU	Limpopo	P	1.02	Limpopo		Proposed macro site (L5)	Usustu border post	-22.57712	28.54601		
A7LIMP-GREEF	Limpopo	P	1.01	Limpopo		Proposed macro site (L7)	Greefswald downstream Sashe confluence	-22.17869	29.40056		
A8LIMP-NSHEL	Limpopo	P	1.01	Limpopo		Proposed macro site (L9)	Below Nzhelele, below wetland	-22.33752	30.41256		
A8LIMP-NWAND	Limpopo	P	1.01	Limpopo		Proposed macro site (L10)	Below Nwanedzi	-22.30805	30.68987		
A8LIMP-SANDC	Limpopo	P	1.01	Limpopo		Proposed macro site (L8)	Below Sand	-22.29318	30.19136		
A4MATL-AWETL	Limpopo	P	1.02	Matlabas		Proposed macro site (Mat1)	Above confluence wetland	-23.77934	27.01035		
A4MATL-MATLA	Limpopo	P	1.03	Matlabas		Proposed macro site (Mat2)	At Matlabas town downstream from Marakele National Park	-24.28771	27.50183		
A4FRIK-FRIKK	Limpopo	P	6.01	Mokolo	Frikkiesloon	Proposed macro site	Frikkiesloon (Rapid reserve site)	-24.31687	27.95877	2000	
A4MOKO-ABDAM	Limpopo	P	6.02	Mokolo		Proposed macro site	Upstream Mokolo Dam	-24.05152	27.79999		
A4MOKO-BEDAM	Limpopo	P	6.01	Mokolo		Proposed macro site	Downstream Mokolo Dam; upstream Ellisras	-23.81291	27.78025		
A4MOKO-ELLIS	Limpopo	P	1.02	Mokolo		Proposed macro site	Downstream Ellisras	-23.39508	27.71174		
A4MOKO-VAAL	Limpopo	P	6.01	Mokolo		Proposed macro site	Upstream Vaalwater	-24.33155	28.12311		
A5LEPH-BEAUT	Limpopo	P	1.02	Lephalala		Proposed macro site (LEPH1)	At Beauty	-23.19745	27.88538		
A5LEPH-OVERY	Limpopo	P	1.02	Lephalala		Proposed macro site (LEPH2)	At Overyssel	-23.60946	28.12694		
A5LEPH-SCHOO	Limpopo	P	6.01	Lephalala		Proposed macro site (LEPH3)	Malope above school camp	-23.94161	28.37027		
A6OLIF-OSTRI	Limpopo	P	7.03	Mogalakwena	Olifantspruit	Proposed macro site	Ostrich	-24.61751	28.43314		
A6KLEIN-MODOM	Limpopo	P	8.01	Mogalakwena	Klein Nyl	Proposed macro site	Downstream of Modomoli, upstream of Nylsvley	-24.57156	28.67957		
A6NYL-JAAGB	Limpopo	P	8.01	Mogalakwena	Nyl	Proposed macro site	Upstream Nylpanne; arm Jaagbaan/Moorddrift	-24.28667	28.96897		
A6NYL-NYLSV	Limpopo	P	8.01	Mogalakwena	Nyl	Proposed macro site	Upstream from Nylsvley National Reserve	-24.68409	28.60694		
A6NYL-TOBIA	Limpopo	P	8.01	Mogalakwena	Nyl	Proposed macro site	Below Tobiaspruit tributary and Nylsvley	-24.47223	28.88234		
A6STER-HANGK	Limpopo	P	7.02	Mogalakwena	Sterk	Proposed macro site	Hanglip crossing upstream of Doorndraai Dam	-24.37937	28.61467		
A6MOGA-BGLEN	Limpopo	P	1.02	Mogalakwena		Proposed macro site	Downstream Glen Alpine Dam	-22.87547	28.68129		
A6MOGA-UGLEN	Limpopo	P	1.02	Mogalakwena		Proposed macro site	Upstream Glen Alpine Dam	-23.43198	28.62330		
A7BRAK-GAMAM	Limpopo	P	1.02	Sand	Brak	Proposed macro site	Below Confluence with Ga-Mamasonya	-23.18730	29.06023		
A7HOUT-POLOK	Limpopo	P	5.01	Sand	Hout	Proposed macro site	Downstream Limpopo	-23.60540	29.30090		
A7SAND-POLOK	Limpopo	P	5.01	Sand		Proposed macro site	Downstream Limpopo	-23.79518	29.45079		
A7SAND-WATER	Limpopo	P	1.01/ 2.02	Sand		Proposed macro site	Above Waterpoort, below hot springs	-22.80723	29.61762		
A8NZHE-BEDAM	Limpopo	P	2.01	Nzhelele		Proposed macro site	Below Nzhelele Dam	-22.61158	30.14456		
A8NZHE-UPDAM	Limpopo	P	2.03	Nzhelele		Proposed macro site	Upstream Nzhelele Dam	-22.83094	30.05377		
A8NWAN-ABDAM	Limpopo	P	2.04	Nwanedzi		Proposed macro site	Upstream Nwanedzi Dam	-22.70888	30.37400		
A8NWAN-BEDAM	Limpopo	P	2.02	Nwanedzi		Proposed macro site	Below Nwanedzi Dam	-22.47605	30.47117		

RHP Site Code	RHP REFERENCE SITE		RHP MONITORING SITE		ECOLOGICAL RESERVE SITE	IMPACT OF LAND USE (AT SITE & UPSTREAM)	PRESENCE OF SASS HABITAT TYPES					PRESENCE OF FISH FLOW-DEPTH CLASSES				PRESENCE OF COVER TYPES FOR FISH				
	CURRENT	POSSIBLE	CURRENT	POSSIBLE			SIC	SOC	VIC	VOC	GSM	FD	FS	SD	SS	MARG VEG	UNDER CUT BANKS	MACROPH YTES	SUBSTRA TE	WATER COLUMN
A4LIMP-CROCC				Y																
A4LIMP-MOGOL				Y																
A4LIMP-STOCK				Y																
A5LIMP-PALAL				Y																
A6LIMP-EENDE				Y																
A6LIMP-USUTU				Y																
A7LIMP-GREEF				Y																
A8LIMP-NSHEL				Y																
A8LIMP-NWAND				Y																
A8LIMP-SANDC				Y																
A4MATL-AWETL				Y																
A4MATL-MATLA				Y																
A4FRIK-FRIKK				Y	Y															
A4MOKO-ABDAM				Y																
A4MOKO-BEDAM				Y																
A4MOKO-ELLIS				Y																
A4MOKO-VAAL				Y																
A5LEPH-BEAUT				Y																
A5LEPH-OVERY				Y																
A5LEPH-SCHOO				Y																
A6OLIF-OSTRI				Y																
A6KLEIN-MODOM				Y																
A6NYL-JAAGB				Y																
A6NYL-NYLSV				Y																
A6NYL-TOBIA				Y																
A6STER-HANGK				Y																
A6MOGA-BGLEN				Y																
A6MOGA-UGLEN				Y																
A7BRAK-GAMAM				Y																
A7HOUT-POLOK				Y																
A7SAND-POLOK				Y																
A7SAND-WATER				Y																
A8NZHE-BEDAM				Y																
A8NZHE-UPDAM				Y																
A8NWAN-ABDAM				Y																
A8NWAN-BEDAM				Y																

RHP Site Code	PRESENCE OF RIPARIAN VEGETATION ZONES			OVERALL SUITABILITY CONSIDERING SAMPLEBILITY AND INFORMATION			GENERAL COMMENTS: SAFETY AND ACCESIBILITY	Wetland(s) upstream or down stream of this site?		Contact Person	Priority (1=high, 2=medium, 3=low)
	MARGINAL ZONE	LOWER ZONE	UPPER ZONE	Fish	SASS	RIP VEG		(Yes / No)	Describe (e.g. Large/ Small / Ramsar/ Importance)		
A4LIMP-CROCC							Ephemeral			Neels Kleynhans / Ben vd Waal	1
A4LIMP-MOGOL							Ephemeral			Neels Kleynhans / Ben vd Waal	1
A4LIMP-STOCK							Ephemeral			Neels Kleynhans / Ben vd Waal	1
A5LIMP-PALAL							Ephemeral			Neels Kleynhans / Ben vd Waal	1
A6LIMP-EENDE							Ephemeral			Neels Kleynhans / Ben vd Waal	1
A6LIMP-USUTU							Ephemeral			Andre Hoffman (historical site) / Neels Kleynhans	1
A7LIMP-GREEF							Ephemeral			Neels Kleynhans / Ben vd Waal	1
A8LIMP-NSHEL							Ephemeral	Y		Neels Kleynhans / Ben vd Waal	1
A8LIMP-NWAND							Ephemeral			Neels Kleynhans / Ben vd Waal	1
A8LIMP-SANDC							Ephemeral			Neels Kleynhans / Ben vd Waal	1
A4MATL-AWETL										Neels Kleynhans	1
A4MATL-MATLA										Neels Kleynhans	1
A4FRIK-FRIKK							Reserve site, dam subsequently constructed			Neels Kleynhans	1
A4MOKO-ABDAM										Neels Kleynhans	1
A4MOKO-BEDAM										Neels Kleynhans	1
A4MOKO-ELLIS										Neels Kleynhans	1
A4MOKO-VAAL										Neels Kleynhans	1
A5LEPH-BEAUT										Neels Kleynhans	1
A5LEPH-OVERY										Neels Kleynhans	1
A5LEPH-SCHOO										Neels Kleynhans	1
A6OLIF-OSTRI								Y	Above Nylsvley Ramsar Site	Wynand Vlok	1
A6KLEIN-MODOM								Y	Above Nylsvley Ramsar Site	Wynand Vlok	1
A6NYL-JAAGB										Neels Kleynhans	1
A6NYL-NYLSV										Neels Kleynhans	1
A6NYL-TOBIA										Wynand Vlok	1
A6STER-HANGK										Neels Kleynhans	1
A6MOGA-BGLEN										Neels Kleynhans	1
A6MOGA-UGLEN										Neels Kleynhans	1
A7BRAK-GAMAM							Rural developments			Neels Kleynhans	1
A7HOUT-POLOK										Neels Kleynhans	1
A7SAND-POLOK										Neels Kleynhans	1
A7SAND-WATER										Paul Fouche/ Ben vd Waal	1
A8NZHE-BEDAM										Paul Fouche/ Ben vd Waal	1
A8NZHE-UPDAM										Neels Kleynhans	1
A8NWAN-ABDAM										Neels Kleynhans	1
A8NWAN-BEDAM							*Clarius Theodirae* present			Paul Fouche/ Ben vd Waal	1

Table 4. WMA 02 Luvuvhu and Letaba

RHP Site Code	PROVINCE	Site Type	ECOREGION	MAJOR RIVERS	TRIBUTARY	Original Site Name / Site Code	Site description	LATITUDE	LONGITUDE	HISTORICAL DATA RECORD	
										EARLIEST	LATEST
A9LUVU-GWEIR	Limpopo	R	2.04	Luvuvhu		A9LUVU-GWEIR	Gauging Weir A9h001	-23.10850	30.38767	1991	2003
A9LUVU-BOTSO	Limpopo	R	3.03	Luvuvhu		A9LUVU-BOTSO	Botsoleni	-22.78750	30.84850	1991	2003
A9LUVU-SHIDZ	Limpopo	R	2.04	Luvuvhu		A91LUVU-SHIDZ	Shidzivani, IFR Site 1	-22.63550	30.958333	1978	2002
A9LUVU-BOBOM	Limpopo	R	3.04	Luvuvhu		A91LUVU-BOBOM	Bobomene camp	-22.41667	31.208333	1978	2002
A9LATO-CABBA	Limpopo	E	3.01	Luvuvhu	Latonyanda	A9LATO-CABBA	Cabbage Farm, IFR site	-23.07450	30.32117	1995	2003
A9DZIN-FORES	Limpopo	R	2.04	Luvuvhu	Dzindi	A9DZIN-FORES	Forest track below waterfall	-22.984167	30.334167	1995	2003
A9MUTS-PHIPH	Limpopo	R	2.04	Luvuvhu	Mutshindudi	A9MUTS-PHIPH	Phiphidi Forest Resrve & falls	-22.94333	30.40000	1991	2003
A9MUTS-GWEIR	Limpopo	E	3.01	Luvuvhu	Mutshindudi	A9MUTS-GWEIR	New gauging weir	-22.85333	30.68550	1991	2003
A9MBWE-BRIDG	Limpopo	E	2.04	Luvuvhu	Mbwedi	A9MBWE-BRIDG	Bridge above Mutsh. confluence	-22.83483	30.65717	1995	2003
A9MUTA-SCHOO	Limpopo	R	2.04	Luvuvhu	Mutale	A9MUTA-SCHOO	Whboneni School bridge	-22.78900	30.44267	1995	2003
A9MUTA-TSHIK	Limpopo	E	2.02	Luvuvhu	Mutale	A9MUTA-TSHIK	Tshikundamalema ,Top of gorge	-22.47400	30.88050	1995	2003
A9MUTA-BRIDG	Limpopo	E	3.03	Luvuvhu	Mutale	A9MUTA-BRIDG	Mutale Bridge below Sambandou	-22.70066	30.63900	1995	1999
B8GLET-APELB	Limpopo	R	9.02	Groot Letaba		B81GLET-APELB (IFR1)	Appel bridge, IFR Site 1	-23.91493	30.05218	2000	2004
B8GLET-NKOWA	Limpopo	E	4.03	Groot Letaba		B8GLET-NKOWA	Nkowankowa bridge	-23.87266	30.27150	1991	2004
B8GLET-LETR2	Limpopo	R	3.03	Groot Letaba		B8GLET-LETR2 (IFR4)	Letaba Ranch, IFR Site 4	-23.67916	31.10000	1991	2004
B8GLET-LONEL	Limpopo	E	3.03	Groot Letaba		Lonely Bull (IFR6)	Downstream of Phalaborwa-Mopani bridge, IFR Site 6	-23.75000	31.43917	1978	2004
B8GLET-KLIPK	Limpopo	E	3.05?	Groot Letaba		Klipkoppies	At Klipkoppies bridge	-23.90000	31.65500	1978	2004
B8GLET-CONST	Limpopo	E	3.03	Groot Letaba		IFR3	Near farm Constantia, IFR Site 3	-23.64938	30.66064	1991	2004
B8GLET-LETAB	Limpopo	E	3.03	Groot Letaba		IFR7	Below Letaba bridge upstream of Letaba rest camp, IFR Site 7	-23.80983	31.59081	1978	2004
B8LETS-CRAIG	Limpopo	R	9.02	Groot Letaba	Letsitele	B8LETS-CRAIG	Craighead Estate	-23.97416	30.16583	1996	2004
B8LETS-TANKB	Limpopo	E	4.03	Groot Letaba	Letsitele	B8LETS-TANKB (IFR2)	Tank Bridge, IFR Site 2	-23.92000	30.26667	1996	2004
B8THAB-RAMOD	Limpopo	E	10.01	Groot Letaba	Thabina	B8THAB-RAMOD	Bridge below Ramodike Dam	-24.02550	30.16917	1996	2004
B8KLET-MLETA	Limpopo	R	3.02	Groot Letaba	Klein Letaba	B8KLET-MLETA (IFR5)	Canal, IFR Site 5	-23.24950	30.49467	1995	2004
B8KLET-SOUTI	Limpopo	R	3.03	Groot Letaba	Klein Letaba	B8KLET-SOUTI	Soutini	-23.41783	30.91617	1995	2004
B8MOLO-MODJA	Limpopo	E	4.02	Groot Letaba	Molototsi	B8MOLO-MODJA	Below Modjadji Dam	-23.59916	30.33417	1999	2004
B9SHIN-REDRO	Limpopo	R	3.03	Shingwedzi		Red Rocks	Red Rocks lookout point	-23.18000	31.31000	1978	1999
B9SHIN-DIPEN	Limpopo	R	3.05	Shingwedzi		Dipene	At Dipene causeway	-23.21687	31.54014	1978	1999
A9LIMP-CROOK	Limpopo	P	1.01	Limpopo		Proposed macro site	Confluence of Limpopo and Luvuvhu, Crooks Corner	-22.42526	31.30324		

RHP Site Code	RHP REFERENCE SITE		RHP MONITORING SITE		ECOLOGICAL RESERVE SITE	IMPACT OF LAND USE (AT SITE & UPSTREAM)	PRESENCE OF SASS HABITAT TYPES					PRESENCE OF FISH FLOW-DEPTH CLASSES				PRESENCE OF COVER TYPES FOR FISH				
	CURRENT	POSSIBLE	CURRENT	POSSIBLE			SIC	SOC	VIC	VOC	GSM	FD	FS	SD	SS	MARG VEG	UNDER CUT BANKS	MACROPH YTES	SUBSTRATE	WATER COLUMN
A9LUVU-GWEIR		Y	Y	Y		3	5	4	3	2	4	4	4	4	3	3	3	3	5	4
A9LUVU-BOTSO		Y	Y	Y		3	5	5	4	3	4	4	4	4	4	4	4	3	5	4
A9LUVU-SHIDZ		Y	Y	Y	Y	2	4	4	3	3	4	3	4	4	3	3	1	2	3	4
A9LUVU-BOBOM		Y	Y	Y		2	4	4	3	3	4	3	3	4	3	3	1	2	3	4
A9LATO-CABBA			Y	Y	Y	3	5	3	1	1	4	3	4	3	2	2	4	1	5	3
A9DZIN-FORES		Y	Y	Y		2	3	2	3	3	3	3	5	3	3	3	4	3	4	3
A9MUTS-PHIPH		Y	Y	Y		1	4	2	2	2	4	4	5	4	4	2	4	1	5	3
A9MUTS-GWEIR			Y	Y		3	3	2	3	3	3	4	4	4	3	3	2	2	4	4
A9MBWE-BRIDG			Y	Y		2	4	3	5	5	4	4	4	5	3	5	4	4	5	4
A9MUTA-SCHOO		Y	Y	Y		2	5	4	2	3	4	3	5	4	4	3	4	3	5	3
A9MUTA-TSHIK			Y	Y		3	3	2	2	3	5	3	5	3	3	3	2	2	3	3
A9MUTA-BRIDG			Y	Y		2	3	3	4	3	4	5	4	4	3	4	4	2	3	4
B8GLET-APELB		Y	Y	Y	Y	2	4	3	3	3	4	5	5	3	3	3	4	2	4	5
B8GLET-NKOWA			Y	Y		3	3	2	2	3	3	4	4	4	4	3	3	1	3	4
B8GLET-LETR2		Y	Y	Y	Y	2	4	4	4	4	4	4	4	5	4	5	4	3	4	5
B8GLET-LONEL			Y	Y	Y	3	3	2	3	3	4	2	3	3	4	3	2	2	3	3
B8GLET-KLIPK			Y	Y		3	3	2	3	3	3	2	3	3	2	3	3	3	3	3
B8GLET-CONST			Y	Y	Y	2.5	4	3	2	3	5	5	5	5	5	3	2	2	4	4
B8GLET-LETAB			Y	Y	Y	3	3	2	3	3	4	2	4	3	4	3	2	2	3	3
B8LETS-CRAIG		Y	Y	Y		1	5	4	2	2	4	3	5	3	3	2	4	1	5	3
B8LETS-TANKB			Y	Y	Y	3	4	4	3	4	5	2	5	5	4	4	4	3	5	5
B8THAB-RAMOD			Y	Y		5 (dam)	4	3	2	2	4	2	5	2	3	2	4	1	5	3
B8KLET-MLETA		Y	Y	Y	Y	3	2	3	2	4	5	1	2	3	5	4	1	3	2	3
B8KLET-SOUTI		Y	Y	Y		1	2	3	3	3	5	2	3	4	5	4	2	2	3	3
B8MOLO-MODJA			Y	Y		5 (dam)	2	3	2	2	5	2	3	3	4	2	3	2	3	3
B9SHIN-REDRO		Y		Y		1	2	2	2	2	3	2	3	3	3	3	2	3	3	3
B9SHIN-DIPEN		Y		Y		1	3	2	3	3	3	2	3	2	3	3	2	3	3	2
A9LIMP-CROOK				Y																

RHP Site Code	PRESENCE OF RIPARIAN VEGETATION ZONES			OVERALL SUITABILITY CONSIDERING SAMPLEBILITY AND INFORMATION			GENERAL COMMENTS: SAFETY AND ACCESSIBILITY	Wetland(s) upstream or down stream of this site?		Contact Person	Priority (1=high, 2=medium, 3=low)
	MARGINAL ZONE	LOWER ZONE	UPPER ZONE	Fish	SASS	RIP VEG		(Yes / No)	Describe (e.g. Large/ Small / Ramsar/ Importance)		
A9LUVU-GWEIR	3	2	3	5	4	2	At gauging weir. Crocodiles			Mick Angliss	1
A9LUVU-BOTSO	3	2	2	5	5	2	UL habitat modelling site and IFR site. Crocodiles.			Mick Angliss	1
A9LUVU-SHIDZ	4	3	3	4	4	3	Crocodiles and hippos			Mick Angliss	1
A9LUVU-BOBOM	3	2	3	4	4	3	Crocodiles and hippos			Mick Angliss	1
A9LATO-CABBA	3	3	3.5	4	3	3.5	Exotic veg. On trust land/farm			Mick Angliss	1
A9DZIN-FORES	4	4	4	5	5	4	Red Data fish			Mick Angliss	1
A9MUTS-PHIPH	4	4	5	4	4	5	Forest reserve above waterfall.			Mick Angliss	1
A9MUTS-GWEIR	2	3	3	4	3	3	By gauging weir. Crocodiles.			Mick Angliss	1
A9MBWE-BRIDG	3	3	2	5	4	2	Red Data fish			Mick Angliss	1
A9MUTA-SCHOO	3	3	2	5	5	2	Red Data fish			Mick Angliss	1
A9MUTA-TSHIK	2	3	2	3	3	2.5	Adjacent to mine. Mostly sand - becoming seasonal.			Mick Angliss	1
A9MUTA-BRIDG	3	3	3	3	3	3	Reeds confine channel. Crocodiles.			Mick Angliss	1
B8GLET-APELB	4	4	4	5	5	5	Good site but with excessive alien veg. For fish inverts possible referencesite, not for veg			Mick Angliss	1
B8GLET-NKOWA	3	3	3	3	3	3	Accessible, Bedrock dominated site.			Mick Angliss	1
B8GLET-LETR2	4	3	3	4	4	3	Crocs, Lions etc.			Mick Angliss	1
B8GLET-LONEL	3	3	2	3	3	2	Crocodiles and hippos; good fish records differ from IFR7, Falls in KNP (Lonely Bull)			Mick Angliss	1
B8GLET-KLIPK	3	3	2	3	3	2	Crocodiles and hippos			Mick Angliss	1
B8GLET-CONST	3	4	4	4	4	4	Reasonsible diverse riparian veg; accessible			Mick Angliss	1
B8GLET-LETAB	2	2	3	2	3	2	Letaba bridge - in KNP; less flow, less diverse in habitat			Andrew Deacon	3
B8LETS-CRAIG	3	4	4	5	5	3				Mick Angliss	1
B8LETS-TANKB	3	2	2	4	4	2	Local impacts from village. Vehicle security a concern. Cannot discount crocodiles.			Mick Angliss	1
B8THAB-RAMOD	3	3	2	4	4	2	Since raising of Thabina Dam, this site has very restricted flow.	Y	Big wetland downstream	Mick Angliss	1
B8KLET-MLETA	5	5	5	3	3	5				Mick Angliss	1
B8KLET-SOUTI	4	5	5	3	3	5	NB Hot spring. Possibly crocodiles.	Y	Big wetland on the banks (hot spring - natural heritage site)	Mick Angliss	1
B8MOLO-MODJA	3	4	3	3	3	3	Impacts from Dam. River maintained by seepage.			Mick Angliss	1
B9SHIN-REDRO	2	3	3	3	3	2	Crocodiles and hippos; little info, potholes and riffles			Andrew Deacon	1
B9SHIN-DIPEN	2	3	3	4	4	2	Crocodiles and hippos; little info			Andrew Deacon	1
A9LIMP-CROOK							Internationally important, trans-boundary	Y	Pafuri floodplain	Neels Kleynhans	1

Table 5. WMA 03 Crocodile (West) Marico

RHP Site Code	PROVINCE	Site Type	ECOREGION	MAJOR RIVERS	TRIBUTARY	Original Site Name / Site Code	Site description	LATITUDE	LONGITUDE	HISTORICAL DATA RECORD	
										EARLIEST	LATEST
A2APIE-DEOND	Gauteng	E	8.05	Crocodile	Apies	A2APIE-DEOND (IFR site)	IFR site Wonderwaters	-25.68350	28.18719	2002	2004
A2BIER-AMAND	Limpopo	P	8.06	Crocodile	Bierspruit	Proposed macro site	Upstream of Amandelbult	-24.83690	27.29088	2000	2005
A2BUFF-KOMAN	Limpopo	E	7.03	Crocodile	Buffelspruit	A23BUFF-KOMAN	At Kommando range	-24.83417	28.22478	2004	2004
A2EDEN-LEEUW	Gauteng	E	7.05	Crocodile	Edendalespruit	A2EDEN-LEEUW	On Cullinan road	-25.67828	28.40167	2002	2004
A2ELAN-KLIPB	North West	E	7.04	Crocodile	Elands	Klipbankfontein Mazista	Klipbankfontein Mazista	-25.72656	26.72044	2004	2004
A2ELAN-HOOGE	North West	E	8.06	Crocodile	Elands	Hoogenboomen	Hoogenboomen	-25.44686	26.89442	2004	2004
A2ELAN-RIETS	North West	E	8.05	Crocodile	Elands	Rietspruit (Zanddrift)	Rietspruit (Zanddrift)	-25.33489	27.29090	2004	2004
A2HART-KAMEE	Gauteng	E	9.03	Crocodile	Hartbeesspruit	A2HART-KAMEE	Wildcare site	-25.65286	28.31172	2002	2004
A2HENN-HENNO	Gauteng	E	7.06	Crocodile	Hennops	A2HENN-HENNO	On Van Dyk's Farm	-25.82603	27.98942	2002	2004
A2HEX-KROON	North West	E	8.05	Crocodile	Hex	Kroondal	Kroondal	-25.69670	27.30720	2003	2005
A2HEX-BUFFE	North West	P	7.04	Crocodile	Hex	Proposed macro site	At Buffelsfontein	-25.93359	27.33057		
A2HEX-PAARD	North West	E	8.05	Crocodile	Hex	Paardekraal	Paardekraal	-25.60828	27.28897	2004	2004
A2HEX-ROOIW	North West	E	8.05	Crocodile	Hex	Rooiwal	Rooiwal	-25.52135	27.37527	2004	2004
A2JUKS-RIETF	Gauteng	E	11.01	Crocodile	Jukskei	A2JUKS-RIETF	Above confluence with Crocodile River	-25.90970	27.94820	2002	2004
A2MAGA-MALON	Gauteng	R	7.06	Crocodile	Magalies	A2MAGA-MALON	At Maloney's eye	-26.02520	27.56390	2003	2003
A2PIEN-IFR2	North West	E	8.05	Crocodile	Pienaars	IFR2	IFR site	-25.12060	27.78777		2002
A2PIEN-KLIPD	Gauteng	E	8.05	Crocodile	Pienaars	A2PIEN-KLIPD	Kwalata Game Lodge	-25.38847	28.31164	2002	2004
A2PIEN-MURRA	Gauteng	R	9.03	Crocodile	Pienaars	A2PIEN-MURRA	Military base	-25.51481	28.31611	2002	2004
A2PIEN-BAVIAA	Gauteng	P	7.05	Crocodile	Pienaars	Proposed macro site	Baviaanspoort	-25.67766	28.36223	2002	2005
A2PIEN-IFR4	North West	E	8.05	Crocodile	Pienaars	IFR4	IFR site	-25.12500	27.94400		2002
A2PLAT-NOODS	Limpopo	E	8.01	Crocodile	Platrivier	A23PLAT-NOODS	Baardman (Noordship)	-24.90608	28.25797	2004	2004
A2SKEE-UITKO	Gauteng	R	7.06	Crocodile	Skeerpoort	A2SKEE-UITKO	Nash - NR	-25.89167	27.75833	2002	2004
A2STER-RIETF	North West	R	7.05	Crocodile	Sterkstroom	Rietfontein	Rietfontein	-25.83352	27.38848	2004	2004
A2STER-SWART	North West	P	8.05	Crocodile	Sterkstroom	Proposed macro site	Swartkoppies	-25.66762	27.47315		
A2SUND-BUFFE	Limpopo	R	1.03	Crocodile	Sundays	A24SUND-BUFFE	Buffelshoek Top Weir	-24.53805	27.64082	2004	2004
A2SUND-WATER	Limpopo	E	7.03	Crocodile	Sundays	A24SUND-WATER	York Farm (Zandrivierpoort)	-24.63017	27.60578	2004	2004
A2VING-KAREE	Limpopo	R	8.05	Crocodile	Vingerkraal se Loop	A24VING-KAREE	Kareefontein bridge	-24.67800	27.89910	2004	2004
A2ROSE-CONFL	North West	E	7.04	Crocodile	Rosespruit	Existing site	Above confluence with Crocodile River	-25.57097	27.76995	2004	2004
A2CROC-BUFFE	Limpopo	E	8.05	Crocodile		A24CROC-BUFFE	Buffelskraal bridge	-24.93443	27.54843	2004	2004
A2CROC-BENAL	Limpopo	E	7.03	Crocodile		A24CROC-BENAL	Ben Alberts Nature reserve	-24.64163	27.36812	2004	2004

Table 5. WMA 03 Crocodile (West) Marico

RHP Site Code	PROVINCE	Site Type	ECOREGION	MAJOR RIVERS	TRIBUTARY	Original Site Name / Site Code	Site description	LATITUDE	LONGITUDE	HISTORICAL DATA RECORD	
										EARLIEST	LATEST
A2CROC-ROOIB	Limpopo	E	1.04	Crocodile		A24CROC-ROOIB	Rooibokkraal bridge	-24.21510	26.89918	2004	2004
A2CROC-ELAND	Gauteng	E	11.01	Crocodile	Crocodile (west)	A2CROC-ELAND	Toadbury hall	-25.94639	27.87878	2002	2004
A2CROC-SOUTP	North West	E	8.05	Crocodile		Soutpansdrift	Soutpansdrift	-25.55358	27.73219	2004	2004
A2CROC-ATLAN	North West	E	7.04	Crocodile		Atlanta	Atlanta	-25.20597	27.55786	2004	2004
A2CROC-DEKRO	North West	E	8.05	Crocodile		De Kroon	De Kroon	-25.66742	27.79131	2004	2004
A3BOKK-BOKKR	North West	R	7.04	Groot Marico	Bokkraal se loop	Bokkraal	Bokkraal	-24.80815	26.45655	2004	2004
A3KAAL-GROOT	North West	R	7.04	Groot Marico	Kaaloog se loop	Grootfontein	Grootfontein, Downstream from GM eye, upstream from slate mine	-25.78362	26.37925	2004	2005
A3KAAL-RIETS	North West	E	11.09	Groot Marico	Kaaloog se loop	Rietspruit	Rietspruit	-25.77697	26.43340	1999	2005
A3MARI-DERDE	North West	E	1.03	Groot Marico		A32MARI-DERDE	At Derdepoort	-24.65030	26.40977	2004	2005
A3GMAR-DOORN	North West	E	7.04	Groot Marico		Doornkraal	Doornkraal, upstream of Dam, Farm name is Wonderfontein	-25.56370	26.40535	2004	2005
A3KMAR-DOORN	North West	R	7.04	Klein Marico		Doornhoek	Doornhoek	-25.68800	26.14148		2005
A3KMAR-NOOIT	North West	E	7.04	Klein Marico		Nooitgedacht	Nooitgedacht	-25.50543	26.20622		2005
D4MOLO-UPPER	North West	P	11.09	Molopo		Proposed macro site	Upper reaches	-25.85762	25.82882		
A3NGOT-DINOK	North West	E	8.06	Groot Marico	Ngotwane	A3NGOT-DINOK	At Dinokana Springs	-25.45528	25.85377		
A3NGOT-PUANE	North West	E	8.06	Groot Marico	Ngotwane	A3NGOT-PUANE	Puaneng village	-25.42920	25.86717		
A3KMAR-MOLEM	North West	E	11.09	Klein Marico	Molemaneloop	A3KMAR-MOLEM	Ottoshoop	-25.74665	25.97365		
A3KARE-RAILW	North West	E	7.04	Klein Marico	Kareespruit	A3KARE-RAILW	In Zeerust at railway station	-25.54722	26.08892		2005
D4MOLO-MODIM	North West	E	29.01	Molopo		D4MOLO-MODIM	Downstream from Setumo/Modimolo dam	-25.85936	25.44972		2005

RHP Site Code	RHP REFERENCE SITE		RHP MONITORING SITE		ECOLOGICAL RESERVE SITE	IMPACT OF LAND USE (AT SITE & UPSTREAM)	PRESENCE OF SASS HABITAT TYPES					PRESENCE OF FISH FLOW-DEPTH CLASSES				PRESENCE OF COVER TYPES FOR FISH				
	CURRENT	POSSIBLE	CURRENT	POSSIBLE			SIC	SOC	VIC	VOC	GSM	FD	FS	SD	SS	MARG VEG	UNDER CUT BANKS	MACROPHYTES	SUBSTRATE	WATER COLUMN
A2APIE-DEOND			Y	Y	Y	3 to 4	4	4	3	4	4	2	4	3	2	3	3	4	4	4
A2BIER-AMAND				Y		3	0	4	0	4	2	0	0	4	3	3	0	4	4	3
A2BUFF-KOMAN			Y	Y		2	4	4	4	4	4	3	5	5	4	4	4	4	4	4
A2EDEN-LEEUW			Y	Y		4	3	3	2	3	3	0	3	0	4	3	0	2	3	3
A2ELAN-KLIPB			Y	Y		3	4	4	0	4	3	2	3	4	3	2	3	1	3	3
A2ELAN-HOOGE			Y	Y		2 to 3	2	2	1	1	1	0	3	4	4	3	3	3	3	3
A2ELAN-RIETS			Y	Y		3	2	2	1	1	2	2	3	4	5	3	2	3	2	4
A2HART-KAMEE			Y	Y		3	4	4	2	2	4	1	3	0	3	2	2	2	2	3
A2HENN-HENNO			Y	Y	Y	1	4	4	3	4	4	3	4	4	2	5	4	3	4	5
A2HEX-KROON				Y		3	2	3	1	4	4	0	2	4	4	3	0	3	3	2
A2HEX-BUFFE				Y																
A2HEX-PAARD			Y	Y		3 to 4	2	1	2	2	4	1	3	4	4	2	2	1	3	2
A2HEX-ROOIW			Y	Y		3 to 4	2	1	1	1	4	1	3	4	4	2	2	1	3	2
A2JUKS-RIETF			Y	Y	Y	4	3	3	2	2	4	4	3	4	2	4	4	3	3	5
A2MAGA-MALON		Y	Y	Y	Y	1	4	4	3	4	3	1	3	1	4	5	4	3	4	3
A2PIEN-IFR2				Y	Y	3 to 4	3	1	1	1	2	0	1	4	4	4	3	3	4	4
A2PIEN-KLIPD			Y	Y		2	3	4	4	4	3	1	4	3	4	4	3	4	4	4
A2PIEN-MURRA		Y	Y	Y		1	2	2	1	3	4	0	3	2	3	4	3	1	3	4
A2PIEN-BAVIAA				Y		3	4	2	4	3	2	2	5	3	3	3	2	4	3	3
A2PIEN-IFR4				Y	Y	3	3	1	1	1	2	4	4	4	3	2	3	3	4	4
A2PLAT-NOODS			Y	Y		4 (dams)	4	3	2	3	5	2	4	3	4	3	3	1	3	2
A2SKEE-UITKO		Y	Y	Y	Y	1	4	3	3	5	3	4	4	2	2	5	0	3	3	5
A2STER-RIETF	N(inverts)	Y(fish)	Y	Y		1 to 2	3	1	3	1	2	3	4	3	3	4	3	3	4	4
A2STER-SWART				Y																
A2SUND-BUFFE		Y	Y	Y		1	4	3	3	3	4	2	5	4	3	3	3	2	4	3
A2SUND-WATER			Y	Y		1	5	3	3	3	5	4	4	4	4	4	4	3	5	5
A2VING-KAREE		Y	Y	Y		1	3	3	3	3	5	2	3	4	3	4	4	3	2.5	3
A2ROSE-CONFL			Y	Y		5														
A2CROC-BUFFE			Y	Y		3.5	2	2	4	4	5	5	2	5	2	4	3	4	3	5
A2CROC-BENAL			Y	Y		3	2	2	3	3	5	3	3	5	3	4	4	3	2	4

