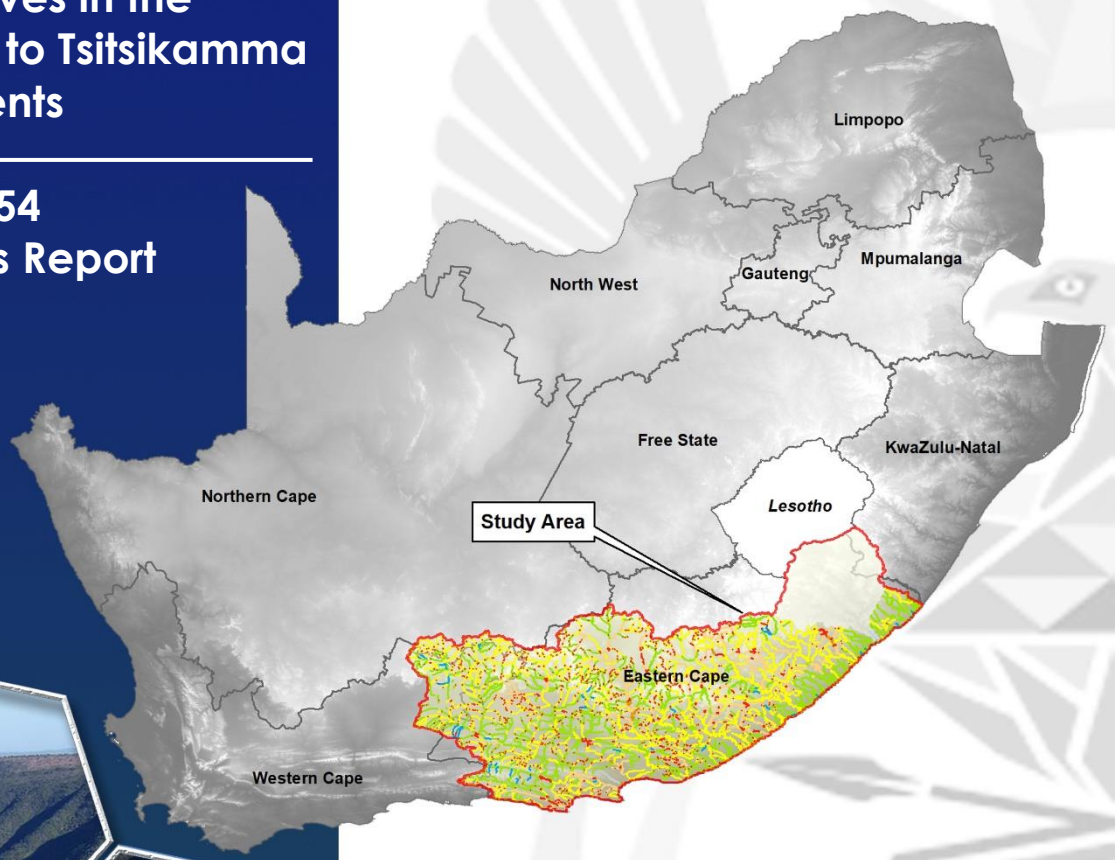
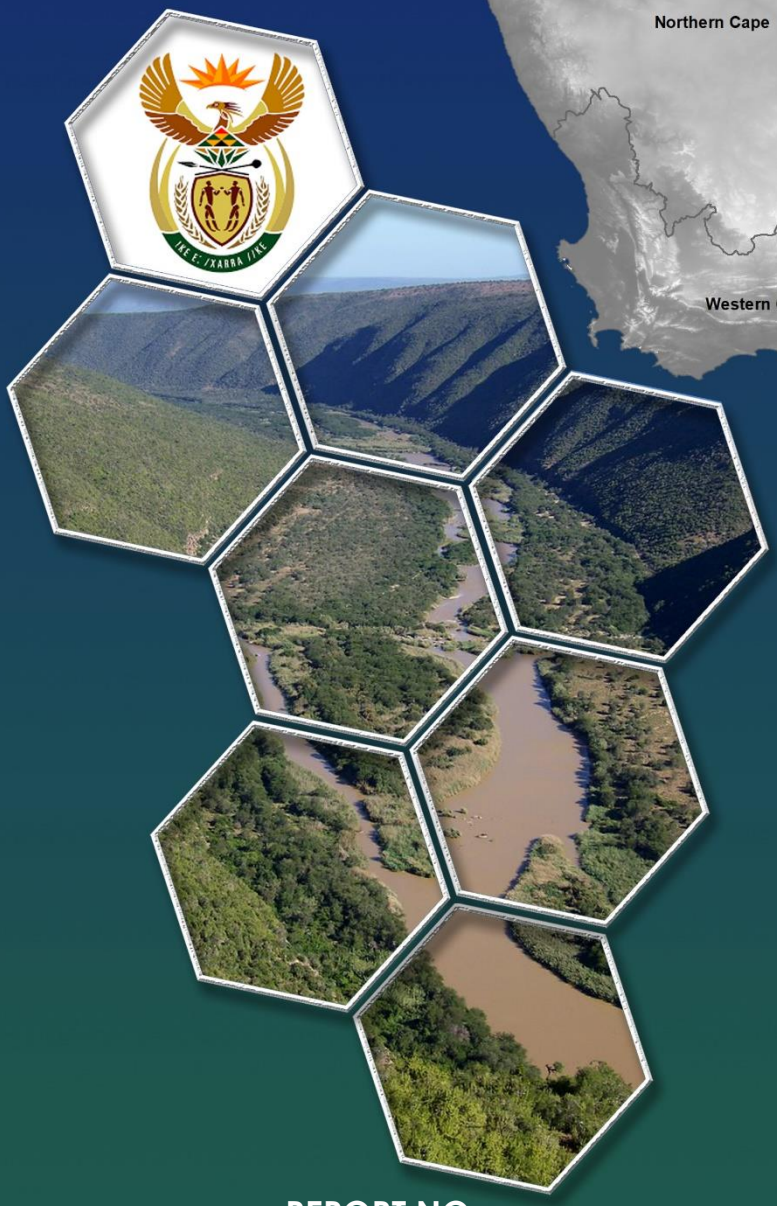
DEPARTMENT OF WATER AND SANITATION

Determination of Water Resource Classes, Reserve and the Resource Quality Objectives in the Keiskamma and Fish to Tsitsikamma Catchments

WP11354
Hydrocensus Report





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……..

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DOCUMENT INDEX

Reports as part of this project:

Bold type indicates this report

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LIST OF ACRONYMS

DWS	Department of Water and Sanitation
EC	Electrical Conductivity
GDE	Groundwater Dependant Ecosystem
GPS	Global Positioning System
GW	Groundwater
IUA	Integrated Unit of Analysis
MAP	Mean Annual Precipitation
ORP	Oxygen Reduction Potential
TDS	Total Dissolved Solids
WARMS	Water Authorisation and Registration Management System
WMS	Water Management Systems
WSP	Water Services Provider

1. INTRODUCTION

1.1 Introduction & Scope of Works

As part of the GroundTruth project team, JG Afrika's Groundwater Division was tasked to conduct the groundwater component of Resource Classes, Reserve Determination and Resource Quality Objectives (RQOs) for the Keiskamma and Fish to Tsitsikamma Catchment. Following previous contributions to the Inception Report, Gaps Analysis Report and Resource Units Report, respectively, a Groundwater Survey Report was required for the catchment as part of the broader Terms of Reference of the study.

The scope of works for the Groundwater Survey Report was as follows:

- Engage with the Regional DWS office to outline the process for the study
- Conduct a hydrocensus at strategic groundwater resources in the catchment
    - Verify groundwater monitoring sites
    - Confirm water level characteristics at groundwater monitoring sites
    - Confirm basic groundwater quality characteristics at groundwater monitoring sites
- Present and document preliminary results and recommendations

A hydrocensus was conducted from 01 August to 23 August 2022. This report presents the Groundwater Survey, inclusive of a hydrocensus with preliminary results, of the Keiskamma and Fish to Tsitsikamma Catchment.

1.2 Information Supplied

The following information has been used in the preparation of this report:

Reports

- Report referenced and titled: Fish to Sundays Internal Strategic Perspective (Chapter 5). Department of Water and Sanitation.

Maps

- Map sheets entitled, "3126 Queenstown" and "3324 Port Elizabeth" at a scale of 1:500 000, first editions of the Hydrogeological Map Series of the Republic of South Africa, supplied by the Directorate: Geohydrology, of the Department of Water Affairs and Forestry.
- WR (2012) shapefile of 1:1 000 000 geological map
- WR (2012) shapefiles of 1:500 000 geohydrology map

Data

- Water Authorisation and Registration Management System (WARMS) by The Department of Water and Sanitation.

- Water Management Systems (WMS) digital information, as supplied by The Department of Water and Sanitation as at February 2022.
- Hydstra digital information, as supplied by The Department of Water and Sanitation as at February 2022.
- WR 2012, shapefiles of geohydrological parameters, as supplied by The Department of Water and Sanitation.

Software

- ArcGIS Desktop 10.5
- Aquiworx Version 2.5.3.0 of 2016

2. PROJECT AREA DESCRIPTION

The Keiskamma and Fish to Tsitsikamma Catchment spans an area of approximately 66 246km^2 and is located in the south-eastern part of South Africa. Extending across the western part of the Eastern Cape the topography is generally flat with the northern portion of the catchment characterised by the mountain ranges of the interior plateau. Typically, coastal tropical forest, karoo and karroid and false grassland type vegetation predominate this catchment. Rainfall within the catchment is strongly influenced by the warm coastal currents of the Indian Ocean and generally occurs along the coastal regions throughout the year. The remaining portions of the catchment are predominated by summer rainfall.

The elevation profile across the catchment varies from 2446mamsl to sea level draining in a south eastern direction towards the Indian Ocean. Several surface drainage features form part of this catchment. These include Gamtoos, Sundays, Great Fish, Great Kei, Mbhashe and Mthatha Rivers.

The catchment has been subdivided into nineteen (19 No.) integrated Units of Analysis (IUA's) as shown in **Figure** *1***.** IUAs are homogenous areas consisting of significant water resources for which Water Resource Classes are determined. Based on a variety of geohydrological, management and geo-political criteria, the IUAs were further subdivided into prioritised groundwater IUAs as shown in

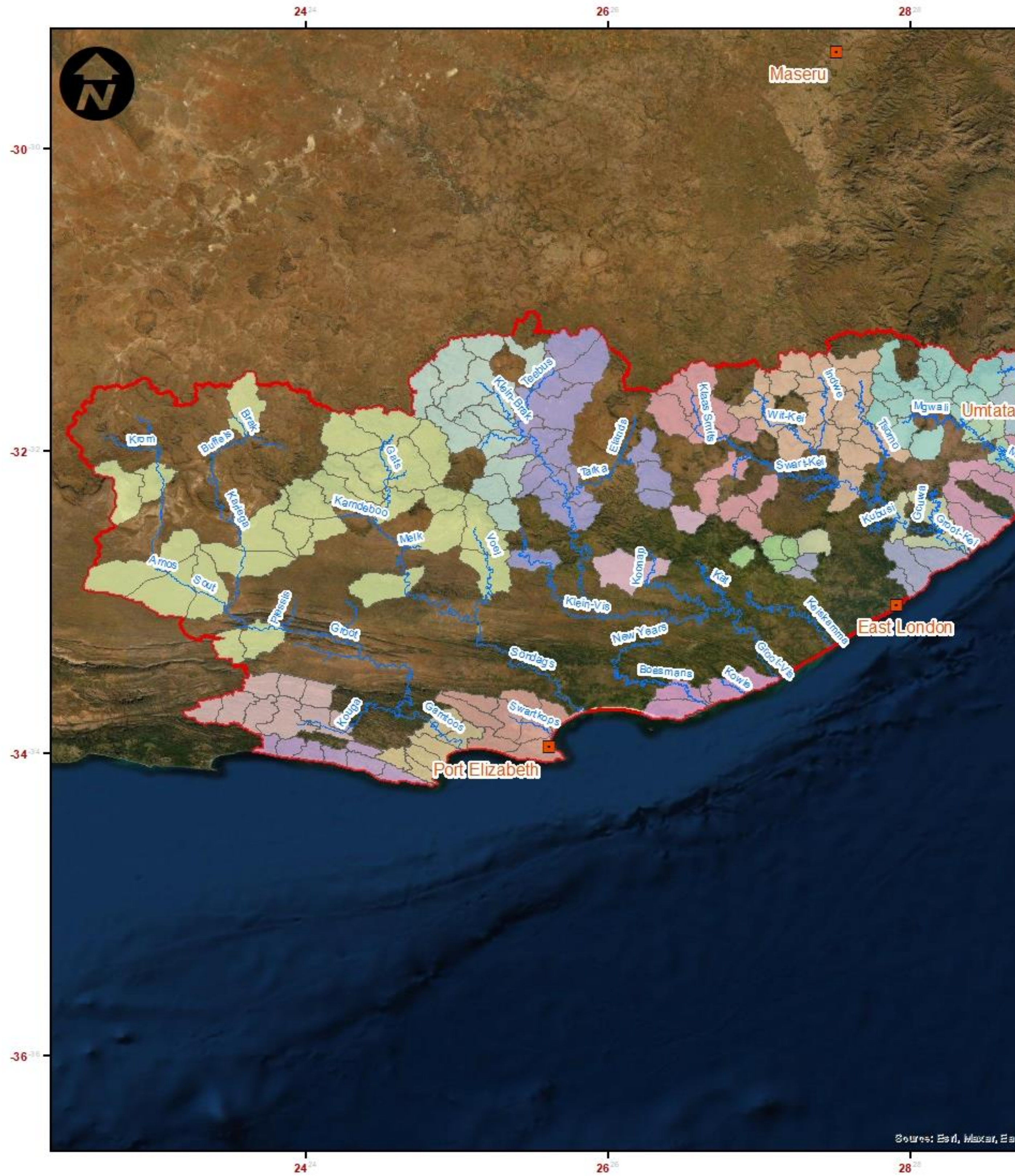
24
26
28
-30
-32
-34
-36
Maseru
Umtata
East London
Port Elizabeth
Krom
Buffels
Brak
Kariega
Gats
Kamdeboo
Melk
Voel
Amos
Sout
Plessis
Groot
Sondags
Klein-Brak
Teebus
Tarka
Elands
Klaas Smits
Indwe
Wit-Kei
Tsomo
Mgwali
Swart-Kei
Kubusi
Gcuwa
Groot-Kei
Koonap
Kat
Klein-Vis
New Years
Boesmans
Kowie
Groot-Vis
Keiskamma
Kouga
Gamtoos
Swartkops
Source: Esri, Maxar, Ea

Figure 2.

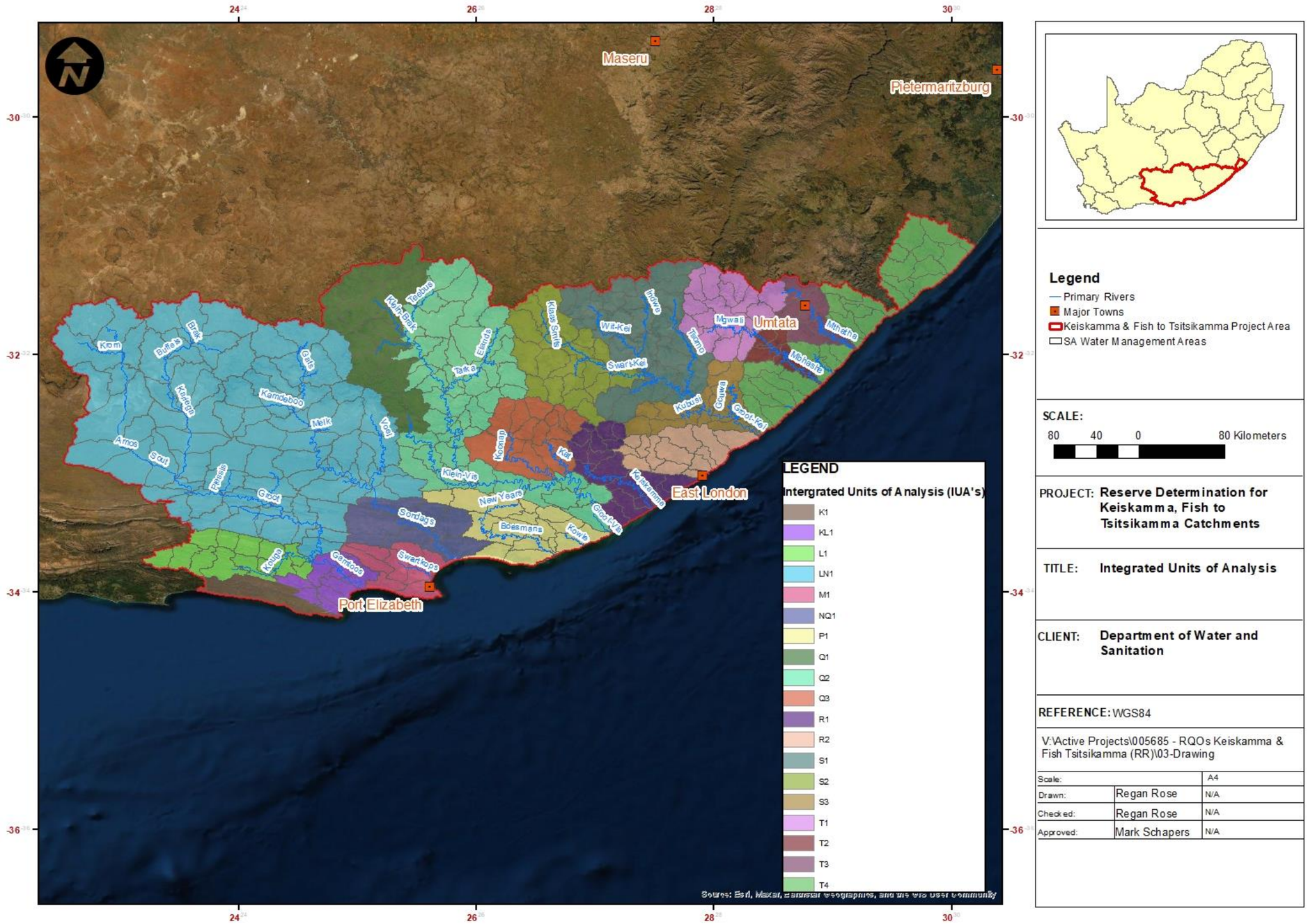

Figure 1: Keiskamma and Fish to Tsitsikamma Catchment indicating the Integrated Units of Analysis

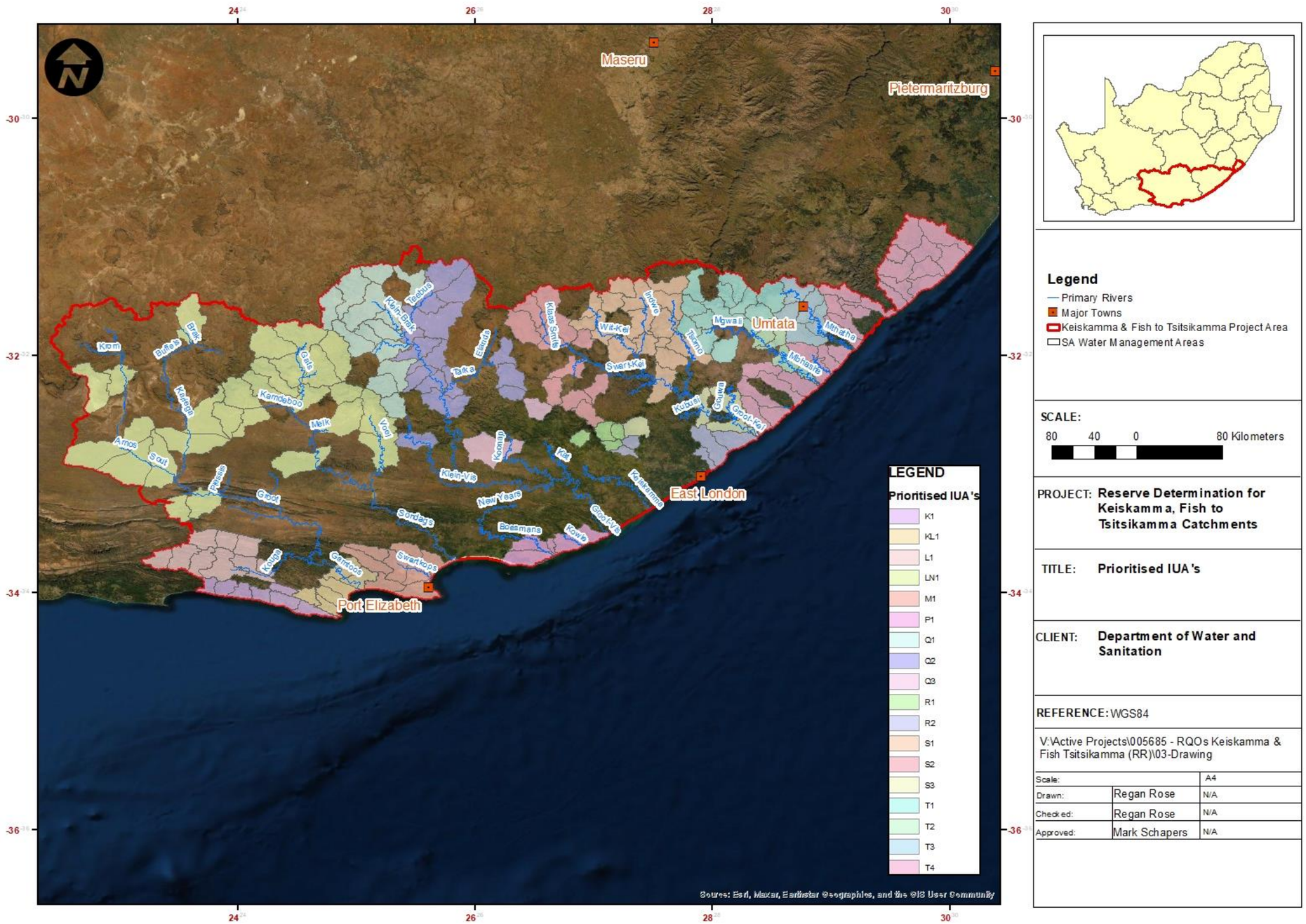

Figure 2: Keiskamma and Fish to Tsitsikamma Catchment indicating the Prioritised Groundwater Integrated Units of Analysis