RHP Site Code	RHP REFERENCE SITE		RHP MONITORING SITE		ECOLOGICAL RESERVE SITE	IMPACT OF LAND USE (AT SITE & UPSTREAM)	PRESENCE OF SASS HABITAT TYPES					PRESENCE OF FISH FLOW-DEPTH CLASSES				PRESENCE OF COVER TYPES FOR FISH				
	CURRENT	POSSIBLE	CURRENT	POSSIBLE			SIC	SOC	VIC	VOC	GSM	FD	FS	SD	SS	MARG VEG	UNDER CUT BANKS	MACROPHYTES	SUBSTRATE	WATER COLUMN
A2CROC-ROOIB			Y	Y		3	2	4	3	3	5	2	2	5	2	4	4	3	3	5
A2CROC-ELAND			Y	Y		4	4	4	3	4	4	4	4	3	4	3	3	3	3	4
A2CROC-SOUTP			Y	Y		3	2	2	1	2	3	5	3	5	3	3	3	3	5	4
A2CROC-ATLAN			Y	Y		3	4	1	1	3	2	5	4	5	3	4	3	3	4	4
A2CROC-DEKRO			Y	Y		3 to 4	1	1	1	1	3	5	3	4	3	2	3	3	4	4
A3BOKK-BOKKR		Y(Inverts) N(fish)	Y	Y		2	3	1	1	1	3	2	3	3	3	3	2	3	3	3
A3KAAL-GROOT	Y	Y	Y	Y		1	5	3	3	1	3	2	4	3	4	2	3	1	4	4
A3KAAL-RIETS			Y	Y		3	5	4	2	1	3	2	4	3	4	2	3	1	4	4
A3MARI-DERDE			Y	Y		3 (dams)	2	2	3	3	3	3	3	5	2	4	4	4	4	5
A3GMAR-DOORN			Y	Y		2	4	2	1	1	3	4	4	4	3	4	3	2	4	4
A3KMAR-DOORN		Y	Y	Y		1	3	3	2	1	3	1	3	4	4	2	3	2	3	2
A3KMAR-NOOIT			Y	Y		3	2	3	1	1	4	0	2	3	3	2	2	2	2	3
D4MOLO-UPPER				Y																
A3NGOT-DINOK		Y		Y		1	5	5	3	3	5	0	4	1	4	4	0	4	4	4
A3NGOT-PUANE				Y		2 to 3	3	4	3	2	4	0	2	4	3	3	2	3	3	4
A3KMAR-MOLEM				Y		2	2	1	4	4	3	0	1	4	4	3	3	3	3	3
A3KARE-RAILW			Y	Y		3	4	3	4	3	4	0	2	1	4	3	1	3	4	2
D4MOLO-MODIM			Y	Y		3	4	4	3	2	3	1	2	4	4	3	2	2	3	4

RHP Site Code	PRESENCE OF RIPARIAN VEGETATION ZONES			OVERALL SUITABILITY CONSIDERING SAMPLEBILITY AND INFORMATION			GENERAL COMMENTS: SAFETY AND ACCESSIBILITY	Wetland(s) upstream or down stream of this site?		Contact Person	Priority (1=high, 2=medium, 3=low)
	MARGINAL ZONE	LOWER ZONE	UPPER ZONE	Fish	SASS	RIP VEG		(Yes / No)	Describe (e.g. Large/ Small / Ramsar/ Importance)		
A2APIE-DEOND	2	2	2	3	3	2	City runoff affects site. Skinnerspruit and Mootspruit	Y	Small	Piet Muller	2
A2BIER-AMAND	?	?	?	3	3	?	Site at low water bridge. Not optimal for RHP site, but could select macro site in the area.			Pieter Kotze	1
A2BUFF-KOMAN	4	4	3	4	4	4	On private land, but access is good. Many exotic trees.			Mick Angliss, P Fouche	1
A2EDEN-LEEUW	2	3	3	2	2	3	On private land but pressure from informal settlements upstream	Y	Small	Piet Muller	3
A2ELAN-KLIPB	2	1	0	3	4	1	Local impact from Slate mining and cutting			Christa Thirion/Neels Kleynhans	1
A2ELAN-HOOGE	2	1	2	4	3	2				Christa Thirion/Neels Kleynhans	1
A2ELAN-RIETS	2	3	3	3	3	3				Christa Thirion/Neels Kleynhans	1
A2HART-KAMEE	1	3	3	2	2	1	Degraded as result of urban and industrial runoff (Silverton)			Piet Muller	3
A2HENN-HENNO	3	4	4	3	3	4	Upstream from the Crocodile River confluence			Piet Muller	2 (1) ?
A2HEX-KROON	?	?	?	3	3	?	Under bridge (new highway) and 100m below weir. Dirt road crossing through river			Pieter Kotze	1
A2HEX-BUFFE										Christa Thirion	1
A2HEX-PAARD	1	1	1	3	3	1	High Bridge			Christa Thirion/Neels Kleynhans	1
A2HEX-ROOIW	1	1	1	3	3	1				Christa Thirion/Neels Kleynhans	1
A2JUKS-RIETF	3	3	3	1	1	3	combined effect of JHB and West Rand surface runoff as well as return flows			Piet Muller	2 (1) ?
A2MAGA-MALON	3	3	3	4	4	5	Pristine site near Maloney's eye only up to Magaliesburg.			Piet Muller	1
A2PIEN-IFR2	3	3	3	3	3	3				Christa Thirion/Neels Kleynhans	1
A2PIEN-KLIPD	4	4	4	4	4	4	Kwalata Game Lodge with some recreation at site			Piet Muller	2
A2PIEN-MURRA	3	3	3	3	3	4	On Military property			Piet Muller	2
A2PIEN-BAVIAA	?	?	?	4	4	?	On SANDF property.			Pieter Kotze	1
A2PIEN-IFR4	3	3	3	3	3	3				Christa Thirion/Neels Kleynhans	1
A2PLAT-NOODS	3	3	3	3	3	3	On private land, but access is good. Flow restricted by dams. Many exotic trees.			Mick Angliss, P Fouche	1
A2SKEE-UITKO	4	4	4	4	5	4	Pristine river , minimal development in catchment, in nature reserve			Piet Muller	1
A2STER-RIETF	3	3	3	3	3	3				Christa Thirion/Neels Kleynhans	1
A2STER-SWART										Christa Thirion	1
A2SUND-BUFFE	3	4	4	4	4	4	On private land, but access is good.			Mick Angliss, P Fouche	1
A2SUND-WATER	4	4	4	4	4	4	Site split to provide habitat. Wide floodplain.			Mick Angliss, P Fouche	1
A2VING-KAREE	4	4	4	4	4	4				Mick Angliss, P Fouche	1
A2ROSE-CONFL							Mining impacts, industry, heavy metals			Christa Thirion	1
A2CROC-BUFFE	4	4	4	3	3	4	On private land, but access is good. Deep channel. NB. Hyacinth			Mick Angliss, P Fouche	1
A2CROC-BENAL	4	4	4	3	3	5	In Reserve, NB. Hyacinth			Mick Angliss, P Fouche	1

RHP Site Code	PRESENCE OF RIPARIAN VEGETATION ZONES			OVERALL SUITABILITY CONSIDERING SAMPLEBILITY AND INFORMATION			GENERAL COMMENTS: SAFETY AND ACCESSIBILITY	Wetland(s) upstream or down stream of this site?		Contact Person	Priority (1=high, 2=medium, 3=low)
	MARGINAL ZONE	LOWER ZONE	UPPER ZONE	Fish	SASS	RIP VEG		(Yes / No)	Describe (e.g. Large/ Small / Ramsar/ Importance)		
A2CROC-ROOIB	4	4	4	3	3	4	Good gill net site. Poss Crocs and Hippo's.			Mick Angliss, P Fouche	1
A2CROC-ELAND	3	3	3	2	3	3	At Conference centre , picnic sites on island.			Piet Muller	1
A2CROC-SOUTP	3	3	3	4	3	2				Christa Thirion, Neels Kleynhans	1
A2CROC-ATLAN	3	2	1	4	3	1				Christa Thirion, Neels Kleynhans	1
A2CROC-DEKRO	2	1	0	4	2	1				Christa Thirion, Neels Kleynhans	1
A3BOKK-BOKKR	2	2	2	4	3	3	This site could not be surveyed during 2005, the landowners are clearing Poplar trees over a long period, felling trees in water etc. On private land, ask permission at house			Hermien Roux/Christa Thirion/Neels Kleynhans	1
A3KAAL-GROOT	2	3	2	4	4	2	Private land, access is easy			Christa Thirion/Neels Kleynhans	1
A3KAAL-RIETS	2	3	2	4	4	2	pH at site varies between 3 and 8, should be around 7,8. Slate mining and aquaculture impacts			Hermien Roux/Christa Thirion/Neels Kleynhans	1
A3MARI-DERDE	4	4	4	3	2	5	Bedrock site, influenced by dam. Good gill net site. Poss Crocs and Hippo's.			Mick Angliss, P Fouche	1
A3GMAR-DOORN	3	3	2	4	3	2	Below weir, drive through cultivated lands			Hermien Roux/Christa Thirion/Neels Kleynhans	1
A3KMAR-DOORN	3	3	3	3	1	3	Site was dry during 2005, good habitat but no water!			Hermien Roux/Christa Thirion/Neels Kleynhans	1
A3KMAR-NOOIT	3	3	3	3	3	3	Downstream of Klein Maricopoort dam, Low flow, habitat not good for SASS			Hermien Roux/Christa Thirion/Neels Kleynhans	1
D4MOLO-UPPER										Christa Thirion	1
A3NGOT-DINOK	3	3	3	3	4	4	Upstream from Dinokana village, almost pristine, follow signs to Dinokana springs, Proposed reference site		Medium upstream	Hermien Roux	1
A3NGOT-PUANE	3	3	3	4	4	4	Downstream from Dinokana village		Medium upstream	Hermien Roux	1
A3KMAR-MOLEM	2	2	2	4	1	3	Close to Ottoshoop. Note: The Molemaneloop in general more a wetland than a river thus not SASS friendly		Large up and downstream	Hermien Roux	1
A3KARE-RAILW	2	2	2	2	2	2	Upstream from sewage works			Hermien Roux	1
D4MOLO-MODIM	2	2	2	4	4	3	Downstream from Setumo/Modimolo dam and Mafikeng			Hermien Roux	1

Table 6. WMA 04 Olifants

RHP Site Code	PROVINCE	Site Type	ECOREGION	MAJOR RIVERS	TRIBUTARY	Original Site Name / Site Code	Site description	LATITUDE	LONGITUDE	HISTORICAL DATA RECORD	
										EARLIEST	LATEST
B1OLIF-VANVY	Mpumalanga	P	11.02	Olifants		Proposed Macro Site (OLI1)	Vandyksdrift	-26.10031	29.31011		1998
B1OLIF-WITBA	Mpumalanga	P	11.02	Olifants		Proposed Macro Site	Above Witbank	-26.00867	29.27738		
B1KOLI-MIDDE	Mpumalanga	P	11.02	Olifants	Klein Olifants	Proposed Macro Site	Above Middelburg Dam	-25.84502	29.61777		1998
B1KOLI-CYCAD	Mpumalanga	E	9.06	Olifants	Klein Olifants	IFR3	Cycad	-25.67358	29.31680	1998	1999
B2WILG-SPITZ	Gauteng	E	9.06	Olifants	Wilge	B2WILG-SPITZ	Spitzkop 502	-25.781000	28.886000		1998
B2WILG-KRANS	Gauteng	E	9.06	Olifants	Wilge	B2WILG-KRANS	Kranspoort 448	-25.622000	29.000000		1998
B2BRON-BRONK	Gauteng	P	11.01	Olifants	Bronkhorstspruit	Proposed Macro Site	D/s Bronkhorstspruit town, u/s of Premier Mine dam	-25.805860	28.807360		
B3OLIF-LOSKO	Mpumalanga	E	9.03	Olifants		IFR2	Above Loskop Nature Reserve	-25.49567	29.25411		
B3OLIF-DEWAG	Mpumalanga	E	9.03	Olifants		B3OLIF-DEWAG	De wagensdrift 89, Selons River confluence	-25.37100	29.39500		1999
B3OLIF-VARKE	Mpumalanga	E	8.04	Olifants		B3OLIF-VARKE	Varkenskraal 19, Abendru downstream of weir	-25.04900	29.41400		1999
B3ELAN-RUSTE	Mpumalanga	P	8.05	Olifants	Elands	Proposed Macro Site	Upstream of Rustewinter Dam	-25.30300	28.46400	1998	2004
B3ELAN-CULLI	Mpumalanga	R	9.03	Olifants	Elands	Litle Eden	D/s Cullinan (B3ELAN-DOORN Piet Muller)	-25.59628	28.57043	1998	2005
B3ELAN-RHENO	Mpumalanga	P	8.04	Olifants	Elands	Proposed macro site (IFR 6)	Downstream of Rhenosterkop Dam (IFR site 06)	-25.11500	28.95700	1999	
B3ELAN-FLAGB	Mpumalanga	P	8.04	Olifants	Elands	Proposed Macro Site	Above Flag Boshielo Dam	-24.90241	29.34284		
B3MOSE-GROEN	Mpumalanga	E	9.03	Elands	Moses	B3MOSE-GROEN	At road bridge to Groenkloof	-25.159000	29.328000		1999
B4STEE-TIGER	Limpopo/Mpumalanga	P	9.03	Olifants	Steelpoort	Proposed Macro Site	Tigerpoort (possibly B4STEE-TIGER)	-25.15770	29.84033		
B4STEE-IFR09	Mpumalanga	E	9.03	Olifants	Steelpoort	IFR9	IFR site 9	-24.775000	30.165000		1999
B4STEE-IFR10	Limpopo	E	10.01	Olifants	Steelpoort	IFR10	IFR site 10	-24.496500	30.399000		1999
B4SPEK-BURGE	Mpumalanga	E	9.03	Steelpoort	Spekboom	B4SPEK-BURGE	At road bridge beow Burgerfort	-24.660370	30.337020	1998	
B4SPEK-DEBAD	Mpumalanga	R	9.03	Steelpoort	Spekboom	B4SPEK-DEBAD	At road bridge to De Bad recreational resport	-24.838770	30.389000	1998	
B4LAKE-CONFL	Limpopo	P	9.06	Steelpoort	Lakenvleispruit	Proposed Macro Site	Above confluence with Kleinspruit (Langspruit)	-25.61611	30.02425		
B5OLIF-VANDE	Limpopo	E	8.03	Olifants		B5OLIF-VANDE	Van der Merweskraal 636	-24.67361	29.46083	1996	2004
B5OLIF-DIAMD	Limpopo	E	9.03	Olifants		B5OLIF-DIAMD	Diamant 422	-24.28300	29.76008	1996	2004
B6ORIG-BLYDE	Limpopo	P	10.01	Olifants	Orighstad	Proposed Macro Site	Above Blyde Dam (OL27)	-24.51620	30.75021		2000?
B6BLYD-INDED	Limpopo	P	10.01	Olifants	Blyde	Proposed Macro Site	In de Diepte	-25.00060	30.72403		2000?
B6BLYD-MORIA	Limpopo	E	3.07	Olifants	Blyde	B6BLYD-MORIA (IFR12)	At Moriah	-24.40900	30.82700	1999	1999
B6BLYD-ESSEX	Limpopo	E	3.07	Olifants	Blyde	B6BLYD-ESSEX	Essex low-flow bridge	-24.32500	30.83200	2004	2004
B6TREU-LONDE	Limpopo	P	10.01	Blyde	Treur	Proposed Macro Site	Close to bridge (Londen)	-24.79767	30.78949		
B7OLIF-STELL	Limpopo	R	9.03	Olifants		B7OLIF-STELL (IFR8)	Stellenbosch 91, below confluence of Mohlapitse	-24.23900	30.08100	1997	2004
B7OLIF-PENGE	Limpopo	E	10.01	Olifants		B7OLIF-PENGE	Penge 108	-24.35276	30.30576	1996	2004
B7OLIF-PHOSA	Limpopo	R	3.07	Olifants		B7OLIF-PHOSAM		-24.25710	30.82730	2004	2004
B7OLIF-MAMBA	Mpumalanga	E	3.03	Olifants		B7OLIF-MAMBA	Below the Mamba gauging weir in KNP	-24.04400	31.22100	1978	2002
B7OLIF-VYGEB	Mpumalanga	E	3.03	Olifants		B7OLIF-VYGEB	Downstream of the Mvubu tributary	-24.03400	31.56600	1978	2002
B7OLIF-BALUL	Mpumalanga	E	3.06	Olifants		B7OLIF-BALUL	Balule Bridge upstream of the Balule rest camp KNP	-24.05270	31.73002	1978	2002
B7GASE-MIDDL	Limpopo	R	10.01	Olifants	Ga-Selati	B7GASE-MIDDL	At Middle Tree in Legalameetse Nature Reserve	-24.160850	30.254160	1998	2004
B7GASE-SCHEL	Limpopo	E	10.01	Olifants	Ga-Selati	B7GASE-SCHEL	At Schelem, The Downs	-24.139230	30.320130	1998	2004
B7GASE-OCONF	Limpopo	E	3.03	Olifants	Ga-Selati	B7GASE-OCONF	Above confluence with Olifant Rivers, d/s Foskor	-24.03700	31.13400	1993	1999
B7MOHL-WOLKB	Limpopo	R	9.02	Olifants	Mohlapitse	B7MOHL-WOLKB	In Woldberg Nature Reserve	-24.103000	30.119000	1998	2004
B7MAKH-LEKGA	Limpopo	R	10.01	Olifants	Makhutswe	B7MAKH-LEKGA	Legalameetsi	-24.191220	30.348750	1999	1999
B7TONG-BEWAA	Limpopo	R	9.02	Olifants	Tongwane	B7TONG-BEWAA	Bewaarkloof	-24.088000	29.863000		

RHP Site Code	RHP REFERENCE SITE		RHP MONITORING SITE		ECOLOGICAL RESERVE SITE	IMPACT OF LAND USE (AT SITE & UPSTREAM)	PRESENCE OF SASS HABITAT TYPES					PRESENCE OF FISH FLOW-DEPTH CLASSES				PRESENCE OF COVER TYPES FOR FISH				
	CURRENT	POSSIBLE	CURRENT	POSSIBLE			SIC	SOC	VIC	VOC	GSM	FD	FS	SD	SS	MARG VEG	UNDER CUT BANKS	MACROPHYTES	SUBSTRATE	WATER COLUMN
B1OLIF-VANVY				Y		4	0	1	1	1	1									
B1OLIF-WITBA				Y																
B1KOLI-MIDDE				Y		3	2	1	1	1	2									
B1KOLI-CYCAD			Y	Y	Y	3	2	1	1	1	1	4	3	5	3	3	4	2	4	4
B2WILG-SPITZ			Y	Y		3	2	2	1	1	1	0	3	4	3	2	3	0	4	3
B2WILG-KRANS			Y	Y	Y	2	3	1	2	2	1	5	4	5	3	4	4	3	5	4
B2BRON-BRONK				Y																
B3OLIF-LOSKO			Y	Y		3	2	2	1	1	1	5	4	5	3	3	3	2	5	5
B3OLIF-DEWAG			Y	Y		3	3	2	1	2	2	3	3	3	3	2	2		2	
B3OLIF-VARKE			Y	Y		3	3	2	1	1	0	1	2	3	2	4	4	1	4	
B3ELAN-RUSTE			Y	Y		2	4	4	3	4	3	0	4	0	3	4	0	4	3	3
B3ELAN-CULLI		Y	Y	Y		4	3	3	4	4	4	0	4	3	4	4	0	3	4	3
B3ELAN-RHENO				Y	Y		3	3	1	1	1									
B3ELAN-FLAGB				Y		4														
B3MOSE-GROEN			Y	Y		3	3	3	1	1	1	2	3	4	2	4	3	3	3	4
B4STEE-TIGER				Y			3	2	1	1	1									
B4STEE-IFR09			Y	Y	Y	3	3	1	1	1	2	2	3	4	3	3	3	2	2	3
B4STEE-IFR10			Y	Y	Y	3	2	1	1	1	2	2	3	4	3	2	3	2	3	3
B4SPEK-BURGE			Y	Y		2	2	2	1	1	1	3	2	5	4	4	4	4	3	5
B4SPEK-DEBAD		Y	Y	Y		1	3	2	1	1	1	4	3	5	3	3	4	3	5	4
B4LAKE-CONFL				Y																
B5OLIF-VANDE			Y	Y		3	2	2	5	5	5	4	4	5	4	5	4	4	2	5
B5OLIF-DIAMD			Y	Y		4	5	4	2	2	5	4	5	4	5	3	3	3	4	5
B6ORIG-BLYDE				Y		4 (Agric and old mines)	2	2	1	1	0	2	2	5	2	2	3	2	3	4
B6BLYD-INDED				Y		1						3	5	5	3	3	3	2	5	3
B6BLYD-MORIA			Y	Y		2 (Agric)	4	2	1	1	1	4	4	4	3	4	4	2	5	4
B6BLYD-ESSEX			Y	Y		2	5	4	3	3	3	5	5	5	3	5	5	2	5	5
B6TREU-LONDE			Y	Y		0	3	2	1	1	1	4	3	5	3	3	3	1	4	5
B7OLIF-STELL		Y	Y	Y		2	5	4	4	4	5	5	5	5	3	4	3	3	5	5
B7OLIF-PENGE			Y	Y		3.5	5	3	2	2	4	4	5	3	3	3	3	2	4	4
B7OLIF-PHOSA		Y	Y	Y		2	5	5	5	5	5	5	5	5	5	5	5	4	5	5
B7OLIF-MAMBA			Y	Y		2	2	2	2	3	4	4	4	3	4	3	3	1	2	4
B7OLIF-VYGEB			Y	Y		2	4	3	3	4	4	4	4	3	4	3	3	1	2	4
B7OLIF-BALUL			Y	Y		2	3	2	3	4	4	3	4	2	4	3	2	1	2	4
B7GASE-MIDDL		Y	Y	Y		0	5	3	2	2	5	3	5	3	3	3	5	1	5	3
B7GASE-SCHEL			Y	Y		1	5	3	2	2	5	1	5	4	4	3	5	1	5	3
B7GASE-OCONF			Y	Y		4	5	3	1	0	1									
B7MOHL-WOLKB		Y	Y	Y		0	5	4	4	4	5	4	5	4	3	4	4	3	5	4
B7MAKH-LEKGA		Y	Y	Y		0.5	5	3	1	1	1	2	4	1	1	2	1	0	1	
B7TONG-BEWAA		Y	Y	Y		0	5	4	3	3	3									

RHP Site Code	PRESENCE OF RIPARIAN VEGETATION ZONES			OVERALL SUITABILITY CONSIDERING SAMPLEBILITY AND INFORMATION			GENERAL COMMENTS: SAFETY AND ACCESIBILITY	Wetland(s) upstream or down stream of this site?		Contact Person	Priority (1=high, 2=medium, 3=low)
	MARGINAL ZONE	LOWER ZONE	UPPER ZONE	Fish	SASS	RIP VEG		(Yes / No)	Describe (e.g. Large/ Small / Ramsar/ Importance)		
B1OLIF-VANVY							Catches many small tributaries			Mick Angliss	1
B1OLIF-WITBA										Mick Angliss	1
B1KOLI-MIDDE										Engelbrecht	1
B1KOLI-CYCAD	3	2	1	4	2		Easy access			Neels Kleynhans/Engelbrecht/Thirion/Todd	1
B2WILG-SPITZ	1	2	0	4	2		Easy access			Neels Kleynhans/Engelbrecht/Thirion/Todd	1
B2WILG-KRANS	4	4	3	5	3		Easy access			Neels Kleynhans/Engelbrecht/Thirion/Todd	1
B2BRON-BRONK										Piet Muller	1
B3OLIF-LOSKO	4	3	3	5	2		Loskop Nature Reserve - access by 4x4	Y	Smallish in tributary	Neels Kleynhans/Engelbrecht/Thirion/Todd	1
B3OLIF-DEWAG					3					Neels Kleynhans/Engelbrecht/Thirion/Todd	1
B3OLIF-VARKE					3					Neels Kleynhans/Engelbrecht/Thirion/Todd	1
B3ELAN-RUSTE	3	3	3	3	4	4	At Uitvlugt Loop old bridge			Piet Muller	2
B3ELAN-CULLI	2	2	2	3	4	3	Picnic Resort	Y	2km upstream	Piet Muller	2
B3ELAN-RHENO					3					Delana Louw, Christa Thirion	1
B3ELAN-FLAGB										Neels Kleynhans/Engelbrecht	1
B3MOSE-GROEN	3	2	1	4	3		Easy access			Neels Kleynhans/Engelbrecht/Thirion/Todd	1
B4STEE-TIGER										Johan Engelbrecht	1
B4STEE-IFR09	2	2	1	4	3	3				Neels Kleynhans/Engelbrecht/Thirion/Todd	1
B4STEE-IFR10	2	2	1	4	2	3				Neels Kleynhans/Engelbrecht/Thirion/Todd	1
B4SPEK-BURGE	4	3	3	4	2	4				Neels Kleynhans/Engelbrecht/Thirion/Todd	1
B4SPEK-DEBAD	4	3	4	5	3	4				Neels Kleynhans/Engelbrecht	2
B4LAKE-CONFL								Y	Lakenvallei wetland, very NB	Neels Kleynhans, Piet Muller	1
B5OLIF-VANDE	4	2	2	4	4	2	Large local agricultural impact on banks. Poss Crocs.			Mick Angliss	1
B5OLIF-DIAMD	3	4	2	4	4	2				Mick Angliss	1
B6ORIG-BLYDE	2	1	1	3		2		Y		Neels Kleynhans/Engelbrecht	1
B6BLYD-INDED	3	2	2	5		4		Y	small along river	Neels Kleynhans/Engelbrecht	2
B6BLYD-MORIA	4	3	3	5	4	4	Reserve site			Neels Kleynhans/Engelbrecht/Thirion/Todd	3
B6BLYD-ESSEX	5	5	5	5	4	5	Crocs and Hippo's.			Mick Angliss	1
B6TREU-LONDE	3	3	2	4		3				Neels Kleynhans/Engelbrecht	2
B7OLIF-STELL	3	3	4	5	5	4	Bed rock dominates banks. Poss Crocs.			Mick Angliss	1
B7OLIF-PENGE	3	4	3	4	3	3	Boulders very embedded and hard to kick! Poss Crocs			Mick Angliss	1
B7OLIF-PHOSA	5	5	5	5	5	5	Private farm			Mick Angliss	1
B7OLIF-MAMBA	2	3	2	4	4	2	Crocs & Hippos - in KNP			Andrew Deacon	1
B7OLIF-VYGEB	2	3	2	4	5	2	Crocs & Hippos - in KNP			Andrew Deacon	1
B7OLIF-BALUL	2	2	3	4	4	2	Crocs & Hippos - in KNP			Andrew Deacon	1
B7GASE-MIDDL	5	5	5	5	5	5	In Lekgalameetse Reserve. Red Data spp.			Mick Angliss	1
B7GASE-SCHEL	5	5	5	5	5	5	Below Lekgalameetse Reserve. Red Data spp.			Mick Angliss	1
B7GASE-OCONF					4					Christa Thirion, Mick Angliss	1
B7MOHL-WOLKB	5	5	5	5	5	5	In Wilderness Area. Red Data spp.			Mick Angliss	1
B7MAKH-LEKGA					4					Christa Thirion, Mick Angliss	1
B7TONG-BEWAA					5					Christa Thirion, Mick Angliss	1

Table 7. WMA 05 Inkomati

RHP Site Code	PROVINCE	Site Type	ECOREGION	MAJOR RIVERS	TRIBUTARY	Original Site Name / Site Code	Site description	LATITUDE	LONGITUDE
X2CROC-VALYS	Mpumalanga	R	9.02	Crocodile (east)		IFR1 Valyspruit	Downstream from Dullstroom	-25.49350	30.14444
X2CROC-UKWEN	Mpumalanga	R	9.04	Crocodile (east)		IFR2 Goedehoop	Upstream from Kwena Dam	-25.41758	30.31767
X2CROC-DKWEN	Mpumalanga	E	10.01	Crocodile (east)		IFR3 Poplar Creek	Downstream from Kwena Dam	-25.45211	30.68108
X2CROC-RIVUL	Mpumalanga	P	4.04	Crocodile (east)		Proposed Macro Site	Upstream of Nelspruit @ Rivuletts, presently monitored at provincial level (Barclays Vale)	-25.42910	30.79384
X2CROC-DNELS	Mpumalanga	E	4.04	Crocodile (east)		IFR4 Nyamazane	Downstream from Nelspruit, in Crocodilepoort Mountains	-25.50197	31.18336
X2CROC-MALEL	Mpumalanga	E	3.07	Crocodile (east)		IFR5 Malelane	At Malelane	-25.48272	31.50825
X2CROC-NKONG	Mpumalanga	E	12.01	Crocodile (east)		IFR6 Nkongoma	Above Mozambique border, at Nkongama	-25.39500	31.97444
X2LUNS-VELOR	Mpumalanga	R	9.02?	Crocodile (east)	Lunsklip	X2Luns-Velor	In Velorenvallei Nature reserve	-25.31000	30.14700
X2KAAP-HONEY	Mpumalanga	E	4.04	Crocodile (east)	Kaap	IFR7 Honeybird	5 kms above confluence with Crocodile, farm Honeybird	-25.64947	31.24286
X2ELAN-DOORN	Mpumalanga	E	10.03	Crocodile (east)	Elands	ER1 Doornhoek	Located near Waterval Boven on the farm Doornhoek 341	-25.63100	30.32625
X2ELAN-ROODE	Mpumalanga	E	10.02	Crocodile (east)	Elands	ER2 Roodewal	Below confl. Ngodwana River (farm Roodewal 470JT), d/s from Sappi Ngodwana Mill	-25.56797	30.66669
X2NKAA-UIFR07	Mpumalanga	P	4.04	Crocodile (east)	Noord Kaap	Proposed Macro Site	Upstream of IFR7	-25.59089	30.94824
X2HOUT-CROCC	Mpumalanga	P	10.01	Crocodile (east)	Houtbosloop	Proposed Macro Site	Provincial site, close to confluence with Crocodile River	-25.38366	30.70646
X3NELS-R40RO	Mpumalanga	P	4.04	Crocodile (east)	Nels	Proposed Macro Site	At confluence of Nels and Crocodile Rivers, check X2Nels-R40R as possible site	-25.42971	30.96551
X2NSIK-CONFL	Mpumalanga	E	3.07	Crocodile (east)	Nsikazi	Existing site	Above confluence with Crocodile	-25.51328	31.35963
X1KOMA-VAALW	Mpumalanga	P	11.04	Komati		Proposed Macro Site	Vaalwaterspruit, upstream of Nooitgedaght Dam	-26.03415	29.92933
X1KOMA-DVYGE	Mpumalanga	E	10.03	Komati		K1	Between Vygeboom and Nooitgedacht Dams	-25.85433	30.37664
X1KOMA-SONGI	Mpumalanga	E	10.03	Komati		K2	Downstream of Nooitgedacht Dam, in Songimvelo Reserve, upstream of Swaziland	-26.03881	31.00314
X1KOMA-TONGA	Mpumalanga	E	3.07	Komati		K3	Downstream of Tonga rapids, downstream of Swaziland	-25.66697	31.80133
X1KOMA-CROCC	Mpumalanga	P	12.01	Komati		Proposed Macro Site	At confluence with Crocodile River	-25.44122	31.97866
X2KOMA-UVYGE	Mpumalanga	P	10.03	Komati		Proposed Macro Site	Downstream Gemsbokweir, upstream Vygeboom Dam	-25.84994	30.55679
X1GLAD-UNSPE	Mpumalanga	E	10.03	Komati	Gladderspruit	G1	Approx. 15 kms above confluence with Komati	-25.77083	30.62639
X1TEES-CONFL	Mpumalanga	E	10.03	Komati	Teespruit	T1	Near confluence with Komati	-26.01931	30.85203
X1LOMA-DDRIE	Mpumalanga	E	3.07	Komati	Lomati	L1	Downstream of Driekoppies Dam, upstream of Lomati weir	-25.64944	31.62319
X1BOES-BOESM	Mpumalanga	P	11.02	Komati	Boesmanspruit	Proposed Macro Site	Boesmanspruit	-26.08596	30.07900
X1SEEK-SEEKO	Mpumalanga	P	10.03	Komati	Seekooispruit	Proposed Macro Site	Seekooispruit (Seekoeispruit)	-25.95356	30.56255
X3SABI-SEKUR	Mpumalanga	R	3.07	Sabie		IFR3	Sekurakwane	-24.98690	31.28400
X3SABI-SKUKU	Mpumalanga	E	3.07	Sabie		IFR4	Skukuza	-24.96333	31.55995
X3SABI-NWATI	Mpumalanga	E	3.07	Sabie		IFR5	Nwatimhiri	-25.05912	31.81848

Table 7. WMA 05 Inkomati

RHP Site Code	PROVINCE	Site Type	ECOREGION	MAJOR RIVERS	TRIBUTARY	Original Site Name / Site Code	Site description	LATITUDE	LONGITUDE
X3SABI-BRAND	Mpumalanga	R	4.04	Sabie		X3SABI-BRAND	At Brandwag, below confluence of Sabane and Mac-Mac Rivers	-25.03000	31.02700
X3SABI-LEOPA	Mpumalanga	R	3.07	Sabie		X3SABI-LEOPA	Leopard Glen, below confluence of Sabie and Sand River, (Anthoclysta), in KNP	-24.98889	31.28917
X3SABI-CASTL	Mpumalanga	E	4.04	Sabie		X3SABI-CASTL	Castle Rock	-25.09300	30.76800
X3SABI-SPOOR	Mpumalanga	E	12.01	Sabie		X3SABI-SPOOR	Mlondlozi, @ Sabie Poort in KNP	-25.16000	32.00000
X3MOTL-FORES	Mpumalanga	R	10.01	Sabie	Motlamogatsana	X3MOTL-FORES		-24.66252	30.93278
X3SAND-ALLAN	Mpumalanga	E	3.07	Sabie	Sand	X3SAND-ALLAN		-24.73167	31.26583
X3MACM-BRAND	Mpumalanga	R	4.04	Sabie	Mac-Mac	X3MACM-BRAND	At Brandwag, above confluence with Sabie River	-25.03000	31.02600
X3MARI-SANDF	Mpumalanga	E	4.04	Sabie	Marite	X3MARI-SANDF	At Sandford	-25.00813	31.11465
X3MUTL-THULA	Limpopo	E	3.07	Sabie	Mutlumuvi	X3MUTL-THULA, IFR 6	Thulamahaxi low-water bridge	-24.73361	31.23250
X3SAND-LONDO	Mpumalanga	E	3.07	Sabie	Sand	X3SAND-LONDO	At Londolozi	-24.79100	31.52300
X3SAND-SKUKU	Mpumalanga	R	3.07	Sabie	Sand	X3SAND-SKUKU	Sand River low level bridge	-24.96700	31.62700

RHP Site Code	HISTORICAL DATA RECORD		RHP REFERENCE SITE		RHP MONITORING SITE		ECOLOGICAL RESERVE SITE	IMPACT OF LAND USE (AT SITE & UPSTREAM)	PRESENCE OF SASS HABITAT TYPES					PRESENCE OF FISH FLOW-DEPTH CLASSES				PRESENCE OF COVER TYPES FOR FISH				
	EARLIEST	LATEST	CURRENT	POSSIBLE	CURRENT	POSSIBLE			SIC	SOC	VIC	VOC	GSM	FD	FS	SD	SS	MARG VEG	UNDER CUT BANKS	MACROPH YTES	SUBST RATE	WATER COLUMN
X2CROC-VALYS		2001		Y	Y	Y	Y	2	4	1	1	1	2	2	4	4	2	2	3	2	4	4
X2CROC-UKWEN		2001		Y	Y	Y	Y	2	4	3	3	3	3	3	4	5	3	3	4	3	5	4
X2CROC-DKWEN		2001			Y	Y	Y	3	4	2	2	3	2	5	4	5	3	4	3	3	4	4
X2CROC-RIVUL		2001				Y		3	4	3	2	2	3	4	3	5	3	4	4	4	4	4
X2CROC-DNELS		2001				Y	Y	3 to 4	3	3	2	2	2	5	4	4	3	4	3	3	5	5
X2CROC-MALEL		2001			Y	Y	Y	3 to 4	1	1	2	2	5	2	5	5	4	5	3	4	2	3
X2CROC-NKONG		2001			Y	Y	Y	3 to 4	1	1	3	3	3	4	3	5	3	4	3	4	3	4
X2LUNS-VELOR	1996	2000		Y		Y		1	4	2	1	1	2	3	2	4	1	3	2	3	3	
X2KAAP-HONEY		2001			Y	Y	Y	3	3	1	2	2	2	2	4	4	4	4	3	3	4	3
X2ELAN-DOORN	1980'S	2003?				Y	Y	2	4	3	1	1	2	4	5	4	3	3	3	1	5	3
X2ELAN-ROODE	1980'S	2003				Y	Y	2	4	3	1	1	2	5	4	5	3	4	5	3	5	4
X2NKAA-UIFR07	1980's	2000				Y		3 (Mines and agric)						4	3	5	3	4	3	2	4	4
X2HOUT-CROCC		2000				Y		2	4	2	1	3	3	3	4	3	4	3	3	1	4	3
X3NELS-R40RO		2000				Y		2	2	3	2	3	2	5	3	4	3	1	3	2	3	4
X2NSIK-CONFL						Y			2	1	0	0	4		4		2	1	1	1	1	
X1KOMA-VAALW	1965?	2001?		Y	Y	Y		2	3	3	3	3	3	1	4	4	4	3	3	2	4	4
X1KOMA-DVYGE		2003?				Y	Y	2 to 3	3	3	1	1	2	3	4	4	4	3	3	3	5	5
X1KOMA-SONGI		2003?				Y	Y	2 to 3	3	3	3	2	1	5	4	5	3	5	4	3	5	5
X1KOMA-TONGA		2003?				Y	Y	2 to 3	2	2	2	4	4	4	4	5	4	3	4	3	4	5
X1KOMA-CROCC		1980's				Y		3 to 4 (Agric)	1	1	1	1	1	5	4	5	4	5	4	4	4	5
X2KOMA-UVYGE		1980'S				Y		3 to 4	4	3	2	2	3	4	4	5	3	3	3	3	5	4
X1GLAD-UNSPE		2003?				Y	Y	2	4	4	2	2	3	3	4	4	4	3	4	1	4	3
X1TEES-CONFL		2003				Y	Y	2	3	3	3	3	3	3	4	4	3	2	3	2	4	4
X1LOMA-DDRIE		2003				Y	Y	3 to 4	3	3	4	3	2	5	3	4	3	4	3	3	5	4
X1BOES-BOESM		1980S?				Y		2						4	3	4	2	1	2	2	4	4
X1SEEK-SEEKO		1980's				Y		2	2	2	2	2	1	3	3	4	4	2	2	2	3	3
X3SABI-SEKUR	1978	2003		Y	Y	Y	Y	2	4	3	4	4	4	4	5	4	5	4	5	4	4	5
X3SABI-SKUKU	1978	2003			Y	Y	Y	1	3	3	3	3	3	4	3	4	3	3	2	2	3	4
X3SABI-NWATI	1978	2003			Y	Y	Y	1	3	3	4	4	4	3	3	4	4	3	3	2	3	4

RHP Site Code	HISTORICAL DATA RECORD		RHP REFERENCE SITE		RHP MONITORING SITE		ECOLOGICAL RESERVE SITE	IMPACT OF LAND USE (AT SITE & UPSTREAM)	PRESENCE OF SASS HABITAT TYPES					PRESENCE OF FISH FLOW-DEPTH CLASSES				PRESENCE OF COVER TYPES FOR FISH				
	EARLIEST	LATEST	CURRENT	POSSIBLE	CURRENT	POSSIBLE			SIC	SOC	VIC	VOC	GSM	FD	FS	SD	SS	MARG VEG	UNDER CUT BANKS	MACROPH YTES	SUBST RATE	WATER COLUMN
X3SABI-BRAND	1997	1999		Y	Y	Y		2	5	4	1	1	3	4	3	4	3	3	3	2	5	4
X3SABI-LEOPA	1978	1997		Y	Y	Y		1	5	3	4	4	2	3	4	3	3	3	2	2	3	4
X3SABI-CASTL	1997				Y	Y		2	5	4	2	2	4									
X3SABI-SPOOR	1978	1997			Y	Y		2	4	4	4	4	2	4	4	4	3	3	3	2	3	4
X3MOTL-FORES	1996	2002		Y	Y	Y		0	5	1	2	1	2	4	5	1	1	2	2	0	5	2
X3SAND-ALLAN	1991	2002			Y	Y		2	2	2	5	5	5	4	4	4	4	5	2	3	2	4
X3MACM-BRAND	1997			Y	Y	Y		1 to 2	4	3	1	1	3	4	4	4	3	3	3	2	4	3
X3MARI-SANDF	1997				Y	Y	Y	1 to 2	3	3	2	2	2	4	4	4	3	3	2	2	4	4
X3MUTL-THULA	1997				Y	Y	Y	2 to 3	2	2	1	1	4	3	4	3	5	3	2	3	3	3
X3SAND-LONDO	1993	1999			Y	Y	Y	1 to 2	3	3	2	2	3	3	4	4	3	4	3	4	3	4
X3SAND-SKUKU	1978	2003		Y	Y	Y	Y	2	2	2	3	3	4	2	4	3	4	3	1	2	3	4

RHP Site Code	PRESENCE OF RIPARIAN VEGETATION ZONES			OVERALL SUITABILITY CONSIDERING SAMPLEBILITY AND INFORMATION			GENERAL COMMENTS: SAFETY AND ACCESIBILITY	Wetland(s) upstream or down stream of this site?		Contact Person	Priority (1=high, 2=medium, 3=low)
	MARGINAL ZONE	LOWER ZONE	UPPER ZONE	Fish	SASS	RIP VEG		(Yes / No)	Describe (e.g. Large/ Small / Ramsar/ Importance)		
X2CROC-VALYS	3	0	0	4	4	2		Y	Velorenvallei Ramsar site	Engelbrecht/Louw/Kleynhans	1
X2CROC-UKWEN	3	1	0	5	4	3				Engelbrecht/Louw/Kleynhans	1
X2CROC-DKWEN	3	3	2	5	1	3				Engelbrecht/Louw/Kleynhans	1
X2CROC-RIVUL	3	3	1	4	3	3				Engelbrecht/Louw/Kleynhans	1
X2CROC-DNELS	4	3	3	5	4	4				Engelbrecht/Louw/Kleynhans	1
X2CROC-MALEL	4	4	4	4	2	4				Engelbrecht/Louw/Kleynhans	1
X2CROC-NKONG	4	4	4	4	2	4	Co-ordinates to be validate			Engelbrecht/Louw/Kleynhans	1
X2LUNS-VELOR				3	4			Y	Velorenvallei Ramsar site	Thirion/Kleynhans	1
X2KAAP-HONEY	3	2	1	4	3	3				Engelbrecht/Louw/Kleynhans	1
X2ELAN-DOORN	3	2	1	5	5	4	Recent study for Sappi			Liesl Hill, Neels Kleynhans	1
X2ELAN-ROODE	5	2	1	5	4	4	Recent study for Sappi	Y	small wetland on right side	Liesl Hill, Neels Kleynhans	1
X2NKAA-UIFR07	4	3	2	4		3	Pollution-mining, agriculture			Engelbrecht/Kleynhans	1
X2HOUT-CROCC	3	2	2	4	4	3	Select suitable biom site from provincial			Johan Engelbrecht, Neels Kleynhans	1
X3NELS-R40RO	2	2	2	3	3	2	Water quality problems, bedrock-dominated site			Helen Dallas/Neels Kleynhans	1
X2NSIK-CONFL					2						1
X1KOMA-VAALW	2	1	0	2		1	Possible reference site, representative of u/s area			Engelbrecht/Kleynhans	2
X1KOMA-DVYGE	4	4	2	5	3	3	IFR site K1, repre, historical data, good habitat			Engelbrecht/Louw/Kleynhans	1
X1KOMA-SONGI	4	4	4	5	3	4	IFR site, site upstream with better bioilogical results			Engelbrecht/Louw/Kleynhans	1
X1KOMA-TONGA	4	1	1	4	3	1	K3 is downstream of Tonga rapids, need to sample upstream			Johan Engelbrecht	1
X1KOMA-CROCC	3	3	3	4	1	3	Francois Roux - poss site, remainder of river disturbed by weirs			Johan Engelbrecht	1
X2KOMA-UVYGE	3	3	3	5	4	2	Need a site, possible sites at lekkerdraai or Grootkop			Johan Engelbrecht	1
X1GLAD-UNSPE	2	2	1	4	4	2	Old mines, forestry, trut farms, water removed downstream			Engelbrecht/Louw/Kleynhans	2
X1TEES-CONFL	2	3	2	4	4	2	Many impacts, good habitat, upstream abstractions	Y	Details unknown	Engelbrecht/Louw/Kleynhans	1
X1LOMA-DDRIE	3	2	1	5	3	2	Excellent riparian veg, instream good.			Engelbrecht/Louw/Kleynhans	1
X1BOES-BOESM	1	2	2	4			At water transfer introduced, coal mining pollution,			Johan Engelbrecht	2
X1SEEK-SEEKO	2	2	1	4	3		Near confluence with komati, ecol NB, d/s of a dam, flow/quality			Johan Engelbrecht	1
X3SABI-SEKUR	5	5	5	4	5	4	Crocodile & hippos			Andrew Deacon	1
X3SABI-SKUKU	4	4	5	4	4	4	Crocodile & hippos			Andrew Deacon	3
X3SABI-NWATI	4	5	5	4	5	4	Crocodile & hippos			Andrew Deacon	3

RHP Site Code	PRESENCE OF RIPARIAN VEGETATION ZONES			OVERALL SUITABILITY CONSIDERING SAMPLEBILITY AND INFORMATION			GENERAL COMMENTS: SAFETY AND ACCESIBILITY	Wetland(s) upstream or down stream of this site?		Contact Person	Priority (1=high, 2=medium, 3=low)
	MARGINAL ZONE	LOWER ZONE	UPPER ZONE	Fish	SASS	RIP VEG		(Yes / No)	Describe (e.g. Large/ Small / Ramsar/ Importance)		
X3SABI-BRAND	4	4	3	5	5	4				Thirion/Kleynhans	1
X3SABI-LEOPA	5	4	5	4	5	4	Crocodile & hippos			Andrew Deacon	1
X3SABI-CASTL					5					Christa Thirion	1
X3SABI-SPOOR	4	4	4	4	5	4	Crocodile & hippos			Andrew Deacon	1
X3MOTL-FORES	5	5	5	5	5	5	Very steep mountain stream			Mick Angliss	1
X3SAND-ALLAN	4	4	4	4	4	4	Access through plantation. Poss Crocs.			Mick Angliss	1
X3MACM-BRAND	3	3	3	4	4	4				Thirion/Kleynhans	1
X3MARI-SANDF	3	3	3	4	4	2				Thirion/Kleynhans	1
X3MUTL-THULA	2	2	2	4	3	2				Thirion/Kleynhans	1
X3SAND-LONDO	4	4	4	4	3	4				Thirion/Kleynhans/Engelbrecht	1
X3SAND-SKUKU	4	4	3	4	3	4	Crocodile & hippos			Andrew Deacon	1

Table 8. WMA 06 Usutu to Mhlatuze

RHP Site Code	PROVINCE	Site Type	ECOREGION	MAJOR RIVERS	TRIBUTARY	Original Site Name / Site Code	Site description	LATITUDE	LONGITUDE
W1MFUL-ELIZA	KwaZulu-Natal	R	14.05	Mhlathuze	Mfule	Elizabeth Farm 6143, on P253	KZN Wildlife site, reference site	-28.515800	31.436240
W1MFUL-CONFL	KwaZulu-Natal	E	14.06	Mhlathuze	Mfule	IFR site 9	Near confluence with Mhlatuze	-28.609450	31.531167
W1MWAK-CMATI	KwaZulu-Natal	R	14.05	Matigulu	Mwaku		KZN Wildlife site, upstream confluence with Matigulu	-28.941370	31.394150
W1EVUT-D1595	KwaZulu-Natal	R	17.01	Matigulu	Evutha		KZN wildlife site, D1595 crossing on Evutha stream	-29.066860	31.485460
W1MLAL-ESHOW	KwaZulu-Natal	R	14.05	Mlalazi	Mlalazi	Proposed macro site, and reference site	In foothills below Eshowe (previous IFR site for monitoring)	-28.87049	31.55915
W1MHLA-GOEDG	KwaZulu-Natal	E	14.06	Mhlathuze		IFR Site 5	IFR 5, 30 km upstream of Mvuzane River, upstream of Goedertrouw Dam	-28.77095	31.38336
W1MHLA-GWEIR	KwaZulu-Natal	E	14.06	Mhlathuze		IFR Site 2 site, proposed reserve site	Downstream of Mfule confluence, at gauging weir W1H009	-28.74695	31.74745
W1NSEL-NSESI	KwaZulu-Natal	E	13.03	Mhlathuze	Nseleni	IFR site 7	Upstream of Nsesi, lower reach	-28.5803333	31.76333333
W2MVUN-P0016	KwaZulu-Natal	R	14.02	White Mfolozi	Mvunyana		Upstream of P0016 bridge, KZN wildlife site, reference site	-28.118940	30.866860
W2WMFO-ULUND	KwaZulu-Natal	P	13.10	White Mfolozi		Proposed macro site	Near Vryheid road crossing, upstream of Ulundi	-28.32797	31.37045
W2SIKA-PALME	KwaZulu-Natal	E	13.03	Black Mfolozi	Sikwebezi		KZN wildlife, Palmers Farm, reference site	-27.900330	31.365220
W2BMFO-MFOLO	KwaZulu-Natal	P	13.10	Black Mfolozi		Proposed macro site	Upstream of Mfolozi reserve, Ulundi-Nongoma road	-28.12506	31.60837
W2BMFO-FERRO	KwaZulu-Natal	P	14.03	Black Mfolozi		Proposed macro site	Jake Alletson Site 2122/3, coalmining upstream	-27.83171	31.10595
W2MFOL-N2MOU	KwaZulu-Natal	P	13.03	Mfolozi		Proposed macro site	Upstream of N2, downstream of the confluence, Reserve site	-28.44834	32.26398
W2MFOL-CONFLU	KwaZulu-Natal	P	13.10	Mfolozi		Proposed macro site	Below confluence of black and white Mfolozi. Rob Carson fish collecting data	-28.35960	31.99434
W3HLUH-HLUHL	KwaZulu-Natal	R	3.09	Hluhluwe			KZN wildlife, Hluhluwe u/s HGR/UGR road crossing, feeds into Lake St Lucia	-28.138260	32.020620
W3NYAL-N2LUC	KwaZulu-Natal	P	13.03	Nyalazi		Proposed macro site	Downstream of N2, possible Jake Alletson site, feeds into Lake St Lucia	-28.22307	32.30153
W3MZIN-LUCIA	KwaZulu-Natal	P	13.03	Mzinene		Proposed macro site	Possible Jake Alletson Site MSN1, feeds into Lake St Lucia	-27.88175	32.34248
W3MKUZ-DENYE	KwaZulu-Natal	R	3.08	Mkuze			KZN wildlife site, Denyers Drift, Mkuze Game Reserve, reference site	-27.592260	32.217880
W3MKUZ-MKUZI	KwaZulu-Natal	P	3.09	Mkuze		Proposed macro site	Proposed macro-site, at Mkuzi Falls	-27.62234	31.86463
W3MKUZ-GROEN	KwaZulu-Natal	P	3.09	Mkuze		Proposed macro site	At Groenweiding, gauging weir, capturing mining effect, W3H026	-27.65648	31.72128
W3MKUZ-OVERW	KwaZulu-Natal	P	3.06	Mkuze		Proposed macro site	At Overwin, d/s Mkuzi town, Dwaf gweir W3H032, IBT from Pongola into Mkuzi	-27.60805	32.08777
W3MKUZ-D230B	KwaZulu-Natal	R	14.03	Mkuze			KZN wildlife site, D230 bridge, Ontevrede Farm, reference site	-27.692560	31.211290
W3MKUZ-ROADX	KwaZulu-Natal	P	13.02	Mkuzi		Proposed macro site	At tar road crossing	-27.68378	32.47560
W4PONG-GROOT	KwaZulu-Natal	E	3.09	Pongolo		EWR Site	Pongola EWR, approximately 3 km downstream of Grootdraai weir	-27.43156	31.69778
W4PONG-BIVAN	KwaZulu-Natal	P	3.10	Pongolo		Proposed macro site	Downstream of confluence with Bivane, Paris Dam study	-27.44870	31.21996
W4PONG-N2PON	KwaZulu-Natal	P	3.09	Pongolo		Proposed macro site	At N2 crossing, upstream of Pongolapoort Dam	-27.39750	31.85141
W4PONG-KOSIB	KwaZulu-Natal	P	3.08	Pongolo		Proposed macro site	At New bridge on Kosi Bay road	-27.00924	32.30366
W4PONG-PAULP	KwaZulu-Natal	P	4.06	Pongolo		Proposed macro site	West of Paulpietersburg	-27.34203	30.85304
W4BIVA-NATAL	KwaZulu-Natal	R	3.10	Pongolo	Bivane		KZN wildlife site, Vryheid/Paulpietersburg Rd @ Natal Spa, reference site	-27.529390	30.861420
W4BIVA-PARIS	KwaZulu-Natal	E	3.10	Pongolo	Bivane	IFR site	Downstream of Paris dam, 10 kms upstream of confluence	-27.478900	31.145860
W4NGWA-D1840	KwaZulu-Natal	R	12.01	Pongolo	Ngwavuma		KZN wildlife site, u/s of D1840 road bridge, reference site	-27.098170	32.069050
W4MOZA-CPONG	KwaZulu-Natal	P	4.06	Pongolo	Mozana	Proposed macro site	Above confluence with Pongola River	-27.38896	31.34796
W5USUT-ABERC	KwaZulu-Natal	P	3.08	Usutu		Proposed macro site	At Abercorn Drift, west of Ndumu Game Reserve	-26.84513	32.21443
W5USUT-WESTO	KwaZulu-Natal	P	11.02	Usutu		Proposed macro site	Above Westoe Dam	-26.43955	30.50298
W5USUT-WESTO	KwaZulu-Natal	P	11.04	Usutu		Proposed macro site	Downstream of Westoe Dam	-26.50035	30.77096
W5ASSE-CSWAR	KwaZulu-Natal	P	4.06	Usutu	Assegaai	Proposed macro site	Below confluence of Assegaai and Swartwater (Swaziland border)	-27.10163	30.89707
W5HLEL-NYAMA	KwaZulu-Natal	P	11.04	Usutu	Hlelo	Proposed macro site	Downstream of the Nyamani, upstream of Mlamvo confluence	-26.86067	30.60657
W5ASSE-HEYSH	KwaZulu-Natal	P	11.02/15.05	Usutu	Assegaai	Proposed macro site	High importance, upstream of Heyshope Dam	-27.17144	30.33183
W5NGWE-CSAND	KwaZulu-Natal	P	11.04	Usutu	Ngwempisi	Proposed macro site	Below confluence of Nqempisi and Sandspruit, u/s of Morgenstend Dam	-26.75482	30.43992
W5NGWE-AMSTE	KwaZulu-Natal	P	4.06	Usutu	Nqwempisi	Proposed macro site	Downstream of Amsterdam	-26.68501	30.71917
W5MPUL-BORDE	KwaZulu-Natal	P	11.04	Usutu	Mpuluzi	Proposed macro site	Upstream of Swaziland border	-26.42153	30.88131
W5LUSU-IFRSI	KwaZulu-Natal	E	11.04	Little Usutu	Lusushwana		IFR site, located in the Lusushwane River approximately 8 km downstream of the	-26.20936	30.86462

RHP Site Code	HISTORICAL DATA RECORD		RHP REFERENCE SITE		RHP MONITORING SITE		ECOLOGICAL RESERVE SITE	IMPACT OF LAND USE (AT SITE & UPSTREAM)	PRESENCE OF SASS HABITAT TYPES					PRESENCE OF FISH FLOW-DEPTH CLASSES			
	EARLIEST	LATEST	CURRENT	POSSIBLE	CURRENT	POSSIBLE			SIC	SOC	VIC	VOC	GSM	FD	FS	SD	SS
W1MFUL-ELIZA	9-Dec-03	9-Dec-03	Y	Y		Y		1	4	4	4	4	4				
W1MFUL-CONFL						Y	Y										
W1MWAK-CMATI	8-Dec-03	8-Dec-03	Y	Y		Y		2	4	4	4	4	4				
W1EVUT-D1595	10-Dec-03	10-Dec-03	Y	Y		Y		1	4	4	4	4	4				
W1MLAL-ESHOW				Y		Y	Y (stalled)										
W1MHLA-GOEDG	2002	2004				Y	Y	4	4	3	2	2	4	4	4	5	3
W1MHLA-GWEIR	1997					Y	Y										
W1NSEL-NSESI	1997					Y	Y										
W2MVUN-P0016	18-Feb-04	18-Feb-04	Y	Y		Y		1	4	4	4	4	4				
W2WMFO-ULUND						Y											
W2SIKA-PALME	20-May-04	20-May-04	Y	Y		Y		1	4	4	4	4	4				
W2BMFO-MFOLO						Y											
W2BMFO-FERRO						Y											
W2MFOL-N2MOU						Y	Y		0	0	3	0	5	2	1	3	4
W2MFOL-CONFLU						Y											
W3HLUH-HLUHL	11-Feb-04	11-Feb-04	Y	Y		Y		1	4	4	4	4	4				
W3NYAL-N2LUC						Y											
W3MZIN-LUCIA						Y											
W3MKUZ-DENYE	12-Feb-04	12-Feb-04	Y	Y		Y		1	4	4	4	4	4				
W3MKUZ-MKUZI						Y											
W3MKUZ-GROEN						Y											
W3MKUZ-OVERW						Y											
W3MKUZ-D230B	19-Feb-04	19-Feb-04	Y	Y		Y		2	4	4	4	4	4				
W3MKUZ-ROADX						Y											
W4PONG-GROOT	1996?	2003				Y	Y	4	5	4	2	3	3	3	4	5	3
W4PONG-BIVAN						Y											
W4PONG-N2PON						Y											
W4PONG-KOSIB						Y											
W4PONG-PAULP						Y											
W4BIVA-NATAL	12-Nov-03	12-Nov-03	Y	Y		Y		1	4	4	4	4	4				
W4BIVA-PARIS						Y											
W4NGWA-D1840	12-Feb-04	12-Feb-04	Y	Y		Y		2	4	4	4	4	4				
W4MOZA-CPONG						Y											
W5USUT-ABERC						Y											
W5USUT-WESTO						Y											
W5USUT-WESTO						Y											
W5ASSE-CSWAR						Y											
W5HLEL-NYAMA						Y											
W5ASSE-HEYSH						Y											
W5NGWE-CSAND						Y											
W5NGWE-AMSTE						Y											
W5MPUL-BORDE						Y											
W5LUSU-IFRSI	2003	2003			Y	Y	Y	2.5	3	2	1	1	2	1	4	3	4

RHP Site Code	PRESENCE OF COVER TYPES FOR FISH					PRESENCE OF RIPARIAN VEGETATION ZONES			OVERALL SUITABILITY CONSIDERING SAMPLEBILITY AND INFORMATION			GENERAL COMMENTS: SAFETY AND ACCESIBILITY	Wetland(s) upstream or down stream of this site?		Contact Person	Priority (1=high, 2=medium, 3=low)
	MARG VEG	UNDER CUT BANKS	MACROP HYTES	SUBST RATE	WATER COLUMN	MARGINAL ZONE	LOWER ZONE	UPPER ZONE	Fish	SASS	RIP VEG		(Yes / No)	Describe (e.g. Large/ Small / Ramsar/ Importance)		
W1MFUL-ELIZA									5	5	5	EKZNW project data - Ref site			Mark Graham	1
W1MFUL-CONFL												Rural impacts and forestry			Delana Louw	1
W1MWAK-CMATI									4	5	4	EKZNW project data - Ref site			Mark Graham	1
W1EVUT-D1595									5	5	5	EKZNW project data - Ref site			Mark Graham	1
W1MLAL-ESHOW															Neel Kleynhans	1
W1MHLA-GOEDG	2	2	2	4	4	2	2	1	5	5	1	Accessible - D/s of new dam			Delana Louw	1
W1MHLA-GWEIR												Rural development			Delana Louw	1
W1NSEL-NSESI															Delana Louw	1
W2MVUN-P0016									5	5	5	EKZNW project data - Ref site			Mark Graham	1
W2WMFO-ULUND																1
W2SIKA-PALME									5	5	5	EKZNW project data - Ref site			Mark Graham	1
W2BMFO-MFOLO																1
W2BMFO-FERRO												Good access, no rapids/riffles			Todd/Niehaus	1
W2MFOL-N2MOU	2	2	?	2	3					2		Good access, no rapids/riffles			Colleen Todd	1
W2MFOL-CONFLU															Mark Graham	1
W3HLUH-HLUHL									5	5	5	EKZNW project data - Ref site			Mark Graham	1
W3NYAL-N2LUC															Hugh Dixon-Paver	2
W3MZIN-LUCIA															Hugh Dixon-Paver	1
W3MKUZ-DENYE									5	5	5	EKZNW project data - Ref site			Mark Graham	3
W3MKUZ-MKUZI															Mike Coke	1
W3MKUZ-GROEN															Hugh Dixon-Paver?	1
W3MKUZ-OVERW															Hugh Dixon-Paver?	1
W3MKUZ-D230B									5	4	4	EKZNW project data - Ref site			Mark Graham	1
W3MKUZ-ROADX															Mike Coke	3
W4PONG-GROOT	3	3	3	5	4	3	3	2	5	4	2	Safe and accessible			Delana Louw	1
W4PONG-BIVAN															Mark Graham	3
W4PONG-N2PON															Mike Coke	1
W4PONG-KOSIB															Mike Coke	1
W4PONG-PAULP															Johan Engelbregt	1
W4BIVA-NATAL									5	5	5	EKZNW project data - Ref site			Mark Graham	1
W4BIVA-PARIS															Delana Louw	1
W4NGWA-D1840									2	4	2	EKZNW project data - Ref site			Mark Graham	1
W4MOZA-CPONG															Johan Engelbregt	1
W5USUT-ABERC															Johan Engelbregt	1
W5USUT-WESTO													Y		Johan Engelbregt	1
W5USUT-WESTO															Johan Engelbregt	1
W5ASSE-CSWAR															Johan Engelbregt	3
W5HLEL-NYAMA															Johan Engelbregt	1
W5ASSE-HEYSH													Y		Johan Engelbregt	1
W5NGWE-CSAND													Y		Johan Engelbregt	1
W5NGWE-AMSTE															Johan Engelbregt	1
W5MPUL-BORDE															Johan Engelbregt	1
W5LUSU-IFRSI	3	2.5	1	3	3	2	2.5	2.5	4	3	2	Accessible-indicates upstream forestry			Louw/Kleynhans/Thirion	2

Table 9. WMA 07 Thukela

RHP Site Code	PROVINCE	Site Type	ECOREGION	MAJOR RIVERS	TRIBUTARY	Original Site Name / Site Code	Site description	LATITUDE	LONGITUDE
V1THUK-ROYAL	KwaZulu-Natal	P	15.07	Thukela		Proposed macro site	At road to Royal Natal	-28.67829	28.99301
V1THUK-SKIET	KwaZulu-Natal	E	14.07	Thukela		IFR 2	Skietdrift (try and find more approporiate site nearby for monitoring)	-28.71633	29.62417
V1THUK-TUGEL	KwaZulu-Natal	E	14.06	Thukela		IFR 4B	Tugela Estates (4A is better but access is difficult)	-28.743080	30.139480
V4THUK-JAMES	KwaZulu-Natal	E	14.06	Thukela		IFR 15	Jameson's Drift	-28.82815	30.9019
V5THUK-MANZI	KwaZulu-Natal	E	14.06	Thukela		IFR 16	Upstream of Manzini with all its water quality problems. Access difficult - through sugar cane lands. Very limited habitat - alluvial section.	-29.160450	31.335450
V2MOOI-KAMBE	KwaZulu-Natal	R	15.07	Thukela	Mooi	V2UNSP-KMBRG	KZN wildlife site, Game valley stream, Kamberg, below bushmans painting	-29.384330	29.652940
V2LMOO-HLATI	KwaZulu-Natal	E	16.01	Thukela	Little Mooi		Umgeni Water Site, d/s of Hlatikulu	-29.231110	29.925560
V2MOOI-DFALLS	KwaZulu-Natal	E	14.07	Thukela	Mooi	IFR 11	Downstream of Mooi River Falls	-29.054000	30.300660
V2MOOI-CARAV	KwaZulu-Natal	E	14.07	Thukela	Mooi	IFR 10, Caravan Park	Downstream of confluence of Mooi and Little Mooi, below town and weir	-29.204666	30.000550
V2MOOI-DIFR2	KwaZulu-Natal	P	14.06		Mooi	Proposed macro site	Downstream of IFR 12	-28.779290	30.568420
V7BOES-MOORP	KwaZulu-Natal	R	14.07	Thukela	Boesmans	Boesmans Moor Park	KZN wildlife site, at Moor Park, upstream of Wagendrift Dam	-29.083450	29.827830
V7KBOE-WETLA	KwaZulu-Natal	P	14.07	Thukela	Klein Boesmans	Proposed macro site	Upstream to assess wetland area	-29.05838	29.67951
V7BOES-WEENE	KwaZulu-Natal	E	14.06	Thukela	Boesmens	IFR 5	Weenen Nature Reserve, downstream of Wagendrift Dam and lots of abstraction and return flows.	-28.889910	30.017180
V1LTHU-DTOWN	KwaZulu-Natal	E	14.02	Thukela	Little Thukela	IFR 3	Downstream from town - picks up most of problems.	-28.777950	29.628200
V1NJON-UNSPE	KwaZulu-Natal	P	15.03	Thukela	Njongola?	Proposed macro site	To be selected in this ecoregion	-28.49988	29.30330
V1KLIP-LADYS	KwaZulu-Natal	P	14.07	Thukela	Klip	Proposed macro site	Downstream of Ladysmith, heavily impacted	-28.64338	29.94713
V6SUND-UPPER	KwaZulu-Natal	E	14.02	Thukela	Sundays	IFR 7	Upper Sundays	-28.460450	30.042880
V6SUND-LOWER	KwaZulu-Natal	E	14.06	Thukela	Sundays	IFR 8	Lower Sundays	-28.638900	30.202360
V3NKAN-LEYDE	KwaZulu-Natal	P	15.04	Thukela	Nkandu	Proposed macro site, near V3NCND-LEYDN	Old site at Leyden Farm on Mullers Pass Rd; soon to be inundated by new dam, need to find another site 1 to 2 kms upstream (data given for old site)	-27.85144	29.75663

Table 9. WMA 07 Thukela

RHP Site Code	PROVINCE	Site Type	ECOREGION	MAJOR RIVERS	TRIBUTARY	Original Site Name / Site Code	Site description	LATITUDE	LONGITUDE
V3NKAN-UNSPE	KwaZulu-Natal	P	14.02	Thukela	Nkandu	Proposed macro site	New Reserve site	-27.84754	29.84453
V3SLAN-WAKKE	KwaZulu-Natal	P	11.02	Thukela	Slang?	Proposed macro site	Near Wakkerstroom wetlands	-27.33244	30.16045
V3SLAN-NACHT	KwaZulu-Natal	R	15.05	Thukela	Slang	V3SLNG-NCHTW	KZN wildlife site, on Nachwacht Farm	-27.420670	30.296810
V3MZIN-COTSW	KwaZulu-Natal	R	14.02	Thukela	Mzinyashana	V3SAND-CTSWL	KZN wildlife site, Cotswold Farm on Dundee/Vryheid Rd	-28.096550	30.316780
V3BUFF-UPPER	KwaZulu-Natal	E	14.02	Thukela	Buffalo	IFR 13	Upper Buffalo	-28.177010	30.490410
V3BUFF-LOWER	KwaZulu-Natal	E	14.04/06	Thukela	Buffalo	IFR 14	4x4 access only, diffilcult, lower river	-28.426630	30.595010
V3BUFF-CONFL	KwaZulu-Natal	P	14.02	Thukela	Buffalo	Proposed macro site	Downstream of Ngagane River	-27.715620	30.118630
V3BLOE-UNSPE	KwaZulu-Natal	P	14.02	Thukela	Bloed	Proposed macro site	Downstream of Bloed river wetland, close to confluence with Thukela, possibly near gauging weir	-28.138770	30.548320
V4NSUZ-UNSPE	KwaZulu-Natal	P	14.05	Thukela	Nsuze?	Proposed macro site	To be selected in this ecoregion, high sensitivity	-28.65114	31.01760
V2NSON-RESER	KwaZulu-Natal	E	16.01	Thukela	Nsonge (Hlatikulu)	Existing reserve (rapid)	Near NB wetland area	-29.22372	29.76741