3. DESKTOP REVIEW

3.1 Recharge

Based on WR2012 data recharge was estimated on a desktop level for the nineteen (19 No.) IUAs. Mean annual precipitation was used to calculate the mean recharge for each IUA. A summary of recharge calculations is presented in **Table 1.**

Table 1: Summary of Recharge for Integrated Units of Analysis

Integrated Units of Analysis	Recharge Area of IUA's (km^2)	Mean Annual Precipitation (m/a)	Mean Recharge (Mm^3/year)
K1	0.28	10327	758.71
KL1	0.55	15379	906.02
L1	0.93	15022	462.22
LN1	11.13	136663	6609.13
M1	0.81	15537	647.85
NQ1	1.17	12268	301.48
P1	2.02	24370	665.16
Q1	7.99	110094	6772.69
Q2	11.46	148086	7840.05
Q3	2.11	30256	1498.77
R1	3.40	38701	1308.08
R2	2.01	22067	777.45
S1	6.93	91830	5573.69
S2	6.30	80546	4671
S3	2.94	38764	2129.99
T1	3.22	5181	3362.74
T2	2.49	30953	1715.51
T3	2.95	41038	2314.45
T4	7.84	107707	6987.10

3.2 Regional Geology

Basement rocks in the catchment is represented by the Precambrian aged Gamtoos Group consisting mainly of quartzite, limestone and phyllite. The Gamtoos Group is unconformably overlain by the Cape Supergroup, comprising of the Table Mountain, Bokkeveld and Witteberg Groups of alternating quartzitic sandstone and shale. The Cape Supergroup is overlain by the Karoo Supergroup, comprising of the Ecca, Beaufort, Stormberg and Drakensberg Groups.

The Karoo Supergroup consists of a sequence of units, mostly of non-marine origin, deposited between the Late Carboniferous and Early Jurassic age. Late Jurassic aged dolerite sills and dykes intruded into the main Karoo basin.

The Uitenhage Group unconformably overlies older deposits of the Cape Supergroup in small rift basins, i.e. Algoa and Gamtoos Basins and comprise of poorly sorted conglomerate and subordinate sandstone, siltstone and mudstone. These rift basins formed mainly due to normal faulting during the break-up of Gondwana. Unconsolidated to semi-consolidated, palaeo-coastal calcareous sand and conglomerate deposits of the Algoa Group occur within the eastern portion of the Algoa Basin and the Bushman's River coastal plain. Significant alluvium deposits are associated with the major river systems like the Sundays River valley south of Kirkwood. Recent and reworked coastal sands occur within a narrow dune zone between Cannonvale and Port Alfred.

The regional geology is presented in **Table 2** and shown in **Figure 3.**

Table 2: Regional Geological Succession of Keiskamma and Fish to Tsitsikamma Catchment

Symbol on Map	Geological Time Scale (Period)	Lithological Unit		Description
		Sedimentary & Volcanic Rocks	Intrusive Rocks	
Qz	Quaternary	Aeolian sand	-	Aeolian sand
Q		Alluvium		Unconsolidated sediments
T-Qa	Nanaga	Nanaga Formation		Calcareous sandstone, sandy limestone
Kmb	Cretaceous	Mbotyi Formation		Dark greyish conglomerate sandstone
J-Ku	Jurassic	Uitenhage Group: Kirkwood Formation		Reddish greenish mudstone and sandstone
Jdr / Jd		Drakensberg Formation	Dolerite	Dolerite dyke and Sills-
				Basaltic lava, tuff, and agglomerate
Trc	Triassic	Clarens Formation	-	Yellowish-grey, pale-orange, or pink, very fine-grained sandstone
Tre		Elliot Formation		Brownish-red and grey mudstone, sandstone
Trm		Molteno Formation		Gritty sandstone, grey mudstone, shale, and occasional coal seams
P-Trb		Beaufort Group: Katberg Formation		fine-grained sandstone and red and green-grey mudstone
	Permian	Beaufort Group: Adelaide Formation		Red, purple, grey, and blue green mudstone subordinate sandstone
Pe		Ecca Group		Alternating succession of Sandstone, siltstone and mudstone
C-Pd	Carboniferous	Dwyka Formation		Tillite

Dw	Carboniferous/ Devonian	Witteberg Group: Weltevrede Formation		Shale, quartzite
Dms	Devonian	Witteberg Group:		Sandstone, feldspathic sandstone, arkose
Db	Devonian	Bokkeveld Group		Claystone, mudstone, Shale)
O-St	Silurian/Ordovician	Table Mountain Group		Quartzite
Ng	Namibian	Mpambanyoni Formation	Mapumulo Metamorphic Suite	Quartz feldspar gneiss
Nmp				Biotite garnet cordierites sillimanite gneiss and migmatite subordinate hornblende gneiss
Nk		Gamtoos Group: Klein River Formation	-	Quartzite, limestone and phyllite

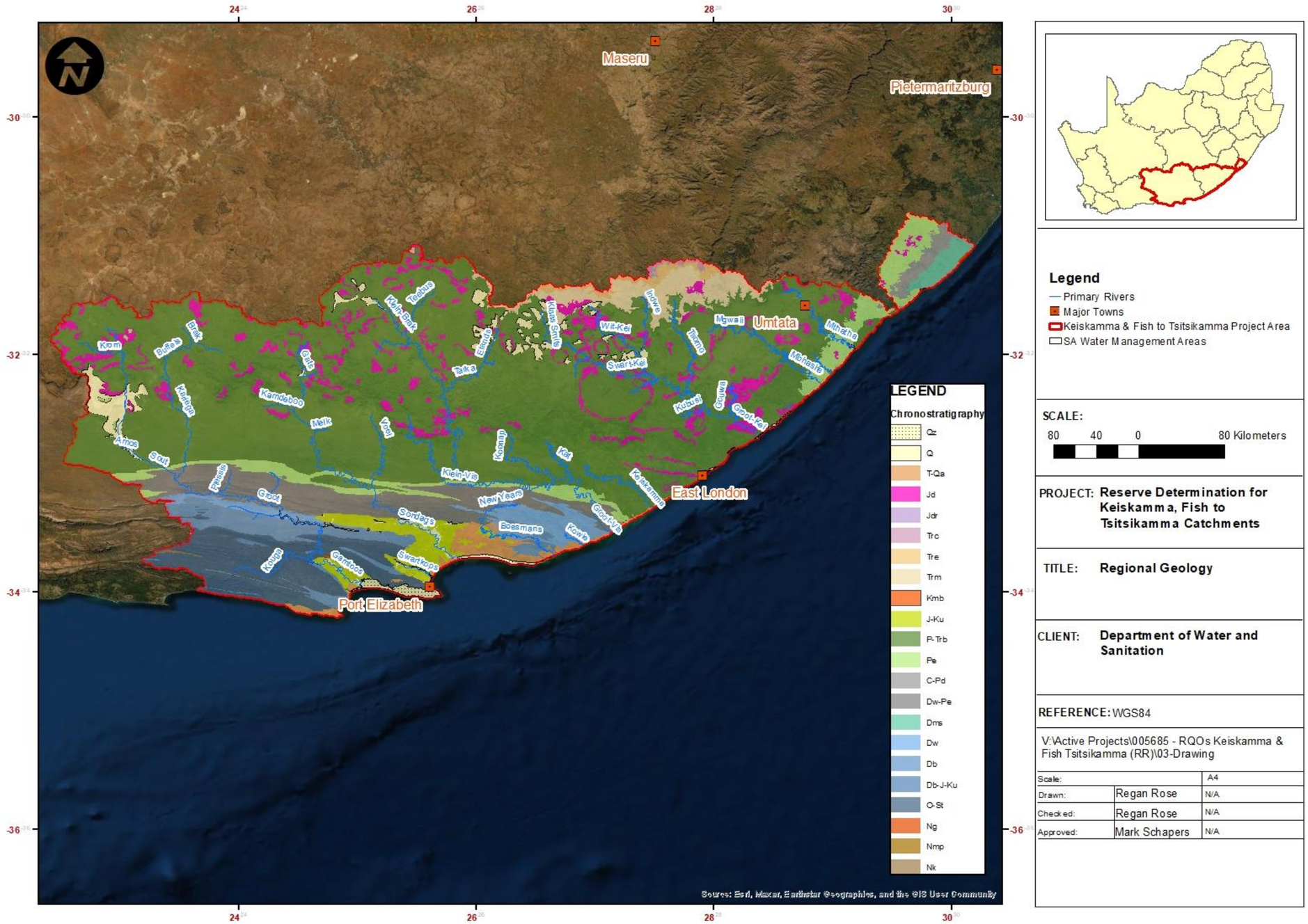

Figure 3: Regional Geology of the Keiskamma and Fish to Tsitsikamma Catchment

3.3 Regional Geohydrology

The regional geohydrology of the catchment is characterised by three types of aquifers, fractured, intergranular and intergranular and fractured.

The north eastern portion and to a lesser extent the north western extremity of the catchment is characterised by intergranular and fractured aquifer types. Isolated portions of the catchment, to the north, are underlain by a two layered intergranular and fractured aquifer type. Characteristically associated with the arenaceous rocks of the Beaufort Group the principal groundwater occurrence in the area is inferred to be “d2” and “d3”. According to the DWS geohydrological map series of Port Elizabeth (3324) median borehole yields are expected to be in the range of 0.1 to 0.5 l/s and 0.5 to 2.0l/s. The portions of the catchment underlain by the two layered inter granular and fractured aquifer type are anticipated to have borehole yields exceeding 5.0 l/s.

The south eastern extremity of the catchment, specifically along the coast is underlain by an intergranular aquifer type. This type of aquifer is typically associated with Quaternary aged porous sands of the coastal belt, alluvium and the semi consolidated calcareous sands and conglomerates of the Algoa Group. In accordance with the DWS geohydrological map series of Port Elizabeth the principal groundwater occurrence in the area is inferred to be “a2” and “a3”. Median borehole yields are anticipated to be in the range of 0.1 to 0.5l/s and 0.5 to 2.0l/s.

Fractured aquifer types predominantly underlie the central and western areas of the catchment and are generally associated with the quartz arenites of the Table Mountain and Witteberg Groups, as well as the Karoo dolerites. Typically, “b2”, “b3” and “b4” types occur. The occurrence of “b5” type aquifers is not uncommon in isolated patches, specifically towards the western margin of the catchment. Median borehole yields are anticipated to be in the range of 0.5 to 2.0l/s, 2.0 to 5.0l/s and 2.0 to 5.0l/s with higher borehole yields exceeding 5.0l/s, expected in “b5” aquifers.

Elevated borehole yields can occur especially adjacent to defined valleys and near to river channels within the area due to favourable recharge conditions. The regional geohydrology of the catchment is presented in **Figure 4**.

Groundwater quality, as contoured in the DWS geohydrological map series, indicates Electrical Conductivity (EC) to be in the range of 0-70mS/m towards the north eastern region of the catchment and isolated portions along the northern, north western and south western parts. The south eastern and central parts of the catchment are predominated by electrical conductivities in the rage of 70-300mS/m and 300-1000mS/m. These is an isolated occurrence in the western extremity of the catchment which is inferred to have ECs that exceed 1000mS/m. The regional groundwater quality of the catchment is presented in **Figure 5**. The improved groundwater quality along the north eastern and south western coast parts reflect higher rainfall and elevated groundwater recharge conditions.

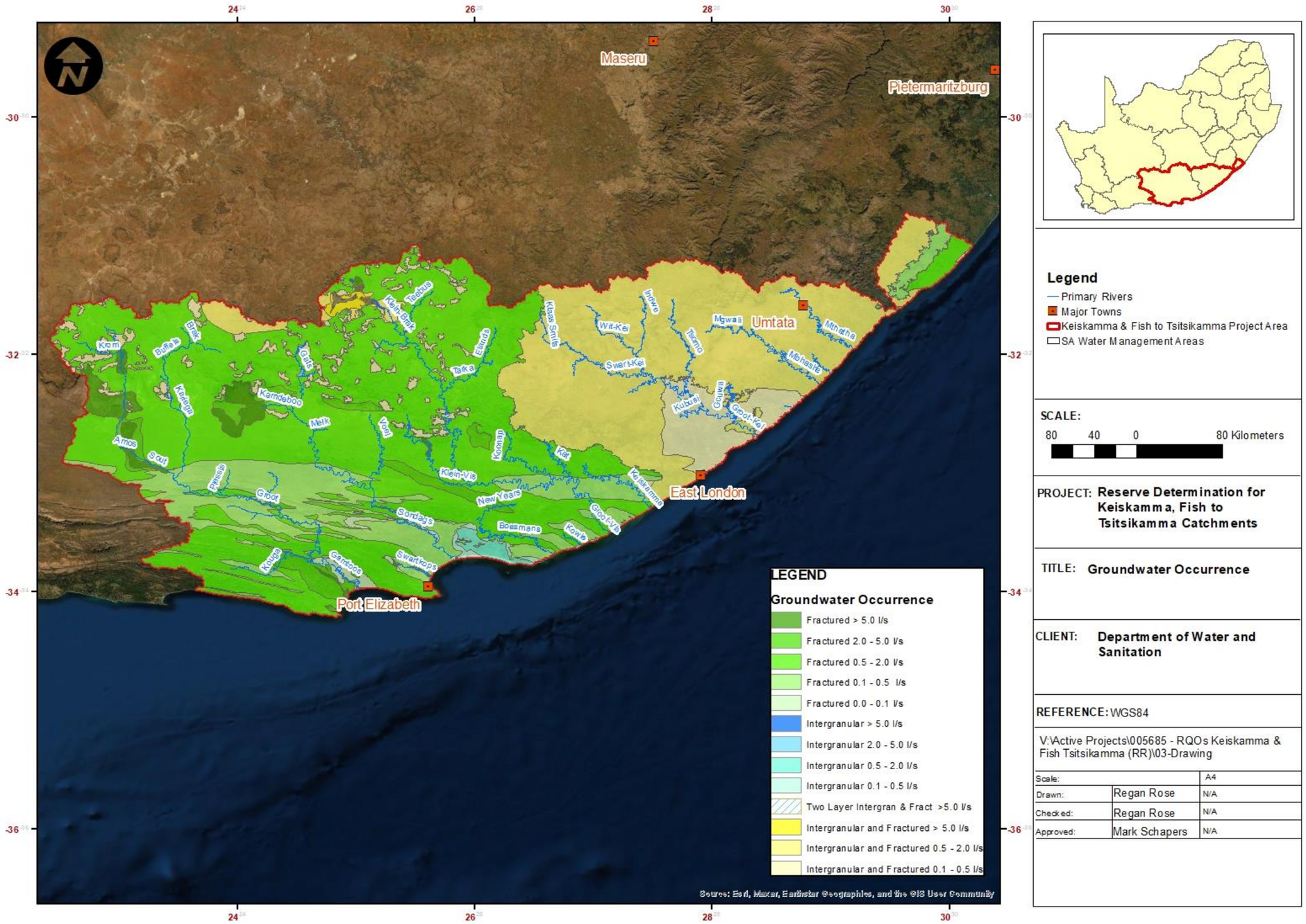

Figure 4: Regional Geohydrology of the Keiskamma and Fish to Tsitsikamma Catchment

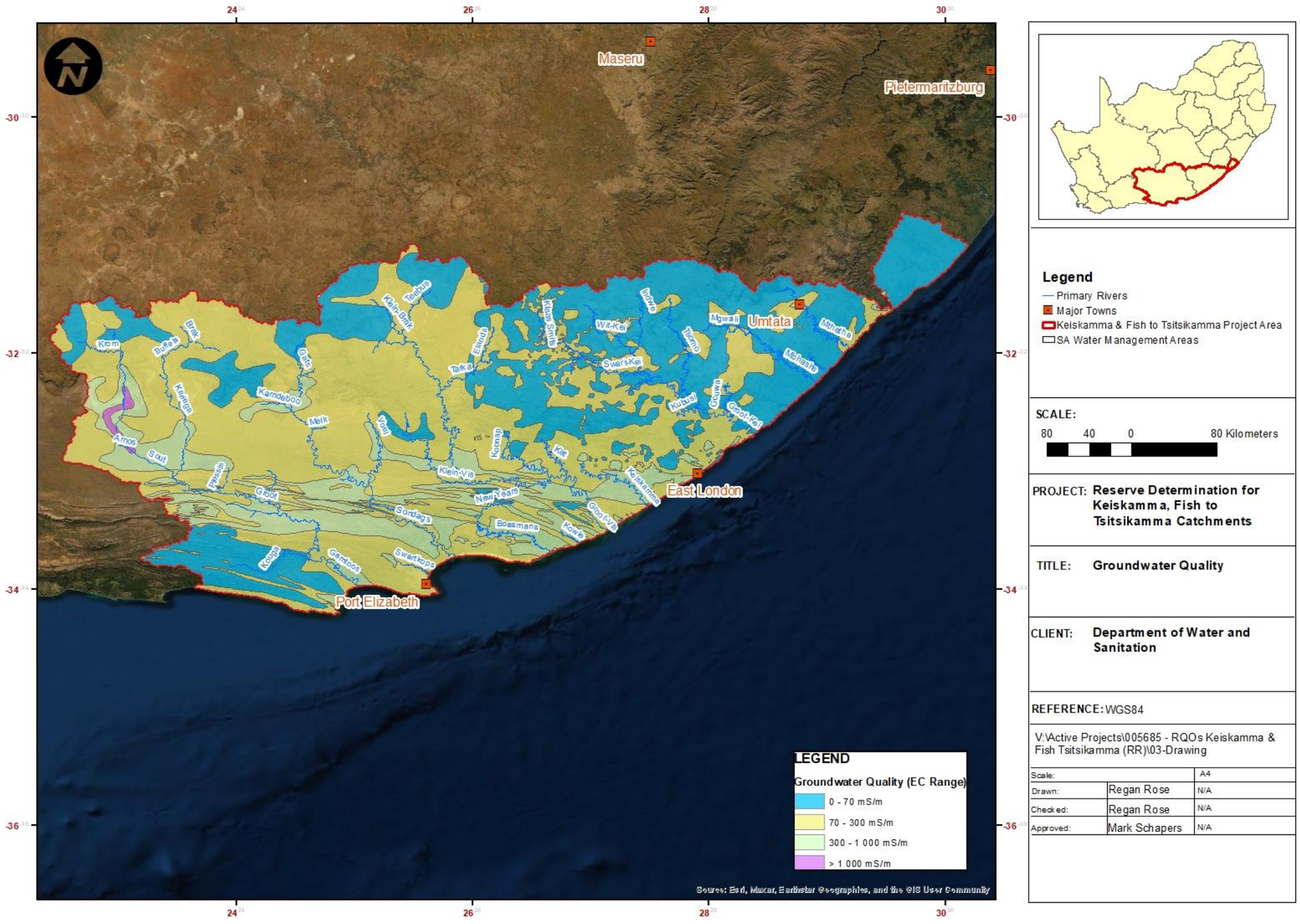

Figure 5: Groundwater Quality of the Keiskamma and Fish to Tsitsikamma Catchment

3.4 Existing Groundwater Resources and Groundwater Use

Existing groundwater data was obtained from the Water Management System (WMS), Hydstra and Water Authorisation and Registration Management System (WARMS) databases. The WMS database produced four hundred and three (403 No.) groundwater resources of which forty two (42 No.) are dedicated DWS water quality monitoring sites, whilst the Hydstra database produced one hundred and twenty five (125 No.) groundwater resources within the catchment. The WMS groundwater monitoring sites are presented in **Annexure A**, whilst the Hydstra monitoring sites are presented in **Annexure B**.