RHP Site Code	HISTORICAL DATA RECORD		RHP REFERENCE SITE		RHP MONITORING SITE		ECOLOGICAL RESERVE SITE	IMPACT OF LAND USE (AT SITE & UPSTREAM)	PRESENCE OF SASS HABITAT TYPES					PRESENCE OF FISH FLOW-DEPTH CLASSES				PRESENCE OF COVER TYPES FOR FISH				
	EARLIEST	LATEST	CURRENT	POSSIBLE	CURRENT	POSSIBLE			SIC	SOC	VIC	VOC	GSM	FD	FS	SD	SS	MARG VEG	UNDER CUT BANKS	MACROPH YTES	SUBSTRA TE	WATER COLUMN
V1THUK-ROYAL						Y																
V1THUK-SKIET						Y	Y	4	3	1	2	3	4	3	4	3	4	2	2	2	3	2
V1THUK-TUGEL						Y	Y	2	3	2	2	2	3	5	1	4	1	2	1	2	3	4
V4THUK-JAMES	2001	2001				Y	Y	2	4	4	1	1	3	5	3	5	3	1	1	0	4	4
V5THUK-MANZI	Jun-05	Jun-05				Y	Y	2	1	1	1	1	4	5	3	5	3	1	3	0	0	5
V2MOOI-KAMBE	Dec-03	Dec-03		Y		Y	Y	0	4	4	4	4	4	2	4	3	4	3	3	1	4	3
V2LMOO-HLATI	Mar-03	Dec-05			Y	Y	Y	1	4	4	4	4	4									
V2MOOI-DFALLS	1996	2001				Y	Y	3	4	4	3	3	3	4	4	4	3	3	2	3	5	2
V2MOOI-CARAV	2001					Y	Y															
V2MOOI-DIFR2						Y																
V7BOES-MOORP	Oct-03	Oct-03	Y	Y		Y	Y	1	4	4	4	4	4	4	4	4	4	4	3	2	4	4
V7KBOE-WETLA						Y																
V7BOES-WEENE	1996	1996				Y	Y	4	4	4	4	4	4	4	4	4	3	4	4	4	4	3
V1LTHU-DTOWN	2001	2001				Y	Y	4	4	3	3	4	3	3	3	4	3	3	2	2	3	4
V1NJON-UNSPE						Y																
V1KLIP-LADYS						Y																
V6SUND-UPPER	2001	2001				Y	Y	4	4	4	3	4	3	3	4	4	4	3	4	3	4	4
V6SUND-LOWER	2001	2001				Y	Y	4	4	3	0	0	3	2	3	3	3	0	1	0	4	3
V3NKAN-LEYDE	Nov-03	Nov-03		?		Y		1	4	4	2	3	4	2	4	4	4	3	3	1	3	4

RHP Site Code	HISTORICAL DATA RECORD		RHP REFERENCE SITE		RHP MONITORING SITE		ECOLOGICAL RESERVE SITE	IMPACT OF LAND USE (AT SITE & UPSTREAM)	PRESENCE OF SASS HABITAT TYPES					PRESENCE OF FISH FLOW-DEPTH CLASSES				PRESENCE OF COVER TYPES FOR FISH				
	EARLIEST	LATEST	CURRENT	POSSIBLE	CURRENT	POSSIBLE			SIC	SOC	VIC	VOC	GSM	FD	FS	SD	SS	MARG VEG	UNDER CUT BANKS	MACROPH YTES	SUBSTRA TE	WATER COLUMN
V3NKAN-UNSPE						Y	Y															
V3SLAN-WAKKE						Y																
V3SLAN-NACHT	Nov-03	Nov-03	Y	Y		Y	Y	1	4	4	4	4	4	2	4	3	4	4	4	3	4	3
V3MZIN-COTSW	Nov-03	Nov-03	Y	Y		Y	Y	2	4	4	4	4	4	2	3	4	3	4	4	2	4	3
V3BUFF-UPPER	2001	2001				Y	Y	4	2	2	2	2	4	3	3	5	4	3	3	2	3	5
V3BUFF-LOWER	2001	2001				Y	Y	3	4.5	3	1	2	2	4	3	5	3	0	1	0	5	4
V3BUFF-CONFL						Y																
V3BLOE-UNSPE						Y																
V4NSUZ-UNSPE						Y																
V2NSON-RESER						Y																

RHP Site Code	PRESENCE OF RIPARIAN VEGETATION ZONES			OVERALL SUITABILITY CONSIDERING SAMPLEBILITY AND INFORMATION			GENERAL COMMENTS: SAFETY AND ACCESIBILITY	Wetland(s) upstream or down stream of this site?		Contact Person	Priority (1=high, 2=medium, 3=low)
	MARGINAL ZONE	LOWER ZONE	UPPER ZONE	Fish	SASS	RIP VEG		(Yes / No)	Describe (e.g. Large/ Small / Ramsar/ Importance)		
V1THUK-ROYAL										Louw	1
V1THUK-SKIET	2	3	3	2	2	2	Accessible. Difficult to work due to extensive bedrock.			Louw, Coke	2
V1THUK-TUGEL	1	1	2	3	3	1	Large river, difficult to sample, very little riparian vegetation due to grazing, landuse and floods. In general the river does not score high (mostly due to the natural characteristics of the river).			Louw	1
V4THUK-JAMES	1	1	1	4	4	1	Vary variable instream habitat. Site applicable for very large part upstream and downstream sites in river. Probably the best possible site in this zone.			Louw, Coke, Dickens	1
V5THUK-MANZI	2	2	4	2	1	1	Only lower site accessible for sampling upstream of the estuary			Louw	3
V2MOOI-KAMBE	4	4	4	5	5	5	EKZNW project data - Reference site			Mark Graham	1
V2LMOO-HLATI				4	4	4	UW data - long data set			Mark Graham	1
V2MOOI-DFALLS	3	4	4	4	4	4	Accessible except during floods. Excellent site with good variety of habitats - reasonably unimpacted.			Louw, Coke, Dickens	1
V2MOOI-CARAV							Receives effluent from town and surrounding areas			Louw	1
V2MOOI-DIFR2							Heavily irrigated, rural areas, overgrazing, Kiddrift town effluent etc.			Louw	1
V7BOES-MOORP	4	4	2	5	5	5	EKZNW project data - Reference site			Mark Graham	1
V7KBOE-WETLA								Y			1
V7BOES-WEENE	4	4	4	4	4	4	Excellent variety of habitat. Access a nuisance as must obtain key for gate. Road also often collapsed, rest of river - very little possibilities of sites.			Louw	1
V1LTHU-DTOWN	3	2	2	3	3	2	Access problematic - have to get access to farm and drive over lands.			Louw	1
V1NJON-UNSPE										Louw	1
V1KLIP-LADYS										Louw	1
V6SUND-UPPER	3	3	4	4	4	4	Site has variety of habitats. Reasonably accessible with bakkie. Bush clearing was taking place during 2001 and all indigenous trees might have been cut off.			Louw, Coke, Dickens	1
V6SUND-LOWER	0	1	1	4	4	1	Bad habitat, but this situation represents the whole of the lower Sundays River. Reasonably accessible.			Louw, Coke	2
V3NKAN-LEYDE	3	3	2	4	5	3	Good safe accessible site			Mark Graham	1

RHP Site Code	PRESENCE OF RIPARIAN VEGETATION ZONES			OVERALL SUITABILITY CONSIDERING SAMPLEBILITY AND INFORMATION			GENERAL COMMENTS: SAFETY AND ACCESIBILITY	Wetland(s) upstream or down stream of this site?		Contact Person	Priority (1=high, 2=medium, 3=low)
	MARGINAL ZONE	LOWER ZONE	UPPER ZONE	Fish	SASS	RIP VEG		(Yes / No)	Describe (e.g. Large/ Small / Ramsar/ Importance)		
V3NKAN-UNSPE										Louw	1
V3SLAN-WAKKE										Louw	1
V3SLAN-NACHT	4	4	4	4	5	5	EKZNW project data - Reference site			Mark Graham	1
V3MZIN-COTSW	4	4	2	5	5	5	EKZNW project data - Reference site			Mark Graham	1
V3BUFF-UPPER	2	2	2	3.5	3	2	On farm with locked gates.			Louw, Dickens, Coke	2
V3BUFF-LOWER	1	2	2	4	3	1	Very difficult. However, whole reach of Buffalo lower river is inaccessible			Louw, Thirion, Kleyhnans	1
V3BUFF-CONFL							Picks up Newcastle and impacts of Ngagane			Louw	1
V3BLOE-UNSPE										Louw	1
V4NSUZ-UNSPE										Louw	1
V2NSON-RESER							Old river name Hlatikulu	Y		Barbara Weston	

Table 10. WMA 08 Upper Vaal

RHP Site Code	PROVINCE	Site Type	ECOREGION	MAJOR RIVERS	TRIBUTARY	Original Site Name / Site Code	Site description	LATITUDE	LONGITUDE	HISTORICAL DATA RECORD	
										EARLIEST	LATEST
C1VAAL-KVAAL	Mpumalanga	P	11.05	Vaal		Proposed macro site	Above confluence with Klein-Vaal River	-26.70310	30.07867		
C1VAAL-BRAKS	Mpumalanga	P	11.03	Vaal		Proposed macro site	Between Brakspruit and Klip confluence	-27.03040	29.08733		
C1VAAL-VILLI	Free-State	P	11.03 or 11.05	Vaal		Proposed macro site	Near Villiers	-27.03820	28.57393		
C2VAAL-DENEY	Free-State	P	11.03	Vaal		Proposed macro site	Near Deneyville	-26.88424	28.15446		
C2VAAL-PARYS	Free-State	P	11.01	Vaal		Proposed macro site	Downstream of Parys	-26.89344	27.36199		
C2VAAL-BARRA	Free-State	P	11.03	Vaal		Proposed macro site	Downstream of Vaal Barrage	-26.76343	27.66604		
C8ASH-UNSPE	Free-State	P	15.03	Vaal	Ash	Proposed macro site	Possibly site AA of Rand Water?	-28.457533	28.402017		
C1BLES-UNSPE	Mpumalanga	P	11.05	Vaal	Blesbokspruit	Proposed macro site	Possibly site VB	-26.761233	29.540517		
C2BLES-MARAI	Gauteng	P	11.03	Vaal	Blesbokspruit	Proposed macro site	IFR Site, At Poortjie upstream of the bridge	-26.475000	28.431944	2000	2000
C1DRIN-UNSPE	Mpumalanga	P	11.05	Vaal	Drinkwaterspruit	Proposed macro site	Possibly site VK	-26.781017	29.806283		
C1KVAA-UNSPE	Mpumalanga	P	11.02	Vaal	Klein Vaal	Proposed macro site	Possibly site VKV	-26.819700	30.136550		
C1KLIP-UNSPE	Free-State	P	11.03	Vaal	Klip (Grootdraai)	Proposed macro site	Possibly site KD	-27.182517	29.234417		
C1KLIP-UNSPE	Free-State	P	11.06	Vaal	Klip (Grootdraai)	Proposed macro site	Possibly site KB	-27.470083	29.600483		
C1LEEU-NDLEE	Mpumalanga	P	11.05	Vaal	Leeuspruit	Proposed macro site	Possibly site Ndleeu	-26.850217	29.329367		
C1RIET-AMERS	Mpumalanga	P	11.05	Vaal	Rietspruit	Proposed macro site	Below Amersfoort Dam, above confluence with Vaal River	-26.90710	29.87155		
C1SAND-UNSPE	Mpumalanga	P	11.03	Vaal	Sandspruit	Proposed macro site	Possibly site VSS	-27.208433	29.436950		
C1GEEL-UNSPE	Mpumalanga	P	11.05	Vaal	Geelklipspruit	Proposed macro site	Possibly site VAS	-26.854150	29.701167		
C1WATE-EWR01	Mpumalanga	P	11.05	Vaal	Waterval	Proposed macro site		-26.63518	29.02262		
C1WATE-EWR02	Mpumalanga	P	11.05	Vaal	Waterval	Proposed macro site		-26.83428	28.92836		
C2KLIP-ZWART	Gauteng	E	11.03	Vaal	Klip (Vaal Barrage)		On Rand Water Property west of R59	-26.381180	28.071680	2000	2005
C2KLIP-SLANG	Gauteng	E	11.03	Vaal	Klip (Vaal Barrage)		Below Henley-on-Klip weir	-26.549340	28.064350	2000	2005
C2RIET-RIETK	Gauteng	E	11.03	Vaal	Rietspruit	C2RIET-RIETK	East of N1, at Iscor	-26.654600	27.748400		
C2KROM-AVAAL	Free-State	P	11.01	Vaal	Kromellenboogspruit	Proposed macro site	Above confluence with Vaal River	-26.80030	27.58428		
C2LEEU-SASOL	Free-State	P	11.03	Vaal	Leeuspruit	Proposed macro site	Near Sasolburg	-26.79903	27.78994		
C2MOOI-KLERK	North-West	E	11.03	Vaal	Mooi		Downstream from Klerkskraal dam	-25.2586388	27.159666		
C2MOOI-MEULS	North-West	E		Vaal	Mooi		Below Potch dam at Meul street in Potchefstroom	-26.682833	27.098555		
C2MOOI-RYSMI	North-West	P	11.01	Vaal	Mooirivierloop	Proposed macro site	Rysmierbult Rd bridge, below confluence with Wonderfoteinspruit	-26.514617	27.124550		
C2RIET-RIETS	Gauteng	E	11.03	Vaal	Rietspruit (Klip River)		North-West of Suikerbosrand Nature Reserve	-26.429170	28.160610	2000	2005
C2SUIK-BADFO	Gauteng	E	11.03	Vaal	Suikerbosrant	C2SUIK-BADFO	Downstream of the Balfour-Vereeniging road	-26.681222	28.050111	2001	2002
C2SUIK-DEHOE	Gauteng	R	11.03	Vaal	Suikerbosrand		West of N3 crossing	-26.646722	28.381972	2001	2002
C2TAAI-UNSPE	Free-State	P	11.03	Vaal	Taaibosspruit	Proposed macro site	Possibly site TW2	-26.800133	27.907633		
C8LIEB-UNSPE	Free-State	P	11.03	Vaal	Liebenbergsvlei	Proposed macro site	Possibly site WLT	-27.531700	28.475783		
C8KLIP-VAALD	Free-State	P	11.03	Vaal	Klip (flows into Vaal Dam from FS)	Proposed macro site	Upstream of confluence with Vaal Dam	-27.14232	28.27802		
C8WILG-UNSPE	Free-State	P	11.03	Vaal	Wilge	Proposed macro site	Possibly site WAF	-27.307000	28.541950		
C8WILG-BELWH	Free-State	P	11.03	Vaal	Wilge	Proposed macro site	Downstream of WH Site	-27.88788	28.80106		
C8NUWE-CONFL	Free-State	P	15.01	Wilge	Nuwejaarspruit	Proposed macro site	Downstream of confluence with Frasier, IFR Site, downstream of roadbridge to Bethlehem	-27.289666	29.090683		
C8MEUL-UNSPE	Free-State	P	15.04	Wilge	Meul	Proposed macro site	In upper reaches of river	-27.93242	29.53044		

RHP Site Code	RHP REFERENCE SITE		RHP MONITORING SITE		ECOLOGICAL RESERVE SITE	IMPACT OF LAND USE (AT SITE & UPSTREAM)	PRESENCE OF SASS HABITAT TYPES					PRESENCE OF FISH FLOW-DEPTH CLASSES				PRESENCE OF COVER TYPES FOR FISH				
	CURRENT	POSSIBLE	CURRENT	POSSIBLE			SIC	SOC	VIC	VOC	GSM	FD	FS	SD	SS	MARG VEG	UNDER CUT BANKS	MACROP HYTES	SUBSTR ATE	WATER COLUMN
C1VAAL-KVAAL				Y																
C1VAAL-BRAKS				Y																
C1VAAL-VILLI				Y																
C2VAAL-DENEY				Y																
C2VAAL-PARYS				Y																
C2VAAL-BARRA				Y																
C8ASH-UNSPE				Y																
C1BLES-UNSPE				Y																
C2BLES-MARAI			Y	Y	Y	5	4	4	4	4	4	4	5	4	3	4	4	3	4	5
C1DRIN-UNSPE				Y																
C1KVAA-UNSPE				Y																
C1KLIP-UNSPE				Y																
C1KLIP-UNSPE		?		Y																
C1LEEU-NDLEE				Y																
C1RIET-AMERS				Y																
C1SAND-UNSPE				Y																
C1GEEL-UNSPE				Y																
C1WATE-EWR01				Y	Y															
C1WATE-EWR02				Y	Y															
C2KLIP-ZWART			Y	Y		4	3	2	3	4	4	3	4	2	2	4	4	3	3	4
C2KLIP-SLANG			Y	Y		4	4	4	3	3	4	2	4	2	2	3	4	2	3	3
C2RIET-RIETK				Y																
C2KROM-AVAAL		?		Y																
C2LEEU-SASOL				Y																
C2MOOI-KLERK		Y	Y	Y		3	4	4	3	2	4	0	2	2	4	3	2	2	3	2
C2MOOI-MEULS			Y	Y		3	4	4	4	3	4	2	2	3	3	3	2	3	3	3
C2MOOI-RYSMI				Y																
C2RIET-RIETS			Y	Y		4	3	2	3	4	4	2	4	2	2	4	3	2	3	4
C2SUIK-BADFO			Y	Y		4	4	3	4	4	4	4	5	4	3	4	3	4	3	4
C2SUIK-DEHOE		Y	Y	Y		2	5	3	4	4	4	2	4	4	3	4	5	2	3	4
C2TAAI-UNSPE				Y																
C8LIEB-UNSPE				Y																
C8KLIP-VAALD				Y																
C8WILG-UNSPE				Y																
C8WILG-BELWH				Y																
C8NUWE-CONFL				Y																
C8MEUL-UNSPE				Y			3	0	3	3	1	0	3	3	2	2	1	1	3	3

RHP Site Code	PRESENCE OF RIPARIAN VEGETATION ZONES			OVERALL SUITABILITY CONSIDERING SAMPLEBILITY AND INFORMATION			GENERAL COMMENTS: SAFETY AND ACCESIBILITY	Wetland(s) upstream or down stream of this site?		Contact Person	Priority (1=high, 2=medium, 3=low)
	MARGINAL ZONE	LOWER ZONE	UPPER ZONE	Fish	SASS	RIP VEG		(Yes / No)	Describe (e.g. Large/ Small / Ramsar/ Importance)		
C1VAAL-KVAAL							Upstream of confluence of klein vaal; downstream of witpunt			Johan Engelbrecht	1
C1VAAL-BRAKS							Downstream Standerton, upstream Klip			Johan Engelbrecht	1
C1VAAL-VILLI							Downstream Villiers, upstream Vaal Dam			Pierre de Villiers	1
C2VAAL-DENEY							Downstream Vaal Dam, upstream Letaba weir			Piet Muller	1
C2VAAL-PARYS							Downstream Parys - Vredefort			Pierre de Villiers	2
C2VAAL-BARRA							Downstream of Barage			Pierre de Villiers	2
C8ASH-UNSPE							Potential reference - located above transfer scheme			?	3
C1BLES-UNSPE										?	2
C2BLES-MARAI	4	4	4	4	4	4	IFR Site - Easy access of road IFR site for Blesbok ER			Piet Muller	1
C1DRIN-UNSPE										?	2
C1KVAA-UNSPE										?	1
C1KLIP-UNSPE							Upstream many wetland sites; Ramsar site			?	1
C1KLIP-UNSPE							Potential reference sites			?	2
C1LEEU-NDLEE										?	2
C1RIET-AMERS							N11 between Amersvoort and Ermelo			Piet Muller	1
C1SAND-UNSPE										Rand Water / Johan Engelbrecht	2
C1GEEL-UNSPE										Rand Water, Piet Kotse	1
C1WATE-EWR01							Reserve site			EcoSun, Veronia Rall	1
C1WATE-EWR02							Reserve site			EcoSun, Veronia Rall	1
C2KLIP-ZWART	4	3	2	4	3	4	On Rand Water property			Piet Muller	2
C2KLIP-SLANG	2	3	2	3	3	3	At Henley weir			Piet Muller	1
C2RIET-RIETK							Captures impacts from west Rand mining, parts of Soweto and Iscor			Piet Muller	1
C2KROM-AVAAL							Possible reference site - upstream confluence with Vaal			Pierre de Villiers	2
C2LEEU-SASOL							Downstream Sasolburg			Pierre de Villiers	2
C2MOOI-KLERK	1	1	1	3	3	3	Turn South on road next to channel @ second unlocked gate			Hermien Roux	1
C2MOOI-MEULS	2	2	2	3	3	3	Turn at Gerit Dekker then Meul str			Hermien Roux	1
C2MOOI-RYSMI										Tharina Boshoff	1
C2RIET-RIETS	2	2	2	2	3	3	Downstream from Klip River road			Piet Muller	2
C2SUIK-BADFO	3	2	3	4	4	3	Access easy, site may be impacted as result of new DWAF weir down stream			Piet Muller	1
C2SUIK-DEHOE	4	4	4	4	4	4				Piet Muller	
C2TAAI-UNSPE										Pierre de Villiers / Gerda Venter	1
C8LIEB-UNSPE										?	1
C8KLIP-VAALD							Free State side - flows into Vaal Dam			Pierre de Villiers	2
C8WILG-UNSPE										?	1
C8WILG-BELWH							D/s of confluence with Meulspruit; crossing of Warden/Bethlehem road			Gerda Venter	2
C8NUWE-CONFL								Y	On Nuwejaarsspruit area, below Sterkfontein dam	Colleen Todd	1
C8MEUL-UNSPE				4	4	3	Biotic integrity critically modified, probably due to water quality and downstream migration barriers. Accessability easy but bridge creating unnatural habitat	Y	On Nuwejaarsspruit area, below Sterkfontein dam	Colleen Todd, Pieter Kotze, Brenton Niehaus	1

Table 11. WMA 09 Middle Vaal

RHP Site Code	PROVINCE	Site Type	ECOREGION	MAJOR RIVERS	TRIBUTARY	Original Site Name / Site Code	RHP Site Code	Site description	LATITUDE	LONGITUDE
C2VAAL-BLOEM	Free State	P	29.02 or 11.08	Vaal		Proposed macro site	C2VAAL-BLOEM	MV1 between Bloemhof and confluence with Vals River	-27.51729	26.21604
C2VAAL-ORKNE	North-West	E	11.08	Vaal		MV2	C2VAAL-ORKNE	Orkney Brug	-27.01366	26.69313
C2KLIP-R502B	North-West	P	11.08	Vaal	Klipspruit	Proposed macro site	C2KLIP-R502B	MV3 - Above R502 road bridge	-27.17468	26.31863
C2YSTE-ORKNE	North-West	P	11.08	Vaal	Ysterspruit	Proposed macro site	C2YSTE-ORKNE	MV4 - Orkney-Leeudoringstad Rd bridge	-27.05595	26.54283
C2KOEK-ROODE	North-West	P	11.01	Vaal	Koekemoerspruit	Proposed macro site	C2KOEK-ROODE	MV5 - Durban Roodepoort Deep Oranje Shaft	-26.91605	26.81713
C2JAGS-R502B	North-West	P	11.08	Vaal	Jagspruit	Proposed macro site	C2JAGS-R502B	MV6 - Above R502 road bridge	-26.92229	26.57512
C2MAKW-CVAAL	North-West	P	11.08	Vaal	Makwassiespruit	Proposed macro site	C2MAKW-CVAAL	MV7 - upstream of confluence with Vaal River	-27.50026	26.08791
C2BAMB-BLOEM	North-West	P	11.08	Vaal	Bamboesspruit	Proposed macro site	C2BAMB-BLOEM	MV8 - upstream of Bloemhof Dam	-27.38458	25.88745
C2SKOO-URANI	North-West	E	11.08	Vaal	Skoonspruit	SK1	C2SKOO-URANI	IFR Site - Uraniumville	-26.93333	26.66527
C2SKOO-HARTB	North-West	E	11.08	Vaal	Skoonspruit	SK2	C2SKOO-HARTB	IFR Site - Hartbeesfontein	-26.67500	26.58611
C2SKOO-RIETS	North-West	E	11.08	Vaal	Skoonspruit	SK3	C2SKOO-RIETS	IFR Site - Rietspruit Dam	-26.42688	26.73594
C2SKOO-VENTE	North-West	E	11.01	Vaal	Skoonspruit	SK4	C2SKOO-VENTE	IFR Site - Ventersdorp	-26.31178	26.83761
C2TAAI-CSKOO	North-West	P	11.08	Vaal	Taaibosspruit	Proposed macro site	C2TAAI-CSKOO	SK5 - upstream of confluence with Skoonspruit	-26.50565	26.57665
C4VET-HOOPS	Free State	E	29.02	Vaal	Vet	V1	C4VET-HOOPS	Hydro @ Hoopstad	-27.93412	26.12094
C4VET-ERFEN	Free State	P	11.10 or 11.08	Vaal	Vet	Proposed macro site	C4VET-ERFEN	V2 - between Hoopstad and downstream of Erfenis Dam	-28.34339	26.50617
C4GVET-V3	Free State	E	11.03	Vaal	Groot Vet	V3	C4GVET-V3	V3 - Groot Vet, Often Dry	-28.61872	27.01661
C4KVET-V4	Free State	E	11.03	Vaal	Klein Vet	V4	C4KVET-V4	V4 - Klein Vet, Often Dry	-28.71239	26.95911
C4SAND-STAAL	Free State	E	11.08	Vaal	Sand	V5	C4SAND-STAAL	Staalbrug	-28.12289	26.58597
C4SAND-N1ROA	Free State	E	11.03	Vaal	Sand	V6	C4SAND-N1ROA	At N1	-28.23286	27.08525
C4SAND-STOOM	Free State	E	11.03	Vaal	Sand	V7	C4SAND-STOOM	Stoompomp	-28.32175	27.49094
C6VALS-PROKL	Free State	E	11.07	Vaal	Vals	VA1	C6VALS-PROKL	Proklameerdrift	-27.48683	26.81305
C6VALS-BOKRO	Free State	E	11.08	Vaal	Vals	VA2	C6VALS-BOKRO	Bo-Kroonstad	-27.73061	27.52161
C6VALS-LINDL	Free State	P	11.03	Vaal	Vals	Proposed macro site	C6VALS-LINDL	VA3 - Proposed macro site, between Lindley and Liebenbergstroom	-27.85923	27.79463
C6VALS-BETLE	Free State	E	11.03	Vaal	Vals	VA4	C6VALS-BETLE	Betlehem	-28.12472	28.11108
C6BLOM-N1ROA	Free State	P	11.08	Vaal	Blomspruit	Proposed macro site	C6BLOM-N1ROA	VA5 - Upstream of N1	-27.77180	27.25213
C7RENO-R501B	Free State	P	11.08	Vaal	Renoster	Proposed macro site	C7RENO-R501B	R1 - Old DWAF Site, at R501 road bridge	-27.05286	27.00991
C7HEUN-RENOS	Free State	P	11.01	Vaal	Heuningspruit	Proposed macro site	C7HEUN-RENOS	R2 - Before confluence with Renoster River	-27.29372	27.19626
C7RENO-KOPPI	Free State	P	11.03	Vaal	Renoster	Proposed macro site	C7RENO-KOPPI	R3 - Upstream of Koppies Dam	-27.25897	27.61482

RHP Site Code	HISTORICAL DATA RECORD		RHP REFERENCE SITE		RHP MONITORING SITE		ECOLOGICAL RESERVE SITE	IMPACT OF LAND USE (AT SITE & UPSTREAM)	PRESENCE OF SASS HABITAT TYPES					PRESENCE OF FISH FLOW-DEPTH CLASSES				PRESENCE OF COVER TYPES FOR FISH				
	EARLIEST	LATEST	CURRENT	POSSIBLE	CURRENT	POSSIBLE			SIC	SOC	VIC	VOC	GSM	FD	FS	SD	SS	MARG VEG	UNDER CUT BANKS	MACROPHYTES	SUBSTRATE	WATER COLUMN
C2VAAL-BLOEM						Y																
C2VAAL-ORKNE		2005			Y	Y		1	3	3	3	3	2	3	3	3	3	3	1	2	3	3
C2KLIP-R502B						Y																
C2YSTE-ORKNE						Y																
C2KOEK-ROODE						Y																
C2JAGS-R502B						Y																
C2MAKW-CVAAL						Y																
C2BAMB-BLOEM						Y																
C2SKOO-URANI	2004	2005			Y	Y		2	3	3	2	2	2	2	2	2	2	3	1	1	2	2
C2SKOO-HARTB	2004	2005			Y	Y		1	3	2	2	3	2	3	3	3	3	3	1	1	3	2
C2SKOO-RIETS		2005				Y		0	2	2	2	2	1	3	3	3	3	3	2	2	3	3
C2SKOO-VENTE		2005			Y	Y		1	3	3	3	3	3	3	3	3	3	3	1	2	3	3
C2TAAI-CSKOO						Y																
C4VET-HOOPS		2005			Y	Y		2	3	2	3	2	3	3	3	3	3	3	1	2	3	3
C4VET-ERFEN						Y																
C4GVET-V3		2005			Y	Y		0	2	2	2	2	1	3	3	3	3	2	1	2	3	3
C4KVET-V4		2005			Y	Y		0	2	2	2	2	1	3	3	3	3	2	1	2	3	3
C4SAND-STAAL		2005			Y	Y		2	3	3	3	2	3	3	3	3	3	3	1	2	3	3
C4SAND-N1ROA		2005			Y	Y		0	2	2	2	1	1	3	3	3	3	2	1	2	3	3
C4SAND-STOOM		2005			Y	Y		1	2	2	2	1	2	3	3	3	3	3	1	2	3	3
C6VALS-PROKL		2005			Y	Y		1	3	3	3	3	3	3	3	3	3	3	1	2	3	3
C6VALS-BOKRO		2005			Y	Y		2	2	2	2	3	2	3	3	3	3	2	1	2	3	3
C6VALS-LINDL						Y																
C6VALS-BETLE		2005			Y	Y		1	2	1	2	2	3	3	3	3	3	3	1	2	3	3
C6BLOM-N1ROA						Y																
C7RENO-R501B	1993	1993				Y			3	3	2	2	3									
C7HEUN-RENOS						Y																
C7RENO-KOPPI						Y																

RHP Site Code	PRESENCE OF RIPARIAN VEGETATION ZONES			OVERALL SUITABILITY CONSIDERING SAMPLEBILITY AND INFORMATION			GENERAL COMMENTS: SAFETY AND ACCESIBILITY	Wetland(s) upstream or down stream of this site?		Contact Person	Priority (1=high, 2=medium, 3=low)
	MARGINAL ZONE	LOWER ZONE	UPPER ZONE	Fish	SASS	RIP VEG		(Yes / No)	Describe (e.g. Large/ Small / Ramsar/ Importance)		
C2VAAL-BLOEM										Christa Thirion	1
C2VAAL-ORKNE	2	3	3	3	3	3				Gerda Venter	1
C2KLIP-R502B							Higher ecological sensitivity			Christa Thirion, Gerda Venter	3
C2YSTE-ORKNE										Christa Thirion, Gerda Venter	1
C2KOEK-ROODE										Christa Thirion, Gerda Venter	1
C2JAGS-R502B										Christa Thirion, Gerda Venter	3
C2MAKW-CVAAL										Christa Thirion, Gerda Venter	3
C2BAMB-BLOEM										Christa Thirion, Gerda Venter	3
C2SKOO-URANI	2	2	2	3	3	3				Gerda Venter	2
C2SKOO-HARTB	2	2	2	3	3	3				Gerda Venter	2
C2SKOO-RIETS	3	3	3	2	2	2				Gerda Venter	2
C2SKOO-VENTE	3	3	3	3	3	3				Gerda Venter	1
C2TAAI-CSKOO										Christa Thirion, Gerda Venter	3
C4VET-HOOPS	2	2	3	3	3	3	All sites in the FS is very flow dependant			Gerda Venter	1
C4VET-ERFEN										Christa Thirion, Gerda Venter	2
C4GVET-V3	3	3	3	3	3	3				Gerda Venter	3
C4KVET-V4	3	3	3	3	3	3				Gerda Venter	3
C4SAND-STAAL	3	3	3	3	3	3				Gerda Venter	1
C4SAND-N1ROA	1	1	2	3	3	3				Gerda Venter	1
C4SAND-STOOM	1	1	1	3	3	3				Gerda Venter	1
C6VALS-PROKL	3	3	3	3	3	3				Gerda Venter	1
C6VALS-BOKRO	2	2	2	3	3	3				Gerda Venter	3
C6VALS-LINDL										Gerda Venter	2
C6VALS-BETLE	2	2	2	3	3	3	Often dry			Gerda Venter	2
C6BLOM-N1ROA										Christa Thirion, Gerda Venter	3
C7RENO-R501B					3		Although sampled in 1993, considered to be a proposed macro site			Christa Thirion	1
C7HEUN-RENOS							Needs ground truthing			Christa Thirion, Gerda Venter	1
C7RENO-KOPPI							Needs ground truthing			Christa Thirion, Gerda Venter	3

Table 12. WMA 10 Lower Vaal

RHP Site Code	PROVINCE	Site Type	ECOREGION	MAJOR RIVERS	TRIBUTARY	Original Site Name / Site Code	Site description	LATITUDE	LONGITUDE	HISTORICAL DATA RECORD		RHP REFERENCE SITE	
										EARLIEST	LATEST	CURRENT	POSSIBLE
C3HART-DELPO	Northern Cape	E	29.02	Vaal	Harts		H1 - Delpoortshoop, Old Site of Christa Thirion, downstream of Spitskop Dam	-28.35124	24.31354	1993	1993		
C3HART-PAMPI	North-West	E	29.02	Vaal	Harts	HR6 (Pampierstad)	H2 - NB Below irrigation scheme canal, vicinity of Hartswater	-27.78670	24.70485	2002	2003		
H3HART-SCHWE	North-West	P	29.02	Vaal	Harts	Proposed macro site	H3 - between Schweizer-reneke and Taung	-27.30770	25.10719				
C3HART-SANNI	North-West	E	11.08	Vaal	Harts		H4 - Sannieshof, existing Site but details unknown	-26.52592	25.83545		2005		
C3KHAR-UNSPE	North-West	P	11.08	Vaal	Klein Harts	Proposed macro site	H5 - anywhere on Klein Harts River	-26.53677	26.01752				
C3BARB-UNSPEC	North-West	P	11.08	Vaal	Barberspan	Proposed macro site	Existing site - to check location	-26.51601	25.54899				
C9VAAL-SCHMI	Northern Cape	E	29.02	Vaal		Schmidstrift	Schmidstrift	-28.72533	24.07293		2005		
C9VAAL-WINDO	Northern Cape	E	29.02	Vaal		Windsorton	Windsorton	-28.19325	24.43001		2005		
C9VAAL-WARRE	Northern Cape	P	29.02	Vaal		Proposed macro site	Warrenton, at bridge	-28.11097	24.80193				
C9VAAL-CHRIS	Northern Cape	P	29.02	Vaal		Proposed macro site	Christiana, Inkolo spar, fly-fishing area	-27.95299	25.14791				
C9VAAL-DOUGL	Northern Cape	P	26.02	Vaal		Proposed macro site	Douglas, IFR Site at bridge, above confluence with Orange	-29.00083	23.80646				

RHP Site Code	RHP MONITORING SITE		ECOLOGICAL RESERVE SITE	IMPACT OF LAND USE (AT SITE & UPSTREAM)	PRESENCE OF SASS HABITAT TYPES					PRESENCE OF FISH FLOW-DEPTH CLASSES				PRESENCE OF COVER TYPES FOR FISH				
	CURRENT	POSSIBLE			SIC	SOC	VIC	VOC	GSM	FD	FS	SD	SS	MARG VEG	UNDER CUT BANKS	MACROPH YTES	SUBSTRAT E	WATER COLUMN
C3HART-DELPO		Y		3	3	2	1	1	2									
C3HART-PAMPI		Y		4 (Pampierstad and all Taung effluent)	2	2	3	3	2									
H3HART-SCHWE		Y																
C3HART-SANNI	Y	Y		5	0	0	3	3	2	0	0	3	2	2	2	4	1	3
C3KHAR-UNSPE		Y																
C3BARB-UNSPEC		Y																
C9VAAL-SCHMI	Y	Y		3	5	3	4	3	4					4	3	4	3	4
C9VAAL-WINDO	Y	Y		2	5	4	4	3	2	2	3	3	2	4	2	4	4	2
C9VAAL-WARRE		Y																
C9VAAL-CHRIS		Y																
C9VAAL-DOUGL		Y	Y															

RHP Site Code	PRESENCE OF RIPARIAN VEGETATION ZONES			OVERALL SUITABILITY CONSIDERING SAMPLEBILITY AND INFORMATION			GENERAL COMMENTS: SAFETY AND ACCESIBILITY	Wetland(s) upstream or down stream of this site?		Contact Person	Priority (1=high, 2=medium, 3=low)
	MARGINAL ZONE	LOWER ZONE	UPPER ZONE	Fish	SASS	RIP VEG		(Yes / No)	Describe (e.g. Large/ Small / Ramsar/ Importance)		
C3HART-DELPO					3					Christa Thirion	3
C3HART-PAMPI				3	3	3	Accessible but in Pampierstad informal and urban settlement (relatively safe)			Marie Watson, Ncamile Dweni, Ramogale Sekwele	1
H3HART-SCHWE										Christa Thirion	3
C3HART-SANNI	2	1	1	1	2	2	Extremely silted reach with lots of macrophytes and riparian human settlement			Ncamile Dweni, Ramogale Sekwele	2
C3KHAR-UNSPE										Christa Thirion	3
C3BARB-UNSPEC										Ncamile Dweni, Ramogale Sekwele	3
C9VAAL-SCHMI	4	4	3	4	5	3	Easily accessed with a vehice for rough terrain, with diverse habitats.			Ncamile Dweni, Ramogale Sekwele	1
C9VAAL-WINDO	4	3	2	4	5	4	Major mining impact, possibilities of snakes, nice mutiple habitats.			Ncamile Dweni, Ramogale Sekwele	1
C9VAAL-WARRE										Ben Benade	1
C9VAAL-CHRIS										Ncamile Dweni, Ramogale Sekwele	1
C9VAAL-DOUGL							Accessible, safe - need to check since it is downstream of Orange Riber-Riet Water transfer scheme			Christa Thirion	1

Table 13. WMA 10 Mvoti to Umzimkulu

RHP Site Code	PROVINCE	Site Type	ECOREGION	MAJOR RIVERS	TRIBUTARY	Original Site Name / Site Code	Site description	LATITUDE	LONGITUDE	HISTORICAL DATA RECORD	
										EARLIEST	LATEST
T4MTAM-GUNDR	KwaZulu-Natal	P	17.01	Mtamvuna		Proposed macro site: IFR site	At Gundrift	-30.855194	30.073278		
T4MTAM-SINIG	KwaZulu-Natal	R	16.01	Mtamvuna		Sinigisi Weza	Upstream	-30.650000	29.670140	23-Sep-03	23-Sep-03
T4MZIM-HORSE	KwaZulu-Natal	P		Mzimkulu		Proposed macro site: IFR site	Horseshoe Bend, at proposed weir for DWAF	-30.610000	30.236000		
T5MZIM-UNDER	KwaZulu-Natal	P	16.01	Mzimkulu		Proposed macro site: IFR site	Below this site - (Main road crossing Mzimkulu at Underberg)- to be flooded by new dam	-29.83200	29.52150		
T5NGWA-P320R	KwaZulu-Natal	R	16.01	Mzimkulu	Ngwangwane		KZN wildlife site, ds bridge on P320 Coleford NR, also IFR site	-29.955000	29.476910	28-Oct-03	28-Oct-03
T5BISI-GWEIR	KwaZulu-Natal	P	16.02	Mzimkulu	Bisi	Proposed macro site: IFR site	Road bridge and DWAF gauging weir	-30.407500	29.891666		
U1MKOM-HELAH	KwaZulu-Natal	P	16.02	Mkomaas		Proposed macro site: IFR site	Downstream of Hela-Hela bridge	-29.94339	30.09125		
U1MKOM-SHOZI	KwaZulu-Natal	R	17.01	Mkomaas		IFR site / Sappi SAICCOR Site	Shozi Store Weir	-30.137680	30.673720	21-Aug-03	21-Aug-03
U1MKOM-SANIP	KwaZulu-Natal	R	15.07	Mkomaas	Mkomazana		Sani pass, between police post & Sani Top?	-29.599060	29.321170	29-Oct-03	29-Oct-03
U1MKOM-SHAMR	KwaZulu-Natal	R	16.03	Mkomaas	Xobho		At Shamrock farm	-30.131290	30.048220	1-Oct-03	1-Oct-03
U1ELAN-RICHM	KwaZulu-Natal	P	16.02	Mkomaas	Elands	Proposed macro site: IFR site	Richmond road, before confluence with Mkomaas	-29.783610	30.018889		
U2MGEN-BEVER	KwaZulu-Natal	R	16.01	Mgeni			Vlei us bridge Dargle (Beverley Farm)	-29.479680	29.969820	21-Oct-03	21-Oct-03
U2MGEN-INAND	KwaZulu-Natal	E	17.03	Mgeni			At new Inanda weir	-29.642250	30.688140	1993	1-Dec
U2MGEN-MIDMA	KwaZulu-Natal	E	16.01	Mgeni			Upstream Midmar, Mgeni Midmar inflow	-29.488140	30.156000	1993	Mar03toDec04
U2MGEN-MZINY	KwaZulu-Natal	E	17.01	Mgeni			Mgeni u/s confl w Mzinyati	-29.716970	30.899280	29-Jun-04	29-Jun-04
U2MGEN-WARTB	KwaZulu-Natal	E	16.03	Mgeni			Upstream of Wartburg road, downstream Mpolweni confluence	-29.464580	30.461970	1993	Mar03toDec04
U2UMSI-EDDYH	KwaZulu-Natal	E	17.03	Mgeni	Umsinduzi		Duzi at Eddy Hagan drive	-29.660420	30.635310	1993	Dec-04
U2UMSI-MOTOR	KwaZulu-Natal	E	16.03	Mgeni	Umsinduzi	RMD019 - UW site code	At motor cross	-29.607222	30.450833	1993	Present (2005)
U2KARK-CMGEN	KwaZulu-Natal	R	16.03	Mgeni	Karkloof		Upstream confluence Mgeni	-29.443830	30.310830	1993	Mar03toDec04
U2MGEN-TAYLO	KwaZulu-Natal	E	16.01	Mgeni	Umsinduzi	RMD001 - UW site code	Taylor's Halt	-29.686944	30.169722	1995	Present (2005)
U2TONG-ROADB	KwaZulu-Natal	E	17.02	Tongati		U3TNGT-USEST	Upstream estuary (under N-Coast road)	-29.55981	31.17407	20-Jul-04	20-Jul-04
U3MDLO-HAZEL	KwaZulu-Natal	E	17.01	Mdloti		U3MDLT-USHZL	Upstream Hazelmere dam	-29.60208	31.00902	20-Jul-04	Present (2005)
U4MVOT-HLIMB	KwaZulu-Natal	E	17.03	Mvoti			Downstream of Hlimbatwa confluence	-29.240310	31.025330	1998	Mar03toDec04
U4MVOT-SHANK	KwaZulu-Natal	R	16.03	Mvoti			Downstream of Mvoti vlei at Shanklin farm	-29.159640	30.628580	2-Oct-03	2-Oct-03
U4MVOT-WELVE	KwaZulu-Natal	E	17.01	Mvoti			At Welverdiend	-29.356170	31.234120	1998	Mar03toDec04
U6STER-SHONG	KwaZulu-Natal	E	17.03	Sterkspruit		U6STRK-SHNGW	Upstream of Shongweni	-29.8525	30.716667	1995	Present (2005)
U7NGUN-DAMIN	KwaZulu-Natal	E	17.01	Lovu	Nungwane		Nungwane dam inflow	-30.007778	30.73	1993	Present (2005)
U8MLAZ-METRO	KwaZulu-Natal	E	17.01	Mlazi			Metro OW boundary	-29.810480	30.567390	29-Jun-04	29-Jun-04
U8MLAZ-N2ROA	KwaZulu-Natal	P	17.02	Mlazi		Proposed macro site	Upstream N2	-29.94753	30.93043		
U8MZIM-EJSMI	KwaZulu-Natal	E	17.01	Mzimayi			Upstream of EJ Smith	-30.315190	30.670190	2000	Mar03toDec04
U8MZUM-FAIRV	KwaZulu-Natal	P	17.01	Mzumbe		Proposed macro site	Fairview mission	-30.59878	30.53456		
U8MZUM-MIDDL	KwaZulu-Natal	P	17.01	Mzumbe		Proposed macro site	Middle Mzumbe crossing	-30.49770	30.30509		
MTAMV-UNSPE	KwaZulu-Natal	P	17.04	Mtamvuna		Proposed macro site, IFR Site	Lowland river, below bridge	-30.85528	30.07333		2004

RHP Site Code	RHP REFERENCE SITE		RHP MONITORING SITE		ECOLOGICAL RESERVE SITE	IMPACT OF LAND USE (AT SITE & UPSTREAM)	PRESENCE OF SASS HABITAT TYPES					PRESENCE OF FISH FLOW-DEPTH CLASSES				PRESENCE OF COVER TYPES FOR FISH					PRESENCE OF RIPARIAN VEGETATION ZONES		
	CURRENT	POSSIBLE	CURRENT	POSSIBLE			SIC	SOC	VIC	VOC	GSM	FD	FS	SD	SS	MARG VEG	UNDER CUT BANKS	MACRO PHYTES	SUBST RATE	WATER COLUMN	MARGINAL ZONE	LOWER ZONE	UPPER ZONE
T4MTAM-GUNDR				Y																			
T4MTAM-SINIG	Y	Y		Y	Y	0	4	4	4	4	4												
T4MZIM-HORSE				Y			5	3	3	4	3												
T5MZIM-UNDER				Y		2	4	4	2	3	4	2	4	4	4	4	4	2	3	4	4	4	2
T5NGWA-P320R	Y	Y		Y	Y	1	4	4	4	4	4												
T5BISI-GWEIR							5	3	4	4	3												
U1MKOM-HELAH				Y																			
U1MKOM-SHOZI	Y	Y		Y	Y	1	4	4	4	4	4	5	5	5	5	2	3	2	3	4	3	2	2
U1MKOM-SANIP	Y	Y		Y	Y	0	4	4	4	4	4												
U1MKOM-SHAMR	Y	Y		Y	Y	2	4	4	4	4	4												
U1ELAN-RICHM																							
U2MGEN-BEVER	Y	Y		Y	Y	1	4	4	4	4	4												
U2MGEN-INAND			Y	Y	Y	1	4	4	4	4	4												
U2MGEN-MIDMA			Y	Y	Y	1	4	4	4	4	4												
U2MGEN-MZINY				Y	Y	1	4	4	4	4	4												
U2MGEN-WARTB			Y	Y	Y	2	4	4	4	4	4												
U2UMSI-EDDYH			Y	Y	Y	3	4	4	4	4	4												
U2UMSI-MOTOR			Y	Y	Y	3	4	4	3	4	4	2	3	4	4	4	4	3	4	3	3	3	2
U2KARK-CMGEN	Y	Y	Y	Y	Y	0	4	4	4	4	4												
U2MGEN-TAYLO			Y	Y		1	4	4	3	4	4	1	4	4	4	2	4	2	3	4	3	3	3
U2TONG-ROADB			N	Y	Y	3	3	3	4	4	4	1	1	3	3	4	3	5	3	3	4	4	3
U3MDLO-HAZEL			Y	Y	Y	2	4	4	3	3	4	3	3	3	4	4	3	2	3	4	4	3	2
U4MVOT-HLIMB			Y	Y	Y	1	4	4	4	4	4												
U4MVOT-SHANK	Y	Y		Y	Y	1	4	4	4	4	4												
U4MVOT-WELVE			Y	Y	Y	1	4	4	4	4	4												
U6STER-SHONG			Y	Y		3	3	3	4	4	4	1	3	3	4	3	1	3	4	2	3	3	3
U7NGUN-DAMIN			Y	Y		2	3	4	3	4	4	3	3	3	4	3	4	2	3	3	3	3	2
U8MLAZ-METRO				Y	Y	1	4	4	4	4	4												
U8MLAZ-N2ROA				Y																			
U8MZIM-EJSMI			Y	Y	Y	4	4	4	4	4	4												
U8MZUM-FAIRV				Y																			
U8MZUM-MIDDL				Y																			
MTAMV-UNSPE		Y		Y	Y		4	2	3	2	2												

RHP Site Code	OVERALL SUITABILITY CONSIDERING SAMPLEBILITY AND INFORMATION			GENERAL COMMENTS: SAFETY AND ACCESIBILITY	Wetland(s) upstream or down stream of this site?		Contact Person	Priority (1=high, 2=medium, 3=low)
	Fish	SASS	RIP VEG		(Yes / No)	Describe (e.g. Large/ Small / Ramsar/ Importance)		
T4MTAM-GUNDR							RDM Office	1
T4MTAM-SINIG	5	5	5	EKZNW project data - Reference site			Mark Graham	1
T4MZIM-HORSE		5		Good access, good to excellent integrity			Colleen Todd, Brenton Niehaus, Pieter Kotze	1
T5MZIM-UNDER	5	4	4	Readily accessible			Mark Graham	1
T5NGWA-P320R	5	5	5	EKZNW project data - Reference site			Mark Graham	2
T5BISI-GWEIR		5		Good access, good integrity			Colleen Todd, Brenton Niehaus, Pieter Kotze	1
U1MKOM-HELAH	4						RDM Office	1
U1MKOM-SHOZI	5	5	3	EKZNW project data - Reference site			Mark Graham	1
U1MKOM-SANIP	5	5	5	EKZNW project data - Reference site			Mark Graham	1
U1MKOM-SHAMR	5	5	5	EKZNW project data - Reference site			Mark Graham	1
U1ELAN-RICHM							RDM Office	
U2MGEN-BEVER	5	5	5	EKZNW project data - Reference site			Mark Graham	1
U2MGEN-INAND	4	4	3	Umgeni Water data - long data set			Mark Graham	1
U2MGEN-MIDMA	4	4	4	Umgeni Water data - long data set			Mark Graham	1
U2MGEN-MZINY	4	4	3	eThekwini RH monitoring project data			Mark Graham	1
U2MGEN-WARTB	4	4	4	Umgeni Water data - long data set			Mark Graham	1
U2UMSI-EDDYH	4	4	3	Umgeni Water data - long data set			Mark Graham	1
U2UMSI-MOTOR	4	4	2	Umgeni Water			Mark Graham	1
U2KARK-CMGEN	4	4	4	Umgeni Water data - long data set			Mark Graham	1
U2MGEN-TAYLO	4	4	3	Umgeni Water site. May recently (~2003/4 have been cut from routine monitoring programme)			Mark Graham	1
U2TONG-ROADB	3	4	3	@ Low level bridge using cobbles from bridge for SASS work			Mark Graham	1
U3MDLO-HAZEL	3	4	3	Umgeni Water site. Recently (2005) moved to this site from downstream. Better biotope availability here cf old routine monitoring site.			Mark Graham	1
U4MVOT-HLIMB	4	4	4	Umgeni Water data - long data set			Mark Graham	1
U4MVOT-SHANK	5	5	5	EKZNW project data - Reference site			Mark Graham	1
U4MVOT-WELVE	4	4	4	Umgeni Water data - long data set			Mark Graham	3
U6STER-SHONG	3	4	2	Umgeni Water			Mark Graham	1
U7NGUN-DAMIN	3	4	2	Umgeni Water			Mark Graham	1
U8MLAZ-METRO	4	4	4	eThekwini RH monitoring project data			Mark Graham	1
U8MLAZ-N2ROA							Mark Graham	1
U8MZIM-EJSMI	3	3	3	Umgeni Water data - long data set			Mark Graham	1
U8MZUM-FAIRV							Mark Graham	2
U8MZUM-MIDDL							Mike Coke	3
MTAMV-UNSPE		4					Colleen Todd, RDM Office, Anton Bok	1

Table 14. WMA 12 Mzimvubu to Keiskamma

RHP Site Code	PROVINCE	Site Type	ECOREGION	MAJOR RIVERS	TRIBUTARY	Site Name / Site Code	Site Descrition	LATITUDE	LONGITUDE
R1KEIS-SANDI	Eastern Cape	P	16.07	Keiskamma		Proposed macro site: IFR site 1	Upstream of Sandile Dam	-32.71111	27.13722
R1KEIS-EBB&F	Eastern Cape	P	31.01	Keiskamma		Proposed macro site	Upstream of Ebb & Flow weir - there are 2 weirs upstream of this site and 1 weir downstream, not sure it is a good option. I think Nikite knows the site. Alternative possible site given below (unseen, selected off map)	-33.18555	27.39111
R1KEIS-N2BRI	Eastern Cape	P	31.01	Keiskamma		Proposed macro site	Middle Keiskamma, At N2 bridge 34km outside King Williams Town	-33.06333	27.21305
R1KEIS-DOUBL	Eastern Cape	P	18.02	Keiskamma		Proposed macro site	Downstream of Tyume Confluence, In Doubledrift Nature Reserve	-32.98500	26.93611
R1TYUM-DAMUP	Eastern Cape	P	16.07	Keiskamma	Tyume	Proposed macro site	Upstream of Tyume Dam (all rivers off Hunterstoun Rd in Hogsback drain into Tyume - if this site is not satisfactory select another one nearby)	-32.63468	26.93916
R3GQUN-FA374	Eastern Cape	P	31.02	Gqunube		Proposed macro site: 3 options (Farm 374, 375 or 426)	Drift on Farm 374, Drift on Farm 375, Middle: Drift on Farm 426 Gonubie Drift	-32.84583	27.92639
R3KWEL-COAST	Eastern Cape	P	31.02	Kwelera		Proposed macro site: 2 options	Coastal.	-32.82944	28.00472
R3NAHO-CHRIS	Eastern Cape	R	16.07	Nahoon		Site N2 (Arcus Gibb ELRWDS)	Upstream of Witchkrantz, at Chris Meyer Bridge	-32.85278	27.65166
R4BUFF-BPASS	Eastern Cape	E	31.01	Buffalo		ECRHP Buffalo River Survey Site 9	Buffalo River at Buffalo Pass, co-ords incorrect	-33.00878	27.492389
R4BUFF-HORSE	Eastern Cape	E	16.07	Buffalo		ECRHP Buffalo River Survey Site 2	Buffalo River at Horseshoe Bend	-32.82250	27.380278
R4BUFF-ZWELI	Eastern Cape	E	31.01	Buffalo		ECRHP Buffalo River Survey Site 8	Buffalo River below Zwelitsha	-32.93178	27.439472
R4YELL-CBUFF	Eastern Cape	E	16.07	Buffalo	Yellowwoods	ECRHP Buffalo River Survey Site 6	Yellowwoods upstream of confluence with Buffalo	-32.92061	27.488333
S1WKEI-XONXA	Eastern Cape	P	18.02	Kei (Wit)		Proposed macro site: IFR Site 4	Downstream of the Xonxa Dam	-32.04333	27.36667
S3KLIP-WATER	Eastern Cape	E	18.02	Kei (Swart)	Klipplaat	IFR 1	Downstream of Waterdown Dam, IFR 1	-32.25667	26.85583
S3SKEI-GWEIR	Eastern Cape	E	18.02	Kei (Swart)		IFR 3	At DWAF gauging weir	-32.17500	27.37167
S7KEI-CONFL	Eastern Cape	P	16.06	Kei (Great)		Proposed macro site	Below confluence of Wit and Swart, and upstream of estuarine influence	-32.41158	27.90924
S6KUBU-WRIGG	Eastern Cape	P	16.07	Kubusi		Proposed macro site: IFR site 5	Downstream of Wriggleswade Dam	-32.50722	27.73111
S7KEI-HYDRO	Eastern Cape	P	16.06	Kei (Great)		Proposed macro site, RDM site (Rapid 3)	Downstream of N2 (close to estuary), downstream a national chemical report site (water quality and hydro)	-32.51111	27.98000
T1MBAS-COLLY	Eastern Cape	P	31.02	Mbashe		Proposed macro site	Downstream of Collywobbles	-32.15053	28.78461

Table 14. WMA 12 Mzimvubu to Keiskamma

RHP Site Code	PROVINCE	Site Type	ECOREGION	MAJOR RIVERS	TRIBUTARY	Site Name / Site Code	Site Descrition	LATITUDE	LONGITUDE
T1MBAS-MGWAL	Eastern Cape	P	16.06	Mbashe		Proposed macro site	Upstream Mgwali, close to gauging weir; alternatively RS3.1 (existing WQ monitoring station)	-31.77325	28.34810
T1XUKA-UNSPE	Eastern Cape	P	16.06	Mbashe	Xuka	Proposed macro site		-31.66478	28.07394
T2MTAT-ROADB	Eastern Cape	E	31.01	Mtata		ECRHP Mtata River Site 2	Bridge over Mtata River on road to Ndumbi - Mtata River above estuary	-31.92581	29.136111
T2MTAT-LANGE	Eastern Cape	E	16.06	Mtata		ECRHP Mtata River Site 5	Mtata River below Langeni Saw Mills and above Umtata Dam	-31.48250	28.493278
T2NGQU-COFFE	Eastern Cape	R	16.06	Mtata	Ngqungqu	Ngqungqu River Site 2	Tributary of the lower reaches of the Mtata River (on road to Coffee Bay)	-31.86836	28.871222
T3GATB-FORES	Eastern Cape	R	16.04	Mzimvubu	Gatberg	IFR 5	Wetland site, forestry area	-31.24452	28.13128
T3KINI-GWEIR	Eastern Cape	P	16.05	Mzimvubu	Kinira	Proposed macro site: previously WRC Site	Gauging weir, WQ monitoring site	-30.71203	28.91649
T3MZIM-LOWER	Eastern Cape	E	31.01	Mzimvubu		WRC/Unitra	U/s of Umzimvubu estuary	-31.48089	29.41093
T3MZIM-GWEIR	Eastern Cape	P	16.04	Mzimvubu		Proposed macro site: IFR site 1	Close to DWAF gauging weir, WQ, national chemical site	-30.64610	29.20922
T3MZIM-JOANS	Eastern Cape	R	16.04	Mzimvubu			Close to Joan's bridge (linked to wetland)	-30.17314	29.10996
T3MZIN-FLAGS	Eastern Cape	E	31.01	Mzimvubu	Mzintlava	IFR site 1	Near Flagstaff	-31.09872	29.40083
T3TINA-N2ROA	Eastern Cape	P	16.06	Mzimvubu	Tina	Proposed macro site: IFR site 1	At N2 bridge, WQ, weir, national chemical site	-31.06051	28.91574
T3TINA-R316R	Eastern Cape	R	15.07	Mzimvubu	Tina		Upper Tina, close to R316 road,	-30.64050	28.22378
T3TSIT-N2ROA	Eastern Cape	P	16.06	Mzimvubu	Tsitsa	Proposed macro site: IFR site 1	Upstream of N2 bridge, close to gauging weir	-31.25868	28.85685
T6MTEN-UNSPE	Eastern Cape	E	17.01	Mtentu		IFR site 1		-31.13025	29.75630
T6NTAF-GWEIR	Eastern Cape	P	31.01	Ntafufu		Proposed macro site: IFR site 1	DWAF chemical monitoring and flow , Mangrove	-31.49330	29.53035
T7MNGA-UNSPE	Eastern Cape	P	31.02	Mngazana		Proposed macro site	NB Mangrove	-31.62012	29.33456
T8NENG-COFFE	Eastern Cape	P	31.02	Nenga		IFR site (wild coats SDI)	Coffee Bay	-31.975	29.14472
T9NQAB-COAST	Eastern Cape	E	31.02	Nqabara		IFR 1 (wild coast SDI)	South of Mbashe, coastal trib, abstraction point	-32.25972	28.77528

RHP Site Code	HISTORICAL DATA RECORD		RHP REFERENCE SITE		RHP MONITORING SITE		ECOLOGICAL RESERVE SITE	IMPACT OF LAND USE (AT SITE & UPSTREAM)	Presence of SASS Habitat Types					Presence of FISH FLOW-DEPTH CLASSES				PRESENCE OF COVER TYPES FOR FISH				
	EARLIEST	LATEST	CURRENT	POSSIBLE	CURRENT	POSSIBLE			SIC	SOC	VIC	VOC	GSM	FD	FS	SD	SS	MARG VEG	UNDER CUT BANKS	MACROP HYTES	SUBSTRA TE	WATER COLUMN
R1KEIS-SANDI		2005				Y	Y	3	3	1	2	1	1									
R1KEIS-EBB&F		IWR				Y																
R1KEIS-N2BRI						Y																
R1KEIS-DOUBL		IWR				Y																
R1TYUM-DAMUP				?		Y		? 2 Forestry														
R3GQUN-FA374					Y	Y		2														
R3KWEL-COAST					Y	Y		2														
R3NAHO-CHRIS	1999	2004		Y		Y		2						1	3	4	5	3	2	1	4	3
R4BUFF-BPASS	Oct-02	Aug-03			Y	Y	Y	2	4	0	3	3	1	0	4	4	1	2	0	0	3	3
R4BUFF-HORSE	Oct-02	Aug-03			Y	Y		3	3	3	3	2	0	0	4	2	4	3	0	0	4	4
R4BUFF-ZWELI	Oct-02	Aug-03			Y	Y		5	2	0	4	3	3	0	4	4	1	3	0	0	4	4
R4YELL-CBUFF	Oct-02	Aug-03			Y	Y	Y	3	2	0	3	2	2	0	1	1	2	1	1	0	2	2
S1WKEI-XONXA						Y	Y															
S3KLIP-WATER						Y	Y	4						3	4	5	3	3.5	2	2	3	4
S3SKEI-GWEIR						Y	Y	4						4	4	5	4	3	2	2	3	4
S7KEI-CONFL						Y																
S6KUBU-WRIGG						Y	Y	2.5														
S7KEI-HYDRO						Y	Y															
T1MBAS-COLLY						Y																

RHP Site Code	HISTORICAL DATA RECORD		RHP REFERENCE SITE		RHP MONITORING SITE		ECOLOGICAL RESERVE SITE	IMPACT OF LAND USE (AT SITE & UPSTREAM)	Presence of SASS Habitat Types					Presence of FISH FLOW-DEPTH CLASSES				PRESENCE OF COVER TYPES FOR FISH				
	EARLIEST	LATEST	CURRENT	POSSIBLE	CURRENT	POSSIBLE			SIC	SOC	VIC	VOC	GSM	FD	FS	SD	SS	MARG VEG	UNDER CUT BANKS	MACROPHYTES	SUBSTRATE	WATER COLUMN
T1MBAS-MGWAL						Y																
T1XUKA-UNSPE						Y																
T2MTAT-ROADB	Feb-05	Jul-05			Y	Y		2	4	0	0	2	1	3	4	4	3	3	1	1	4	4
T2MTAT-LANGE	Feb-05	Jul-05			Y	Y		2	2	0	0	3	2	2	1	3	2	3	1	0	3	3
T2NGQU-COFFE	Jul-05	Jul-05		Y		Y		2	4	0	4	2	2	1	2	0	2	1	0	0	3	3
T3GATB-FORES				Y		Y	Y	2						3	2	1	4	1	2	1	1	2
T3KINI-GWEIR						Y																
T3MZIM-LOWER		1996				Y		2	2	2	0	1	1	3	1	3	1	2	2	1	4	5
T3MZIM-GWEIR						Y	Y															
T3MZIM-JOANS		1996		Y		Y	Y	1	5	5	5	5	1	3	4	3	2	4	3	2	4	3
T3MZIN-FLAGS		2004				Y	Y	2	5	3	2	0	1									
T3TINA-N2ROA						Y	Y															
T3TINA-R316R		1996		Y		Y		1	5	5	2	4	4	3	4	3	2	3	4	1	4	3
T3TSIT-N2ROA						Y	Y															
T6MTEN-UNSPE		2004		?		Y	Y	1	5	3	2	3	3									
T6NTAF-GWEIR						Y	Y															
T7MNGA-UNSPE						Y																
T8NENG-COFFE		2000 (fish)				Y	Y	3										1	1	1	4	2
T9NQAB-COAST						Y	Y	1						2	3	4	4	4	2	2	4	

RHP Site Code	PRESENCE OF RIPARIAN VEGETATION ZONES			OVERALL SUITABILITY CONSIDERING SAMPLEBILITY AND INFORMATION			GENERAL COMMENTS: SAFETY AND ACCESIBILITY	Wetland(s) upstream or down stream of this site?		CONTACT PERSON	Priority (1=high, 2=medium, 3=low)
	MARGINAL ZONE	LOWER ZONE	UPPER ZONE	Fish	SASS	RIP VEG		(Yes / No)	Describe (e.g. Large/ Small / Ramsar/ Importance)		
R1KEIS-SANDI					3		Forestation and irrigation concerns/water quality concerns			Rheta Stassen, RDM, Colleen Todd	1
R1KEIS-EBB&F							Needs groundtruthing, check effect of upstream and downstream weirs. Access may be difficult with new road, 3327AB for access			Anton Bok /Mandy Uys	1
R1KEIS-N2BRI							Use as an alternative to Site u/s of Ebb and Flow Weir, 3327AB for access			Anton Bok /Mandy Uys	1
R1KEIS-DOUBL							Needs groundtruthing; approximately 2 kms upstream from DWAF gauging station, at Nordes Hoek, 3226DD Alice and 3226BB for access, Take R345 north from Peddie. Pass Breakfast Vlei, Drive 9.5km to turnoff. Turn R and immediately R again. Stay on road to end (pass Naudes Hoek)			Mandy Uys / Nikite Muller	1
R1TYUM-DAMUP							Needs groundtruthing for best site. Accessible from Hogsback(Hunterstoun Road); downstream of wetlands, high EIS, 3226DB Seymour			Mandy Uys / Nikite Muller	1
R3GQUN-FA374							Need to be visited to groundtruth, 3227 DD & 3227 DC, IFR site on this river may be more suitable. (off N6, turnoff to Macleantown, turn rt at Sweetlands farm)			Mandy Uys	1
R3KWEL-COAST							N2 to Umtata, turnoff L onto dirt road about 8km after Brakfontein turnoff and before Cintsa E turnoff. Road runs along river; or Middle. N2 to Umtata, Pass Cintsa E turnoff, drive 7.5-8km, turnoff Left to fairview farm			Mandy Uys	2
R3NAHO-CHRIS	3	4	3	4	4	4	DWAF Water quality site; accessible, long-term (*ca 5 yrs) fish and invertebrate (Helen James/ Ferdi de Moor) data			Anton Bok	1
R4BUFF-BPASS	4	4	4	2	4	4	Accessible			Patsy Scherman	1
R4BUFF-HORSE	3	3	3	4	3	2	Accessible			Patsy Scherman	1
R4BUFF-ZWELI	4	3	3	4	3	4	Accessible			Patsy Scherman	1
R4YELL-CBUFF	2	3	2	2	3	2	Accessible			Patsy Scherman	1
S1WKEI-XONXA										RDM Office	1
S3KLIP-WATER	3.5	2	2	5	5	3	Accessible. Good site - impact of dam			Delana Louw, Anton Bok, Mandy Uys	2
S3SKEI-GWEIR	3	3	2	3	3	3	Accessible. However, site downstream and close to weir , then it flows into a gorge. But good habitat upstream of weir			Delana Louw, Anton Bok, Mandy Uys	2
S7KEI-CONFL										RDM Office	1
S6KUBU-WRIGG							Accessible			RDM Office	2
S7KEI-HYDRO										RDM Office	1
T1MBAS-COLLY							Needs groundtruthing, access unsure			Mandy Uys	1

RHP Site Code	PRESENCE OF RIPARIAN VEGETATION ZONES			OVERALL SUITABILITY CONSIDERING SAMPLEBILITY AND INFORMATION			GENERAL COMMENTS: SAFETY AND ACCESIBILITY	Wetland(s) upstream or down stream of this site?		CONTACT PERSON	Priority (1=high, 2=medium, 3=low)
	MARGINAL ZONE	LOWER ZONE	UPPER ZONE	Fish	SASS	RIP VEG		(Yes / No)	Describe (e.g. Large/ Small / Ramsar/ Importance)		
T1MBAS-MGWAL										Anton Bok	2
T1XUKA-UNSPE										RDM Office	1
T2MTAT-ROADB	2	2	3	4	2	1	Accessible; high flows due to hydropower releases, check with ESKOM			Patsy Scherman	2
T2MTAT-LANGE	4	3	3	5	2	3	Accessible			Patsy Scherman	1
T2NGQU-COFFE	3	3	3	3	4	3	Accessible			Patsy Scherman	2
T3GATB-FORES	1	3	3	5	2		Accessible, but in a large wetland. Probably a good site to monitor in conjunction with the wetland	Y		Delana Louw, Anton Bok	1
T3KINI-GWEIR										Diks Madikizela	1
T3MZIM-LOWER	?	?	?	4	2	2	Accessible			RDM Office, Diks Madikizela	1
T3MZIM-GWEIR										RDM Office	1
T3MZIM-JOANS	?	?	?	4	5	5	Accessible			RDM Office, Diks Madikizela	1
T3MZIN-FLAGS					4		Accessible			RDM Office, Colleen Todd	3
T3TINA-N2ROA										RDM Office	1
T3TINA-R316R	?	?	?	4	5	2	Accessible			RDM Office, Diks Madikizela	1
T3TSIT-N2ROA										RDM Office	1
T6MTEN-UNSPE					5		Accessible, high EISC			RDM Office	1
T6NTAF-GWEIR										RDM Office	1
T7MNGA-UNSPE										RDM Office	1
T8NENG-COFFE	1	2	2	3			Access may be problematic (surveyed by helcopter) - needs groundtruthing			Anton Bok	2
T9NQAB-COAST	4	4	4	4	4	4	IFR site inaccessible, suggest site uptream, nearer new weir abstraction point at Dwesa road crossing			Anton Bok	1