The WARMS data produced four thousand eight hundred and fifty three (4853 No.) registered groundwater users. According to WARMS the agricultural (irrigation) sector has the largest registered volume of approximately 82Mm^3/annum, which represents about 55% of the registered groundwater use in the catchment. This is followed by the water supply services sector (mainly municipal) with a registered volume of approximately 53Mm^3/annum or 36% of registered groundwater use in the catchment. Schedule 1 and Livestock Watering have registered volumes of 4.28Mm^3/annum and 4.14Mm^3/annum respectively. The registered groundwater use volume per water use sector is outlined in Error! Not a valid bookmark self-reference. and shown on Error! Reference source not found.. The total registered groundwater use for the catchment is 149Mm^3/annum.

Table 3: Groundwater Usage per Water Use Sector

Water Use Sector	Registered Volume (million m^3/annum)	Percentage (%)
Agriculture: Aquaculture	0.02	0.01
Agriculture: Irrigation	82.34	55.14
Agriculture: Livestock Watering	4.14	2.87
Industrial (Urban)	1.64	1.10
Industrial (Non-Urban)	1.15	0.77
Mining	0.22	0.15
Power Generation	0.68	0.46
Recreation	1.04	0.69
Schedule 1	4.28	2.87
Urban (Excluding industrial and domestic)	0.01	0.01
Water Supply Services	53.81	36.03
TOTAL GROUNDWATER USE	**149.33**	

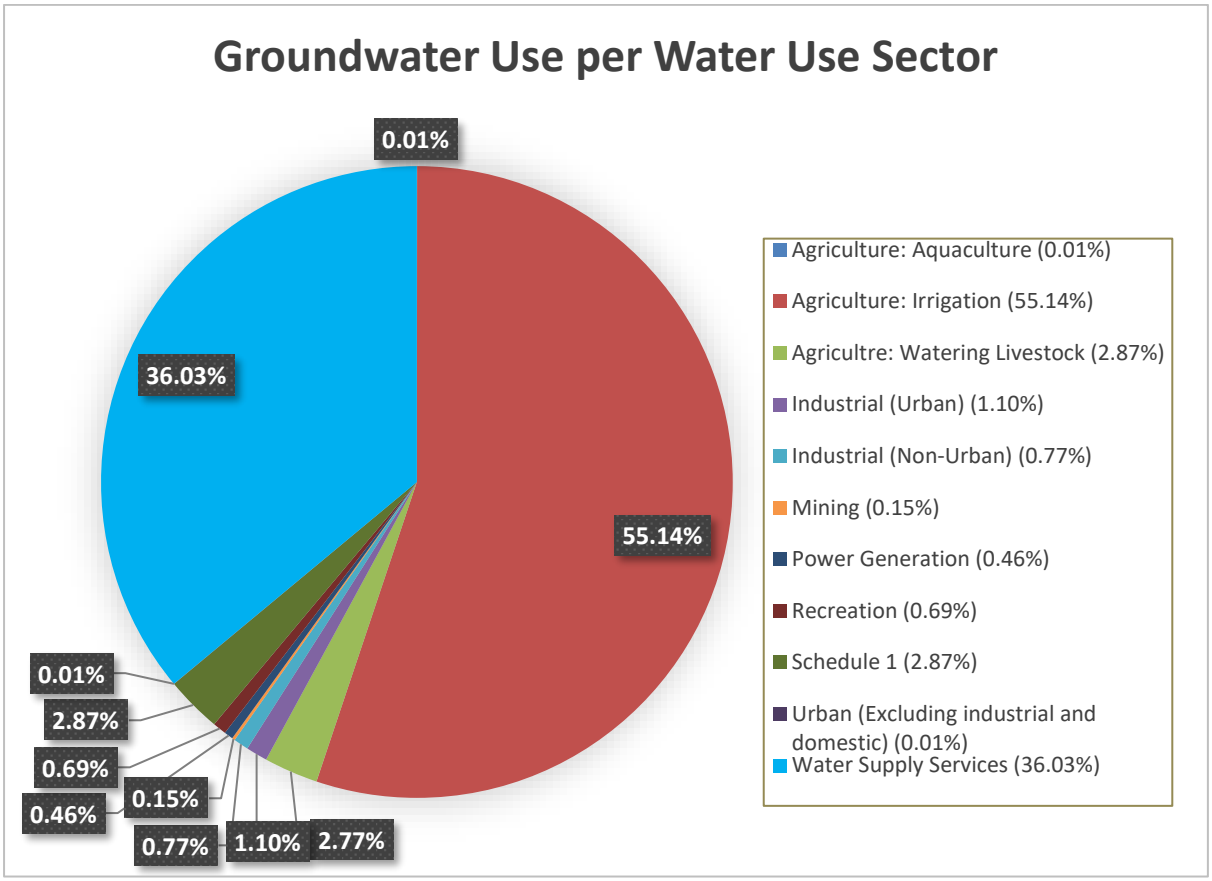

Figure 6: Groundwater Use per Water Use Sector within the Keiskamma and Fish to Tsitsikamma Catchment

As outlined in Fish to Sundays ISP Report (DWAF, 2005) increased usage of groundwater sources within the agricultural and water supply sectors is to be expected as the predominant land use within the catchment includes intensive crop cultivation and irrigated fruit farming as well as cattle ranching, sheep, mohair goat and game farming, as well as dairy farming. Abstraction of water from groundwater sources has proven to be easier and more feasible for farmers as opposed to abstraction from other water supply sources. The water supply services sector have, in the recent years, also been relying and have invested more on groundwater to augment the current water supply within the catchment. Several towns, specifically within the Karoo area, rely solely on groundwater for domestic water supply purposes. These towns include Graaf Reinet, Middelburg, Aberdeen and Tarkastad. Recent droughts have also resulted in increased groundwater use at towns such as Jeffrey's Bay, Port Alfred and Greater Gqeberha area. Images of some of the production boreholes used for domestic water supply within the Jeffrey's Bay, Coega Ventershoek Wellfields (Gqeberha supply system), as well as Port Alfred area are shown in **Table 4** and **Table 5** overleaf.

The groundwater resources as per the WMS and Hydstra databases, are represented in **Figure 7** and **Figure 8,** respectively. The distribution of all WARMS groundwater users for the catchment is shown in **Figure 9**.

Table 4: Images of Production Boreholes Within the Jeffery's Bay and Coega Ventershoek Wellfields

<table>
<tr>
<td> 
Production Borehole within the Coega Ventershoek Wellfield</td>
<td> 
Domestic and Industrial Water Supply Boreholes within the Coega Ventershoek Wellfield</td>
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<tr>
<td> 
Domestic Water Supply Production Boreholes within the Jeffrey's Bay Wellfield</td>
<td> 
View from the Jeffrey's Bay Wellfield overlooking the ocean in the background</td>
</tr>
</table>

Table 5: Images of Domestic Water Supply Boreholes in Port Alfred

Domestic Water Supply Production Borehole in Port Alfred (Borehole ID: P4N0010)

Domestic Water Supply Production Boreholes in Port Alfred (Borehole ID: P4N0011)

Domestic Water Supply Production Boreholes in Port Alfred (Borehole ID: P4N0012)

Production Borehole in *the Boesmansrivier Wellfield in Port Alfred*

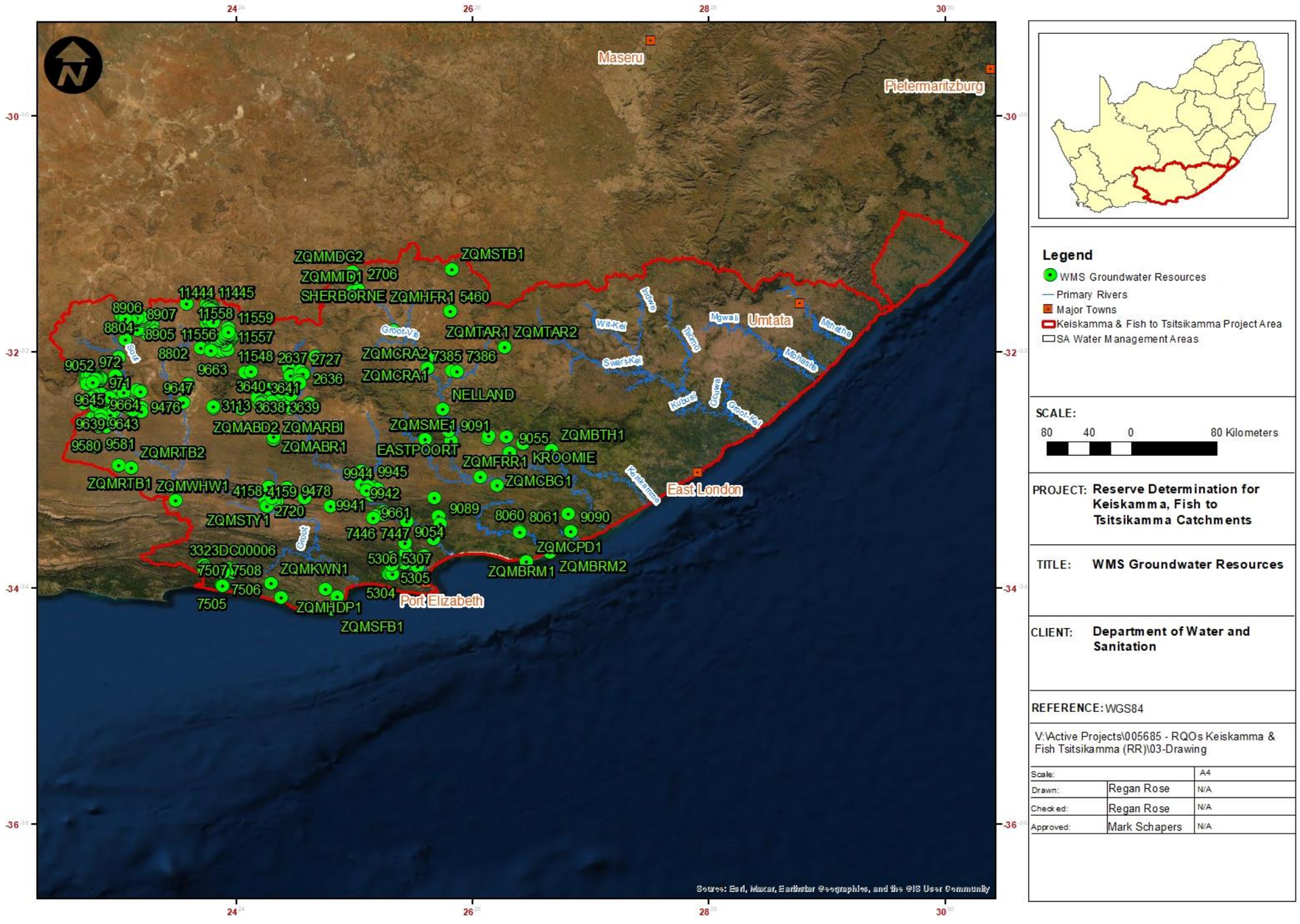


Figure 7: Existing WMS Groundwater Resources within the Keiskamma and Fish to Tsitsikamma Catchment

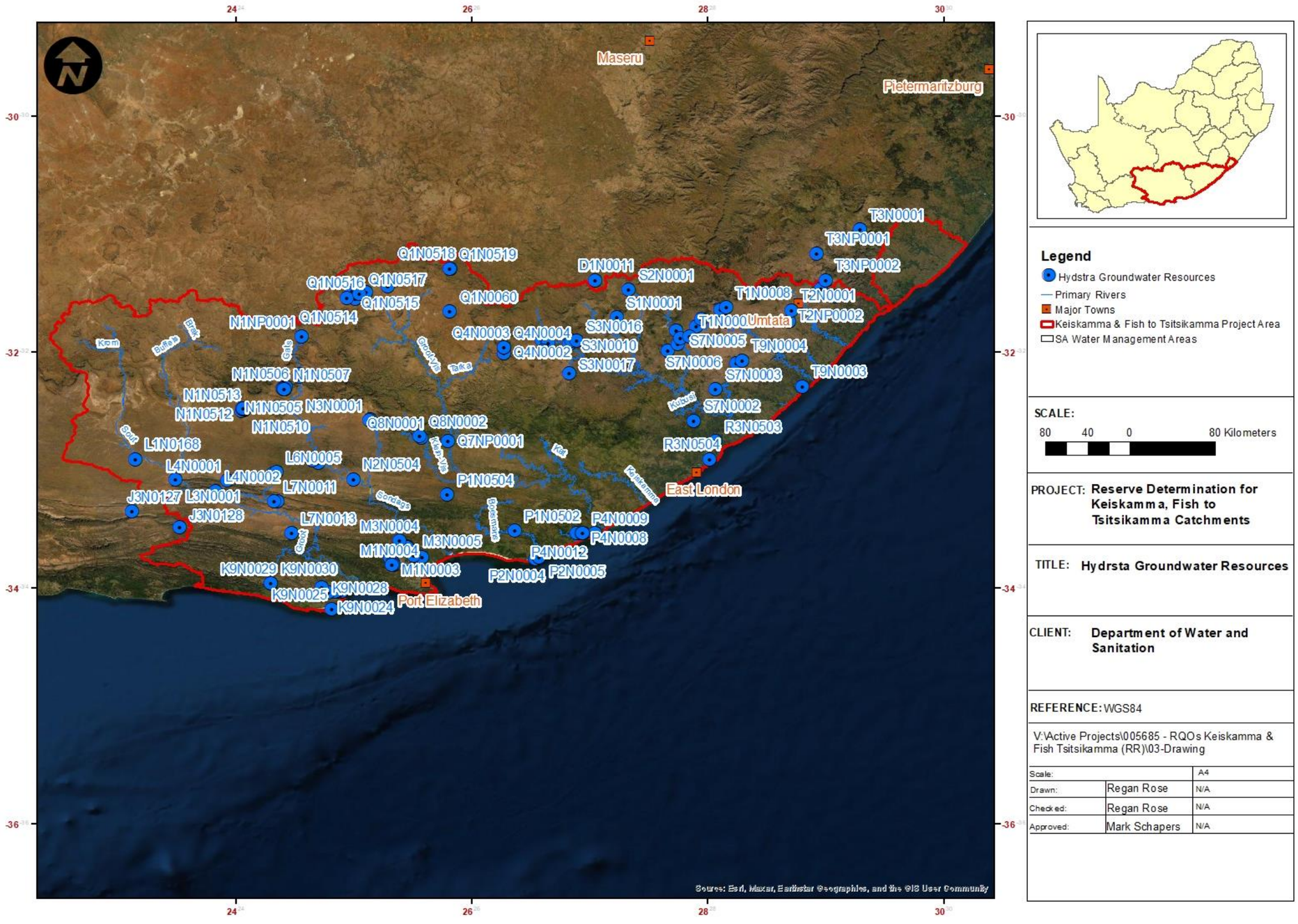


Figure 8: Existing Hydstra Groundwater Resources within the Keiskamma and Fish to Tsitsikamma Catchment

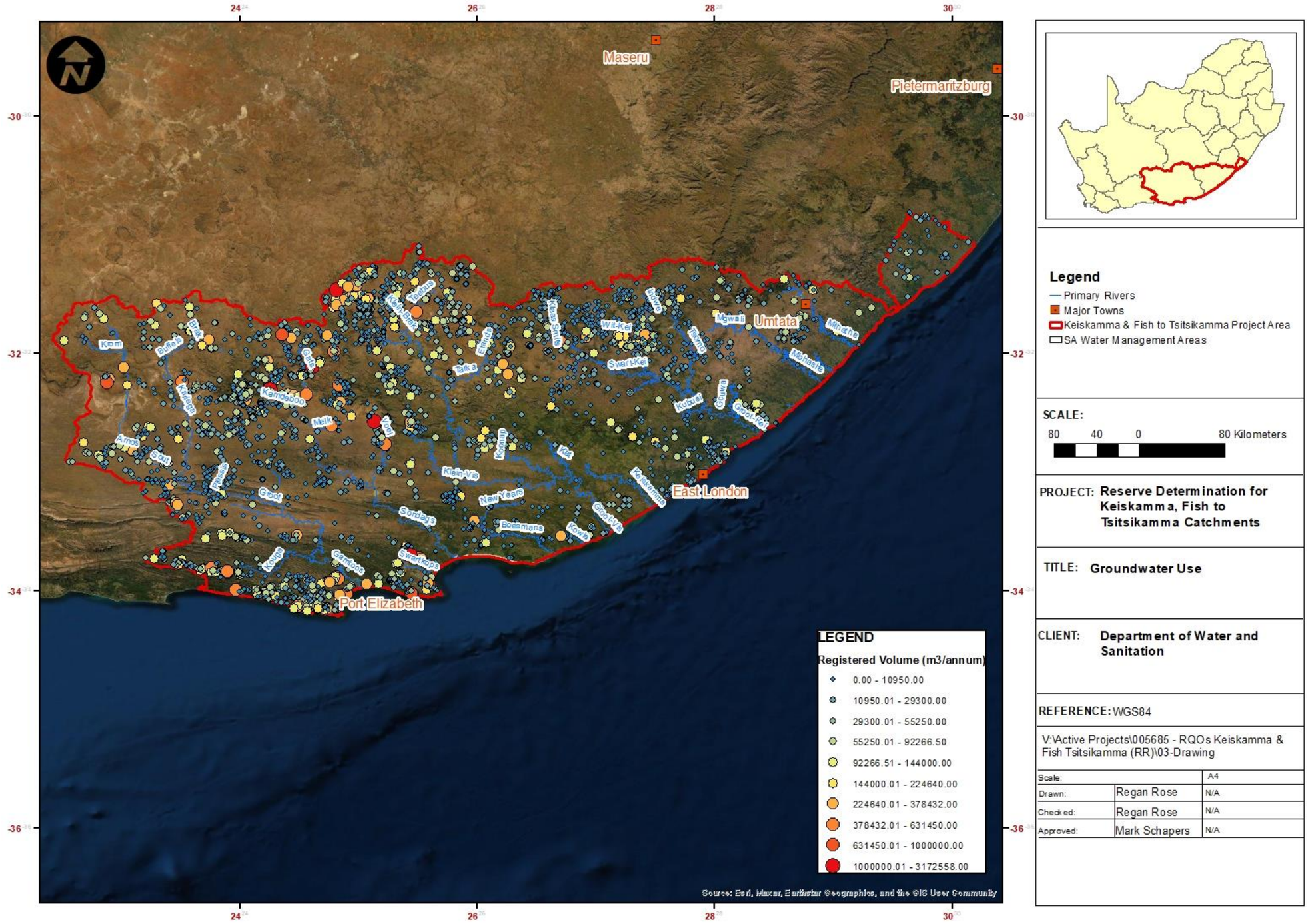


Figure 9: Existing WARMS Groundwater Users within the Keiskamma and Fish to Tsitsikamma Catchment

4. HYDROCENSUS

4.1 Site Assessment

A hydrocensus investigation was conducted from 01 August 2022 to 23 August 2022. The hydrocensus focussed mainly on the DWS WMS and Hydstra monitoring sites. The objectives of the hydrocensus were as follows:

- To identify and verify groundwater resources in the catchment
- Collect field data, i.e. measurements of borehole depth, water levels, borehole yield and basic water chemistry

As part of the hydrocensus, a total of one hundred and sixteen (116 No.) groundwater resources were visited. At each site data was collected as follows:

- Site coordinates and elevation by use of a hand-held GPS
- Borehole depths and water levels by use of a dip meter where possible
- Water samples by use of a bailer, tap or grab sample where possible
- Field measurements of EC, pH, Total Dissolved Solids (TDS), Oxygen Reduction Potential (ORP) and Temperature by use of handheld EC/pH and ORP/Temp multi-meters. Multi-parameter probes were calibrated prior to taking measurements.

The field verified groundwater resources are presented in **Figure 10**. The hydrocensus information, detailing each resource in summarised field sheets, is presented in **Annexure C**. In total, water levels were measured at seventy eight (78 No.) of the one hundred and sixteen (116 No.) groundwater resources. The available water level data indicate water level ranges of between 0 – 45mbgl in the catchment. The latter may however also reflect impacts from nearby pumping in certain localities. The water level data was further used to produce a contoured layer of “depth to groundwater” of the catchment (**Figure 11**). Water levels are generally deeper in areas where abstraction is currently known to occur (i.e. southern coastal area to Port Alfred and western Karoo near Graaf Reinet) and shallower in areas with limited abstraction (i.e. area west of Queenstown).