Table 15. WMA 13 Upper Orange

RHP Site Code	PROVINCE	Site Type	ECOREGION	MAJOR RIVERS	TRIBUTARY	Original Site Name / Site Code	Site description	LATITUDE	LONGITUDE
D2LEEU-EWR06	Free State	E	11.03	Caledon	Leeuspruit	EWR6	Within quaternary catchment D23D (Jammersdrift).	-29.52197	27.13561
D2LCAL-EWR01	Free State	E	15.03	Caledon	Little Caledon	EWR1	Upper reaches of the Little Caledon River within quaternary catchment D21D (upstream of Clarens)	-28.52683	28.48131
D2CALE-EWR03	Free State	E		Caledon		EWR3	Downstream of confluence with Little Caledon	-28.72231	28.15083
D2CALE-LADYB	Free State	P	15.01	Caledon		Proposed macro site	Downstream of Ladybrand	-29.35434	27.44597
D2CALE-TUSSE	Free State	E	26.03	Caledon		Tussen die Riviere	Upstream of confluence with Orange River	-30.45233	26.27088
C5BOKR-RUSTF	Free State	P	11.10	Modder	Bokromspruit	Proposed macro site	Spruit flows into Rustfontein Dam	-29.37142	26.57491
C5GANN-CMODD	Free State	E	11.03	Modder	Gannaspruit	GS1	Upstream of confluence with Modder River (where Meadows-Thaba Nchu road crosses spruit)	-29.43333	26.73333
C5KAAL-KRUGE	Free State	P	26.02	Modder	Kaalspruit	Proposed macro site	Downstream of Krugersdrift Dam	-28.97005	25.80632
C5KEER-SOETD	Free State	P	11.08	Modder	Keeromspruit	Proposed macro site	Upstream of Soetdoring	-28.82487	26.23331
C5KMOD-BOTSH	Free State	E	11.03	Modder	Klein Modder River	KM1	Downstream of Botshabelo Dam	-29.25000	26.65750
C5KORA-MOCKE	Free State	P	11.03	Modder	Korannaspruit	Proposed macro site	Upstream of Mockes Dam	-29.08107	26.62615
C5OSSP-MOCKE	Free State	P	11.10	Modder	Osspruit	Proposed macro site	Downstream of Mockes Dam	-28.97005	26.44681
C5RENO-BLOEM	Free State	E	11.03	Modder	Renoster Spruit	RS1	Downstream of Bloemfontein and confluence with Bloemspruit before confluence with Modder River	-28.96667	26.31917
C5SEPA-THABA	Free State	E	11.03	Modder	Sepane Spruit	SS1	Downstream of Thaba Nchu before confluence with Modder River	-29.16306	26.59528
C5MODD-SANNA	Free State	E	11.03	Modder		MR4 Sannaspos	Downstream of Rustfontein Dam and weir at Sannaspos	-29.16111	26.57194
C5MODD-GLENS	Free State	P	11.08	Modder		Proposed macro site	Between Glen & Soetdoring	-28.91027	26.26747
C5MODD-PERDE	Free State	E	26.02	Modder		Perdeberg	At crossing of Petrusburg & Kimberley Road	-28.99303	25.08-64
C5FOUR-KALKF	Free State	P	26.03	Riet	Fouriespruit	Proposed macro site	Upstream of Kalkfontein Dam	-29.66178	26.07105
C5KROM-CRIET	Free State	P	26.03	Riet	Kromelenboogspruit	Proposed macro site	Upstream of confluence with Riet River	-29.64470	25.46472

Table 15. WMA 13 Upper Orange

RHP Site Code	PROVINCE	Site Type	ECOREGION	MAJOR RIVERS	TRIBUTARY	Original Site Name / Site Code	Site description	LATITUDE	LONGITUDE
C5TIER-TIERP	Free State	P	26.03	Riet	Tierpoort	Proposed macro site	Downstream of Tierpoort Dam	-29.46536	25.98566
C5RIET-EWR09	Free State	R	26.03	Riet	Vanzylspruit	EWR9	Upstream of confluence with Kromelenboogspruit	-30.11153	25.84962
C5RIET-IFR03	Free State	E	26.03	Riet		IFR3 as per Modder/Riet Water Man. Plan	Downstream of confluence with Tierpoort River	-29.57528	25.70805
C5RIET-IFR04	Free State	E	26.02	Riet		IFR4 as per Modder/Riet Water Man. Plan	Downstream of Kalkfontein Dam	-29.48389	25.19861
C5RIET-KOFFI	Free State	P	26.02	Riet		Proposed macro site	Downstream of Koffiefontein	-29.36288	24.99503
C5RIET-JACOB	Free State	P	26.02	Riet		Proposed macro site	Downstream of Jacobsdal	-29.09815	24.67906
C5RIET-IFR01	Free State	E	29.02	Riet		Lilydale, IFR1, as per Modder/Riet Water Man. Plan	Downstream of confluence of Modder & Riet	-29.02805	24.51250
D1HOLS-CKRAA	Northern Cape	P	15.06	Kraai	Holspruit	Proposed macro site	Confluence of Holspruit & Kraai Rivers	-30.95984	27.15562
D1KRAA-BARKL	Northern Cape	P	15.06	Orange	Kraai	Proposed macro site	Upstream of Barkly east	-30.88298	27.59969
D1KRAA-CORAN	Northern Cape	P	26.03	Orange	Kraai	Proposed macro site	Between D1H011 and confluence with Orange River	-30.70364	26.77132
D3BROO-GARIE	Northern Cape	P	26.03	Orange	Brookspruit	Proposed macro site	Upstream of Gariep Dam	-30.67802	25.92588
D3SEEK-VANDE	Northern Cape	P	26.03	Orange	Seekoei	Proposed macro site	Upstream of van der Kloof Dam	-30.38766	25.00357
D1STOR-CORAN	Northern Cape	P	26.03	Orange	Stormbergspruit	Proposed macro site	Upstream of confluence with Orange River	-30.70364	26.44681
D1ORAN-ORANJ	Free State	E	15.02	Orange		Oranjedraai	Downstream of Lesotho/South African Border	-30.33667	27.35889
D1ORAN-HERSC	Free State	E	11.10	Orange		Herschel		-30.50472	27.21889
D1ORAN-GOEDE	Northern Cape	E	26.03	Orange		Goedemoed	At Goedemoed prison	-30.57305	26.45305
D3ORAN-BULTF	Northern Cape	E	26.03	Orange		Bultfontein	Downstream of Gariep Dam and Upstream of Vanderkloof Dam	-30.50305	25.22555
D3ORAN-VANDE	Free State	P	26.01	Orange		Proposed macro site	Downstream of Vanderkloof Dam	-29.51361	24.01488

RHP Site Code	HISTORICAL DATA RECORD		RHP REFERENCE SITE		RHP MONITORING SITE		ECOLOGICAL RESERVE SITE	IMPACT OF LAND USE (AT SITE & UPSTREAM)	PRESENCE OF SASS HABITAT TYPES					PRESENCE OF FISH FLOW-DEPTH CLASSES				PRESENCE OF COVER TYPES FOR FISH				
	EARLIEST	LATEST	CURRENT	POSSIBLE	CURRENT	POSSIBLE			SIC	SOC	VIC	VOC	GSM	FD	FS	SD	SS	MARG VEG	UNDER CUT BANKS	MACROP HYTES	SUBSTR ATE	WATER COLUMN
D2LEEU-EWR06	2003	2003				Y	Y	3 (Agriculture, Flow modification)	1	4	1	4	3	0	1	5	3	3	2	4	2	5
D2LCAL-EWR01	2003	2003				Y	Y	1-2 (Agriculture, Golden Gate, trout)	2	2	2	3	3	1	2	4	4	3	3	2	2	4
D2CALE-EWR03	2003	2003				Y	Y	3(Agriculture, erosion, siltation)	1	1	1	0	3	3	3	1	1	2	2	1	0	3
D2CALE-LADYB						Y																
D2CALE-TUSSE	1997	1997				Y		3 (Agriculture)														
C5BOKR-RUSTF						Y																
C5GANN-CMODD						Y		2 (some cattle feeding and agriculture)	1	0	2	1	1									
C5KAAL-KRUGE				?		Y																
C5KEER-SOETD						Y																
C5KMOD-BOTSH	1998	2005				Y		4 (impact of Botshabelo sewage works as well as runoff from formal and informal settlements)	3	2	3	2	2									
C5KORA-MOCKE				?		Y																
C5OSSP-MOCKE						Y																
C5RENO-BLOEM	1999	2005			Y	Y		4 (Runoff and sewage effluent from Bloemfontein as well as sgriculture)	4	3	3	3	2	3	3	3	3	3	3	2	3	4
C5SEPA-THABA	1999	2005			Y	Y		4 (Runoff and sewage effluent from Thaba Nchu)	1 (bedrock)	0	2	2	2	1	2	3	3	3	3	0	4	3
C5MODD-SANNA	1999	2005			Y	Y		4 (Sewage works - Botshabelo)	3	3	3	3	2	1	1	3	4	3	2	0	3	3
C5MODD-GLENS						Y																
C5MODD-PERDE						Y		4 (impacts of irrigation agriculture downstream of Krugerdrift Dam as well as impact of releases from Dam.	3	2	2	2	2									
C5FOUR-KALKF						Y																
C5KROM-CRIET				?		Y																

RHP Site Code	HISTORICAL DATA RECORD		RHP REFERENCE SITE		RHP MONITORING SITE		ECOLOGICAL RESERVE SITE	IMPACT OF LAND USE (AT SITE & UPSTREAM)	PRESENCE OF SASS HABITAT TYPES					PRESENCE OF FISH FLOW-DEPTH CLASSES				PRESENCE OF COVER TYPES FOR FISH				
	EARLIEST	LATEST	CURRENT	POSSIBLE	CURRENT	POSSIBLE			SIC	SOC	VIC	VOC	GSM	FD	FS	SD	SS	MARG VEG	UNDER CUT BANKS	MACROP HYTES	SUBSTR ATE	WATER COLUMN
C5TIER-TIERP						Y																
C5RIET-EWR09	2004	2004		Y		Y	Y	2 (abstraction and cattle drinking)	2	2	3	3	3	0	0	1	4	3	1	1	4	1
C5RIET-IFR03						Y	Y															
C5RIET-IFR04						Y	Y															
C5RIET-KOFFI						Y																
C5RIET-JACOB						Y																
C5RIET-IFR01						Y	Y															
D1HOLS-CKRAA						Y																
D1KRAA-BARKL						Y																
D1KRAA-CORAN						Y																
D3BROO-GARIE						Y																
D3SEEK-VANDE						Y																
D1STOR-CORAN						Y																
D1ORAN-ORANJ	1996	1997				Y		2	2	2	0	0	2									
D1ORAN-HERSC						Y		3 (impact from overgrazing in Herchel district)	2	2	2	2	2									
D1ORAN-GOEDE	1997	1997				Y																
D3ORAN-BULTF						Y																
D3ORAN-VANDE						Y																

RHP Site Code	PRESENCE OF RIPARIAN VEGETATION ZONES			OVERALL SUITABILITY CONSIDERING SAMPLEBILITY AND INFORMATION			GENERAL COMMENTS: SAFETY AND ACCESIBILITY	Wetland(s) upstream or down stream of this site?		Contact Person	Priority (1=high, 2=medium, 3=low)
	MARGINAL ZONE	LOWER ZONE	UPPER ZONE	Fish	SASS	RIP VEG		(Yes / No)	Describe (e.g. Large/ Small / Ramsar/ Importance)		
D2LEEU-EWR06				3	2		Safe, accesible (on private property, farm)			Piet Kotze	2
D2LCAL-EWR01				3	3		Safe, accesible (on private property, farm)			Piet Kotze	2
D2CALE-EWR03				2	2		Safe, accessible (on private property, farm)			Colleen Todd/Brenton Niehaus	2
D2CALE-LADYB										Pierre de Villiers	1
D2CALE-TUSSE	2				2	2				Marie Watson	1
C5BOKR-RUSTF										Marie Watson	3
C5GANN-CMODD	1			1	1	1	Not ideal for SASS perhaps some fish , very small spruit with pools when dry, has some impact upstream seen as algal blooms so it is not ideal for reference site)			Marie Watson	2
C5KAAL-KRUGE										Marie Watson	3
C5KEER-SOETD										Marie Watson	2
C5KMOD-BOTSH				3	3	3	Has safety risk (in Botshabelo) and is just downstream of Dam. Could find other site upstream of Dam but would also have safety risk.			Marie Watson	2
C5KORA-MOCKE										Marie Watson/Colleen Todd	2
C5OSSP-MOCKE										Marie Watson	3
C5RENO-BLOEM	3			3	4	4				Marie Watson	1
C5SEPA-THABA	2			3	2	4				Marie Watson	1
C5MODD-SANNA	3			3	3	4	Reflects all impact upstream such as Botshabelo runoff as well as impact of Rustfontein Dam			Marie Watson	1
C5MODD-GLENS										Marie Watson	1
C5MODD-PERDE					2		Has biotopes for SASS and Fish but is usually dry or a pool as a result of weir upstream			Marie Watson	1
C5FOUR-KALKF										Marie Watson	2
C5KROM-CRIET										Marie Watson	2

RHP Site Code	PRESENCE OF RIPARIAN VEGETATION ZONES			OVERALL SUITABILITY CONSIDERING SAMPLEBILITY AND INFORMATION			GENERAL COMMENTS: SAFETY AND ACCESIBILITY	Wetland(s) upstream or down stream of this site?		Contact Person	Priority (1=high, 2=medium, 3=low)
	MARGINAL ZONE	LOWER ZONE	UPPER ZONE	Fish	SASS	RIP VEG		(Yes / No)	Describe (e.g. Large/ Small / Ramsar/ Importance)		
C5TIER-TIERP										Pierre de Villiers	2
C5RIET-EWR09	3			3	3	3				Colleen Todd/RDM office	3
C5RIET-IFR03										Ecosun, Veronica Rall	1
C5RIET-IFR04										Ecosun, Veronica Rall	2
C5RIET-KOFFI										Pierre de Villiers	1
C5RIET-JACOB										Pierre de Villiers	1
C5RIET-IFR01										Ecosun, Veronica Rall	1
D1HOLS-CKRAA										Pierre de Villiers	2
D1KRAA-BARKL										Pierre de Villiers	3
D1KRAA-CORAN										Gerda Venter	1
D3BROO-GARIE										Pierre de Villiers	3
D3SEEK-VANDE										Pierre de Villiers	2
D1STOR-CORAN										Pierre de Villiers	3
D1ORAN-ORANJ	1	1	1	2	2	2	Channel is deeply incised. Deeper pools alternate with shallower rocky areas in the river reach. The water depth to the bottom of the riparian vegetation and trees is roughly 2 to 3 meters, with a flow width of 146m, the bed is rocky with sand deposition on the northern bank and steep eroded high southern bank (notes taken from Basson, 1998 which was part of the Orange River Development Project Replanning study.)			Marie Watson	2
D1ORAN-HERSC				2	2	2	Potential Site more suitable than Oranjedraai site but is flow sensitive. Riffles are covered at high flow. Accessible with 4x4 vehicle)			Marie Watson	1
D1ORAN-GOEDE				3	3	3	Site is flow dependant. SIC possibilities moderate			Marie Watson	1
D3ORAN-BULTF				3	1	3	Sampling possible but preferably during mid morning as Eskom releases water in afternoon. No ideal SASS site due to releases which would have huge impact on invertebrates			Marie Watson	1
D3ORAN-VANDE											1

Table 16. WMA 14 Lower Orange

RHP Site Code	PROVINCE	Site Type	ECOREGION	MAJOR RIVERS	TRIBUTARY	Original Site Name / Site Code	Site description	LATITUDE	LONGITUDE
D3ORAN-HOPET	Northern Cape	R	26.01	Orange		Hopetown	Downstream of Hopetown	-29.6007	24.0916
D7ORAN-PRIES	Northern Cape	E	26.05	Orange		Prieska	At Prieska	-29.66075	22.75574
D7ORAN-SEEKO	Northern Cape	E	26.05	Orange		Seekoeibaart (Boegoeberg)	Upstream of Groblershoop	-29.02812	22.18756
D7ORAN-GIFKL	Northern Cape	E	26.05	Orange		Gifkloof	Upstream of Upington	-28.43861	21.40583
D7ORAN-KANON	Northern Cape	E	26.05	Orange		Kanoneiland	Downstream of Upington	-28.63448	21.09293
D7ORAN-NEUSB	Northern Cape	E	26.05	Orange		Neusberg	Upstream of Kakamas	28.77198	20.74555
D8ORAN-BLOUP	Northern Cape	E	28.01	Orange		Blouputs	Downstream of Augrabies	-28.51115	20.17482
D8ORAN-ONSEE	Northern Cape	E	28.01	Orange		Onseepkans	Near Pofadder	-28.73682	19.30714
D3ORAN-MARKS	Northern Cape	E	26.01	Orange		Marksdrift Weir	Bridge on Douglas/Prieska	-29.16207	23.69651
D8ORAN-ABBAS	Northern Cape	E	28.01	Orange		Abbasas	Abbasas IFR	-28.90205	18.42036
D8ORAN-VIOOL	Northern Cape	E	28.01	Orange		Vioolsdrift	At Vioolsdrift	-28.73645	17.61856
D8ORAN-BOOMR	Northern Cape	E	28.01	Orange		Boom	Boom River confluence with Orange	-28.04051	17.06967
D8ORAN-SENDE	Northern Cape	E	28.01	Orange		Sendelingsdrif	At Sendelingsdrif Border Post	-28.10722	16.88319
D5HART-CORAN	Northern Cape	P	26.02	Orange	Hartbees	Proposed macro site	Above confluence with Orange	-28.84095	20.6119
D5VIS-CONFL	Northern Cape	P	26.04	Hartbees	Vis/Sak	Proposed macro site	Below confluence of Vis and Sak	-30.76529	20.39694
D6BRAK-CONFL	Northern Cape	P	26.02	Orange	Brak	Proposed macro site	Below confluence of Onders and Hondeblespruit	-29.915	23.17031
F3BUFF-UNSPE	Northern Cape	P	27.01	Buffels		Proposed macro site	Inland ecoregion 27.01	-29.65277	17.55999
F3BUFF-COAST	Northern Cape	P	25.03	Buffels		Proposed macro site	Coastal ecoregion 25.03	-29.60509	17.21034
F5GROE-UNSPE	Northern Cape	P	25.03 or 27.01	Groen		Proposed macro site	Either ecoregion	-30.77324	17.74277

RHP Site Code	HISTORICAL DATA RECORD		RHP REFERENCE SITE		RHP MONITORING SITE		ECOLOGICAL RESERVE SITE	IMPACT OF LAND USE (AT SITE & UPSTREAM)	PRESENCE OF SASS HABITAT TYPES					PRESENCE OF FISH FLOW-DEPTH CLASSES				PRESENCE OF COVER TYPES FOR FISH				
	EARLIEST	LATEST	CURRENT	POSSIBLE	CURRENT	POSSIBLE			SIC	SOC	VIC	VOC	GSM	FD	FS	SD	SS	MARG VEG	UNDER CUT BANKS	MACROPHYTES	SUBSTRATE	WATER COLUMN
D3ORAN-HOPET		2004		Y	Y	Y		5	4	3	4	4	2					3	2	4	3	3
D7ORAN-PRIES	1992					Y		3	4	3	2	5	?									
D7ORAN-SEEKO						Y		3	3	4	3	5	?									
D7ORAN-GIFKL	1992	1996				Y		2	4	4	4	5	?									
D7ORAN-KANON						Y		4	2	3	3	5	?									
D7ORAN-NEUSB	1992					Y		3	3	3	2	5	?									
D8ORAN-BLOUP						Y		4	3	3	3	5	?									
D8ORAN-ONSEE	1992					Y		2	3	3	3	5	?									
D3ORAN-MARKS						Y		5	2	?	?	?	?									
D8ORAN-ABBAS	1992					Y	Y	1														
D8ORAN-VIOOL						Y	Y	2	4	3	2	5	?									
D8ORAN-BOOMR						Y	Y	1	4	3	2	5	?									
D8ORAN-SENDE	2004					Y		3	4	4	0	5	2									
D5HART-CORAN						Y																
D5VIS-CONFL																						
D6BRAK-CONFL																						
F3BUFF-UNSPE																						
F3BUFF-COAST																						
F5GROE-UNSPE																						

RHP Site Code	PRESENCE OF RIPARIAN VEGETATION ZONES			OVERALL SUITABILITY CONSIDERING SAMPLEBILITY AND INFORMATION			GENERAL COMMENTS: SAFETY AND ACCESIBILITY	Wetland(s) upstream or down stream of this site?		Contact Person	Priority (1=high, 2=medium, 3=low)
	MARGINAL ZONE	LOWER ZONE	UPPER ZONE	Fish	SASS	RIP VEG		(Yes / No)	Describe (e.g. Large/ Small / Ramsar/ Importance)		
D3ORAN-HOPET	3	4	4	4	3	3	Very accessible with fast flowing turbit water			Ncamile Dweni, R Sekwele	2
D7ORAN-PRIES					4	2	Riffe and rubble from old bridge provides suitable substrate for SASS sampling			R Palmer	2
D7ORAN-SEEKO					3	5				R Palmer	1
D7ORAN-GIFKL					5	4	Limited access, key required from Upington Irrigation Board			R Palmer	1
D7ORAN-KANON					2	2	Bedrock dominated			Ben Benade	3
D7ORAN-NEUSB					4	4	Left bank unsuitable because of cascade. Cobble bar on right bank d/s of cascade			R Palmer	2
D8ORAN-BLOUP					4	2				R Palmer	3
D8ORAN-ONSEE					5	4				R Palmer	2
D3ORAN-MARKS					1		Impacted by hydro-releases			Ben Benade	2
D8ORAN-ABBAS										R Palmer	2
D8ORAN-VIOOL					4	3				R Palmer	1
D8ORAN-BOOMR					4	5				R Palmer	1
D8ORAN-SENDE					3	4				R Palmer	2
D5HART-CORAN										Pierre de Villiers	3
D5VIS-CONFL										Christa Thirion	1
D6BRAK-CONFL										Christa Thirion	1
F3BUFF-UNSPE										Christa Thirion	1
F3BUFF-COAST										Christa Thirion	1
F5GROE-UNSPE										Christa Thirion	1

Table 17. WMA 15 Fish to Tsitsikamma

RHP Site Code	PROVINCE	Site Type	ECOREGION	MAJOR RIVERS	TRIBUTARY	Original Site Name / Site Code	Site description	LATITUDE	LONGITUDE
Q9KAT-HERTZ	Eastern Cape	P	16.07	Fish	Kat	Proposed macro site: EWR 1	EWR 1, Hertzog	-32.570000	26.721917
Q9KAT-AMHUR	Eastern Cape	P	18.02	Fish	Kat	Proposed macro site: EWR 2	EWR 2, Amhurst	-32.622033	26.684950
Q1FISH-GRASR	Eastern Cape	P	18.01	Fish	Groot Brak	Proposed macro site	Upstream Grasridge Dam	-31.64092	25.47033
Q8KFIS-R337B	Eastern Cape	P	18.03	Fish	Klein Vis	Proposed macro site	Roadbridge on R337	-32.42333	25.44613
Q8KFIS-COOKH	Eastern Cape	P	18.02	Fish	Klein Vis	Proposed macro site	On N10 to Cookhouse	-33.09282	25.81717
Q5FISH-CRADO	Eastern Cape	P	18.01	Fish		Proposed macro site	Downstream of Cradock on R390	-32.43946	25.75265
Q9FISH-GLENM	Eastern Cape	P	18.02	Fish		Proposed macro site	Downstream of Glen Mellville (Committeesdrift)	-33.14122	26.83351
Q9FISH-CARLI	Eastern Cape	E	18.02	Fish			R350 at Carlisle Bridge	-33.08328	26.2255
P1BOES-ALICE	Eastern Cape	P	19.01	Boesmans		Proposed macro site	Downstream of Alicedale	-33.35900	26.06722
P1BOES-ESTUA	Eastern Cape	P	20.01	Boesmans		Proposed macro site	Upstream of estuarine influence	-33.61712	26.54313
N1SUND-N9ROA	Eastern Cape	P	18.03	Sundays		Proposed macro site	Downstream of N9	-31.95550	24.78471
N2SUND-R400R	Eastern Cape	P	21.05	Sundays		Proposed macro site	Between Jansenville & Darlington Dam (on R400)	-33.07669	25.00249
N4SUND-R335R	Eastern Cape	P	20.01	Sundays		Proposed macro site	R335 Roadbridge over Sundays River	-33.59292	25.67198
M1KWAZ-GROEN	Eastern Cape	R	19.02	Swartkops	Kwazungu		In Groendal Wilderness Area, just upstream of inflow into Groendal Dam	-33.67167	25.25
M1SWAR-KWAZU	Eastern Cape	E	19.02	Swartkops		IFR 1	IFR 1, Kwa Zumga	-33.72177	25.30165
L2KARI-BEERV	Eastern Cape	P	21.05	Gamtoos	Kariga	Proposed macro site	Upstream of Beervlei Dam	-32.93957	23.54252
L7GROO-STEYT	Eastern Cape	P	19.01	Gamtoos	Groot	Proposed macro site	Downstream of Steytlerville	-33.40740	24.58305
L8KOUG-GUERN	Eastern Cape	E	19.02	Gamtoos	Kouga		Causeway north of Kareedouw on road to Guerna Kop within Baviaanskloof WA	-33.76111	24.35
L9GAMT-R330B	Eastern Cape	P	19.02	Gamtoos		Proposed macro site	Bridge over R330	-33.87524	24.90570
K9SWAR-EWR06	Eastern Cape	E	20.02	Swart		EWR 6	EWR 6	-34.000833	24.847167
K9SEEK-UNSPE	Eastern Cape	P	20.02	Seekoei			Upstream of EWR 5	-33.999467	24.701883
K9KROM-MELKH	Eastern Cape	E	20.02	Kromme		EWR 1	EWR 1, Melkhoutkraal	-33.931750	24.261333
K8TSIT-IFR	Eastern Cape	P	20.02	Tsitsikamma		Proposed Macro Site, IFR Site		-34.096110	24.442500
K8GROO-GWEIR	Eastern Cape	P	20.02	Groot (Oos)		Proposed Macro Site, IFR Site	At DWAF gauging weir	-34.032220	24.195833
L8BAVI-UNSPE	Eastern Cape	P	19.02	Baviaanskloof		Proposed macro site		-33.596730	24.177840
Q4TARK-ABDAM	Eastern Cape	P	18.02	Groot Vis	Tarka	Proposed macro site	Upstream of dam	-32.232910	26.279310
P4KOWI-UPPER	Eastern Cape	P	19.01	Kowie		Proposed macro site	Upstream	-33.345380	26.557070
P4KOWI-CONFL	Eastern Cape	P	20.01	Kowie		Proposed macro site	Downstream of Bloukrans confluence	-33.4827	26.70311
M3COEG-LOWER	Eastern Cape	P	20.01	Coega		Proposed macro site	Upstream of new harbour development	-33.68699	25.49295

RHP Site Code	HISTORICAL DATA RECORD		RHP REFERENCE SITE		RHP MONITORING SITE		ECOLOGICAL RESERVE SITE	IMPACT OF LAND USE (AT SITE & UPSTREAM)	PRESENCE OF SASS HABITAT TYPES					PRESENCE OF FISH FLOW-DEPTH CLASSES				PRESENCE OF COVER TYPES FOR FISH				
	EARLIEST	LATEST	CURRENT	POSSIBLE	CURRENT	POSSIBLE			SIC	SOC	VIC	VOC	GSM	FD	FS	SD	SS	MARG VEG	UNDER CUT BANKS	MACROP HYTES	SUBST RATE	WATER COLUMN
Q9KAT-HERTZ				?		Y	Y															
Q9KAT-AMHUR						Y	Y															
Q1FISH-GRASR						Y																
Q8KFIS-R337B						Y																
Q8KFIS-COOKH						Y																
Q5FISH-CRADO						Y																
Q9FISH-GLENM						Y																
Q9FISH-CARLI						Y			3	1	3	1	2	3	2	2	1	2	2	2	2	4
P1BOES-ALICE						Y																
P1BOES-ESTUA						Y																
N1SUND-N9ROA						Y																
N2SUND-R400R						Y																
N4SUND-R335R						Y																
M1KWAZ-GROEN				Y		Y		1						1	3	3	3	3	2	1	3	2
M1SWAR-KWAZU						Y	Y	4						2	3	4	4	3	3	5	2	2
L2KARI-BEERV						Y																
L7GROO-STEYT						Y																
L8KOUG-GUERN						Y		2						1	3	3	3	2	2	1	3	2
L9GAMT-R330B						Y																
K9SWAR-EWR06						Y	Y	1	4	3	4	3	3									
K9SEEK-UNSPE		2004		?		Y		2						1	2	3	3	4	4	2	3	2
K9KROM-MELKH						Y	Y	2	3	4	3	3	4	2	3	2	3					
K8TSIT-IFR						Y	Y															
K8GROO-GWEIR						Y	Y															
L8BAVI-UNSPE						Y																
Q4TARK-ABDAM						Y																
P4KOWI-UPPER						Y																
P4KOWI-CONFL						Y																
M3COEG-LOWER						Y																

RHP Site Code	PRESENCE OF RIPARIAN VEGETATION ZONES			OVERALL SUITABILITY CONSIDERING SAMPLEBILITY AND INFORMATION			GENERAL COMMENTS: SAFETY AND ACCESIBILITY	Wetland(s) upstream or down stream of this site?		Contact Person	Priority (1=high, 2=medium, 3=low)
	MARGINAL ZONE	LOWER ZONE	UPPER ZONE	Fish	SASS	RIP VEG		(Yes / No)	Describe (e.g. Large/ Small / Ramsar/ Importance)		
Q9KAT-HERTZ										Mandy Uys	1
Q9KAT-AMHUR										Mandy Uys	1
Q1FISH-GRASR										Christa Thirion	1
Q8KFIS-R337B							New site, needs groundtruthing			Nikite Mulller	1
Q8KFIS-COOKH							Needs groundtruthing			Nikite Muller	2
Q5FISH-CRADO							Needs groundtruthing			Christa Thirion	1
Q9FISH-GLENM										Nikite Muller	2
Q9FISH-CARLI					3		Readily accessible			Nikite Muller	2
P1BOES-ALICE							Needs groundtruthing			Nikite Muller	1
P1BOES-ESTUA							Needs groundtruthing			Nikite Muller	1
N1SUND-N9ROA							Needs groundtruthing			Christa Thirion	1
N2SUND-R400R										Nikite Muller	1
N4SUND-R335R							Needs groundtruthing			Nikite Muller	1
M1KWAZ-GROEN	3	4	4	4		4	Needs groundtruthing; permission from Uitenhage municipality; access via boat			Anton Bok	1
M1SWAR-KWAZU	5	3	3	3	3	4	Need key for gate - not accessible during large floods, clogs with palmiet			Delana Louw, Anton Bok	2
L2KARI-BEERV							Needs groundtruthing			Nikite Muller	1
L7GROO-STEYT							Needs groundtruthing			Nikite Muller	1
L8KOUG-GUERN	3	2	2	3			Needs groundtruthing			Anton Bok	1
L9GAMT-R330B							Needs groundtruthing			Nikite Muller	1
K9SWAR-EWR06					4					Mandy Uys/Anton Bok/Nigel Kemper	1
K9SEEK-UNSPE	?	?	?	3			At minor road crossing (accessible), overgrown with alien wattles, but upstream of barrier (no bass)			Delana Louw, Anton Bok	1
K9KROM-MELKH					4		Upstream of dam and other major catchment influences. SASS 176/31 ASPT 5.52. (very close to estimated reference for the river)			Mandy Uys/Anton Bok/Nigel Kemper	1
K8TSIT-IFR										Rheta Stassen, Colleen Todd, RDM Office	1
K8GROO-GWEIR										Rheta Stassen, Colleen Todd, RDM Office	1
L8BAVI-UNSPE										Rheta Stassen, Colleen Todd, RDM Office	1
Q4TARK-ABDAM										Rheta Stassen, Colleen Todd, RDM Office	1
P4KOWI-UPPER										Rheta Stassen, Colleen Todd, RDM Office	1
P4KOWI-CONFL										Rheta Stassen, Colleen Todd, RDM Office	1
M3COEG-LOWER										Rheta Stassen, Colleen Todd, RDM Office	1

Table 18. WMA 16 Gouritz

RHP Site Code	PROVINCE	Site Type	ECOREGION	MAJOR RIVERS	TRIBUTARY	Original Site Name / Site Code	Site description	LATITUDE	LONGITUDE	HISTORICAL DATA RECORD	
										EARLIEST	LATEST
H8DUIW-LOWER	Western Cape	R	22.01	Duiwenhoeks			Above estuary	-34.25164	20.99183	2003	2005
H9GOUK-GWEIR	Western Cape	E	22.02	Goukou		H9GOUK-WEIR	Site at gauging weir	-34.0889667	21.28978333	2003	2005
H9GOUK-LOWER	Western Cape	R	22.02	Goukou		H9GOUK-ESTUARY	Site upstream from estuary	-34.2696167	21.29248333	2003	2005
K1KOUM-ROADB	Western Cape	E	22.02	Kouma			At roadbridge crossing	-33.9610833	21.97733333	2001	2002
K1MOOD-MOORD	Western Cape	E	22.02	Moordkuil			At Moordkuyl	-34.0121	22.14028333	2001	2002
K3KEUR-MONTA	Western Cape	R	20.02	Keur bridge			Montague Pass Bridge	-33.9045	22.41733333	2003	2005
K3GWAI-EXPER	Western Cape	E	22.02	Gwaing			At experimental farm	-34.00639	22.40417	2003	2005
K3TOUW-BOSPL	Western Cape	R	20.02	Touws River		K3TOUW-BOSPLS	Old Knysna Road	-33.94692	22.61292	2004	2005
K4WOLWE-BARNA	Western Cape	E	20.02	Wolwe		K4WOLWE-BARNARDHP	near Barnardshoop	-33.9738267	22.71814667	2004	2005
K4HOMT-KNYSN	Western Cape	P	20.02	Goukamma	Homtini	Proposed macro-site	Old Knysna Road- Homtini	-33.833	22.9	2003	2003
K4KARA-LAKEK	Western Cape	E	20.02	Karatara		K4KARA-LAKE	Upstream from lake near "Karawater"	-33.9924033	22.82246667	2004	2005
K5KNYS-CHARL	Western Cape	R	20.02	Knysna		K5KNYS-CHARLIFD	Charliesford, above lake	-33.9923333	23.00189	2004	2005
K6KEUR-DEVLU	Western Cape	E	20.02	Keurbooms			De Vlugt	33 48' 42.3"	23 10' 42.3"	2003	2005
K6KEUR-RHINO	Western Cape	R	20.02	Keurbooms			Rhino base camp, DWAF weir	-33.9364333	23.35981667	2003	2005
K6BITO-WITTE	Western Cape	E	20.02	Bitou			Wittedrift road bridge	-33.50021	22.55401	2003	2005
K7SALT-TSIKM	Western Cape	R	20.02	Salt		K7SALT-TSIKMMA	Tsitsikamma Nature Reserve	-33.9738767	23.52119667	2004	2005
J1BUFF-LAINS	Western Cape	P	21.03	Gouritz	Buffels	Proposed macro-site	At Lainsburg	-33.17157	20.87222		
J4GOUR-HERBE	Western Cape	E	22.02	Gouritz			Next to Herbertsdale road on LW bridge	-34.0834	21.7584	2004	2005
J1GROO-VANWY	Western Cape	E	19.07	Gouritz	Groot		Below Van Wyksdorp	-33.7549167	21.4681	2004	2005
J1TOUW-BOOKE	Western Cape	E	19.07	Gouritz	Touws		"Bo Okertskraal" Ladismith/Barrydale road	-33.6511667	21.0086	2004	2005
J1GROO-VANZY	Western Cape	E	19.07	Gouritz	Groot		Van Zyl's Damme	-33.47605	21.02241667	2004	2005
J2GAMK-R62BR	Western Cape	R	19.01	Gouritz	Gamka		Calizdorp-Ladismith road bridge (R62)-"Huis River Pass"	-33.4911167	21.62221667	2004	2005
J2GAMK-WELGE	Western Cape	E	19.10	Gouritz	Gamka		Welgerust, in vicinity of Calizdorp Spa	-33.6367167	21.70595	2004	2005
J3HOEK-CANGO	Western Cape	R	19.09	Gouritz	Hoek		Trib of Grobbelaars; At Cango Caves	-33.3675267	22.17420667	2003	2005
J3GROB-KLEIN	Western Cape	E	19.01	Gouritz	Grobbelaars		Site downstream of the Klein Le Roux tributary	-33.44747	22.24897	2003	2005
J3KLIP-ZEBRA	Western Cape	E	19.01	Gouritz	Klip		Trib of Olifants; past "Zebra"	-33.7675767	22.30807	2002	2005
J3GROO-PARAD	Western Cape	R	19.09	Gouritz	Groot		At "Paradys" past Meiringspoort (trib of Olifants)	-33.2748467	22.35318	2003	2005
J3GROO-MEIRI	Western Cape	P	19.01	Gouritz	Groot	Proposed macro-site	In Meiringspoort / IFR site, rapid 3	-34.00682	23.35536	2004	2004
J3OLIF-CALIT	Western Cape	E	19.01	Gouritz	Olifants	IFR 2	At Calitzdorp Spa - IFR site, rapid 3	-33.65702	21.77264		
J3KAMM-ALFRED	Western Cape	R	19.08	Gouritz	Kammanassie		Poort/Prince Alfred Pass	-33.6713367	23.14030333	2003	2005
J3DIEP-CKAMM	Western Cape	R	19.01	Gouritz	Diep		Before confluence with Kammanassie	-33.74314	22.82314	2003	2005
J2JAKK-TOWER	Western Cape	R	21.03	Gouritz	Jakkals		Towerland farm	-33.17576	21.33804	2004	2005
J2DWYK-N1ROA	Western Cape	R	21.04	Gouritz	Dwyka		Downstream N1 bridge	-33.085083	21.579722	2005	2005
J2LEEU-N1ROA	Western Cape	E	21.04	Gouritz	Leeu-Gamka		Downstream Leeu-Gamka town at causway	-32.774889	21.983444	2005	2005
K7BLOU-GWEIR	Western Cape	P	20.02	Coastals	Bloukrans		Proposed macro site: IFR site near weir	-33.955778	23.638611	2001	2001