Field measurements of EC, pH, TDS and ORP were measured at twelve (12 No.) of the one hundred and sixteen (116 No.) groundwater resources. The reason for the latter is that the majority of the groundwater resources are dedicated monitoring sites that are not equipped with pumps. Since the WMS monitoring sites are sampled and analysed on a biannual basis, sampling and analysis of the hydrocensus boreholes (mix of WMS and Hydstra boreholes) was not deemed to be necessary. The available EC data generally indicate good groundwater quality with ECs ranging from 29mS/m at the Fairview Spring in Makhanda to 225mS/m in Aberdeen **(Figure 12)**.

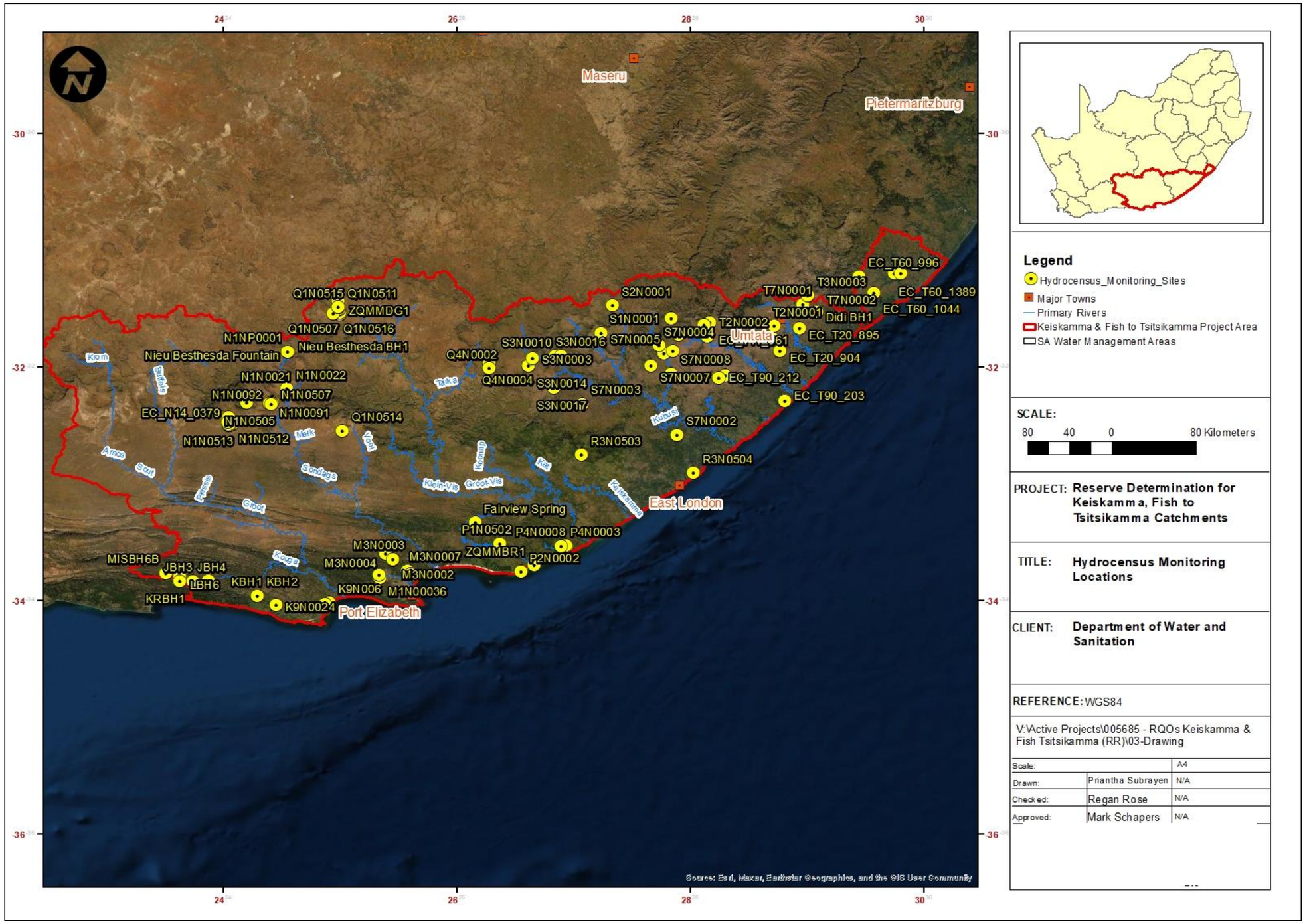


Figure 10: Hydrocensus sites within the Keiskamma and Fish to Tsitsikamma Catchment

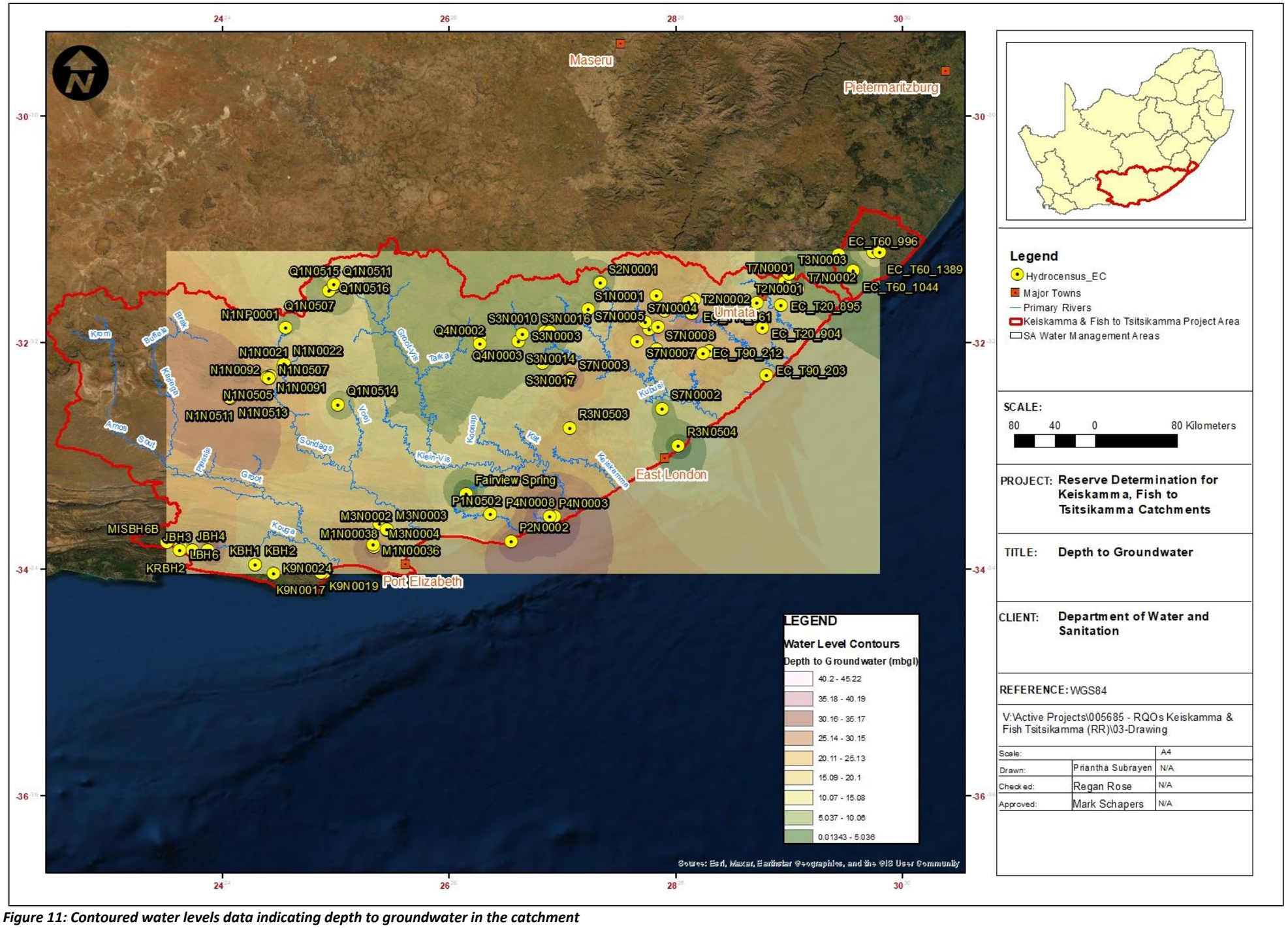


Figure 11: Contoured water levels data indicating depth to groundwater in the catchment

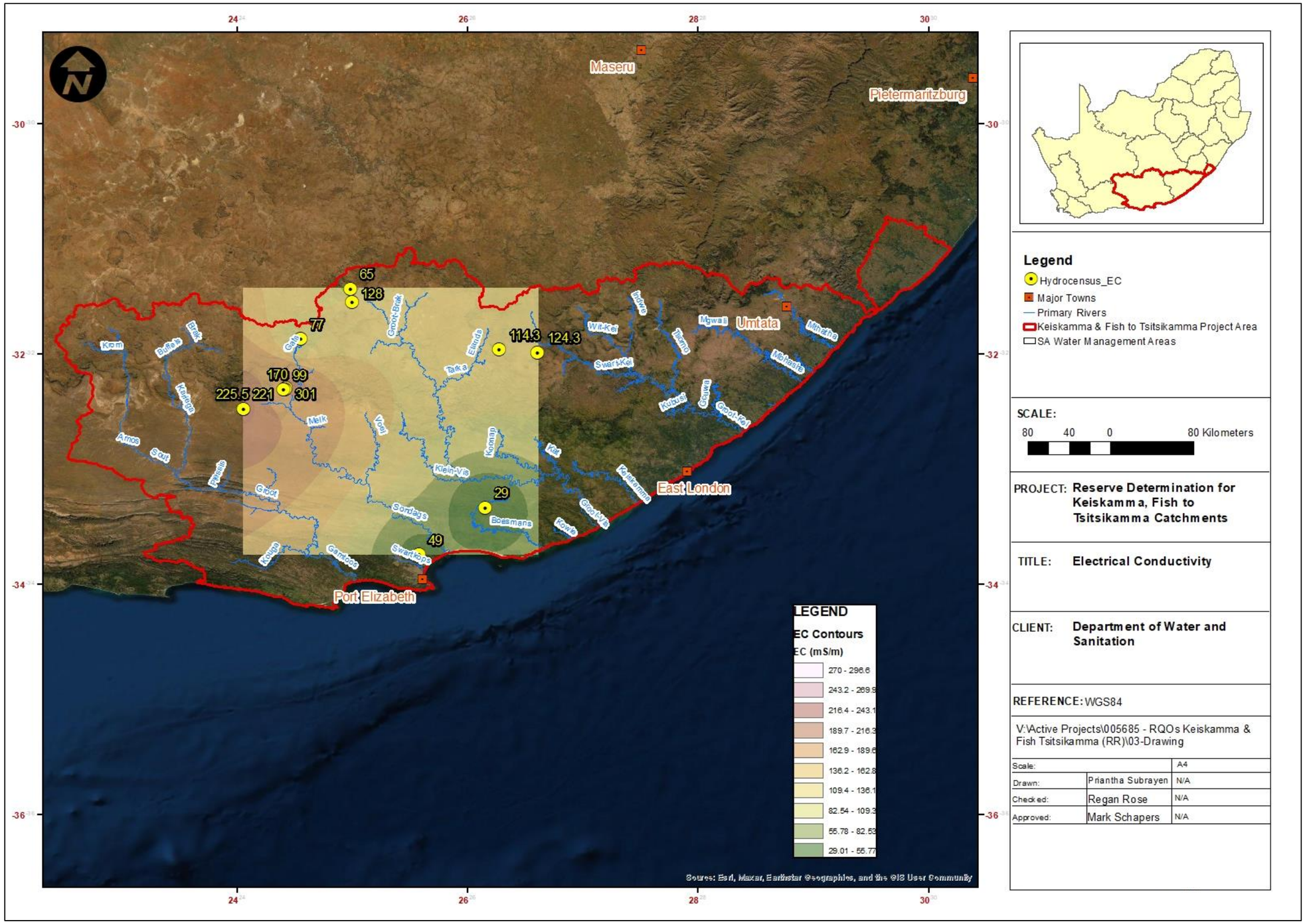


Figure 12: Contoured EC data indicating groundwater quality in the catchment

5. CAPACITY BUILDING

As a capacity building initiative, the hydrocensus assessment was used as a platform to engage with DWS personnel. DWS personnel from the regions and head office assembled in East London on 1 August 2022 and Gqeberha on 10 August 2022, together with hydrogeologists from JG Afrika. The teams proceeded with conducting field visits to the DWS monitoring boreholes.

The objectives of the capacity building initiative are as follows:

- To formalise the team of groundwater stakeholders
- To bring everyone up to speed and involved with the study and progress
- To gain an understanding of institutional arrangements and challenges
- To seek ways to synergize activities between the regions and service provider for mutual benefit

The engagement with DWS personnel allowed for detailed discussions relating to the scope and methodology for the study (**Table 6**). The discussions focussed on several key elements as follows:

- Data requirements and future data collection
- Regional office duties and database management
- Existing and future groundwater licenses and compliance monitoring
- Groundwater supply at towns and the responsibility of the Water Services Provider to comply with groundwater monitoring and reporting

Table 6: Site visits

 *DWS team at a monitoring borehole in Jeffrey's Bay*	 *DWS team at a production borehole in the Boesmansrivier wellfield*
 *DWS team monitoring a borehole in Tarkastad wellfield*	 DWS team at a monitoring borehole outside Uitenhage

6. CONCLUSIONS

This report details the findings of the Groundwater Survey conducted in the Keiskamma and Fish to Tsitsikamma Catchment. The Groundwater Survey was required as part of the broader Terms of Reference for the Resource Classes, Reserve Determination and RQOs for the Catchment. A hydrocensus, which focussed on existing groundwater resources in the catchment, was undertaken from 1 August 2022 to 23 August 2022. The hydrocensus involved site visits to selected groundwater monitoring sites.

The Groundwater Survey produced the following key results:

1) The status of existing borehole infrastructure and groundwater monitoring was verified. This allows for improved planning for future data collection. Borehole depth information must now be assessed to determine specific aquifers that are being monitored. In addition to this, time series groundwater levels and chemistry data is readily available for further characterisation.
2) Institutional arrangements relating to data collection and data management are better understood.
3) The regional offices have limited communication with Water Services Providers. As such the regions have limited knowledge of the status of groundwater monitoring at municipal level. However this also presents an opportunity for future engagement with Water Services Providers to acquire data.
4) The available water level data indicate water level ranges of between 0 – 45mbgl in the catchment. The latter may however also reflect impacts from nearby pumping in certain localities. The water level data was further used to produce a contoured layer of “depth to groundwater” of the catchment. Although there is no clear spatial trend, water levels are generally deeper in areas where abstraction is currently known to occur (i.e. southern coastal area to Port Alfred and western Karoo near Graaf Reinet) and shallower in areas with limited abstraction (i.e. area west of Queenstown).
5) Limited field water quality data collected at groundwater monitoring resources indicate good groundwater quality in the catchment. The available EC data generally indicate good groundwater quality with ECs ranging from 29mS/m at the Fairview Spring in Makhanda to 225mS/m in Aberdeen. The observed EC levels is classified as a Class I – Class II water when compared to domestic water supply guidelines.

Based on the outcome of the Groundwater Survey, the Resource Classes, Reserve Determination and RQO study of the Keiskamma and Fish to Tsitsikamma presents potential opportunities to improve certain key areas. This includes the support and guidance with the implementation of the regional groundwater monitoring programme and enforcement of compliance monitoring of water use licenses.

7. RECOMMENDATIONS

Based on the results of the Groundwater Survey, the following are recommended:

- Establish and implement an improved Regional Groundwater Monitoring Plan
- Assess time series monitoring data from the DWS databases, i.e. WMS and Hydstra
- Assess depth data at all monitoring sites, i.e. aquifers they are intersecting and/or representing
- Consider collection and sampling of rainfall at selected sites
- Conduct a follow up on compliance monitoring of groundwater use licenses
- Engage with Water Services Providers to provide groundwater monitoring information
    - Alternatively acquire latest Reconciliation Strategies for water use data at major towns

Annexure A – WMS Data

BH Identifier	Alternative Identifier	Quaternary Catchment	Type	Latitude	Longitude
ZQMRSK1	3222BB00313	L11F	Borehole	-32.2144	22.8189
ZQMRTB1	3223CC00003	L12C	Borehole	-32.9536	23.0081
ZQMRTB2	3223CC00004	L12C	Borehole	-32.9747	23.1158
ZQMSFB1	3424BB00085	K90E	Borehole	-34.1728	24.8083
ZQMSME1	3225DA00159	Q80D	Borehole	-32.7386	25.6050
ZQMSTB1	3125BD00001	Q12B	Borehole	-31.2961	25.8303
ZQMSTY1	3324AD00068	L70B	Borehole	-33.2617	24.3508
ZQMTAR1	ZQMTAR1	Q41C	Borehole	-31.9561	26.2758
ZQMTAR2	3126CD00076	Q41C	Borehole	-31.9561	26.2758
ZQMTSS1	3123CC00009	L11C	Borehole	-31.8933	23.0672
ZQMURG1	3123DD00001	L21E	Borehole	-31.9644	23.7650
ZQMUTH1	3325CB00130	M10C	Borehole	-33.7000	25.4381
ZQMWHW1	3323AD00102	L30A	Borehole	-33.2556	23.4897
ZQMABD1	3224AC00011	N14A	Borehole	-32.4772	24.0467
ZQMABD2	3223BD00002	N14A	Borehole	-32.4739	23.8094
ZQMABD3	3223BD00003	N14A	Borehole	-32.4575	23.8111
ZQMABR1	3224CB00001	N24A	Borehole	-32.7397	24.3169
ZQMADK1	ADELAIDE DORPSGEBIED	Q92C	Borehole	-32.7075	26.2944
ZQMADL1	3226CB00034	Q92C	Borehole	-32.7119	26.2903
ZQMADO1	3325BC00046	N40D	Borehole	-33.3894	25.7206
ZQMARBI	SCHIETFONTEIN	N24A	Borehole	-32.7383	24.3175
ZQMBRM1	3326DA00169	P10G	Borehole	-33.6931	26.6586
ZQMBRM2	KWAAIHOEK	P10G	Borehole	-33.6931	26.6586
ZQMBTH1	3226AD00033	Q94F	Borehole	-32.8256	26.6706
ZQMCBG1	3326AA00066	Q91B	Borehole	-33.1256	26.2094
ZQMCPD1	3326CD00170	P20A	Spring	-33.7708	26.4625

BH Identifier	Alternative Identifier	Quaternary Catchment	Type	Latitude	Longitude
ZQMCRA1	3225BA00071	Q30C	Spring	-32.0347	25.6875
ZQMCRA2	3225BA00084	Q30D	Spring	-32.1350	25.6258
ZQMFRR1	3326AA00049	Q91A	Borehole	-33.0528	26.0711
ZQMGRT1	3224BA00098	N11B	Borehole	-32.2011	24.5492
ZQMGRT2	3224AD00379	N13A	Borehole	-32.3089	24.4131
ZQMHDP1	3424BB00086	K90F	Spring	-34.0011	24.7592
ZQMHFR1	3125DB00004	Q13A	Borehole	-31.6528	25.8153
ZQMJOU1	3323DD00015	L82D	Borehole	-33.8419	23.9808
ZQMKPT1	3324AB00011	L60B	Borehole	-33.1381	24.2808
ZQMKWD1	3325AD00044	N40C	Borehole	-33.4300	25.4458
ZQMKWN1	3324CD00037	K90B	Borehole	-33.9558	24.2956
ZQMMDG2	ZQMMDG2	Q14B	Spring	-31.3183	24.9828
ZQMMID1	ZQMMID1	Q14B	Borehole	-31.4847	24.9925
ZQMMND1	3326BD00149	P40B	Borehole	-33.3703	26.8167
ZQMMRA1	3325DA00104	M30B	Borehole	-33.7239	25.5972
ZQMNLS1	ZQMNLS1	L11D	Borehole	-32.0392	23.0075

Annexure B – Hydstra Data

BH Identifier	Town	Latitude	Longitude
D1N0011	Dordrecht	-31.3881	27.0463
D1N0011	Dordrecht	-31.3881	27.0463
J3N0127	Vondeling	-33.3484	23.1208
J3N0127	Vondeling	-33.3484	23.1208
J3N0128	Willowmore	-33.4796	23.5261
J3N0128	Willowmore	-33.4796	23.5261
K9N0006	Jeffreys Bay	-34.0165	24.9091
K9N0006	Jeffreys Bay	-34.0165	24.9091
K9N0011	Jeffreys Bay	-34.0191	24.9085
K9N0011	Jeffreys Bay	-34.0191	24.9085
K9N0017	Jeffreys Bay	-34.0257	24.9012
K9N0017	Jeffreys Bay	-34.0257	24.9012
K9N0019	Humansdorp (Mentorskraal)	-34.0268	24.8686
K9N0019	Humansdorp (Mentorskraal)	-34.0268	24.8686
K9N0020	Humansdorp (Mentorskraal)	-34.0156	24.8593
K9N0020	Humansdorp (Mentorskraal)	-34.0156	24.8593
K9N0021	Jeffreys Bay (The Burns)	-34.0252	24.8421
K9N0021	Jeffreys Bay (The Burns)	-34.0252	24.8421
K9N0024	Clarkson	-34.0316	24.7848
K9N0024	Clarkson	-34.0316	24.7848
K9N0025	St. Francis Bay	-34.1773	24.8155
K9N0025	St. Francis Bay	-34.1773	24.8155
K9N0028	Humansdorp (Kruisfontein)	-33.9916	24.7345
K9N0028	Humansdorp (Kruisfontein)	-33.9916	24.7345
K9N0029	Kareedouw	-33.9578	24.3019
K9N0029	Kareedouw	-33.9578	24.3019
K9N0030	Kareedouw	-33.9581	24.3018
K9N0030	Kareedouw	-33.9581	24.3018
L1N0168	Rietbron	-32.9052	23.1477
L1N0168	Rietbron	-32.9052	23.1477
L3N0001	Beervlei Dam	-33.0773	23.4929
L3N0001	Beervlei Dam	-33.0773	23.4929
L4N0001	Miller	-33.0849	23.9284
L4N0001	Miller	-33.0849	23.9284
L4N0002	Fullarton	-33.1771	23.8311
L4N0002	Fullarton	-33.1771	23.8311
L6N0005	Klipplaat	-33.0133	24.3452
L6N0005	Klipplaat	-33.0133	24.3452

BH Identifier	Town	Latitude	Longitude
L6N0006	Klipplaat (hand)	-33.0268	24.3205
L6N0006	Klipplaat (hand)	-33.0268	24.3205
L6NP0001	Klipplaat	-33.0214	24.3425
L6NP0001	Klipplaat	-33.0214	24.3425
L7N0011	Steytlerville	-33.2615	24.3278
L7N0011	Steytlerville	-33.2615	24.3278
L7N0013	Steytlerville	-33.5326	24.4743
L7N0013	Steytlerville	-33.5326	24.4743
L7N0014	Steytlerville	-33.2611	24.353
L7N0014	Steytlerville	-33.2611	24.353
M1N0003	Uitenhage (Mimosadale)	-33.7896	25.3309
M1N0003	Uitenhage (Mimosadale)	-33.7896	25.3309
M1N0004	Uitenhage (Mimosadale)	-33.8011	25.3294
M1N0004	Uitenhage (Mimosadale)	-33.8011	25.3294
M1N0034	Uitenhage (Springfontein)	-33.7436	25.3125
M1N0034	Uitenhage (Springfontein)	-33.7436	25.3125
M1N0036	Uitenhage (Kruis river)	-33.7776	25.3314
M1N0036	Uitenhage (Kruis river)	-33.7776	25.3314
M1N0038	Uitenhage (Mimosadale)	-33.8023	25.3415
M1N0038	Uitenhage (Mimosadale)	-33.8023	25.3415
M3N0001	Uitenhage (Rondalia Plaas)	-33.6442	25.4397
M3N0001	Uitenhage (Rondalia Plaas)	-33.6442	25.4397
M3N0002	Uitenhage (Prenticekraal)	-33.6472	25.4536
M3N0002	Uitenhage (Prenticekraal)	-33.6472	25.4536
M3N0003	Uitenhage (Prenticekraal)	-33.6431	25.4509
M3N0003	Uitenhage (Prenticekraal)	-33.6431	25.4509
M3N0004	Uitenhage (Elandshoorn)	-33.5968	25.3868
M3N0004	Uitenhage (Elandshoorn)	-33.5968	25.3868
M3N0005	Uitenhage (Amanzi)	-33.7238	25.509
M3N0005	Uitenhage (Amanzi)	-33.7238	25.509
M3N0006	Welbedachtfontein	-33.7356	25.5581
M3N0006	Welbedachtfontein	-33.7356	25.5581
M3N0007	Welbedachtfontein	-33.7379	25.58

BH Identifier	Town	Latitude	Longitude
M3N0007	Welbedachtfontein	-33.7379	25.58
N1N0021	Graaff-Reinet	-32.2024	24.5408
N1N0021	Graaff-Reinet	-32.2024	24.5408
N1N0022	Graaff-Reinet	-32.1853	24.5448
N1N0022	Graaff-Reinet	-32.1853	24.5448
N1N0025	Graaff-Reinet	-32.2916	24.4256
N1N0025	Graaff-Reinet	-32.2916	24.4256
N1N0091	Graaff-Reinet	-32.3045	24.4009
N1N0091	Graaff-Reinet	-32.3045	24.4009
N1N0092	Graaff-Reinet	-32.3083	24.4121
N1N0092	Graaff-Reinet	-32.3083	24.4121
N1N0503	Graaff-Reinet	-32.3088	24.4124
N1N0503	Graaff-Reinet	-32.3088	24.4124
N1N0504	Graaff-Reinet	-32.3088	24.4125
N1N0504	Graaff-Reinet	-32.3088	24.4125
N1N0505	Graaff-Reinet	-32.3062	24.4049
N1N0505	Graaff-Reinet	-32.3062	24.4049
N1N0506	Graaff-Reinet	-32.3108	24.4194
N1N0506	Graaff-Reinet	-32.3108	24.4194
N1N0507	Graaff-Reinet	-32.3134	24.4129
N1N0507	Graaff-Reinet	-32.3134	24.4129
N1N0510	Aberdeen	-32.4749	24.0622
N1N0510	Aberdeen	-32.4749	24.0622
N1N0511	Aberdeen	-32.4891	24.0711
N1N0511	Aberdeen	-32.4891	24.0711
N1N0512	Aberdeen	-32.4944	24.0499
N1N0512	Aberdeen	-32.4944	24.0499
N1N0513	Aberdeen	-32.4832	24.0623
N1N0513	Aberdeen	-32.4832	24.0623
N1NP0001	Nieu-Bethesda	-31.8656	24.5598
N1NP0001	Nieu-Bethesda	-31.8656	24.5598
N1NP0002	Aberdeen	-32.4716	24.0585
N1NP0002	Aberdeen	-32.4716	24.0585
N2N0502	Jansenville	-32.9341	24.7001
N2N0502	Jansenville	-32.9341	24.7001
N2N0503	Jansenville	-32.9149	24.6549
N2N0503	Jansenville	-32.9149	24.6549
N2N0504	Waterford	-33.0754	25.0018
N2N0504	Waterford	-33.0754	25.0018
N2NP0001	Jansenville	-32.9022	24.6568
N2NP0001	Jansenville	-32.9022	24.6568
N3N0001	Pearston	-32.5733	25.1349

BH Identifier	Town	Latitude	Longitude
N3N0001	Pearston	-32.5733	25.1349
N3NP0001	Pearston	-32.5667	25.1393
N3NP0001	Pearston	-32.5667	25.1393
P1N0502	Alexandria (Hope Fountains)	-33.5098	26.3658
P1N0502	Alexandria (Hope Fountains)	-33.5098	26.3658
P1N0504	Kuduskop	-33.2069	25.7966
P1N0504	Kuduskop	-33.2069	25.7966
P1NP0002	Kleinemonde	-33.5303	27.0466
P1NP0002	Kleinemonde	-33.5303	27.0466
P2N0002	Cannon Rocks	-33.7485	26.5366
P2N0002	Cannon Rocks	-33.7485	26.5366
P2N0003	Cannon Rocks	-33.7463	26.5463
P2N0003	Cannon Rocks	-33.7463	26.5463
P2N0004	Cannon Rocks	-33.733	26.5714
P2N0004	Cannon Rocks	-33.733	26.5714
P2N0005	Cannon Rocks	-33.7353	26.5749
P2N0005	Cannon Rocks	-33.7353	26.5749
P4N0003	Port Alfred	-33.531	26.8933
P4N0003	Port Alfred	-33.531	26.8933
P4N0008	Port Alfred	-33.528	26.9329
P4N0008	Port Alfred	-33.528	26.9329
P4N0009	Port Alfred	-33.5323	26.9409
P4N0009	Port Alfred	-33.5323	26.9409
P4N0010	Port Alfred	-33.5304	26.9403
P4N0010	Port Alfred	-33.5304	26.9403
P4N0011	Port Alfred	-33.5311	26.9425
P4N0011	Port Alfred	-33.5311	26.9425
P4N0012	Port Alfred	-33.5321	26.946
P4N0012	Port Alfred	-33.5321	26.946
Q1N0042	Middelburg	-31.5337	25.0002
Q1N0042	Middelburg	-31.5337	25.0002
Q1N0050	Middelburg	-31.4624	25.0232
Q1N0050	Middelburg	-31.4624	25.0232
Q1N0060	Hofmeyer	-31.6551	25.8176
Q1N0060	Hofmeyer	-31.6551	25.8176
Q1N0507	Middelburg	-31.5061	24.9895
Q1N0507	Middelburg	-31.5061	24.9895
Q1N0508	Middelburg	-31.514	24.9723
Q1N0508	Middelburg	-31.514	24.9723
Q1N0511	Middelburg	-31.4312	24.986
Q1N0511	Middelburg	-31.4312	24.986

BH Identifier	Town	Latitude	Longitude
Q1N0512	Middelburg	-31.4874	25.1095
Q1N0512	Middelburg	-31.4874	25.1095
Q1N0513	Middelburg	-31.4401	25.2932
Q1N0513	Middelburg	-31.4401	25.2932
Q1N0514	Middelburg	-31.5425	25.0169
Q1N0514	Middelburg	-31.5425	25.0169
Q1N0515	Middelburg	-31.4829	24.9844
Q1N0515	Middelburg	-31.4829	24.9844
Q1N0516	Middelburg	-31.5371	24.9439
Q1N0516	Middelburg	-31.5371	24.9439
Q1N0517	Middelburg	-31.5041	25.0475
Q1N0517	Middelburg	-31.5041	25.0475
Q1N0518	Steynsburg	-31.2905	25.8259
Q1N0518	Steynsburg	-31.2905	25.8259
Q1N0519	Steynsburg	-31.2933	25.8158
Q1N0519	Steynsburg	-31.2933	25.8158
Q4N0002	Tarkastad	-32.0087	26.2743
Q4N0002	Tarkastad	-32.0087	26.2743
Q4N0003	Tarkastad	-31.9576	26.2773
Q4N0003	Tarkastad	-31.9576	26.2773
Q4N0004	Tarkastad	-31.9588	26.2755
Q4N0004	Tarkastad	-31.9588	26.2755
Q7NP0001	Cookhouse	-32.7502	25.8026
Q7NP0001	Cookhouse	-32.7502	25.8026
Q8N0001	Somerset Oos	-32.7228	25.5748
Q8N0001	Somerset Oos	-32.7228	25.5748
Q8N0002	Somerset Oos	-32.708	25.5589
Q8N0002	Somerset Oos	-32.708	25.5589
R3N0503	Mooiplaas	-32.7504	28.0682
R3N0503	Mooiplaas	-32.7504	28.0682
R3N0504	Gonubie	-32.9044	28.022
R3N0504	Gonubie	-32.9044	28.022
S1N0001	Lady Frere	-31.7045	27.2323
S1N0001	Lady Frere	-31.7045	27.2323
S2N0001	Indwe	-31.4704	27.3336
S2N0001	Indwe	-31.4704	27.3336
S3N0001	Queenstown	-31.8912	26.594
S3N0001	Queenstown	-31.8912	26.594
S3N0002	Queenstown	-31.9031	26.6423
S3N0002	Queenstown	-31.9031	26.6423
S3N0003	Queenstown	-31.9237	26.6504
S3N0003	Queenstown	-31.9237	26.6504

BH Identifier	Town	Latitude	Longitude
S3N0008	Queenstown	-31.9284	26.8281
S3N0008	Queenstown	-31.9284	26.8281
S3N0010	Queenstown	-31.9023	26.8465
S3N0010	Queenstown	-31.9023	26.8465
S3N0014	Queenstown	-31.9842	26.6126
S3N0014	Queenstown	-31.9842	26.6126
S3N0016	Queenstown	-31.9008	26.8905
S3N0016	Queenstown	-31.9008	26.8905
S3N0017	Whittlesea	-32.1749	26.8269
S3N0017	Whittlesea	-32.1749	26.8269
S7N0002	Komga	-32.5776	27.8851
S7N0002	Komga	-32.5776	27.8851
S7N0003	Mcuncuzo	-32.3115	28.0716
S7N0003	Mcuncuzo	-32.3115	28.0716
S7N0004	Ncora	-31.8129	27.7329
S7N0004	Ncora	-31.8129	27.7329
S7N0005	Mtshabe	-31.8804	27.7705
S7N0005	Mtshabe	-31.8804	27.7705
S7N0006	Ngonyama	-31.9261	27.7502
S7N0006	Ngonyama	-31.9261	27.7502
S7N0007	Qombolo	-31.9853	27.6633
S7N0007	Qombolo	-31.9853	27.6633
T1N0002	Qumanco1	-31.8612	27.8475
T1N0002	Qumanco1	-31.8612	27.8475
T1N0004	Qumanco 2	-31.7789	27.9025
T1N0004	Qumanco 2	-31.7789	27.9025
T1N0005	Qutubeni	-31.7174	27.9501
T1N0005	Qutubeni	-31.7174	27.9501
T1N0006	Ventyu	-31.7343	28.1461
T1N0006	Ventyu	-31.7343	28.1461
T1N0007	Msintsana	-31.6356	28.1139
T1N0007	Msintsana	-31.6356	28.1139
T1N0008	Rasmeni	-31.6186	28.1622
T1N0008	Rasmeni	-31.6186	28.1622
T2N0001	Mthatha	-31.6439	28.715
T2N0001	Mthatha	-31.6439	28.715
T2NP0002	Jojweni	-31.7337	28.691
T2NP0002	Jojweni	-31.7337	28.691
T3N0001	Ntabankulu	-30.9608	29.2975
T3N0001	Ntabankulu	-30.9608	29.2975
T3NP0001	Ngxakolo	-31.1599	28.9259
T3NP0001	Ngxakolo	-31.1599	28.9259

BH Identifier	Town	Latitude	Longitude
T3NP0002	Mhlanganisweni	-31.3878	29.0016
T3NP0002	Mhlanganisweni	-31.3878	29.0016
T7NP0001	Mcuku	-31.4588	28.9628
T7NP0001	Mcuku	-31.4588	28.9628
T7NP0002	Libode	-31.5214	29.0831
T7NP0002	Libode	-31.5214	29.0831
T9N0003	Mpume	-32.2865	28.807
T9N0003	Mpume	-32.2865	28.807
T9N0004	Colosa	-32.0688	28.2976
T9N0004	Colosa	-32.0688	28.2976
T9N0005	Mphutheni	-32.0904	28.2446
T9N0005	Mphutheni	-32.0904	28.2446

Annexure C – Hydrocensus Data

GROUNDWATER RESOURCES		
Resource ID	**S3N0017**	
Latitude	-32.17493	
Longitude	26.82685	
Resource Type	Borehole and Rainfall Station	
Village/Area	Whittlesea	
Sample No.	-	
Current Use	Monitoring	
Depth to GW	5.10m	
Depth to GW (mbgl)	-	
Final Depth (mbgl)	n/a	
Equipment	Rainfall station	
pH	-	
EC (uS)	-	
TDS (mg/l)	-	
Temp ©	-	
ORP (mV)	-	
Comments	DWS Hydstra site. Water level and rainfall data available. Rainfall gauge currently not in use due to dead batteries. Pristine monitoring	
Resource ID	**Q4N0003**	
Latitude	-31.95805	
Longitude	26.27662	
Resource Type	Borehole	
Village/Area	Tarkastad	
Sample No.	-	
Current Use	Monitoring	
Depth to GW (mbgl)	5.55	
Final Depth (mbgl)	-	
Discharge Rate	-	
Equipment	OTT Logger	
pH	-	
EC (uS)	-	
TDS (mg/l)	-	
Temp ©	-	
ORP (mV)	-	
Comments	Tarkastad municipal well field. Monitors impact from production borehole 10m away. Tarkastad Formation	
Resource ID	**Tarkastad BH1**	
Latitude	-31.95798	
Longitude	26.27662	
Resource Type	Borehole	
Village/Area	Tarkastad	
Sample No.	-	
Current Use	Municipal Wellfield-Domestic Supply	
Depth to GW (mbgl)	-	
Final Depth (mbgl)	-	
Discharge Rate	-	
Equipment	submersible pump	
pH	-	
EC (uS)	-	
TDS (mg/l)	-	
Temp ©	-	
ORP (mV)	-	
Comments	Tarkastad municipal well field. Supplies the town of Tarkastad. Town uses GW boreholes as the sole source of water. Tarkastad Formation	

GROUNDWATER RESOURCES		
Resource ID	**Q4N0004**	
Latitude	-31.95902	
Longitude	26.27555	
Resource Type	Borehole	
Village/Area	Tarkastad	
Sample No.	-	
Current Use	Monitoring	
Depth to GW	-	
Depth to GW (mbgl)	-	
Final Depth (mbgl)	n/a	
Equipment	OTT Logger	
pH	-	
EC (uS)	-	
TDS (mg/l)	-	
Temp ©	-	
ORP (mV)	-	
Comments	Tarkastad municipal well field. Monitors impact from productions borehole 10m away. Tarkastad Formation	
Resource ID	**Tarkastad BH2**	
Latitude	-31.95902	
Longitude	26.27555	
Resource Type	Borehole	
Village/Area	Tarkastad	
Sample No.	-	
Current Use	Municipal Wellfield-Domestic Supply	
Depth to GW (mbgl)	-	
Final Depth (mbgl)	-	
Discharge Rate	-	
Equipment	submersible pump	
pH	7.9	
EC (uS)	1143	
TDS (mg/l)	742	
Temp ©	18.5	
ORP (mV)	92.4	
Comments	Supplies the town of Tarkastad. Town uses GW boreholes as the sole source of water. Tarkastad Formation	
Resource ID	**Q4N0002**	
Latitude	-32.00868	
Longitude	26.274278	
Resource Type	Borehole	
Village/Area	Tarkastad	
Sample No.	-	
Current Use	Monitoring BH	
Depth to GW (mbgl)	7.97	
Final Depth (mbgl)	24	
Discharge Rate	n/a	
Equipment	OTT Logger	
pH	-	
EC (uS)	-	
TDS (mg/l)	-	
Temp ©	-	
ORP (mV)	-	
Comments	Outside Tarkastad municipal well field.Pristine monitoring, WL does not fluctuated. Tarkastad Subgroup	

GROUNDWATER RESOURCES		
Resource ID	**S3N0014**	
Latitude	-31.98422	
Longitude	26.61262	
Resource Type	Borehole	
Village/Area	Thornhill	
Sample No.	-	
Current Use	Monitoring	
Depth to GW (mbgl)	12.11	
Final Depth (mbgl)	-	
Discharge Rate	n/a	
Equipment	OTT Logger	
pH	-	
EC (uS)	-	
TDS (mg/l)	-	
Temp ©	-	
ORP (mV)	-	
Comments	Impact monitoring. Nearby production borehole used for clinic, Schedule 1 mainly. Minor Fluctuation	
Resource ID	**Thornhill BH**	
Latitude	-31.98484	
Longitude	26.61193	
Resource Type	Borehole	
Village/Area	Thornhill	
Sample No.	-	
Current Use	Domestic use	
Depth to GW (mbgl)	-	
Final Depth (mbgl)	-	
Discharge Rate	unknown	
Equipment	Submersible pump	
pH	8.06	
EC (uS)	1243	
TDS (mg/l)	817	
Temp ©	15.15	
ORP (mV)	88.1	
Comments	Water not treated, for clinic use	
Resource ID	**S3N0003**	
Latitude	-31.92299	
Longitude	26.65078	
Resource Type	Borehole	
Village/Area	Queenstown surrounding area	
Sample No.	-	
Current Use	-	
Depth to GW (mbgl)	4.52	
Final Depth (mbgl)	-	
Discharge Rate	n/a	
Equipment	OTT Logger	
pH	-	
EC (uS)	-	
TDS (mg/l)	-	
Temp ©	-	
ORP (mV)	-	
Comments	Pristine monitoring, WL does not fluctuate much. Tarkastad Subgroup	