RHP Site Code	RHP REFERENCE SITE		RHP MONITORING SITE		ECOLOGICAL RESERVE SITE	IMPACT OF LAND USE (AT SITE & UPSTREAM)	PRESENCE OF SASS HABITAT TYPES					PRESENCE OF FISH FLOW-DEPTH CLASSES				PRESENCE OF COVER TYPES FOR FISH					PRESENCE OF RIPARIAN VEGETATION ZONES		
	CURRENT	POSSIBLE	CURRENT	POSSIBLE			SIC	SOC	VIC	VOC	GSM	FD	FS	SD	SS	MARG VEG	UNDER CUT BANKS	MACROP HYTES	SUBSTR ATE	WATER COLUMN	MARGINA L ZONE	LOWER ZONE	UPPER ZONE
H8DUIW-LOWER		Y	Y	Y		2	4	3	3	3	4	4	4	4	4	3	2	4	3	4			4
H9GOUK-GWEIR			Y	Y		2	4	4	4	4	4	4	4	3	4	2	3	4	3	1			4
H9GOUK-LOWER		Y	Y	Y		3	4	3	4	3	3	4	5	4	5	2	4	4	4	2			5
K1KOUM-ROADB			Y	Y		2	4	4	4	4	3	4	2	4	4	2	3	4	3	4	4	4	4
K1MOOD-MOORD			Y	Y		2	4	4	4	4	3	4	2	4	4	2	2	4	3	4	4	4	4
K3KEUR-MONTA		Y		Y		0	5	3	2	2	2	3	3	4	2	3	1	3	3	5			3
K3GWAI-EXPER				Y		5	2	1	5	3	3	2	4	3	5	2	5	3	4	0			4
K3TOUW-BOSPL		Y	Y	Y		0	5	5	5	5	5	3	4	4	3	3	4	4	4	5			4
K4WOLWE-BARNA			Y	Y		4	2	2	4	3	4	3	5	2	5	3	3	2	4	1			4
K4HOMT-KNYSN		?		Y		1	5	4	4	4	4	4	4	3	5	4	4	4	4	4			
K4KARA-LAKEK			Y	Y		3	2	3	4	4	4	3	5	3	5	2	3	3	4	1			3
K5KNYS-CHARL		Y	Y	Y		1	5	4	4	4	5	4	4	3	3	3	4	4	4	1			5
K6KEUR-DEVLU			Y	Y		3	4	3	1	2	4	2	3	4	2	1	0	4	2	1			3
K6KEUR-RHINO		Y	Y	Y		1	4	4	4	4	4	5	5	2	3	3	2	5	5	4			5
K6BITO-WITTE			Y	Y		5	1	1	4	4	3	3	4	4	4	4	5	1	3	0			4
K7SALT-TSIKM		Y	Y	Y		1	5	5	4	5	5	4	5	4	4	3	3	4	4	5			4
J1BUFF-LAINS				Y		unknown																	
J4GOUR-HERBE			Y	Y		5	4	4	3	3	4	3	4	4	4	2	3	4	3	1			3
J1GROO-VANWY			Y	Y		4	1	1	2	3	4	2	5	4	4	3	2	3	4	1			4
J1TOUW-BOOKE			Y	Y		4	2	3	1	2	4	1	3	4	1	3	3	3	3	1			2
J1GROO-VANZY			Y	Y		4	3	3	3	3	4	4	4	3	4	4	4	3	4	1			3
J2GAMK-R62BR		Y	Y	Y		3	4	3	1	1	3	3	3	4	2	2	1	3	3	2			3
J2GAMK-WELGE			Y	Y		4	1	1	3	2	4	3	4	3	5	3	4	3	4	1			4
J3HOEK-CANGO		Y	Y	Y		1	4	4	4	4	3	4	3	3	3	1	2	3	3	4	4	4	4
J3GROB-KLEIN				Y	Y	3						4	4	3	3	4	4	2	4	3	2	3	3
J3KLIP-ZEBRA			Y	Y		3	4	3	3	3	3	0	3	2	3	3	2	2	3	2	2		
J3GROO-PARAD		Y	Y	Y		1	4	3	3	3	3	3	4	3	4	3	2	2	3	3	4	4	3
J3GROO-MEIRI		?		Y	Y	1	3	2	2	2	3	1	3	4	3.5	3	2	2	3	3	2	3	n/a
J3OLIF-CALIT				Y	Y	5	3	1	0	1	2	0	1	4	2	0	2	0	4	4	1	2	3
J3KAMM-ALFRED		Y	Y	Y		2	4	3	3	3	3	0	3	2	3	4	3	3	3	3	3		
J3DIEP-CKAMM		Y	Y	Y		2	3	3	3	3	3	2	2	4	3	4	3	2	3	4	2		
J2JAKK-TOWER		Y	Y	Y		0	4	1	3	1	1	1	4	4	3	3	2	0	3	4	5		
J2DWYK-N1ROA		Y		Y		1	3	2	3	3	3	1	3	2	3	3	2	2	3	3	3	2	4
J2LEEU-N1ROA				Y		2	2	4	3	3	3	1	2	2	3	3	2	2	3	2	3	2	2
K7BLOU-GWEIR		Y		Y	Y	1	3	4	1	3	1												

RHP Site Code	OVERALL SUITABILITY CONSIDERING SAMPLEBILITY AND INFORMATION			GENERAL COMMENTS: SAFETY AND ACCESIBILITY	Wetland(s) upstream or down stream of this site?	
	Fish	SASS	RIP VEG		(Yes / No)	Describe (e.g. Large/ Small / Ramsar/ Importance)
H8DUIW-LOWER	4	4		Safe and accessible - u/s road bridge	Y	Very sensitive wetlands in foothills; Very important and sensitive estuary
H9GOUK-GWEIR	4	4		Safe and accessible - u/s road bridge	Y	Very sensitive wetlands in foothills; Very important and sensitive estuary
H9GOUK-LOWER	4	4		Safe and accessible - u/s road bridge	Y	Very sensitive wetlands in foothills; Very important and sensitive estuary
K1KOUM-ROADB	4	4		Safe and accessible - u/s road bridge	Y	U/s estuary
K1MOOD-MOORD	4	4		Safe and accessible - near road	Y	u/s wetland
K3KEUR-MONTA	4	4		Safe and accessible - u/s road bridge		
K3GWAI-EXPER	2	3		Safe and accessible - u/s & d/s road bridge- check location of site RDP housing project planned	Y	Small wetland on Rooi River tributary of Gwaing
K3TOUW-BOSPL	5	5		Safe and accessible - d/s of roadbridge	Y	Wilderness National Park
K4WOLWE-BARNA	1	3		Safe and accessible - u/s road bridge	Y	Swartvlei (Wilderness National Park)
K4HOMT-KNYSN	5	5		Safe and accessible - u/s road bridge	Y	Estuary (Goukamma MPA)
K4KARA-LAKEK	3	3		Safe and accessible - u/s road bridge	Y	Ruigtevlei (Wilderness National Park)
K5KNYS-CHARL	4	4		Safe and accessible - u/s road bridge on farm	Y	Knysna (Knysna National Park)
K6KEUR-DEVLU	3	3		Safe and accessible - d/s & u/s road bridge		
K6KEUR-RHINO	5	4		Safe and accessible - require permission and keys from landowner (Rhino Base Camp)		
K6BITO-WITTE	1	1		Safe and accessible - u/s road bridge	Y	Keurbooms Estuary
K7SALT-TSIKM	5	5		Safe and accessible, but with steep 20 minute walk - permission/keys from SANParks (Ian Russell)	Y	Estuary (Natures Valley)
J1BUFF-LAINS						
J4GOUR-HERBE	4	4		Safe and accessible - d/s & u/s road bridge	Y	Gourits River Estuary
J1GROO-VANWY	2	2		Safe and accessible - u/s road bridge		
J1TOUW-BOOKE	2	2		Safe and accessible - u/s road bridge		
J1GROO-VANZY	3	3		Safe and accessible - u/s road bridge		
J2GAMK-R62BR	3	3		Safe and accessible - u/s road bridge		
J2GAMK-WELGE	3	3		Safe and accessible - u/s road bridge		
J3HOEK-CANGO	4	4	4	Safe and accessible - in camping resort		
J3GROB-KLEIN	5		2	Need key to get in at gate or climb the gate. Not good riparian zone		
J3KLIP-ZEBRA	3	3		Safe and accessible - d/s & u/s road bridge		
J3GROO-PARAD	4	4	3	Safe and accessible - on farm		
J3GROO-MEIRI	4	4	1	Safe and accessible next to road		
J3OLIF-CALIT	4	3	1	Safe and accessible, next to road, represents upstream conditions		
J3KAMM-ALFRED	4	4		Safe and accessible next to road		
J3DIEP-CKAMM	4	3		Safe and accessible next to road		
J2JAKK-TOWER		4		Safe and accessible, 10 minute walk - require permission/keys - Towerland landowner via Arne Purves, CapeNature		
J2DWYK-N1ROA	3	4	4	Safe and accessible - d/s road bridge		
J2LEEU-N1ROA	2	3	2	Safe and accessible - u/s road bridge		
K7BLOU-GWEIR	4	4		Need to select coastal river I this region, Bloukrans a possibility		

RHP Site Code	Contact Person	Priority (1=high, 2=medium, 3=low)	Motivation for site
H8DUIW-LOWER	Cecile Reed	1	Site above an important estuary; Also several very important wetlands in foothills of catchment
H9GOUK-GWEIR	Cecile Reed	1	Upstream site - similar river to Duiwenhoks - both rivers similarly impacted, similar in character with NB estuaries; also several very important wetlands in foothills of catchment
H9GOUK-LOWER	Cecile Reed	1	Lower site
K1KOUM-ROADB	Toni Belcher	1	Representative of rivers near Mossel Bay draining the coastal flood plain (Hartenbos)
K1MOOD-MOORD	Toni Belcher	1	Representative of rivers near Mossel Bay draining the folded mnt ranges (Groot Brak)
K3KEUR-MONTA	Paul Buccholz	1	Outeniqua Nature Reserve - reference site
K3GWAI-EXPER	Cecile Reed	1	River impacted by George
K3TOUW-BOSPL	Cecile Reed	1	
K4WOLWE-BARNA	Cecile Reed	1	Representative river for Swartvlei system (Impacted site)
K4HOMT-KNYSN	Cecile Reed	1	Possible river for future water development
K4KARA-LAKEK	Cecile Reed	2	Impacted site on the Swartvlei system
K5KNYS-CHARL	Cecile Reed	1	Future EWR site for Knysna estuary reserve
K6KEUR-DEVLU	Cecile Reed	1	Upper Keurbooms - impacted by alien veg and agriculture
K6KEUR-RHINO	Cecile Reed	1	Possible future EWR site - important estuarine system
K6BITO-WITTE	Cecile Reed	1	Possible future EWR site - important estuarine system
K7SALT-TSIKM	Cecile Reed	2	Important river from conservation point of view - threatened by agriculture
J1BUFF-LAINS	Cecile Reed	1	Ephemeral stream in Karoo
J4GOUR-HERBE	Cecile Reed	1	Site above estuary
J1GROO-VANWY	Cecile Reed	1	Site lower Groot trib (far west flowing trib)
J1TOUW-BOOKE	Cecile Reed	1	Site lower Touws trib (far west flowing trib of Groot)
J1GROO-VANZY	Cecile Reed	1	Site upper Groot trib
J2GAMK-R62BR	Cecile Reed	1	Site above Calitzdorp, Ephemeral stream in Karoo
J2GAMK-WELGE	Cecile Reed	1	Site just above confluence with Olifants
J3HOEK-CANGO	Toni Belcher/Cecile Reed	1	Potential reference site
J3GROB-KLEIN	Delana Louw, Neels Kleynhans, Christa Thirion	2	Reflects impact of agriculture and some urban dev north of Oudshoorn, as well as the upstream dam in the Klein le Roux trib.
J3KLIP-ZEBRA	Cecile Reed	1	Reflect impact of agric in Klein Karoo
J3GROO-PARAD	Toni Belcher/Cecile Reed	1	Potential reference site - one of few sites north of Swartberg
J3GROO-MEIRI	Delana Louw/Neels Kleynhans/Christa Thirion	3	EWR site
J3OLIF-CALIT	Delana Louw	2	EWR site, only option to represent upstream river
J3KAMM-ALFRED	Cecile Reed	1	Potential reference site
J3DIEP-CKAMM	Cecile Reed	1	Reflect impact of agric abstractions on Kammansie
J2JAKK-TOWER	Toni Belcher/Cecile Reed	1	
J2DWYK-N1ROA	Toni Belcher	1	Ephemeral stream in Karoo
J2LEEU-N1ROA	Toni Belcher	1	Ephemeral stream in Karoo
K7BLOU-GWEIR	Christa Thirion	1	

Table 19. WMA 17 Olifants / Doring

RHP Site Code	PROVINCE	Site Type	ECOREGION	MAJOR RIVERS	TRIBUTARY	Original Site Name / Site Code	Site description	LATITUDE	LONGITUDE	HISTORICAL DATA RECORD	
										EARLIEST	LATEST
E1OLIF-VISGA	Western Cape	R	23.03	Olifants		Visgat	Visgat	-33.07694	19.21639	1991	2005
E1OLIF-KEERO	Western Cape	R	23.01	Olifants		Keerom	Keerom	-32.85	19.085	1991	2005
E1OLIF-CITRU	Western Cape	E	23.01	Olifants		Citrusdal	Downstream of Citrusdal	-32.565	19.002	1991	2005
E1OLIF-ALGER	Western Cape	E	23.02	Olifants		Algeria	At Algeria Bridge or EWR site 1	-32.36528	18.95278		2005
E1OLIF-CLANW	Western Cape	E	23.02	Olifants		Clanwilliam	Clanwilliam	-32.17389	18.87111	1991	2005
E1OLIF-ZYPHE	Western Cape	E	25.02	Olifants		Zypherfontein	Zypherfontein / EWR site 2	-31.94055	18.71	1991	2005
E3OLIF-KLAWE	Western Cape	E	25.02	Olifants		Klawer	Klawer	-31.76944	18.61111	1991	2005
E3OLIF-LUTZ	Western Cape	P	25.02	Olifants		Proposed macro-site	At Lutzville - at low water bridge	-31.57813	18.38230		2005
E2DORI-CALVI	Western Cape	P	21.02	Doring		Proposed macro-site	On Calvinia road, ephemeral	-32.90346	19.78236		Dry - no sampling yet possible
E2DORI-KRUIT	Northern Cape	E	23.02	Doring		T1D	Upstream confluence with Tankwa; drift Kruitfontein	-32.31394	19.55008		2005
E2DORI-BIEDO	Western Cape	E	23.03	Doring		T1C	Upstream confluence with Biedow River / EWR site 4	-32.97058	19.22153		2005
E3DORI-OUDRI	Western Cape	R	23.02	Doring		T1B	At Oudrift / EWR site 5	-31.85691	18.91317		2005
E1RATE-BEAVE	Western Cape	R	23.01	Olifants	Ratel	Ratel -T2	At Beaverlac	-32.87361	19.08333	1991	2005
E1NOOR-OFFTA	Western Cape	E	23.01	Olifants	Noordhoek	Noordhoek	Above offtake point	-32.79444	19.09444	1991	
E1ROND-EWR03	Western Cape	R	23.01	Olifants	Rondegat	Algeria Bridge	At Algeria Bridge / near EWR site 3	-32.37033	19.05361		2005
E1OLIF-KEURB	Western Cape	E	23.01	Olifants	Rondegat	Keurbos	Keurbos	-32.26472	18.97166		2005
E3SOUT-N7BRI	Western Cape	R	25.01	Olifants	Sout	Sout	Downstream of the N7 bridge	-31.39677	18.66383		2005
E2HOUD-RIETC	Western Cape	E	23.01	Doring	Houdenbek	Hou2	Upstream confluence with Riet River	-33.00694	19.49666	2003	2005
E2RIET-KATBA	Western Cape	R	23.01	Doring	Riet	Riet	At Katbakkies pass	-32.89944	19.53889	2005	
E2LEEU-GAUGE	Western Cape	R	23.01	Doring	Leeu	Leeu	At the gauging weir	-32.7805	19.28341	2005	
E2GROO-EWR06	Western Cape	R	23.01	Doring	Groot	Groo1	At Grootrivier / EWR site6	-32.64569	19.40694	2005	
E2BRAN-VOGEL	Western Cape	R	23.01	Doring	Brandkraals		At Vogelfontein	-32.565	19.3625	2003	2005
E2DRIE-SANDD	Western Cape	E	23.01	Doring	Driehoek	Dri	At Sanddrift	-32.48778	19.2675	?	2005
E2MATJ-BRIDG	Western Cape	E	23.01	Doring	Matjies	Mat	Low water bridge	-32.51862	19.35055	?	2005
E2TRAT-WUPPE	Western Cape	E	23.02	Doring	Tra-Tra	Tra	At Wuppertal	-32.27089	19.22444	?	2005
E2BIED-WELBE	Western Cape	E	23.02	Doring	Biedow	Bie1	At Welbedacht	-32.15195	19.18523	?	2005
E2BRAN-TRAVE	Western Cape	E	23.04	Doring	Brandewyn	Bwy	At Travelers Rest	-32.06861	19.07215	?	2005
E2OORL-OORLO	Western Cape	P		Doring	Oorlogskloof	Proposed macro-site	In Oorlogskloof Nature Reserve - access from Niewoudtville	-31.54495	19.10624		1999?
E2TANK-OUDER	Western Cape	P		Doring	Tankwa	Proposed macro-site	Above Ouderbaskraal	-32.40759	20.07553		1999?
E2TANK-ELAND	Northern Cape	R	23.02	Doring	Tankwa	Tan	At Elandsvlei	-32.31422	19.56	?	2005
E3HANT-R27RO	Western Cape	E	21.03	Doring	Hantams		Above confluence with Doring River, on R27 road to Calvinia	-31.18244	19.20101		2005
G3VELO-REDEL	Western Cape	R	25.03	Velorenvlei			At Redelinghuis	-32.46555	18.51667	2002	2005
G3KRUI-R365B	Western Cape	R	24.04	Kruis			At road to Lamberts Bay, R365	-32.61139	18.77444	2002	2005
G3KRUI-PIKET	Western Cape	P	24.04	Kruis		Proposed macro-site	On Piketberg mountain	-32.74618	18.81433		
G3LANG-REDEL	Western Cape	R	25.02	Langvlei			Road from Redelingshuis	-32.2105	18.37833	2004	2005
G3JAKK-KOOKF	Western Cape	R	25.02	Jakkals			Road at Kookfontein	-32.08941	18.35241	2002	2005

RHP Site Code	RHP REFERENCE SITE		RHP MONITORING SITE		ECOLOGICAL RESERVE SITE	IMPACT OF LAND USE (AT SITE & UPSTREAM)	PRESENCE OF SASS HABITAT TYPES					PRESENCE OF FISH FLOW-DEPTH CLASSES				PRESENCE OF COVER TYPES FOR FISH				
	CURRENT	POSSIBLE	CURRENT	POSSIBLE			SIC	SOC	VIC	VOC	GSM	FD	FS	SD	SS	MARG VEG	UNDER CUT BANKS	MACROPHYTES	SUBSTRATE	WATER COLUMN
E1OLIF-VISGA	Y	Y	Y	Y		0						4	4	5	4	4	2	2	5	5
E1OLIF-KEERO	Y	Y	Y	Y		1	5	4	4	4	3	2	4	2	3	3	1	2	3	3
E1OLIF-CITRU			Y	Y		3	3	3	3	3	3	3	3	3	3	3	2	2	3	3
E1OLIF-ALGER			Y	Y	Y-d/s EWR site	2	4	4	3	3	3	4	4	4	4	4	3	3	3	4
E1OLIF-CLANW			Y	Y		2	5	5	3	4	1	4	3	5	3	4	3	4	5	5
E1OLIF-ZYPHE			Y	Y	Y	2	4	3	5	4	3	3	4	2	3	2	1	2	3	3
E3OLIF-KLAWE			Y	Y		1	4	4	3	4	5	4	3	4	3	3	1	2	3	4
E3OLIF-LUTZ			Y	Y																
E2DORI-CALVI		?	Y	Y		2	1	1	1	1	3	0	0	0	0	2	0	0	2	0
E2DORI-KRUIT			Y	Y		2	4	4	4	4	2	3	4	3	4	3	1	1	4	3
E2DORI-BIEDO			Y	Y	Y	3	4	4	2	3	3	3	3	3	3	2	1	1	3	3
E3DORI-OUDRI		Y	Y	Y	Y	2	3	3	3	3	2	4	3	4	3	3	3	2	4	4
E1RATE-BEAVE		Y	Y	Y		0	4	4	3	4	5	3	3	4	3	4	2	2	5	4
E1NOOR-OFFTA				Y		1	5	5	3	4	5	2	4	4	4	3	1	0	4	2
E1ROND-EWR03		Y	Y	Y	Y	1	4	4	3	3	2	3	4	3	3	3	2	2	4	3
E1OLIF-KEURB			Y	Y		4	3	1	1	3	5	1	3	2	5	2	3	4	1	1
E3SOUT-N7BRI		Y	Y	Y		1	0	0	0	3	5	1	2	1	2	1	1	0	1	1
E2HOUD-RIETC			Y	Y	Y - rapid 3 to be done	5	1	1	1	3	3	2	2	3	2	3	2	1	2	3
E2RIET-KATBA		Y	Y	Y		At site = 1, upstream=3/4	0	0	3	4	4	3	1	4	1	4	2	1	1	4
E2LEEU-GAUGE		Y	Y	Y		2	3	3	3	3	3	2	2	3	3	3	1	2	2	3
E2GROO-EWR06		Y	Y	Y	Y - Comprehensive	2	5	5	4	4	3	4	4	3	4	4	2	2	4	4
E2BRAN-VOGEL		Y	Y	Y		1	5	5	4	4	3	3	4	3	3	4	2	2	4	3
E2DRIE-SANDD			Y	Y		1	3	3	3	3	5	3	4	4	4	4	2	2	4	3
E2MATJ-BRIDG			Y	Y		1	3	3	4	4	2	2	3	4	3	3	2	4	4	3
E2TRAT-WUPPE			Y	Y		1	5	4	4	4	3	2	4	3	4	4	2	2	4	3
E2BIED-WELBE			Y	Y		1	3	2	3	3	2	3	3	3	3	3	3	2	3	3
E2BRAN-TRAVE			Y	Y		1	3	3	1	2	3	2	3	3	3	2	2	2	3	3
E2OORL-OORLO		?	Y	Y		2	5	5	1	2	2	2	3	5	4	4	3	3	3	4
E2TANK-OUDER		?	Y	Y		1						1	2	3	3	2	2	1	3	3
E2TANK-ELAND		Y	Y	Y		2	0	1	4	4	4	0	2	1	3	4	1	2	3	3
E3HANT-R27RO			Y	Y																
G3VELO-REDEL		Y	Y	Y	Y - Rapid	2	1	1	3	3	4	2	2	3	3	3	3	3	3	3
G3KRUI-R365B		Y	Y	Y	Y - Rapid	2	3	3	2	3	3	2	3	2	3	2	1	1	3	3
G3KRUI-PIKET		Y	Y	Y																
G3LANG-REDEL		Y	Y	Y	Y - Rapid d/s	2	1	0	3	3	4	0	1	0	2	3	0	0	2	2
G3JAKK-KOOKF		Y	Y	Y	Y - Rapid	2	1	0	3	3	4	0	1	0	2	3	0	0	2	2

RHP Site Code	PRESENCE OF RIPARIAN VEGETATION ZONES			OVERALL SUITABILITY CONSIDERING SAMPLEBILITY AND INFORMATION			GENERAL COMMENTS: SAFETY AND ACCESIBILITY	Wetland(s) upstream or down stream of this site?	
	MARGINAL ZONE	LOWER ZONE	UPPER ZONE	Fish	SASS	RIP VEG		(Yes / No)	Describe (e.g. Large/ Small / Ramsar/ Importance)
E1OLIF-VISGA				5			Difficult access, but safe, access control strictly enforced		
E1OLIF-KEERO	4	4	4	4	4	4	Safe & accessible - on farm		
E1OLIF-CITRU	3	3	3	3	3	3	Safe & accessible - near road bridge		
E1OLIF-ALGER	4	4	3	3	4	3	Safe & accessible - near road bridge		
E1OLIF-CLANW	4	4	3	4	5	5	easily accesible		
E1OLIF-ZYPHE	4	4	3	3	3	4	easily accesible		
E3OLIF-KLAWE	3	3	2	3	3	5	easily accesible		
E3OLIF-LUTZ									
E2DORI-CALVI				1	1		Site dry for most of year		
E2DORI-KRUIT	3	2	3	4	4	3	Safe & accessible - on farm		
E2DORI-BIEDO	3	3	3	4	3	3	Safe & accessible - on farm		
E3DORI-OUDRI	3	3	3	4	3	3	Safe & accessible - on farm		
E1RATE-BEAVE	5	5	5	4	4	5	easily accesible through Keerom farm		
E1NOOR-OFFTA	5	5	5	4	5	4	easily accesible		
E1ROND-EWR03	3	3	3	4	3	3	Safe & accessible - near road bridge		
E1OLIF-KEURB	1	1	1	3	3	1	easily accesible, farmland		
E3SOUT-N7BRI	3	2	2	1	3	3	easily accesible		
E2HOUD-RIETC	3	2	3	3	3	3	Safe & accessible - on farm		
E2RIET-KATBA	4	4	3	3	3	3	Safe & accessible - near road bridge		
E2LEEU-GAUGE	4	3	3	3	3	3	Safe & accessable - at dwaf weir	Y	Moderate - importance unknown quite impacted
E2GROO-EWR06	4	4	4	4	4	4	Safe & accessable - near road & farm		
E2BRAN-VOGEL	5	5	5	3	4	5	Safe & accessable - near road & farm		
E2DRIE-SANDD	4	4	4	3	3	3	Safe & accessable - at camp site		
E2MATJ-BRIDG	4	4	4	4	3	4	Safe & accessable - u/s road	Y	Moderate - CapeNature area
E2TRAT-WUPPE	4	4	4	4	4	4	Safe & accessable - u/s road		
E2BIED-WELBE	4	4	4	3	3	4	Safe & accessable - u/s road		
E2BRAN-TRAVE	2	2	2	3	3	2	Safe & accessable - u/s road		
E2OORL-OORLO	2	1	1	4	3	3	easily accesible	Y	
E2TANK-OUDER				3				?	
E2TANK-ELAND	3	3	2	2	3	2	Safe & accessable - near road & farm	Y	Large but impacted
E3HANT-R27RO									
G3VELO-REDEL	3	3	2	3	3	3	Safe & accessible - near raod bridge	Y	RAMSAR
G3KRUI-R365B	3	3	3	3	3	3	Safe & accessible - near raod bridge	Y	RAMSAR
G3KRUI-PIKET									
G3LANG-REDEL	3	3	2	2	3	3	Safe & accessable - u/s road	Y	Wadrif wetland and pan - wetland of importance - highly impacted
G3JAKK-KOOKF	3	3	2	2	3	3	Safe & accessable - u/s road	Y	Jakkalsvlei - important for bird migration

RHP Site Code	Contact Person	Priority (1=high, 2=medium, 3=low)	Motivation / rationale for selecting site
E1OLIF-VISGA	Darragh Woodford, Dean Impson	1	Reference site
E1OLIF-KEERO	Toni Belcher	1	Indicates recovered Olifants before intensive farming at Citrusdal
E1OLIF-CITRU	Toni Belcher	1	Indicates impact of Citrusdal
E1OLIF-ALGER	Toni Belcher	1	EWR site
E1OLIF-CLANW	Toni Belcher, Dean Impson	1	Olifants river below Clanwilliam Dam, fish ranked on basis of within yellowfish sanctuary
E1OLIF-ZYPHE	Toni Belcher, Dean Impson	1	EWR site
E3OLIF-KLAWE	Toni Belcher, Dean Impson	1	Reflects impact of Klawer and adjacent grape/citrus farming - below confluence with Doring
E3OLIF-LUTZ	Toni Belcher	1	Stie above estuary
E2DORI-CALVI	Toni Belcher, Dean Impson	1	Ephemeral
E2DORI-KRUIT	Toni Belcher	1	Ephemeral
E2DORI-BIEDO	Toni Belcher	1	EWR site
E3DORI-OUDRI	Toni Belcher	1	EWR site, reference site
E1RATE-BEAVE	Toni Belcher, Dean Impson	1	Represents west-east flowing trib in upper Olifants, reference site for bedrock river
E1NOOR-OFFTA	Darragh Woodford, Dean Impson	1	Repesents east-west flowing trib in upper Olifants, lower extremity of wetted channel in summer due to abstraction
E1ROND-EWR03	Toni Belcher, Dean Impson	1	EWR site, select so that it can be used as a reference site
E1OLIF-KEURB	Darragh Woodford	1	Impacted site on Rondegat - represents east-west flowing trib in mid Olifants (link to Heks and Jan Dissels) - more impacted by agriculture
E3SOUT-N7BRI	Tocho, Dean Impson	1	Ephemeral - northern-most trib in WMA, probably dry for most of year
E2HOUD-RIETC	Toni Belcher	1	Site is at exit point of an intensely farmed catchment at start of Doring - on bank in conservatory area
E2RIET-KATBA	Toni Belcher	1	Site shows river recovery below an intensely farmed catchment area
E2LEEU-GAUGE	Toni Belcher	1	Near dwaf weir - good management info site
E2GROO-EWR06	Toni Belcher	1	EWR site
E2BRAN-VOGEL	Toni Belcher	1	Potential reference site
E2DRIE-SANDD	Toni Belcher	1	River impacted by agriculture within southern Cedarberg
E2MATJ-BRIDG	Toni Belcher, Dean Impson	1	D/s large wetland
E2TRAT-WUPPE	Toni Belcher	1	Cedarberg trib - impact of Wuppertal
E2BIED-WELBE	Toni Belcher	1	Cedarberg trib - impact of agriculture
E2BRAN-TRAVE	Toni Belcher, Dean Impson	1	D/s of Bushmanskloof Reserve and u/s of many farm dams - possible site for future dam development
E2OORL-OORLO	Dean Impson	1	Potential reference site
E2TANK-OUDER	Dean Impson	1	Ephemeral, reference site
E2TANK-ELAND	Toni Belcher	1	Ephemeral stream - d/s of large wetland
E3HANT-R27RO		1	Ephemeral - northern-most trib in WMA, probably dry for most of year
G3VELO-REDEL	Toni Belcher	1	U/s Ramsar wetland
G3KRUI-R365B	Toni Belcher	1	U/s Ramsar wetland
G3KRUI-PIKET		1	U/s Ramsar wetland
G3LANG-REDEL	Toni Belcher	1	Ephemeral stream - u/s of wetland/pan in Sandveld
G3JAKK-KOOKF	Toni Belcher	1	Ephemeral stream - u/s of wetland/pan in Sandveld