GROUNDWATER RESOURCES		
Resource ID	**S3N0010**	
Latitude	-31.90238	
Longitude	26.84622	
Resource Type	Borehole	
Village/Area	Queenstown surrounding area	
Sample No.	-	
Current Use	Monitoring	
Depth to GW (mbgl)	2.73	
Final Depth (mbgl)	-	
Discharge Rate	n/a	
Equipment	OTT Logger stolen	
pH	-	
EC (uS)	-	
TDS (mg/l)	-	
Temp ©	-	
ORP (mV)	-	
Comments	Pristine aquifer monitoring, WL does not fluctuated. Tarkastad Subgroup	
Resource ID	**S3N0016**	
Latitude	-31.90074	
Longitude	26.89052	
Resource Type	Borehole	
Village/Area	Queenstown golf course	
Sample No.	-	
Current Use	-	
Depth to GW (mbgl)	6.1	
Final Depth (mbgl)	-	
Discharge Rate	n/a	
Equipment	OTT Logger	
pH	-	
EC (uS)	-	
TDS (mg/l)	-	
Temp ©	-	
ORP (mV)	-	
Comments	Impact aquifer monitoring. Golf course has boreholes and are using groundwater for irrigation. Tarkastad Subgroup	
Resource ID	**S2N0001**	
Latitude	-31.47035	
Longitude	27.33362	
Resource Type	Borehole and rainfal station	
Village/Area	Indwe	
Sample No.	-	
Current Use	Monitoring	
Depth to GW (mbgl)	3.18	
Final Depth (mbgl)	-	
Discharge Rate	n/a	
Equipment	OTT Logger	
pH	-	
EC (uS)	-	
TDS (mg/l)	-	
Temp ©	-	
ORP (mV)	-	
Comments	No groundwater usage in Indwe. DWS Hydstra site. Water level and rainfall data available. Rainfall gauge currently not in use due to dead batteries	

GROUNDWATER RESOURCES		
Resource ID	**S1N0001**	
Latitude	-31.70447	
Longitude	27.23231	
Resource Type	Borehole	
Village/Area	Lady Frere	
Sample No.	-	
Current Use	Monitoring	
Depth to GW (mbgl)	7.86	
Final Depth (mbgl)	-	
Discharge Rate	n/a	
Equipment	OTT Logger	
pH	-	
EC (uS)	-	
TDS (mg/l)	-	
Temp ©	-	
ORP (mV)	-	
Comments	Lady Frere depends on mainly surface water and two boreholes to augment the supply. This borehole is far from municipal borehole, mainly pristine monitoring	
Resource ID	**S7N0007**	
Latitude	-31.98528	
Longitude	27.66321	
Resource Type	Borehole	
Village/Area	Qombolo	
Sample No.	-	
Current Use	Monitoring	
Depth to GW (mbgl)	22.8	
Final Depth (mbgl)	-	
Discharge Rate	n/a	
Equipment	OTT Logger	
pH	-	
EC (uS)	-	
TDS (mg/l)	-	
Temp ©	-	
ORP (mV)	-	
Comments	Pristine aquifer monitoring, seasonal fluctuation of approximately 4m	
Resource ID	**S7N0005**	
Latitude	-31.88037	
Longitude	27.77051	
Resource Type	Borehole	
Village/Area	Near Ngcobo	
Sample No.	-	
Current Use	Monitoring	
Depth to GW (mbgl)	42.41	
Final Depth (mbgl)	-	
Discharge Rate	n/a	
Equipment	OTT Logger	
pH	-	
EC (uS)	-	
TDS (mg/l)	-	
Temp ©	-	
ORP (mV)	-	
Comments	Pristine aquifer monitoring, Waterlevel very stable with little to no fluctuation	

GROUNDWATER RESOURCES		
Resource ID	**S7N0004**	Photo
Latitude	-31.81279	
Longitude	27.73298	
Resource Type	Borehole	
Village/Area	Mdeni	
Sample No.	-	
Current Use	Monitoring	
Depth to GW (mbgl)	19.55	
Final Depth (mbgl)	-	
Discharge Rate	n/a	
Equipment	OTT Logger	
pH	-	
EC (uS)	-	
TDS (mg/l)	-	
Temp ©	-	
ORP (mV)	-	
Comments	Pristine aquifer monitoring, Waterlevel very stable with minimal fluctuation	
Resource ID	**S7N0008**	
Latitude	-32.0549	
Longitude	27.83475	
Resource Type	Borehole	
Village/Area	Daza	
Sample No.	-	
Current Use	Monitoring	
Depth to GW (mbgl)	9.03	
Final Depth (mbgl)	-	
Discharge Rate	n/a	
Equipment	none	
pH	-	
EC (uS)	-	
TDS (mg/l)	-	
Temp ©	-	
ORP (mV)	-	
Comments	Pristine aquifer monitoring	
Resource ID	**S7N0003**	
Latitude	-32.311425	
Longitude	27.07169	
Resource Type	Borehole	
Village/Area	Daza	
Sample No.	-	
Current Use	Monitoring	
Depth to GW (mbgl)	32	
Final Depth (mbgl)	-	
Discharge Rate	n/a	
Equipment	none	
pH	-	
EC (uS)	-	
TDS (mg/l)	-	
Temp ©	-	
ORP (mV)	-	
Comments	Pristine aquifer monitoring	

GROUNDWATER RESOURCES		
Resource ID	**S7N0002**	
Latitude	-32.57775	
Longitude	27.88483	
Resource Type	Borehole	
Village/Area	Daza	
Sample No.	-	
Current Use	Monitoring	
Depth to GW (mbgl)	7.85	
Final Depth (mbgl)	-	
Discharge Rate	n/a	
Equipment	none	
pH	-	
EC (uS)	-	
TDS (mg/l)	-	
Temp ©	-	
ORP (mV)	-	
Comments	Pristine aquifer monitoring	
Resource ID	**R3N0503**	
Latitude	-32.75045	
Longitude	27.06822	
Resource Type	Borehole	
Village/Area	Mooiplaas	
Sample No.	-	
Current Use	Monitoring	
Depth to GW (mbgl)	21.4	
Final Depth (mbgl)	-	
Discharge Rate	n/a	
Equipment	none	
pH	-	
EC (uS)	-	
TDS (mg/l)	-	
Temp ©	-	
ORP (mV)	-	
Comments	Pristine aquifer monitoring	
Resource ID	**R3N0504**	
Latitude	-32.90444	
Longitude	28.02241	
Resource Type	Borehole	
Village/Area	-	
Sample No.	-	
Current Use	Monitoring	
Depth to GW (mbgl)	2.33	
Final Depth (mbgl)	-	
Discharge Rate	n/a	
Equipment	none	
pH	-	
EC (uS)	-	
TDS (mg/l)	-	
Temp ©	-	
ORP (mV)	-	
Comments	Pristine aquifer monitoring	

GROUNDWATER RESOURCES		
Resource ID	**K9N0017**	
Latitude	-34.02569	
Longitude	24.90122	
Resource Type	Borehole	
Village/Area	Jeffrey's Bay	
Sample No.	-	
Current Use	Monitoring	
Depth to GW (mbgl)	24.91	
Final Depth (mbgl)	-	
Discharge Rate	n/a	
Equipment	OTT logger	
pH	-	
EC (uS)	-	
TDS (mg/l)	-	
Temp ©	-	
ORP (mV)	-	
Comments	Jeffrey's Bay wellfield. Close to municipal boreholes. Impact monitoring	
Resource ID	**K9N0006**	
Latitude	-34.01650	
Longitude	24.90911	
Resource Type	Borehole	
Village/Area	Jeffrey's Bay	
Sample No.	-	
Current Use	Monitoring	
Depth to GW (mbgl)	-	
Final Depth (mbgl)	-	
Discharge Rate	n/a	
Equipment	No logger	
pH	-	
EC (uS)	-	
TDS (mg/l)	-	
Temp ©	-	
ORP (mV)	-	
Comments	Jeffrey's Bay wellfield. Close to municipal boreholes. Impact monitoring	
Resource ID	**K9N0019**	
Latitude	-34.02675	
Longitude	24.86858	
Resource Type	Borehole	
Village/Area	Mentorskraal	
Sample No.	-	
Current Use	Monitoring	
Depth to GW (mbgl)	12	
Final Depth (mbgl)	-	
Discharge Rate	n/a	
Equipment	OTT logger	
pH	-	
EC (uS)	-	
TDS (mg/l)	-	
Temp ©	-	
ORP (mV)	-	
Comments	Diary farm. Farm also using boreholes and centre pivot irrigation. Impact monitoring	

GROUNDWATER RESOURCES		
Resource ID	**K9N0024**	
Latitude	-34.03161	
Longitude	24.45145	
Resource Type	Borehole	
Village/Area	Clarkson	
Sample No.	-	
Current Use	Monitoring	
Depth to GW (mbgl)	12	
Final Depth (mbgl)	-	
Discharge Rate	n/a	
Equipment	OTT logger	
pH	-	
EC (uS)	-	
TDS (mg/l)	-	
Temp ©	-	
ORP (mV)	-	
Comments	Forestry area, possibly impacted by large number of trees. Impact monitoring, TMG aquifer	
Resource ID	**MISBH6B**	
Latitude	-33.760282	
Longitude	23.506376	
Resource Type	Borehole	
Village/Area	Misgund	
Sample No.	-	
Current Use	Monitoring	
Depth to GW (mbgl)	21.65	
Final Depth (mbgl)	-	
Discharge Rate	unknown	
Equipment	none	
pH	-	
EC (uS)	-	
TDS (mg/l)	-	
Temp ©	-	
ORP (mV)	-	
Comments	Production borehole next to monitoring hole vandalized. Kou Kamma LM drilled and equipped two new proction boreholes 1 km west from this borehole	
Resource ID	**LBH6**	
Latitude	-33.79296	
Longitude	23.62923	
Resource Type	Borehole	
Village/Area	Louterwater	
Sample No.	-	
Current Use	Monitoring	
Depth to GW (mbgl)	29.85	
Final Depth (mbgl)	-	
Discharge Rate	n/a	
Equipment	none	
pH	-	
EC (uS)	-	
TDS (mg/l)	-	
Temp ©	-	
ORP (mV)	-	
Comments	Pristine aquifer monitoring, upstream of municipal well field. Sidewalk in residential area	

GROUNDWATER RESOURCES		
Resource ID	**KRBH2**	
Latitude	-33.83079	
Longitude	23.73577	
Resource Type	Borehole	
Village/Area	Krakeel	
Sample No.	-	
Current Use	Monitoring	
Depth to GW (mbgl)	5.35	
Final Depth (mbgl)	-	
Discharge Rate	n/a	
Equipment	none	
pH	-	
EC (uS)	-	
TDS (mg/l)	-	
Temp ©	-	
ORP (mV)	-	
Comments	Downstream impact aquifer monitoring	
Resource ID	**KRBH1**	
Latitude	-33.83077	
Longitude	23.73536	
Resource Type	Borehole	
Village/Area	Krakreel	
Sample No.	-	
Current Use	Domestic Private use	
Depth to GW (mbgl)	-	
Final Depth (mbgl)	-	
Discharge Rate	unknown	
Equipment	none	
pH	-	
EC (uS)	-	
TDS (mg/l)	-	
Temp ©	-	
ORP (mV)	-	
Comments	Downstream of municipal boreholes; Private production borehole close by. Recommended for water quality monitoring	
Resource ID	**JBH3**	
Latitude	-33.83124	
Longitude	23.62565	
Resource Type	Borehole	
Village/Area	Joubertina	
Sample No.	-	
Current Use	Monitoring	
Depth to GW (mbgl)	11.51	
Final Depth (mbgl)	-	
Discharge Rate	unknown	
Equipment	none	
pH	-	
EC (uS)	-	
TDS (mg/l)	-	
Temp ©	-	
ORP (mV)	-	
Comments	Pristine aquifer monitoring on Traffic Department premises. 100m from the river/stream	

GROUNDWATER RESOURCES		
Resource ID	**JBH4**	
Latitude	-33.82647	
Longitude	23.87166	
Resource Type	Borehole	
Village/Area	Joubertina	
Sample No.	-	
Current Use	Monitoring	
Depth to GW (mbgl)	40.98	
Final Depth (mbgl)	-	
Discharge Rate	unknown	
Equipment	none	
pH	-	
EC (uS)	-	
TDS (mg/l)	-	
Temp ©	-	
ORP (mV)	-	
Comments	Newly drilled borehole, close to cemetery, far from municipal boreholes; Pristine monitorig	
Resource ID	**KBH1**	
Latitude	-33.95499	
Longitude	24.2921	
Resource Type	Borehole	
Village/Area	Kou Kamma LM office	
Sample No.	-	
Current Use	Domestic	
Depth to GW (mbgl)	17.36	
Final Depth (mbgl)	-	
Discharge Rate	unknown	
Equipment	none	
pH	-	
EC (uS)	-	
TDS (mg/l)	-	
Temp ©	-	
ORP (mV)	-	
Comments	Abandoned Production Borehole, no longer in use. Good monitoring site for water levels and water quality	
Resource ID	**KBH2**	
Latitude	-33.95463	
Longitude	24.29166	
Resource Type	Borehole	
Village/Area	Kou Kamma LM office	
Sample No.	-	
Current Use	Domestic	
Depth to GW (mbgl)	8.02	
Final Depth (mbgl)	-	
Discharge Rate	unknown	
Equipment	none	
pH	-	
EC (uS)	-	
TDS (mg/l)	-	
Temp ©	-	
ORP (mV)	-	
Comments	Monitoring Borehole	

GROUNDWATER RESOURCES		
Resource ID	**M1N00038**	
Latitude	-33.80228	
Longitude	25.34147	
Resource Type	Borehole	
Village/Area	Uitenhage	
Sample No.	-	
Current Use	Monitoring Borehole	
Depth to GW (mbgl)	38.75	
Final Depth (mbgl)	-	
Discharge Rate	n/a	
Equipment	OTT logger	
pH	-	
EC (uS)	-	
TDS (mg/l)	-	
Temp ©	-	
ORP (mV)	-	
Comments	Poultry farming (Sovereign foods) located across the road. BH on private property. Kirkwood Formation	
Resource ID	**M1N00036**	
Latitude	-33.77756	
Longitude	25.33128	
Resource Type	Borehole	
Village/Area	Kruis River	
Sample No.	-	
Current Use	Monitoring Borehole	
Depth to GW (mbgl)	29.18	
Final Depth (mbgl)	-	
Discharge Rate	n/a	
Equipment	OTT logger	
pH	-	
EC (uS)	-	
TDS (mg/l)	-	
Temp ©	-	
ORP (mV)	-	
Comments	40m away from the Kruis river. Private farm production boreholes 30m away, possiblity of over abstraction of aquifer?	
Resource ID	**M3N0004**	
Latitude	-33.59675	
Longitude	25.38683	
Resource Type	Borehole	
Village/Area	Elandshoorn	
Sample No.	-	
Current Use	Monitoring Borehole	
Depth to GW (mbgl)	11.89	
Final Depth (mbgl)	-	
Discharge Rate	n/a	
Equipment	OTT logger	
pH	-	
EC (uS)	-	
TDS (mg/l)	-	
Temp ©	-	
ORP (mV)	-	
Comments	Prinstine monitoring, Ceres Subgroup of Bokkeveld group	

GROUNDWATER RESOURCES		
Resource ID	**M3N0002**	
Latitude	-33.64717	
Longitude	25.45364	
Resource Type	Borehole	
Village/Area	Prentice Kraal	
Sample No.	-	
Current Use	Monitoring Borehole	
Depth to GW (mbgl)	13.24	
Final Depth (mbgl)	-	
Discharge Rate	n/a	
Equipment	OTT logger	
pH	-	
EC (uS)	-	
TDS (mg/l)	-	
Temp ©	-	
ORP (mV)	-	
Comments	Pristine monitoring, Ceres Subgroup of Bokkeveld group	
Resource ID	**M3N0003**	
Latitude	-33.64305	
Longitude	25.45096	
Resource Type	Borehole	
Village/Area	Prentice Kraal	
Sample No.	-	
Current Use	Monitoring Borehole	
Depth to GW (mbgl)	14.2	
Final Depth (mbgl)	-	
Discharge Rate	n/a	
Equipment	OTT logger	
pH	-	
EC (uS)	-	
TDS (mg/l)	-	
Temp ©	-	
ORP (mV)	-	
Comments	Pristine monitoring, Kirkwood Formation?	
Resource ID	**M3N0007**	
Latitude	-33.73786	
Longitude	25.58	
Resource Type	Borehole	
Village/Area	Welbedachtfontein	
Sample No.	-	
Current Use	Monitoring Borehole	
Depth to GW (mbgl)	Artesian BH	
Final Depth (mbgl)	-	
Discharge Rate	n/a	
Equipment	none	
pH	8	
EC (uS)	490	
TDS (mg/l)	250	
Temp ©	21.6	
ORP (mV)	85	
Comments	Artesian BH, visible iron oxide precipitation. Recommended for water quality sampling	

GROUNDWATER RESOURCES		
Resource ID	**Coega Ventershoek Wellfield**	
Latitude	-33.77181	
Longitude	25.60691	
Resource Type	Boreholes	
Village/Area	Coega	
Sample No.	-	
Current Use	Domestic Supply	
No of BH in Wellfield	5	
Total abstraction Kl/day	unknown	
Geology	Algoa Group	
Equipment	Submersible	
Comments	New wellfield implementated for domestic and industrial use. Boreholes have been licensed. High Yielding Boreholes	
Resource ID	**P1N0502**	
Latitude	-33.50966	
Longitude	26.36569	
Resource Type	Borehole	
Village/Area	Birchleigh Farm	
Sample No.	-	
Current Use	Monitoring Borehole	
Depth to GW (mbgl)	15.51	
Final Depth (mbgl)	-	
Discharge Rate	n/a	
Equipment	none	
pH	-	
EC (uS)	-	
TDS (mg/l)	-	
Temp ©	-	
ORP (mV)	-	
Comments	On game farm. Pristine monitoring, Algoa Group	
Resource ID	**Fairview Spring**	 
Latitude	-33.3291	
Longitude	26.15459	
Resource Type	Spring	
Village/Area	Fairview	
Sample No.	-	
Current Use	Domestic	
Discharge Rate	~0.3l/s	
Equipment	none	
pH	6.5	
EC (uS)	290	
TDS (mg/l)	140	
Temp ©	17.6	
ORP (mV)	95	
Comments	Spring is part of the Kowie Catchment, Witteberg Group. Fresh water	

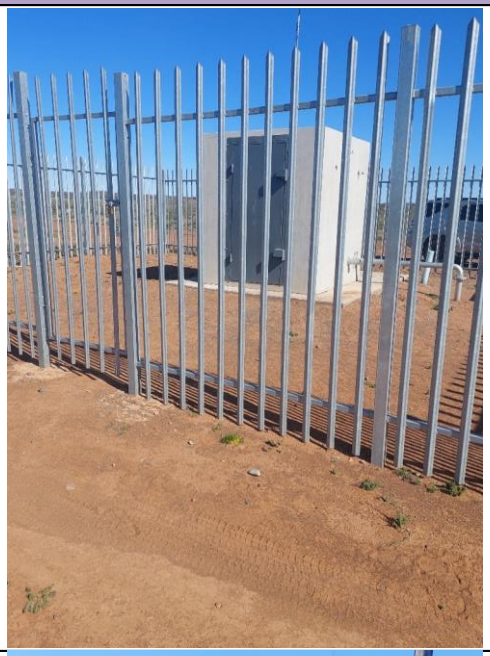
GROUNDWATER RESOURCES		
Resource ID	**Port Alfred Municipal Wellfield**	  
Latitude	-33.53042	
Longitude	26.94021	
Resource Type	Borehole	
Village/Area	Municipal land	
Sample No.	-	
Current Use	Monitoring Borehole	
No of BH in Wellfield	3	
Total abstraction Kl/day	unknown	
Geology	Witteberg Group	
Equipment	Submersible pumps	
Comments	3 production boreholes 200m apart from one another. Water quality data available	
Resource ID	**P4N0008**	
Latitude	-33.52801	
Longitude	26.93285	
Resource Type	Borehole	
Village/Area	Mooifontein Farm	
Sample No.	-	
Current Use	Monitoring Borehole	
No of BH in Wellfield	24.97	
Total abstraction Kl/day	-	
Geology	n/a	
Equipment	OTT Logger	
pH	-	
EC (uS)	-	
TDS (mg/l)	-	
Temp ©	-	
ORP (mV)	-	
Comments	Upstream wellfield aquifer monitoring. Witteberg Group Rocks	
Resource ID	**ZQMMBR1 (Wellfield)**	 
Latitude	-33.69332	
Longitude	26.65827	
Resource Type	Borehole	
Village/Area	Boesmansriviermond-Sanpark	
Sample No.	-	
Current Use	Production BHs	
No of BH in Wellfield	3	
Total abstraction Kl/day	unknown	
Geology	Quarternary Sands	
Equipment	Submersible pumps	
Comments	Water quality data and abstractions available. salt water intrusion may be possible in the area. Sensitive area. Water goes through RO in WTP	