Table 20. WMA 18 Breede

RHP Site Code	PROVINCE	Site Type	ECOREGION	MAJOR RIVERS	TRIBUTARY	Original Site Name / Site Code	Site description	LATITUDE	LONGITUDE	HISTORICAL DATA RECORD	
										EARLIEST	LATEST
H1BREE-MOOIP	Western Cape	E	23.03	Breede	Breede	EWR1	Breede EWR Site 1, downstream of Wit Brug on the farm Mooiplaas	-33.51764	19.18165		2000
H1MOLE-GWEIR	Western Cape	R	23.03	Breede	Molenaars	EWR2	Breede EWR Site 2, downstream of DWAF gauging weir	-33.72077	19.18920		2000
H4BREE-LACHA	Western Cape	R	19.06	Breede	Breede	EWR3	Breede EWR Site 3, upstream of La Chasseur	-33.81197	19.68617		2000
H7BREE-FELIX	Western Cape	R	22.02	Breede	Breede	EWR4	Breede EWR Site 4, downstream of Felix Unite camp on the Farm Ou Werf	-34.15127	20.48147		2000
H6RIVI-GREYT	Western Cape	R	22.04	Breede	Riviersonderend	EWR5	Breede EWR Site 5, at Greyton campsite	-34.06828	19.61450		2000
H6RIVI-CONFL	Western Cape	P	22.02	Breede	Riviersonderend	Proposed macro site	Above confluence with Breede River	-34.06940	20.27935		
H6BAVI-GWEIR	Western Cape	R	22.04	Breede	Baviaans	EWR6	Breede EWR Site 6, upstream of DWAF weir	-34.02451	19.55709		2000
H1BREE-WITBR	Western Cape	P	23.03	Breede	Breede	Proposed macro site	At roadbridge near Mitchells Pass road, Witbrug	-33.42083	19.26667		
H1WIT-TWEED	Western Cape	R	23.03	Breede	Wit	Wit	Upstream of Tweede Toll (upstream of bass distribution)	-33.5702	19.15		2005 (Lowe)
H1WITE-UNSPE	Western Cape	P	23.03	Breede	Witels	Proposed macro site		-33.44339	19.35600		
H1KOEK-UCDAM	Western Cape	R	23.03	Breede	Koekedou		Upstream of Ceres Dam some 7 km from source, upstream of Escom power lines which cross the valley (upand plateau)	-33.33861	19.26611	1996	
H1DWAR-CERES	Western Cape	P	23.03	Breede	Dwars	Proposed macro site	Near Ceres	-33.34028	19.29651		
H1TITUS-ACHTE	Western Cape	P	23.02	Breede	Titus	Proposed macro site	Downstream of weir on farm Achtertuin	-33.39485	19.37191		
H2HEX-AMAND	Western Cape	P	23.02	Breede	Hex	Proposed macro site	Reserve site - bottom site Amandels	-33.53195	19.54072		
H4NUY-ABDAM	Western Cape	P	23.02	Breede	Nuy	Proposed macro site	Above the dam	-33.57347	19.70805		
H4NUY-LOWER	Western Cape	P	23.04	Breede	Nuy	Proposed macro site	Lower river	-33.71315	19.49520		
H1HOLS-UNSPE	Western Cape	P	23.03	Breede	Holsloot	Proposed macro site	Anywhere on Holsloot (above farming influence and below dam)	-33.75174	19.32940		
H1ELAN-TUNNE	Western Cape	R	23.03	Molenaars	Elandpad	H1ELAN-TUNNE	Immediately after tunnel road to left, cross and walk up river for 500m	-33.73333	19.115		
H4HOEK-MODDE	Western Cape	E	23.02	Breede	Hoeks	H4HOEK-MODDE	General site location, to confirm by groundtruthing	-33.85833	19.40833		
H4KEIS-MCGRE	Western Cape	E	19.06	Breede	Keisers	H4KEIS-MCGRE	At DWAF weir, between McGregor and Robertson	-33.93333	19.845		
H6DUTO-WEIR1	Western Cape	R	19.04	Breede	Du Toits	H6DUTO-WEIR1	Upstream of DWAF weir	-33.94167	19.17083		
H7TRAD-BARRY	Western Cape	P	19.08	Breede	Tradouw	Proposed macro site	Below Barrydale, above pass	-33.92812	20.70969		
H7BUFF-SUURB	Western Cape	E	22.02	Breede	Buffelsjags	H7BUFF-SUURB	At Suurbrak	-34.00417	20.65833		
H7BUFF-ABNR2	Western Cape	P	22.02	Breede	Buffelsjags	Proposed macro site	Below Dam, at N2	-34.07684	20.52912		
H3KING-MONTA	Western Cape	P	19.07	Breede	Kingna	Proposed macro site	Below Montague	-33.79030	20.13073		
G4PALM-NUWEB	Western Cape	R	19.04	Palmiet		G4PALM-NUWEB	Hottentots Holland Nature Reserve	-34.05833	19.04167		2003
G4PALM-GRABO	Western Cape	E	19.04	Palmiet		G4PALM-GRABO	Grabouw Town Bridge	-34.1517	19.02468		2003
G4PALM-KOGEL	Western Cape	R	19.04	Palmiet		G4PALM-KOGEL	Kogelberg Nature Reserve	-34.325	18.99		2003
G4BOT-DORIN	Western Cape	E	19.06	Bot		G4BOT-DORIN	Wendy- Doringkloof	-34.11663	19.235		2005
G4SWAR-GENAD	Western Cape	P	19.06	Swart		Proposed macro site	Near Genadendal road	-34.25575	19.221567		2005
G4KLEI-GOUDI	Western Cape	E	19.06	Klein		G4KLEI-GOUDI	Goudini	-34.37838	19.23261		2005
G4UILK-PAARD	Western Cape	E	19.05	Uilkraal		G4UILK-PAARD	Gansbaai Road	-34.45675	19.60427		2005
G5HEUN-RIVER	Western Cape	E	22.03	Heuningnes		G5HEUN-RIVER	Riverside farm, rd to Struisbaai	-34.68861	20.03361		2005
G5NUWE-UNSPE	Western Cape	P	19.05	Nuwejaars		Proposed macro site	Above existing site in ecoregion 19 (Brakpan)	-34.56101	19.75901		
G5KARS-SOUT	Western Cape	E	22.04	Kars		G5KARS-SOUT	Sout Kloof rd to Stormsvlei, then Nooitgedacht	-34.47018	20.05452		2005
G5SOUT-KLIPD	Western Cape	E	22.04	Sout		G5SOUT-KLIPD	Klipdale	-34.30378	19.95745		2005

RHP Site Code	RHP REFERENCE SITE (Y/N)		RHP MONITORING SITE (Y/N)		ECOLOGICAL RESERVE SITE	IMPACT OF LAND USE (AT SITE & UPSTREAM)	PRESENCE OF SASS HABITAT TYPES					PRESENCE OF FISH FLOW-DEPTH CLASSES				PRESENCE OF COVER TYPES FOR FISH				
	CURRENT	POSSIBLE	CURRENT	POSSIBLE			SIC	SOC	VIC	VOC	GSM	FD	FS	SD	SS	MARG VEG	UNDER CUT BANKS	MACROPH YTES	SUBSTRA TE	WATER COLUMN
H1BREE-MOOIP				Y	Y	3 - Infilling of channel, loss of floodplain, some agriculture	3	2	0	2	4	2	3 to 4	4	4	2	2	2	4	4
H1MOLE-GWEIR		Y		Y	Y	1	5	3	1	2 to 3	1	4	4	3	2	3	4	0	4 to 5	4
H4BREE-LACHA		Y		Y	Y	2 (upstream dam)	4	4	4	4	4	3	3	5	3	5	0	4	3	5
H7BREE-FELIX		Y		Y	Y	1 to 2 (Swellendam upstream)	3	2	2	2	5	4	4	5	1	2	1	1	3	5
H6RIVI-GREYT		Y		Y	Y	2 (alien vegetation, Theewaterskloof Dam upstream)	5	5	4	5	5	2	5	4	4	5	1	4	2 to 3	4
H6RIVI-CONFL				Y																
H6BAVI-GWEIR		Y		Y	Y	2 (Small dam upstream)	5	3	5	3	1	4	5	2 to 3	2	4	4	2	5	3
H1BREE-WITBR				Y																
H1WIT-TWEED		Y		Y		1	5	4	4	4	2	2	4	5	4	4	3	3	5	5
H1WITE-UNSPE				Y																
H1KOEK-UCDAM		Y		Y	Y	landuse = minimal impact, dam u/s	3	4	3	3	3					3	2	4	3	3
H1DWAR-CERES				Y								2	2	4	3	2	3	3	3	4
H1TITUS-ACHTE				Y																
H2HEX-AMAND				Y								3	4	3	4	4	2	2	4	3
H4NUY-ABDAM				Y																
H4NUY-LOWER				Y								1	3	2	3	2	2	2	3	2
H1HOLS-UNSPE				Y								3	4	4	4	4	3	3	4	4
H1ELAN-TUNNE	Y	Y		Y		1 (trout farm, minimal impact)	5	4	4	3	2	3	4	4	4	4	3	3	5	4
H4HOEK-MODDE				Y		2	3	3	2	3	2									
H4KEIS-MCGRE				Y		4	2	3	2	2	2	1	2	2	4	3	2	1	2	2
H6DUTO-WEIR1		Y		Y		1	5	4	2	2	3									
H7TRAD-BARRY				Y																
H7BUFF-SUURB				Y		3	3	3	2	3	2									
H7BUFF-ABNR2				Y																
H3KING-MONTA				Y																
G4PALM-NUWEB		Y	Y	Y		0	3	3	3	3	2	1	3	1	3	2	0	1	2	2
G4PALM-GRABO			Y	Y		5	3	3	3	3	3	2	3	3	3	3	3	3	3	3
G4PALM-KOGEL		Y	Y	Y	Y	2	4	3	3	3	2	4	3	3	3	3	2	2	3	3
G4BOT-DORIN			Y	Y		2	5	3	4	4	4									4
G4SWAR-GENAD				Y																
G4KLEI-GOUDI			Y	Y		3	2	2	3	2	4									
G4UILK-PAARD			Y	Y		4	5	3	3	2	5	2	2	3	3	4	2	3	2	3
G5HEUN-RIVER			Y	Y		1	1	0	3	2	5	2	3	4	3	4	2	4	2	4
G5NUWE-UNSPE				Y																
G5KARS-SOUT			Y	Y		4	0	0	4	2	5									
G5SOUT-KLIPD			Y	Y		3	1	0	3	2	5									1

RHP Site Code	PRESENCE OF RIPARIAN VEGETATION ZONES			OVERALL SUITABILITY CONSIDERING SAMPLEBILITY AND INFORMATION			GENERAL COMMENTS: SAFETY AND ACCESIBILITY	Wetland(s) upstream or down stream of this site?	
	MARGINAL ZONE	LOWER ZONE	UPPER ZONE	Fish	SASS	RIP VEG		(Yes / No)	Describe (e.g. Large/ Small / Ramsar/ Importance)
H1BREE-MOOIP				4	3				
H1MOLE-GWEIR				5	4				
H4BREE-LACHA				4 to 5	4 to 5				
H7BREE-FELIX				3	3				
H6RIVI-GREYT				4	5				
H6RIVI-CONFL									
H6BAVI-GWEIR				5	5				
H1BREE-WITBR									
H1WIT-TWEED	4	4	4	4	5	4	Fairly safe (inside reserve), 300m walk upstream from campsite (difficult in high flow)		
H1WITE-UNSPE									
H1KOEK-UCDAM	3	3	3	3	4	3	Accessible by road to dam, but actual site down steep slope		
H1DWAR-CERES				3					
H1TITUS-ACHTE									
H2HEX-AMAND				3					
H4NUY-ABDAM									
H4NUY-LOWER				3					
H1HOLS-UNSPE				4					
H1ELAN-TUNNE				4	5		Easily accessible from N1, near Hugenot tunnel		
H4HOEK-MODDE					3		Accessible from farmland		
H4KEIS-MCGRE				3	2		Easily accessible at DWAF weir		
H6DUTO-WEIR1					4		Easily accessible at DWAF weir		
H7TRAD-BARRY									
H7BUFF-SUURB					3		Easy access from town, safety variable		
H7BUFF-ABNR2									
H3KING-MONTA									
G4PALM-NUWEB	3	3	3	2	3	3	Safe and accessable - in reserve		
G4PALM-GRABO	4	3	3	3	3	3	In town - safety slight issue		
G4PALM-KOGEL	3	3	3	3	3	3	Safe and accessable - in reserve		
G4BOT-DORIN	4	4		5	3				
G4SWAR-GENAD									
G4KLEI-GOUDI				3	1				
G4UILK-PAARD				4	2				
G5HEUN-RIVER				2	2			Y	Soetendalsvlei u/s, De Mond d/s
G5NUWE-UNSPE								Y	
G5KARS-SOUT				2	2			Y	
G5SOUT-KLIPD	1	1		3	2				

RHP Site Code	Contact Person	Priority (1=high, 2=medium, 3=low)	Motivation / rationale for selection of site
H1BREE-MOOIP	Bruce Paxton	1	EWR site
H1MOLE-GWEIR	Bruce Paxton	1	EWR site
H4BREE-LACHA	Bruce Paxton	1	EWR site
H7BREE-FELIX	Bruce Paxton	1	EWR site
H6RIVI-GREYT	Bruce Paxton	1	EWR site
H6RIVI-CONFL		1	
H6BAVI-GWEIR	Bruce Paxton	1	EWR site
H1BREE-WITBR	Dean Impson, Darragh Woodford	1	Mitchels pass below offtake - alien veg clearing
H1WIT-TWEED	Dean Impson, Darragh Woodford, Steven Lowe	1	Reference site
H1WITE-UNSPE	Geordie Ractliffe		
H1KOEK-UCDAM	Geordie Ractliffe	1	EWR site - Koekedouw Dam releases
H1DWAR-CERES	Dean Impson	1	Impacts from Ceres
H1TITUS-ACHTE		1	Agricultural impacts
H2HEX-AMAND	Toni Belcher, Dean Impson	1	EWR site
H4NUY-ABDAM		1	Represents tributary flowing from north - unimpacted
H4NUY-LOWER	Dean Impson	1	Represents tributary flowing from north - impacted
H1HOLS-UNSPE	Dean Impson	1	Represents highly disturbed rivers above Worcester
H1ELAN-TUNNE	Helen Dallas, Dean Impson	1	Reference site
H4HOEK-MODDE	Helen Dallas	1	Represents tributary flowing from south
H4KEIS-MCGRE	Helen Dallas, Dean Impson	1	Monitors impacts of McGregor and agriculture
H6DUTO-WEIR1	Helen Dallas	1	Represent a reference site for cobble bed foothill
H7TRAD-BARRY		1	Karoo portion of Buffelsjags river
H7BUFF-SUURB	Helen Dallas	1	Buffelsjags above dam
H7BUFF-ABNR2	Toni Belcher	1	Buffelsjags below dam
H3KING-MONTA	Toni Belcher	1	Tributary draining off of the Karoo
G4PALM-NUWEB	Toni Belcher, Helen Dallas	1	Reference site
G4PALM-GRABO	Toni Belcher, Helen Dallas	1	Reflects impact of Grabouw and fruit farming
G4PALM-KOGEL	Toni Belcher, Helen Dallas	1	EWR site - Kogelberg Dam releases, reference site for Rejuvenated foothill zone
G4BOT-DORIN	Chantel Petersen	1	Overberg river draining folded mnts
G4SWAR-GENAD	Chantel Petersen	1	Overberg river draining wheatfields
G4KLEI-GOUDI	Chantel Petersen	1	Catchment full of alien veg - important estuary
G4UILK-PAARD	Chantel Petersen, Dean Impson	1	Representative of southern most rivers of Overberg
G5HEUN-RIVER	Chantel Petersen, Dean Impson	1	Important wetland/pan system/De Mond Reserve
G5NUWE-UNSPE	Chantel Petersen	1	Important wetland/pan system
G5KARS-SOUT	Chantel Petersen	1	Important wetland/pan system
G5SOUT-KLIPD	Chantel Petersen	1	Different saline system on the Overberg

Table 21. WMA 19 Berg

RHP Site Code	PROVINCE	Site Type	ECOREGION	MAJOR RIVERS	TRIBUTARY	Original Site Name / Site Code	Site description	LATITUDE	LONGITUDE
G1BERG-BRBM1	Western Cape	R	19.04	Berg		BRM1	Berg River Baseline Monitoring Site, upstream of Berg River Dam	-33.95865	19.06933
G1BERG-BRMB2	Western Cape	E	24.06	Berg		BRM2	Berg River Baseline Monitoring Site, downstream of Berg River Dam	-33.8935	19.05017
G1BERG-BEJFB	Western Cape	P	24.06	Berg		Proposed macro site	Downstream of irrigation transfer inflow (below JFB)	-33.81230	18.95872
G1BERG-DALJO	Western Cape	E	24.06	Berg		G1BERG-DALJO	Daljasophat in Paarl, below sewage treatment works	-33.63056	18.975
G1BERG-BRBM4	Western Cape	E	24.06	Berg		BRM4	Berg River Baseline Monitoring Site, At Hermon, u/s of Lorelei diversion	-33.42	18.9695
G1BERG-BRBM5	Western Cape	E	24.06	Berg		BRM5	Berg River Baseline Monitoring Site, At Drieheuwels, d/s of Voelvlei Dam release outlet	-33.125	18.85583
G1BERG-BRBM6	Western Cape	E	24.06	Berg		BRM6	Berg River Baseline Monitoring Site, At Misverstand or alternative site below N7	-33.01517	18.785
G1WEMM-WEMME	Western Cape	E	24.06	Berg	Wemmershoek	G1WEMM-WEMME	Upstream road bridge to Paarl	-33.85417	19.03889
G1DWAR-KYLEM	Western Cape	E	19.04	Berg	Dwars	DWA2	At Kylemore	-33.91241	18.94391
G1KROM-GROEN	Western Cape	E	24.06	Berg	Krom	KROM	Groenfontein/Leiliefontein "old bridge"	-33.6275	19.02535
G1KLEI-TWEEJ	Western Cape	E	24.06	Berg	Klein Berg	G1KLEI-TWEEJ	Bridge to Tweejongengezelen	-33.25	19.105
G1WATE-WATER	Western Cape	R	23.03	Berg	Waterval	KLN1	In Watervan Nature Reserve	-33.3541	19.1095
G1KBER-R44BR	Western Cape	E	24.05	Berg	Klein Berg	KLN5	Above R44 bridge at diversion weir	-33.21907	18.97433
G1TWEN-AWEIR	Western Cape	R	23.03	Berg	Twenty-four	T241	Above weir	-33.13502	19.06253
G1TWEN-HALMA	Western Cape	E	24.04	Berg	Twenty-four	G1TWEN-HALMA	Above R44 near Halfmanshof	-33.15556	18.97778
G1MAAT-MATJI	Western Cape	E	24.04	Berg	Maatjies	G1MAAT-MATJI	At DWAF Weir	-33.04722	18.83194
G1PLAT-GOEDV	Western Cape	E	24.04	Berg	Platkloof	PLA1	At Goedverwaght	-32.86467	18.67928
G1SOUT-HAZEK	Western Cape	E	24.03	Berg	Sout	G1SOUT-HAZEK	Downstream Hopefield on road to Matjiesfontein	-33.01944	18.36389
G1BOES-KAPTE	Western Cape	R	24.03	Berg	Boesmans	BOS2	At Kapteinskloof	-32.7743	18.58187
G1WEMM-ABRID	Western Cape	R	19.04	Wemmershoek	Olifants	WRH1	Upstream road bridge	-33.83765	19.111
G2SILV-AWEIR	Western Cape	E	24.03	Silwerstroom		SLW01	At Waste water Treatment Works, in spring upstream of offtake point (weir)	-33.58187	18.36563
G2RIEB-RUSTF	Western Cape	E	24.05	Diep	Riebeeks	R10	Off R45 to Rustfontein	-33.42437	18.75138
G2DIEP-KALBA	Western Cape	E	24.05	Diep		D06	Downstream of road bridge to Kalbaskraal	-33.58333	18.64722
G2DIEP-N7BRI	Western Cape	E	24.03	Diep		D03	At N7 bridge	-33.80805	18.525
G2HOUT-ORANJ	Western Cape	R	19.03	Hout Bay		G2HOUT-ORANJ (Disa08)	In Oranjekloof Reserve	-34.0025	18.390830
G2HOUT-VICTO	Western Cape	E	19.03	Hout Bay		G2HOUT-VICTO (Disa07)	Upstream Victoria Road bridge	-34.0293	18.353830
G2SILV-SUNBI	Western Cape	E	19.03	Silvermine		G2SILV-SUNBI (SLM02)	app. 30m d/s Sunbird causeway. Confirm location	-34.11147	18.40952
G2KEYS-LISMO	Western Cape	E	19.03	Keysers		K4	Near Lismore Rd just u/s of M3 crossing	-34.03127	18.43994
G2KUIL-HINDL	Western Cape	E	24.03	Kuils		Kuil05	Hindle RD (Downstream Bellville WWTW)	-33.92935	18.67550
G2KUIL-LOWER	Western Cape	P	24.03	Kuils		Proposed macro site	Proposed macro site u/s of estuary	-34.06474	18.75306
G2EERS-JONKE	Western Cape	R	19.04	Eerste		G2EERS-JONKE (Eers01)	Inside the Reserve, at White Bridge	-33.99444	18.99444
G2EERS-SPIER	Western Cape	E	24.06	Eerste		G2EERS-SPIER (Eers04)	At Spier Wine Estate	-33.96886	18.78934
G2LOUR-VERGE	Western Cape	E	24.06	Lourens		VER (LRN05)	Vergelegen	-34.07503	18.88901
G2LOUR-BROAD	Western Cape	E	24.06	Lourens		BW (LRN04)	Broadway (Victoria road)	-34.09807	18.82722
G2SIRL-WIEDDE	Western Cape	R	24.06	Sir Lowry's Pass		G2SIRL-WIEDDE (SLP01)	Wedderwill Estate, at wooden bridge	-34.11611	18.90972
G2STEE-FORES	Western Cape	P	19.04	Steenbras		Proposed macro site	Upstream Steenbras dam, along N2 Forestry gate	-34.14557	18.96007

RHP Site Code	HISTORICAL DATA RECORD		RHP REFERENCE SITE		RHP MONITORING SITE		ECOLOGICAL RESERVE SITE	IMPACT OF LAND USE (AT SITE & UPSTREAM)	PRESENCE OF SASS HABITAT TYPES					PRESENCE OF FISH FLOW-DEPTH CLASSES				PRESENCE OF COVER TYPES FOR FISH				
	EARLIEST	LATEST	CURRENT	POSSIBLE	CURRENT	POSSIBLE			SIC	SOC	VIC	VOC	GSM	FD	FS	SD	SS	MARG VEG	UNDER CUT BANKS	MACRO PHYTES	SUBSTR ATE	WATER COLUMN
G1BERG-BRBM1	1951	2005		Y		Y		0	5	4	1	2	2	0	5	1	4	3	1	1	4	2
G1BERG-BRMB2	1993	2005				Y	Y?	2	5	5	1	2	3	2	4	1	4	2	2	2	3	3
G1BERG-BEJFB						Y																
G1BERG-DALJO	1951	2005				Y		5	1	1	3	3	4									
G1BERG-BRBM4	1951	2005				Y	Y	4	0	0	4	4	2	3	1	3	3	4	4	3	2	4
G1BERG-BRBM5	1951	2005				Y		3	1	2	4	4	3	4	2	4	4	4	4	4	3	4
G1BERG-BRBM6	1951	2005				Y		3	2	1	4	4	3	4	3	4	4	4	4	4	3	4
G1WEMM-WEMME	1993	2005			Y	Y		1	5	5	4	5	3	3	4	3	4	3	1	2	4	3
G1DWAR-KYLEM		2005			Y	Y		2	5	5	3	4	5	2	4	3	3	2	1	1	4	3
G1KROM-GROEN		2003			Y	Y		2	4	3	0	3	3	3	3	4	3	3	2	1	3	4
G1KLEI-TWEEJ						Y			4	4	0	1	2	2	3	2	3	2	1	1	3	2
G1WATE-WATER		2005	Y	Y	Y	Y		0	5	5	4	5	5	2	4	4	3	4	2	3	4	3
G1KBER-R44BR		2005			Y	Y	Y?	1	5	5	1	5	5	4	3	4	4	3	2	1	4	4
G1TWEN-AWEIR		2003	Y	Y	Y	Y		0	5	4	3	5	3	4	5	5	4	4	2	4	5	5
G1TWEN-HALMA	1993	2003			Y	Y		1	5	5	3	1	2	2	3	3	3	3	2	2	4	3
G1MAAT-MATJI	1993	2003			Y	Y		2	0	0	3	3	5	1	2	3	3	3	2	1	2	2
G1PLAT-GOEDV		2005			Y	Y		1	5	3	3	3	5	2	3	3	3	4	2	2	4	3
G1SOUT-HAZEK		2003			Y	Y		2	1	1	2	4	5	1	2	4	4	3	1	4	2	3
G1BOES-KAPTE		2005		Y	Y	Y		0	5	5	0	1	1	2	4	3	3	2	2	2	4	3
G1WEMM-ABRID		2005		Y	Y	Y		0	5	5	2	4	0	3	4	3	4	4	3	2	4	3
G2SILV-AWEIR		2004			Y	Y		1	0	0	4	4	4	0	0	1	5	4	2	2	2	3
G2RIEB-RUSTF	1997	2003			Y	Y		2	1	0	2	4	5	1	2	3	3	3	2	2	2	3
G2DIEP-KALBA	1997	2003				Y		2	2	1	2	4	5	1	1	4	3	3	2	2	2	3
G2DIEP-N7BRI	1997	2003				Y		2	0	1	3	5	4	1	2	4	3	3	3	2	3	4
G2HOUT-ORANJ				Y	Y	Y		0	5	3	0	1	1	1	3	4	3	3	2	1	4	3
G2HOUT-VICTO		2003			Y	Y		2	3	3	3	3	3	2	3	4	4	4	4	3	3	3
G2SILV-SUNBI		2004			Y	Y	Y?	1	4	4	3	3	4	2	4	2	4	3	3	3	3	3
G2KEYS-LISMO		2004			Y	Y		2	2	2	4	4	5	2	3	3	3	4	3	4	2	3
G2KUIL-HINDL		2004			Y	Y		2	2	2	4	4	4	4	4	4	4	4	2	4	2	4
G2KUIL-LOWER						Y																
G2EERS-JONKE	1993	2005	Y	Y		Y		0	5	3	3	2	2	3	5	4	4	4	2	2	4	3
G2EERS-SPIER	2004	2005			Y	Y		2	4	4	2	3	3	3	4	4	4	2	2	2	4	4
G2LOUR-VERGE	2000	2003			Y	Y		1	5	5	3	3	4	3	4	3	3	3	2	2	4	3
G2LOUR-BROAD	2000	2003			Y	Y	Y?	2	5	4	0	1	2	4	3	4	3	3	3	3	3	4
G2SIRL-WIEDDE	2004	2004		Y	Y	Y		0	5	5	3	2	1	2	4	3	3	4	2	1	4	3
G2STEE-FORES		2004			Y	Y		1	?	?	4	4	4	2	3	2	3	4	1	4	2	3

RHP Site Code	PRESENCE OF RIPARIAN VEGETATION ZONES			OVERALL SUITABILITY CONSIDERING SAMPLEBILITY AND INFORMATION			GENERAL COMMENTS: SAFETY AND ACCESIBILITY	Wetland(s) upstream or down stream of this site?	
	MARGINAL ZONE	LOWER ZONE	UPPER ZONE	Fish	SASS	RIP VEG		(Yes / No)	Describe (e.g. Large/ Small / Ramsar/ Importance)
G1BERG-BRBM1	3	3	3	4	4	4	Easily accesible		
G1BERG-BRMB2	3	3	3	1	4	2	Easily accesible	Y	Small, poor condition
G1BERG-BEJFB									
G1BERG-DALJO					3				
G1BERG-BRBM4	4	4	4	1	3	3	Easily accesible		
G1BERG-BRBM5	4	4	4	1	4	4	Easily accesible		
G1BERG-BRBM6	4	4	4	1	4	4	Easily accesible	Y	Berg River Estuary
G1WEMM-WEMME	4	4	4	5	5	5	Easily accesible		
G1DWAR-KYLEM	4	4	4	4	5	5	Easily accesible		
G1KROM-GROEN	3	4	4	3	3	3	Site gate locked		
G1KLEI-TWEEJ									
G1WATE-WATER	5	5	5	5	5	5	Easily accesible		
G1KBER-R44BR	5	5	5	3	5	4	Easily accesible		
G1TWEN-AWEIR	5	5	5	5	4	5	Easily accesible		
G1TWEN-HALMA	4	4	4	4	4	4	Easily accesible		
G1MAAT-MATJI	4	4	4	5	3	4	Easily accesible		
G1PLAT-GOEDV	2	2	2	3	3	4	Easily accesible		
G1SOUT-HAZEK	4	5	2	4	2	3	Easily accesible		
G1BOES-KAPTE	5	5	4	5	5	5	Easily accesible		
G1WEMM-ABRID	3	5	5	3	5	5	Easily accesible		
G2SILV-AWEIR	3	2	1	4	3	1	Property owned by City of Cape Town, Water Services, gate locked - key avail at Atlantis Water Softening Plant	Y	small upstream seepage
G2RIEB-RUSTF	3	4	3	3	4	3	Easily accesible		
G2DIEP-KALBA	4	4	3	3	4	2	Easily accesible		
G2DIEP-N7BRI	1	3	2	3	3	2	Easily accesible		
G2HOUT-ORANJ				3					
G2HOUT-VICTO				4	4	3			
G2SILV-SUNBI	?	?	?	3	5	4	Part of TM National Park - permit may be required?	Y	small - medium u/s and d/s
G2KEYS-LISMO	3	2	1	4	3	2	Located along pathway in POS	Y	small - medium
G2KUIL-HINDL	3	3	2	3	3	3			
G2KUIL-LOWER									
G2EERS-JONKE				4					
G2EERS-SPIER				3	4	?	Access via Spier complex, park near horse paddocks		
G2LOUR-VERGE				3			On Vergelegen Wine Estate		
G2LOUR-BROAD				3					
G2SIRL-WIEDDE	3	2	2	3	5	4	Private estate contact Wolfgang van Loeper 083 3098339		
G2STEE-FORES				3	4	4	Park on N2 and walk through gate	Y	

RHP Site Code	Contact Person	Priority (1=high, 2=medium, 3=low)	Motivation / rationale for selection of site
G1BERG-BRBM1	Helen Dallas/Geordie Ractliffe/Barry Clark	1	Berg Baseline Monitoring site and potential reference site
G1BERG-BRMB2	Helen Dallas/Geordie Ractliffe/Barry Clark	1	Berg Baseline Monitoring site - indicates impact of Berg River Dam
G1BERG-BEJFB	Alan Brown	1	Indicates impact of irrigation releases from Theewaterskloof Dam as well as Franschhoek impacts
G1BERG-DALJO	Helen Dallas	1	Indicates impact of urban development at Paarl
G1BERG-BRBM4	Helen Dallas/Geordie Ractliffe/Barry Clark	1	Berg Baseline Monitoring site - representative of middle Berg above Voelvlei Dam
G1BERG-BRBM5	Helen Dallas/Geordie Ractliffe/Barry Clark	1	Berg Baseline Monitoring site - indicates impact of Voelvlei Dam
G1BERG-BRBM6	Helen Dallas/Geordie Ractliffe/Barry Clark	1	Berg Baseline Monitoring site, representative of lower Berg river and conditions above the estuary
G1WEMM-WEMME	Toni Belcher, Tovho Ndiitwani, Dean Impson	1	Wemmershoek tributary - indicates impact of Wemmershoek dam and possible IFR releases
G1DWAR-KYLEM	Toni Belcher, Tovho Ndiitwani, Dean Impson	1	Indicates general state of lower Dwars tributary and impacts of agriculture/peri-urban development
G1KROM-GROEN	Toni Belcher, Tovho Ndiitwani, Dean Impson	1	Indicates the state of a number of similar east-west flowing tributaries (Hugo and Kampanjes) that are impacted mostly by agriculture
G1KLEI-TWEEJ	Toni Belcher, Tovho Ndiitwani, Dean Impson	1	Indicative of impacts of the Tulbagh valley - high abstraction and poor water quality
G1WATE-WATER	Toni Belcher, Tovho Ndiitwani, Dean Impson	1	Reference site
G1KBER-R44BR	Toni Belcher, Tovho Ndiitwani, Dean Impson	1	Indicates the state of the tributary below CCT diversion weir to Voelvlei Dam
G1TWEN-AWEIR	Toni Belcher, Tovho Ndiitwani, Dean Impson	1	Reference site
G1TWEN-HALMA	Toni Belcher, Tovho Ndiitwani, Dean Impson	1	Indicates the state of the tributary below CCT diversion weir to Voelvlei Dam
G1MAAT-MATJI	Toni Belcher, Tovho Ndiitwani, Dean Impson	1	Indicates the state of a tributary that is very different from other tributaries and has mostly agricultural impacts
G1PLAT-GOEDV	Toni Belcher, Tovho Ndiitwani, Dean Impson	1	Different tributary flowing off of Piketberg and relatively unimpacted - possible ref site
G1SOUT-HAZEK	Toni Belcher, Tovho Ndiitwani, Dean Impson	1	Representative of west-east flowig trib wih mostly agricultural impacts
G1BOES-KAPTE	Toni Belcher, Tovho Ndiitwani, Dean Impson	1	Different tributary flowing off of Piketberg and but impacted by agriculture
G1WEMM-ABRID	Toni Belcher, Tovho Ndiitwani, Dean Impson	2	Reference site
G2SILV-AWEIR	Candice Haskins, Dean Impson	1	Very different west coast, perennial river with good population of Galaxias zebratus
G2RIEB-RUSTF	Toni Belcher, Tovho Ndiitwani, Dean Impson	1	West coast river - impacted mostly by agriculture
G2DIEP-KALBA	Toni Belcher, Tovho Ndiitwani, Dean Impson	1	West coast river - impacted by Malmesbury wastewater discharge
G2DIEP-N7BRI	Toni Belcher, Tovho Ndiitwani, Dean Impson	1	West coast river- site in lower catchment above wetland and estuary
G2HOUT-ORANJ	Candice Haskins, Dean Impson	1	Main river flowing from back of Table Mountain - possible ref site in Reserve with small impact from Table Mnt dams
G2HOUT-VICTO	Candice Haskins, Dean Impson	1	Representative of lower river with impact from peri urban/urban development
G2SILV-SUNBI	Candice Haskins	1	Representative of Peninsula rivers (Schusters, Krom and Elsies) - small scale impacts, partially in National Parks grounds
G2KEYS-LISMO	Candice Haskins	1	Representative of Peninsula rivers (Sand river system) that flow through largely formal urban development
G2KUIL-HINDL	Candice Haskins	1	Water quality very poor due to upstream impacts, habitat good
G2KUIL-LOWER		1	Representative of some river recovery in lower river
G2EERS-JONKE	Helen Dallas, Dean Impson	1	Reference site
G2EERS-SPIER	Candice Haskins, Dean Impson	1	Representative of water quality impacts below Stellenbosch and flow modification from IBT
G2LOUR-VERGE	Toni Belcher, Tovho Ndiitwani, Dean Impson	1	Representative of farming impacts on rivers flowing (Sir Lowry's Pass) into False Bay
G2LOUR-BROAD	Toni Belcher, Tovho Ndiitwani, Dean Impson	1	Representative of urban impacts on lower False Bay
G2SIRL-WIEDDE	Candice Haskins, Dean Impson	1	Largely natural, good reference site
G2STEE-FORES	Candice Haskins, Dean Impson	1	Representative site for Steenbras river with impacts from mostly forestry

Appendix

List of participants in the workshops aimed at identifying national monitoring, reference and potential macro sites for the RHP

Acronyms

CSIR:	Council for Scientific and Industrial Research
DACE:	Dept of Agriculture, Conservation and Environment
DACET:	Dept of Agriculture, Conservation, Environment and Tourism
DEAT:	Dept of the Environment Affairs and Tourism
DTEC:	Dept of Tourism, Environment and Conservation
DWAF:	Dept of Water Affairs & Forestry
FRU:	Freshwater Research Unit, University of Cape Town
IWR:	Institute for Water Research
KNP:	Kruger National Park
NWRMP:	National Water Resources Monitoring Programmes
RDM:	Resource Directed Measures
RQS:	Resource Quality Services
UCT:	University of Cape Town

Appendix 1.1 List of participants: Water Management Areas in Gauteng, Limpopo and Mpumalanga, 22 February 2005, Pretoria

NAME	AFFILIATION	EMAIL
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* : these individuals did not attend the workshop but contributed to the selection and characterisation of sites in this region

Appendix 1.2 List of participants: Water Management Areas in Northern Cape, North West and Gauteng, 17 March 2005, Pretoria

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Appendix 1.3 List of participants: Water Management Areas in Kwazulu-Natal and the Eastern Cape, 24 May 2005, Port Elizabeth

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Appendix 1.5 List of participants: Final national RHP site selection workshop, 17/18 October 2005, Pretoria

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