GROUNDWATER RESOURCES		
Resource ID	**P2N0002**	
Latitude	-33.7485	
Longitude	26.54657	
Resource Type	Borehole	
Village/Area	Cannon Rock	
Sample No.	-	
Current Use	Monitoring Borehole	
Depth to GW (mbgl)	34.19	
Final Depth (mbgl)	-	
Discharge Rate	n/a	
Equipment	OTT Logger	
pH	-	
EC (uS)	-	
TDS (mg/l)	-	
Temp ©	-	
ORP (mV)	-	
Comments	Primary aquifer, salt water intrusion may be possible in the area, sensitive area	
Resource ID	**P4N0003**	
Latitude	-33.53093	
Longitude	26.89331	
Resource Type	Borehole	
Village/Area	Private Farm near Port Alfred	
Sample No.	-	
Current Use	Monitoring Borehole	
Depth to GW (mbgl)	45.4	
Final Depth (mbgl)	-	
Discharge Rate	n/a	
Equipment	OTT Logger	
pH	-	
EC (uS)	-	
TDS (mg/l)	-	
Temp ©	-	
ORP (mV)	-	
Comments	~1km east from a new wellfield that the municipality is developing. Witteberg Group Rocks	
Resource ID	**Aberdeen BH1**	
Latitude	-32.47226	
Longitude	24.058041	
Resource Type	Borehole	
Village/Area	Aberdeen	
Sample No.	-	
Current Use	Domestic Supply	
Depth to GW (mbgl)	-	
Final Depth (mbgl)	-	
Discharge Rate	unknown	
Equipment	Submersible	
pH	7.8	
EC (uS)	2255	
TDS (mg/l)	960	
Temp ©	14.6	
ORP (mV)	87	
Comments	Adelaide formation. Water not treated. 80kl steel sectional storage	

GROUNDWATER RESOURCES		
Resource ID	**N1NP0002**	
Latitude	-32.47161	
Longitude	24.05847	
Resource Type	Borehole	
Village/Area	Aberdeen	
Sample No.	-	
Current Use	Monitoring Borehole and Rainfal Station	
Depth to GW (mbgl)	26.91	
Final Depth (mbgl)	-	
Discharge Rate	n/a	
Equipment	OTT logger	
pH	-	
EC (uS)	-	
TDS (mg/l)	-	
Temp ©	-	
ORP (mV)	-	
Comments	Impact Monitoring, Water Quality data available. Recommended for rain sampling	
Resource ID	**Aberdeen BH2**	
Latitude	-32.47377	
Longitude	24.05646	
Resource Type	Borehole	
Village/Area	Aberdeen	
Sample No.	-	
Current Use	Domestic Supply	
Depth to GW (mbgl)	-	
Final Depth (mbgl)	-	
Discharge Rate	unknown	
Equipment	Submersible	
pH	7.8	
EC (uS)	2210	
TDS (mg/l)	960	
Temp ©	15	
ORP (mV)	90	
Comments	Adelaide formation. Water not treated. Feeds to a 80kl steel sectional storage	
Resource ID	**N1N0510**	
Latitude	-32.47470	
Longitude	24.05997	
Resource Type	Borehole	
Village/Area	Aberdeen	
Sample No.	-	
Current Use	Monitoring Borehole	
Depth to GW (mbgl)	22.31	
Final Depth (mbgl)	-	
Discharge Rate	n/a	
Equipment	OTT logger	
pH	-	
EC (uS)	-	
TDS (mg/l)	-	
Temp ©	-	
ORP (mV)	-	
Comments	Impact Monitoring. Adelaide formation	

GROUNDWATER RESOURCES		
Resource ID	**N1N0511**	
Latitude	-32.48908	
Longitude	24.07111	
Resource Type	Borehole	
Village/Area	Aberdeen	
Sample No.	-	
Current Use	Monitoring Borehole	
Depth to GW (mbgl)	32.25	
Final Depth (mbgl)	-	
Discharge Rate	n/a	
Equipment	OTT logger	
pH	-	
EC (uS)	-	
TDS (mg/l)	-	
Temp ©	-	
ORP (mV)	-	
Comments	Pristine aquifer monitoring.	
Resource ID	**N1N0513**	
Latitude	-32.48322	
Longitude	24.06225	
Resource Type	Borehole	
Village/Area	Aberdeen	
Sample No.	-	
Current Use	Monitoring Borehole	
Depth to GW (mbgl)	20.94	
Final Depth (mbgl)	-	
Discharge Rate	n/a	
Equipment	OTT logger	
pH	-	
EC (uS)	-	
TDS (mg/l)	-	
Temp ©	-	
ORP (mV)	-	
Comments	Impact Monitoring, Production BH 60m away. Adelaide Formation	
Resource ID	**Aberdeen BH3**	
Latitude	-32.4821	
Longitude	24.06239	
Resource Type	Borehole	
Village/Area	Aberdeen	
Sample No.	-	
Current Use	Domestic Supply - Not in use	
Depth to GW (mbgl)	-	
Final Depth (mbgl)	-	
Discharge Rate	unknown	
Equipment	Submersible	
pH	-	
EC (uS)	-	
TDS (mg/l)	-	
Temp ©	-	
ORP (mV)	-	
Comments	Adelaide formation.	

GROUNDWATER RESOURCES		
Resource ID	**Aberdeen BH4**	
Latitude	-32.49439	
Longitude	24.05158	
Resource Type	Borehole	
Village/Area	Aberdeen	
Sample No.	-	
Current Use	Domestic Supply	
Depth to GW (mbgl)	-	
Final Depth (mbgl)	-	
Discharge Rate	unknown	
Equipment	Submersible	
pH	-	
EC (uS)	-	
TDS (mg/l)	-	
Temp ©	-	
ORP (mV)	-	
Comments	Southwest Wellfield. Adelaide formation.	
Resource ID	**Aberdeen BH5**	
Latitude	-32.495	
Longitude	24.04956	
Resource Type	Borehole	
Village/Area	Aberdeen	
Sample No.	-	
Current Use	Domestic Supply	
Depth to GW (mbgl)	-	
Final Depth (mbgl)	-	
Discharge Rate	unknown	
Equipment	Submersible	
pH	-	
EC (uS)	-	
TDS (mg/l)	-	
Temp ©	-	
ORP (mV)	-	
Comments	Southwest Wellfield. Adelaide formation.	
Resource ID	**N1N0512**	
Latitude	-32.49444	
Longitude	24.049889	
Resource Type	Borehole	
Village/Area	Aberdeen	
Sample No.	-	
Current Use	Monitoring Borehole	
Depth to GW (mbgl)	Dry	
Final Depth (mbgl)	-	
Discharge Rate	n/a	
Equipment	no logger	
pH	-	
EC (uS)	-	
TDS (mg/l)	-	
Temp ©	-	
ORP (mV)	-	
Comments	BH dry, possibly due to over abstraction of the aquifer wellfield	

GROUNDWATER RESOURCES		
Resource ID	**EC/N14/0379 (Aberdeen BH7)**	
Latitude	-32.48801	
Longitude	24.04575	
Resource Type	Borehole	
Village/Area	Aberdeen	
Sample No.	-	
Current Use	Domestic Supply	
Depth to GW (mbgl)	-	
Final Depth (mbgl)	-	
Discharge Rate	unknown	
Equipment	Submersible	
pH	-	
EC (uS)	-	
TDS (mg/l)	-	
Temp ©	-	
ORP (mV)	-	
Comments	New borehole, Southwest Wellfield. Adelaide formation.	
Resource ID	**Aberdeen BH8**	
Latitude	-32.42469	
Longitude	24.04765	
Resource Type	Borehole	
Village/Area	Aberdeen	
Sample No.	-	
Current Use	Domestic Supply	
Depth to GW (mbgl)	-	
Final Depth (mbgl)	113	
Discharge Rate	unknown	
Equipment	Submersible	
pH	-	
EC (uS)	-	
TDS (mg/l)	-	
Temp ©	-	
ORP (mV)	-	
Comments	Newly drilled borehole replacing existing borehole. Weathered /fractured zone at 89m depth. Southwest Wellfield. Adelaide formation.	

GROUNDWATER RESOURCES		
Resource ID	**Aberdeen BH9**	
Latitude	-32.46745	
Longitude	24.04179	
Resource Type	Borehole	
Village/Area	Aberdeen	
Sample No.	-	
Current Use	Domestic Supply	
Depth to GW (mbgl)	-	
Final Depth (mbgl)	-	
Discharge Rate	unknown	
Equipment	Submersible	
pH	-	
EC (uS)	-	
TDS (mg/l)	-	
Temp ©	-	
ORP (mV)	-	
Comments	New borehole, Southwest Wellfield. Adelaide formation.	
Resource ID	**N1N0025**	
Latitude	-32.29164	
Longitude	24.42561	
Resource Type	Borehole	
Village/Area	Camdeboo Conservancy - Graaff Reinet	
Sample No.	-	
Current Use	Monitoing Borehole	
Depth to GW (mbgl)	13.95	
Final Depth (mbgl)	-	
Discharge Rate	-	
Equipment	OTT Logger	
pH	7.1	
EC (uS)	3010	
TDS (mg/l)	1200	
Temp ©	18	
ORP (mV)	86	
Comments	BH located next to a windmill for livestock.Adelaide Formation	
Resource ID	**Mimosadale BH1**	
Latitude	-32.30234	
Longitude	24.41868	
Resource Type	Borehole	
Village/Area	Camdeboo Conservancy - Graaff Reinet	
Sample No.	-	
Current Use	Production Borehole - Domestic Supply	
Depth to GW (mbgl)	-	
Final Depth (mbgl)	-	
Discharge Rate	-	
Equipment	Submersible pump	
pH	7.8	
EC (uS)	1700	
TDS (mg/l)	900	
Temp ©	19	
ORP (mV)	154	
Comments	Mimosadale Wellfield Borehole	

GROUNDWATER RESOURCES		
Resource ID	**N1N0025**	
Latitude	-32.30875	
Longitude	24.41244	
Resource Type	Borehole	
Village/Area	Camdeboo Conservancy - Graaff Reinet	
Sample No.	-	
Current Use	Monitoing Borehole	
Depth to GW (mbgl)	27.1	
Final Depth (mbgl)	-	
Discharge Rate	-	
Equipment	OTT Logger	
pH	-	
EC (uS)	-	
TDS (mg/l)	-	
Temp ©	-	
ORP (mV)	-	
Comments	Impact monitoring	
Resource ID	**Mimosadale BH2**	
Latitude	-32.30875	
Longitude	24.4125	
Resource Type	Borehole	
Village/Area	Camdeboo Conservancy - Graaff Reinet	
Sample No.	-	
Current Use	Production Borehole - Domestic Supply	
Depth to GW (mbgl)	-	
Final Depth (mbgl)	-	
Discharge Rate	-	
Equipment	Sumersible Pump	
pH	-	
EC (uS)	-	
TDS (mg/l)	-	
Temp ©	-	
ORP (mV)	-	
Comments	Mimosadale Wellfield Borehole	
Resource ID	**N1N0504**	
Latitude	-32.30875	
Longitude	24.4125	
Resource Type	Borehole	
Village/Area	Camdeboo Conservancy - Graaff Reinet	
Sample No.	-	
Current Use	Monitoing Borehole	
Depth to GW (mbgl)	26.54	
Final Depth (mbgl)	-	
Discharge Rate	-	
Equipment	OTT Logger	
pH	-	
EC (uS)	-	
TDS (mg/l)	-	
Temp ©	-	
ORP (mV)	-	
Comments	Impact monitoring	

GROUNDWATER RESOURCES		
Resource ID	**Mimosadale BH3**	
Latitude	-32.30913	
Longitude	24.41224	
Resource Type	Borehole	
Village/Area	Camdeboo Conservancy - Graaff Reinet	
Sample No.	-	
Current Use	Production Borehole - Domestic Supply	
Depth to GW (mbgl)	-	
Final Depth (mbgl)	-	
Discharge Rate	108	
Equipment	3.0 kW Submersible pump	
pH	-	
EC (uS)	-	
TDS (mg/l)	-	
Temp ©	-	
ORP (mV)	-	
Comments	Mimosadale Wellfield Borehole	
Resource ID	**N1N0092**	No Photo
Latitude	-32.30822	
Longitude	24.4121	
Resource Type	Borehole	
Village/Area	Camdeboo Conservancy - Graaff Reinet	
Sample No.	-	
Current Use	Monitoing Borehole	
Depth to GW (mbgl)	24.74	
Final Depth (mbgl)	-	
Discharge Rate	-	
Equipment	OTT Logger	
pH	-	
EC (uS)	-	
TDS (mg/l)	-	
Temp ©	-	
ORP (mV)	-	
Comments	Impact monitoring	
Resource ID	**N1N0505**	
Latitude	-32.30619	
Longitude	24.40486	
Resource Type	Borehole	
Village/Area	Camdeboo Conservancy - Graaff Reinet	
Sample No.	-	
Current Use	Monitoing Borehole	
Depth to GW (mbgl)	21.1	
Final Depth (mbgl)	-	
Discharge Rate	-	
Equipment	OTT Logger	
pH	-	
EC (uS)	-	
TDS (mg/l)	-	
Temp ©	-	
ORP (mV)	-	
Comments	Impact monitoring	

GROUNDWATER RESOURCES		
Resource ID	**Mimosadale BH4**	
Latitude	-32.30615	
Longitude	24.40481	
Resource Type	Borehole	
Village/Area	Camdeboo Conservancy - Graaff Reinet	
Sample No.	-	
Current Use	Production Borehole - Domestic Supply	
Depth to GW (mbgl)	-	
Final Depth (mbgl)	-	
Discharge Rate	-	
Equipment	Submersible pump	
pH	7.9	
EC (uS)	990	
TDS (mg/l)	480	
Temp ©	18.7	
ORP (mV)	120	
Comments	Mimosadale Wellfield Borehole	
Resource ID	**Mimosadale BH5**	
Latitude	-32.30082	
Longitude	24.20319	
Resource Type	Borehole	
Village/Area	Camdeboo Conservancy - Graaff Reinet	
Sample No.	-	
Current Use	none	
Depth to GW (mbgl)	-	
Final Depth (mbgl)	114	
Discharge Rate	-	
Equipment	capped	
pH	-	
EC (uS)	-	
TDS (mg/l)	-	
Temp ©	-	
ORP (mV)	-	
Comments	Newly drilled borehole, planned to be equipped with a submersible. Drilled in December 2021 by SRK.	
Resource ID	**Mimosadale BH6**	
Latitude	-32.30443	
Longitude	24.40069	
Resource Type	Borehole	
Village/Area	Camdeboo Conservancy - Graaff Reinet	
Sample No.	-	
Current Use	none	
Depth to GW (mbgl)	-	
Final Depth (mbgl)	114	
Discharge Rate	-	
Equipment	capped	
pH	-	
EC (uS)	-	
TDS (mg/l)	-	
Temp ©	-	
ORP (mV)	-	
Comments	Newly drilled borehole, planned to be equipped with a submersible. Drilled in December 2021 by SRK.	

GROUNDWATER RESOURCES		
Resource ID	**N1N0091**	
Latitude	-32.30450	
Longitude	24.40094	
Resource Type	Borehole	
Village/Area	Camdeboo Conservancy - Graaff Reinet	
Sample No.	-	
Current Use	Monitoing Borehole	
Depth to GW (mbgl)	21.77	
Final Depth (mbgl)	-	
Discharge Rate	-	
Equipment	OTT Logger	
pH	-	
EC (uS)	-	
TDS (mg/l)	-	
Temp ©	-	
ORP (mV)	-	
Comments	Pristine monitoring	
Resource ID	**Mimosadale BH7**	
Latitude	-32.30714	
Longitude	24.39706	
Resource Type	Borehole	
Village/Area	Camdeboo Conservancy - Graaff Reinet	
Sample No.	-	
Current Use	Production Borehole - Domestic Supply	
Depth to GW (mbgl)	-	
Final Depth (mbgl)	87	
Discharge Rate	-	
Equipment	5.5kW Submersible pump	
pH	-	
EC (uS)	-	
TDS (mg/l)	-	
Temp ©	-	
ORP (mV)	-	
Comments	Mimosadale Wellfield Borehole	
Resource ID	**Mimosadale BH8**	
Latitude	-32.30627	
Longitude	24.3953	
Resource Type	Borehole	
Village/Area	Camdeboo Conservancy - Graaff Reinet	
Sample No.	-	
Current Use	Production Borehole - Domestic Supply	
Depth to GW (mbgl)	51	
Final Depth (mbgl)	-	
Discharge Rate	-	
Equipment	5.5 kW Submersible pump	
pH	-	
EC (uS)	-	
TDS (mg/l)	-	
Temp ©	-	
ORP (mV)	-	
Comments	Mimosadale Wellfield Borehole	

GROUNDWATER RESOURCES		
Resource ID	**Mimosadale BH9**	
Latitude	-32.310035	
Longitude	24.41869	
Resource Type	Borehole	
Village/Area	Camdeboo Conservancy - Graaff Reinet	
Sample No.	-	
Current Use	Production Borehole - Domestic Supply	
Depth to GW (mbgl)	-	
Final Depth (mbgl)	84	
Discharge Rate	-	
Equipment	13 kW Submersible pump	
pH	-	
EC (uS)	-	
TDS (mg/l)	-	
Temp ©	-	
ORP (mV)	-	
Comments	13kW pump Mimosadale Wellfield Borehole	
Resource ID	**N1N0507**	
Latitude	-32.31342	
Longitude	24.41282	
Resource Type	Borehole	
Village/Area	Camdeboo Conservancy - Graaff Reinet	
Sample No.	-	
Current Use	Monitoing Borehole	
Depth to GW (mbgl)	15.48	
Final Depth (mbgl)	-	
Discharge Rate	-	
Equipment	No Logger	
pH	-	
EC (uS)	-	
TDS (mg/l)	-	
Temp ©	-	
ORP (mV)	-	
Comments	Pristine monitoring	
Resource ID	**N1N0021**	
Latitude	-32.20243	
Longitude	24.54083	
Resource Type	Borehole	
Village/Area	Camdeboo Conservancy - Graaff Reinet	
Sample No.	-	
Current Use	Monitoing Borehole	
Depth to GW (mbgl)	8	
Final Depth (mbgl)	-	
Discharge Rate	-	
Equipment	No Logger	
pH	-	
EC (uS)	-	
TDS (mg/l)	-	
Temp ©	-	
ORP (mV)	-	
Comments	GW impact monitroing	

GROUNDWATER RESOURCES		
Resource ID	**N1N0022**	
Latitude	-32.18549	
Longitude	24.54478	
Resource Type	Borehole	
Village/Area	Airfield - Graaff Reinet	
Sample No.	-	
Current Use	Monitoing Borehole	
Depth to GW (mbgl)	18.42	
Final Depth (mbgl)	-	
Discharge Rate	-	
Equipment	No Logger	
pH	-	
EC (uS)	-	
TDS (mg/l)	-	
Temp ©	-	
ORP (mV)	-	
Comments	GW impact monitroing	
Resource ID	**N1NP0001**	
Latitude	-31.86558	
Longitude	24.5598	
Resource Type	Borehole	
Village/Area	Nieu Besthesda	
Sample No.	-	
Current Use	Monitoing Borehole and rainfall station	
Depth to GW (mbgl)	6.09	
Final Depth (mbgl)	-	
Discharge Rate	-	
Equipment	No Logger	
pH	-	
EC (uS)	-	
TDS (mg/l)	-	
Temp ©	-	
ORP (mV)	-	
Comments	GW use impact monitoring. Rainfall station highly corroded. Borehole 100m away from sewage plant	
Resource ID	**Nieu Besthesda BH1**	
Latitude	31.86489	
Longitude	24.55976	
Resource Type	Borehole	
Village/Area	Nieu Besthesda	
Sample No.	-	
Current Use	Domestic supply	
Depth to GW (mbgl)	-	
Final Depth (mbgl)	-	
Discharge Rate	-	
Equipment	Submersible	
pH	-	
EC (uS)	-	
TDS (mg/l)		
Temp ©	-	
ORP (mV)	-	
Comments	Borehole is Nieu Besthesda's backup supply	

GROUNDWATER RESOURCES		
Resource ID	**Nieu Besthesda Fountain**	
Latitude	-31.86725	
Longitude	24.55085	
Resource Type	Spring	
Village/Area	Nieu Besthesda	
Sample No.	-	
Current Use	Domestic and agricultural supply	
Depth to GW (mbgl)	n/a	
Final Depth (mbgl)	n/a	
Discharge Rate	~4l/s	
Equipment	channel	
pH	8.7	
EC (uS)	770	
TDS (mg/l)	360	
Temp ©	14.9	
ORP (mV)	85	
Comments	Fountain is the main source of water in the community. Fountain eye located up the mountain, inaccessible by vehicle	
Resource ID	**Q1N0514**	
Latitude	-32.54245	
Longitude	25.01688	
Resource Type	Borehole	
Village/Area	Middelberg	
Sample No.	-	
Current Use	Monitoing Borehole	
Depth to GW (mbgl)	5.63	
Final Depth (mbgl)	-	
Discharge Rate	-	
Equipment	OTT Logger	
pH	-	
EC (uS)	-	
TDS (mg/l)	-	
Temp ©	-	
ORP (mV)	-	
Comments	Pristine GW monitoring. Adelaide Formation	
Resource ID	**Middelberg BH1**	
Latitude	-31.53196	
Longitude	24.99985	
Resource Type	Borehole	
Village/Area	Middelberg	
Sample No.	-	
Current Use	Domestiic Supply-Production BH	
Depth to GW (mbgl)	-	
Final Depth (mbgl)	-	
Discharge Rate	-	
Equipment	Submersible	
pH	-	
EC (uS)	-	
TDS (mg/l)	-	
Temp ©	-	
ORP (mV)	-	
Comments	Production wellfield borehole located along dyke ring structure.	

GROUNDWATER RESOURCES		
Resource ID	**Middelberg BH2**	
Latitude	-31.53338	
Longitude	25.00001	
Resource Type	Borehole	
Village/Area	Middelberg	
Sample No.	-	
Current Use	Domestiic Supply-Production BH	
Depth to GW (mbgl)	-	
Final Depth (mbgl)	-	
Discharge Rate	-	
Equipment	Submersible	
pH	-	
EC (uS)	-	
TDS (mg/l)	-	
Temp ©	-	
ORP (mV)	-	
Comments	Production wellfield borehole located along dyke ring structure.	
Resource ID	**Maatjieskloof BH6**	
Latitude	-31.54259	
Longitude	24.99695	
Resource Type	Borehole	
Village/Area	Middelberg	
Sample No.	-	
Current Use	Domestiic Supply-Production BH	
Depth to GW (mbgl)	-	
Final Depth (mbgl)	-	
Discharge Rate	-	
Equipment	Submersible	
pH	7.4	
EC (uS)	1280	
TDS (mg/l)	620	
Temp ©	17.5	
ORP (mV)	125	
Comments	Production wellfield borehole located along dyke ring structure.	
Resource ID	**Maatjieskloof BH7**	
Latitude	-31.54259	
Longitude	24.99695	
Resource Type	Borehole	
Village/Area	Middelberg	
Sample No.	-	
Current Use	Domestiic Supply-Production BH	
Depth to GW (mbgl)	-	
Final Depth (mbgl)	-	
Discharge Rate	-	
Equipment	Submersible	
pH	-	
EC (uS)	-	
TDS (mg/l)	-	
Temp ©	-	
ORP (mV)	-	
Comments	Production wellfield borehole located along dyke ring structure.	

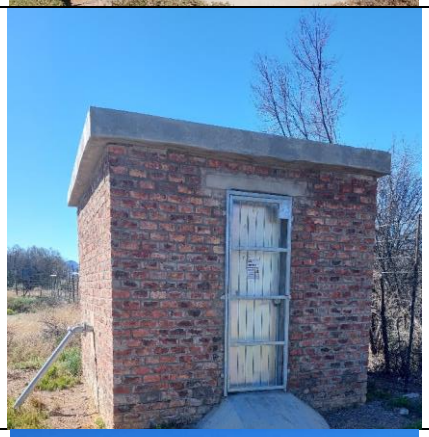
GROUNDWATER RESOURCES		
Resource ID	**Maatjieskloof BH9**	
Latitude	-31.533603	
Longitude	2.99638	
Resource Type	Borehole	
Village/Area	Middelberg	
Sample No.	-	
Current Use	Domestiic Supply-Production BH	
Depth to GW (mbgl)	-	
Final Depth (mbgl)	-	
Discharge Rate	-	
Equipment	Submersible	
pH	-	
EC (uS)	-	
TDS (mg/l)	-	
Temp ©	-	
ORP (mV)	-	
Comments	Production wellfield borehole located along dyke ring structure.	
Resource ID	**Q1N0507**	
Latitude	-31.50611	
Longitude	24.98947	
Resource Type	Borehole	
Village/Area	Middelberg	
Sample No.	-	
Current Use	Monitoing Borehole	
Depth to GW (mbgl)	9.5	
Final Depth (mbgl)	-	
Discharge Rate	-	
Equipment	OTT Logger	
pH	-	
EC (uS)	-	
TDS (mg/l)	-	
Temp ©	-	
ORP (mV)	-	
Comments	GW use impact monitoring. Adelaide Formation	
Resource ID	**EC/Q14/1887**	
Latitude	-31.5062	
Longitude	24.98955	
Resource Type	Borehole	
Village/Area	Middelberg	
Sample No.	-	
Current Use	Domestiic Supply-Backup BH	
Depth to GW (mbgl)	-	
Final Depth (mbgl)	-	
Discharge Rate	-	
Equipment	Submersible	
pH	-	
EC (uS)	-	
TDS (mg/l)	-	
Temp ©	-	
ORP (mV)	-	
Comments	Production wellfield borehole located along dyke ring structure.	

GROUNDWATER RESOURCES		
Resource ID	**Q1N0507**	
Latitude	-31.51402	
Longitude	24.97233	
Resource Type	Borehole	
Village/Area	Middelberg	
Sample No.	-	
Current Use	Monitoing Borehole	
Depth to GW (mbgl)	6	
Final Depth (mbgl)	-	
Discharge Rate	-	
Equipment	OTT Logger	
pH	-	
EC (uS)	-	
TDS (mg/l)	-	
Temp ©	-	
ORP (mV)	-	
Comments	GW use impact monitoring. Adelaide Formation	
Resource ID	**Q1N0516**	
Latitude	-31.53706	
Longitude	24.94385	
Resource Type	Borehole	
Village/Area	Middelberg	
Sample No.	-	
Current Use	Monitoing Borehole	
Depth to GW (mbgl)	5.35	
Final Depth (mbgl)	-	
Discharge Rate	-	
Equipment	OTT Logger	
pH	-	
EC (uS)	-	
TDS (mg/l)	-	
Temp ©	-	
ORP (mV)	-	
Comments	Pristine GW monitoring. Adelaide Formation	
Resource ID	**ZQMMDG1**	
Latitude	-31.48536	
Longitude	24.99197	
Resource Type	Borehole	
Village/Area	Middelberg	
Sample No.	-	
Current Use	Domestic Supply	
Depth to GW (mbgl)	-	
Final Depth (mbgl)	-	
Discharge Rate	-	
Equipment	Submersible	
pH	-	
EC (uS)	-	
TDS (mg/l)	-	
Temp ©	-	
ORP (mV)	-	
Comments	Borehole not in use. Adelaide Formation	

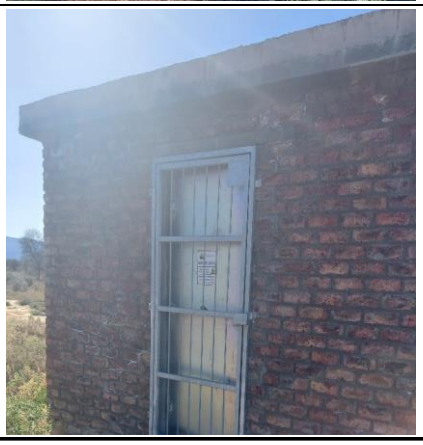
GROUNDWATER RESOURCES		
Resource ID	**Q1N0515**	
Latitude	-31.48292	
Longitude	24.98436	
Resource Type	Borehole	
Village/Area	Middelberg	
Sample No.	-	
Current Use	Monitoing Borehole and rainfall station	
Depth to GW (mbgl)	17.16	
Final Depth (mbgl)	-	
Discharge Rate	-	
Equipment	OTT Logger	
pH	-	
EC (uS)	-	
TDS (mg/l)	-	
Temp ©	-	
ORP (mV)	-	
Comments	GW use impact monitoring. Adelaide Formation	
Resource ID	**Grootfontein BH3**	
Latitude	-31.43141	
Longitude	24.98593	
Resource Type	Borehole	
Village/Area	Middelberg	
Sample No.	-	
Current Use	-	
Depth to GW (mbgl)	-	
Final Depth (mbgl)	-	
Discharge Rate	-	
Equipment	Submersible	
pH	8.1	
EC (uS)	650	
TDS (mg/l)	320	
Temp ©	17.8	
ORP (mV)	117	
Comments	Borehole in use	
Resource ID	**Q1N0511**	No Photo
Latitude	-31.48292	
Longitude	24.98436	
Resource Type	Borehole	
Village/Area	Middelberg	
Sample No.	-	
Current Use	Monitoing Borehole	
Depth to GW (mbgl)	22.65	
Final Depth (mbgl)	-	
Discharge Rate	-	
Equipment	OTT Logger	
pH	-	
EC (uS)	-	
TDS (mg/l)	-	
Temp ©	-	
ORP (mV)	-	
Comments	GW use impact monitoring. Adelaide Formation	

GROUNDWATER RESOURCES		
Resource ID	**Airfield BH1**	
Latitude	-32.19656	
Longitude	24.54898	
Resource Type	Borehole	
Town/village	Graaff Reinet	
Current Use	Domestic Supply-Production BH	
Discharge Rate	unknown	
Equipment	Submersible pump	
Comments	Airfield wellfield	
Resource ID	**Airfield BH2**	
Latitude		
Longitude		
Resource Type	Borehole	
Town/village	Graaff Reinet	
Current Use	Domestic Supply-Production BH	
Discharge Rate	unknown	
Equipment	Submersible pump	
Comments	Airfield wellfield	
Resource ID	**Airfield BH3**	
Latitude	-32.1989	
Longitude	24.54539	
Resource Type	Borehole	
Town/village	Graaff Reinet	
Current Use	Domestic Supply-Production BH	
Discharge Rate	unknown	
Equipment	4kW Submersible pump	
Comments	Airfield wellfield	

GROUNDWATER RESOURCES		
Resource ID	**Airfield BH4**	
Latitude	-32.19789	
Longitude	24.54453	
Resource Type	Borehole	
Town/village	Graaff Reinet	
Current Use	Domestic Supply-Production BH	
Discharge Rate	unknown	
Equipment	3kW Submersible pump	
Comments	Airfield wellfield	
Resource ID	**Airfield BH5**	
Latitude	-32.19561	
Longitude	24.55	
Resource Type	Borehole	
Town/village	Graaff Reinet	
Current Use	Domestic Supply-Production BH	
Discharge Rate	unknown	
Equipment	4kW Submersible pump	
Comments	Airfield wellfield	
Resource ID	**Airfield BH16**	
Latitude	-32.18914	
Longitude	24.54579	
Resource Type	Borehole	
Town/village	Graaff Reinet	
Current Use	Domestic Supply-Production BH	
Discharge Rate	unknown	
Equipment	2.2kW Submersible pump	
Comments	Airfield wellfield	

GROUNDWATER RESOURCES		
Resource ID	**Airfield BH7**	
Latitude	-32.18917	
Longitude	24.54501	
Resource Type	Borehole	
Town/village	Graaff Reinet	
Current Use	Domestic Supply-Production BH	
Discharge Rate	unknown	
Equipment	4.0kW Submersible pump	
Comments	Airfield wellfield	
Resource ID	**Airfield BH8**	
Latitude	-32.1868	
Longitude	24.54605	
Resource Type	Borehole	
Town/village	Graaff Reinet	
Current Use	Domestic Supply-Production BH	
Discharge Rate	unknown	
Equipment	4.0kW Submersible pump	
Comments	Airfield wellfield	
Resource ID	**Airfield BH9**	
Latitude	-32.18693	
Longitude	24.54553	
Resource Type	Borehole	
Town/village	Graaff Reinet	
Current Use	Domestic Supply-Production BH	
Discharge Rate	unknown	
Equipment	4.0kW Submersible pump	
Comments	Airfield wellfield	

GROUNDWATER RESOURCES		
Resource ID	**Airfield BH10**	
Latitude	-32.18483	
Longitude	24.53934	
Resource Type	Borehole	
Town/village	Graaff Reinet	
Current Use	Domestic Supply-Production BH	
Discharge Rate	unknown	
Equipment	Submersible pump	
Comments	Airfield wellfield	
Resource ID	**Airfield BH11**	
Latitude	-32.18819	
Longitude	24.53934	
Resource Type	Borehole	
Town/village	Graaff Reinet	
Current Use	Domestic Supply-Production BH	
Discharge Rate	unknown	
Equipment	Submersible pump	
Comments	Airfield wellfield	
Resource ID	**Airfield BH12**	
Latitude	-32.19055	
Longitude	24.53566	
Resource Type	Borehole	
Town/village	Graaff Reinet	
Current Use	Domestic Supply-Production BH	
Discharge Rate	unknown	
Equipment	Submersible pump	
Comments	Airfield wellfield	

GROUNDWATER RESOURCES		
Resource ID	**Airfield BH13**	
Latitude	-32.19119	
Longitude	24.53334	
Resource Type	Borehole	
Town/village	Graaff Reinet	
Current Use	Domestic Supply-Production BH	
Discharge Rate	unknown	
Equipment	9.2kW Submersible pump	
Comments	Airfield wellfield	
Resource ID	**Airfield BH14**	
Latitude	-32.19299	
Longitude	24.53669	
Resource Type	Borehole	
Town/village	Graaff Reinet	
Current Use	Domestic Supply-Production BH	
Discharge Rate	unknown	
Equipment	5.5KW Submersible pump	
Comments	Airfield wellfield	
Resource ID	**Airfield BH15**	
Latitude	-32.19551	
Longitude	24.53941	
Resource Type	Borehole	
Town/village	Graaff Reinet	
Current Use	Domestic Supply-Production BH	
Discharge Rate	unknown	
Equipment	11kW Submersible pump	
Comments	Airfield wellfield	

GROUNDWATER RESOURCES		
Resource ID	**Airfield BH16**	
Latitude	-32.19681	
Longitude	24.54405	
Resource Type	Borehole	
Town/village	Graaff Reinet	
Current Use	Domestic Supply-Production BH	
Discharge Rate	unknown	
Equipment	4.0kW Submersible pump	
Comments	Airfield wellfield	
Resource ID	**Airfield BH17**	
Latitude	-32.19478	
Longitude	24.54468	
Resource Type	Borehole	
Town/village	Graaff Reinet	
Current Use	Domestic Supply-Production BH	
Discharge Rate	unknown	
Equipment	1.5kW Submersible pump	
Comments	Airfield wellfield	
Resource ID	**EC/T90/203**	
Latitude	-32.28644	
Longitude	28.8064	
Resource Type	Borehole	
Town/village	Mpume village	
Current Use	Monitoring	
Depth to GW (mbgl)	16.16	
Equipment	none	
Comments	Ecca formation, BH damaged	

GROUNDWATER RESOURCES		
Resource ID	**EC/T90/980**	
Latitude	-32.0688	
Longitude	28.29755	
Resource Type	Borehole	
Town/village	Ncolosa	
Current Use	Monitoring BH	
Depth to GW (mbgl)	21.18	
Equipment	none	
Comments	Pristine GW Monitoring	
Resource ID	**EC/T90/212**	
Latitude	-32.09041	
Longitude	28.24461	
Resource Type	Borehole	
Town/village	Mputheni	
Current Use	Monitoring BH	
Depth to GW (mbgl)	26.4	
Equipment	none	
Comments	Tarkastad Formation.	
Resource ID	**T2N0002**	
Latitude	-31.73369	
Longitude	28.69095	
Resource Type	Borehole and Rainfall Station	
Town/village	Jojweni	
Current Use	Monitoring BH	
Depth to GW (mbgl)	17.32	
Equipment	none	
Comments	BH positioned on a dyke. Tarkastad formation	

GROUNDWATER RESOURCES		
Resource ID	**EC/T20/904**	
Latitude	-31.86191	
Longitude	28.76829	
Resource Type	Borehole	
Town/village	Mqanduli	
Current Use	Monitoring	
Depth to GW (mbgl)	27.21	
Equipment	none	
Comments	Pristine GW Monitoring	
Resource ID	**T2N0001**	
Latitude	-31.64419	
Longitude	29.71483	
Resource Type	Borehole	
Town/village	Mthatha	
Current Use	Monitoring	
Depth to GW (mbgl)	4.8	
Equipment	OTT Logger	
Comments	Pristine GW Monitoring	
Resource ID	**EC/T20/895**	
Latitude	-31.66699	
Longitude	28.93306	
Resource Type	Borehole	
Town/village	Ngqeleni	
Current Use	Monitoring	
Depth to GW (mbgl)	19.34	
Equipment	none	
Comments	Pristine GW Monitoring	

GROUNDWATER RESOURCES		
Resource ID	**EC/T11/061**	
Latitude	-31.61886	
Longitude	28.1662	
Resource Type	Borehole	
Town/village	Rasmeni	
Current Use	Monitoring BH	
Depth to GW (mbgl)	4.42	
Equipment	none	
Comments	Pristine GW Monitoring	
Resource ID	**EC/T11/063**	
Latitude	-31.63563	
Longitude	28.11394	
Resource Type	Borehole	
Town/village	Msitsana	
Current Use	Monitoring BH	
Depth to GW (mbgl)	31.93	
Equipment	none	
Comments	Pristine GW Monitoring	
Resource ID	**EC/T12/106**	
Latitude	-31.73438	
Longitude	28.14605	
Resource Type	Borehole	
Town/village	Ventyu	
Current Use	Monitoring BH	
Depth to GW (mbgl)	39.1	
Equipment	none	
Comments	Pristine GW Monitoring	

GROUNDWATER RESOURCES		
Resource ID	**EC/T12/093**	
Latitude	-31.58222	
Longitude	27.83266	
Resource Type	Borehole	
Town/village	Mqabo	
Current Use	Monitoring BH	
Depth to GW (mbgl)	23.88	
Equipment	none	
Comments	Pristine GW Monitoring	
Resource ID	**EC/T12/101**	
Latitude	-31.71889	
Longitude	27.90254	
Resource Type	Borehole	
Town/village	Fameni	
Current Use	Monitoring BH	
Depth to GW (mbgl)	17.94	
Equipment	none	
Comments	Pristine GW Monitoring	
Resource ID	**EC/T12/113**	
Latitude	-31.86117	
Longitude	27.84753	
Resource Type	Borehole	
Town/village	Nqwarhu	
Current Use	Monitoring BH	
Depth to GW (mbgl)	27.12	
Equipment	none	
Comments	Pristine GW Monitoring	

GROUNDWATER RESOURCES		
Resource ID	**T7N0002**	
Latitude	-31.52136	
Longitude	29.08303	
Resource Type	Borehole	
Town/village	Didi	
Current Use	Monitoring BH and rainfall station	
Depth to GW (mbgl)	3.92	
Equipment	none	
Comments	GW impact Monitoring. Production Borehole 30m away	
Resource ID	**T7N0001**	
Latitude	-31.45885	
Longitude	28.96278	
Resource Type	Borehole	
Town/village	Mchuka-Libode	
Current Use	Monitoring	
Depth to GW (mbgl)	6.02	
Equipment	none	
Comments	Pristine GW Monitoring	
Resource ID	**T3N0003**	
Latitude	-31.38778	
Longitude	29.00144	
Resource Type	Borehole	
Town/village	Mhlanganisweni	
Current Use	Monitoring BH	
Depth to GW (mbgl)	1.03	
Equipment	none	
Comments	Pristine GW Monitoring	

GROUNDWATER RESOURCES		
Resource ID	**EC/T60/1044**	
Latitude	-31.36482	
Longitude	29.56956	
Resource Type	Borehole	
Town/village	Lusikisiki	
Current Use	Monitoring BH	
Depth to GW (mbgl)	2.02	
Equipment	none	
Comments	GW impact Monitoring	
Resource ID	**EC/T60/996**	
Latitude	-31.22062	
Longitude	29.442	
Resource Type	Borehole	
Town/village	Lusikisiki	
Current Use	Monitoring	
Depth to GW (mbgl)	2.09	
Equipment	none	
Comments	Pristine GW Monitoring	
Resource ID	**EC/T60/1388**	
Latitude	-31.19725	
Longitude	29.74786	
Resource Type	Borehole	
Town/village	KwaCele	
Current Use	Monitoring BH	
Depth to GW (mbgl)	23.33	
Equipment	none	
Comments	Pristine GW Monitoring	

GROUNDWATER RESOURCES		
Resource ID	**EC/T60/1389**	
Latitude	-31.19928	
Longitude	29.80214	
Resource Type	Borehole	
Town/village	Lusikisiki	
Current Use	Monitoring BH	
Depth to GW (mbgl)	2.02	
Equipment	none	
Comments	GW impact Monitoring	
Resource ID	**Didi BH1**	
Latitude	-31.52137	
Longitude	29.08277	
Resource Type	Borehole	
Town/village	Didi	
Current Use	Production BH-Domestic	
Depth to GW (mbgl)	-	
Equipment	Submersible pump	
Comments	Borehole not in use due to faulty infrustructure	