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Co-operative Governance and Traditional Affairs  
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# Umzinyathi District Municipality

## Development of Universal Access Plan for Water & Sanitation in KwaZulu-Natal

# Final

## September 2014



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Department:  
Co-operative Governance and Traditional Affairs  
PROVINCE OF KWAZULU-NATAL

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# LDM REPORT

## Final Universal Access Plan

<b>Report Title:</b>	Umzinyathi District Municipality - Final Universal Access Plan
<b>Client:</b>	Co-operative Governance and Traditional Affairs
<b>Implementing Agent</b>	Umgeni Water
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Approved by:

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Signed

\_\_\_\_\_  
Date

## LIST OF ABBREVIATIONS

CoGTA	Department of Cooperative Governance and Traditional Affairs
KZN	KwaZulu Natal
UAP	Universal Access Plan
DWA	Department of Water Affairs
UW	Umgeni
DM	District Municipality
LM	Local Municipality
WSDP	Water Services Development Plan
WSA	Water Service Authorities
IA	Implementing Agent
IIWSP	Interim/Intermediate Water Supply Programme
IDP	Integrated Development Plan
MIG	Municipal Infrastructure Grant
SDF	Spatial Development Framework
RDP	Reconstruction and Development Programme
WTW	Water Treatment Works
WWTW	Waste Water Treatment Works
GIS	Geographic Information System
LOS	Level of Service
VIP	Ventilated Improved Pit

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## 1 EXECUTIVE SUMMARY

KwaZulu-Natal (KZN) Department of Cooperative Governance and Traditional Affairs (CoGTA) strategic priorities 2013/14 Programme 3 (Development Planning), the Department is mandated to prepare a Universal Access Plan (UAP) with a specific focus on citizen's access to water, sanitation as contained in the MEC's 2013/14 Vote 11 Budget Speech of the 30th May 2013.

In order to prepare a UAP, an all-inclusive conceptual water service plan was required for the ten (10) District Municipalities (DM's) of KZN (excluding the eThekweni Metropolitan Municipality) and also for the three Water Utilities in KZN, namely; Umgeni Water, Umhlatuze Water and Uthukela Water. The UAP for electricity has been undertaken by Eskom and does not form part of this report and findings.

All District Municipalities have set clear objectives to ensure that all citizens have access to basic levels of service which include:

- Upgrading or refurbishment of existing water services treatment works;
- Upgrading or refurbishment of existing water services schemes;
- Operate and maintain existing schemes and treatment works in a sustainable manner;
- Complete existing water services projects;
- Remove water services backlogs by implementing new projects.

The scope of this assignment was to determine the backlogs to access to basic water and sanitation needs within each district municipalities and thus provide an overall cost within each district municipality.

As part of this Universal Access Plan (UAP) assignment to determine the backlogs in water and sanitation; all documentation such as Water Services Development Plan (WSDP), Integrated Development Plan (IDP) and Water Service Master Plan (WSMP) had to be reviewed as these are strategic planning instruments which guides and informs all planning, budgeting, management and decisions making in the District Municipality. The Water Services Development Plan is also intended to address the sector planning needs of each of the four Local Municipalities namely Endumeni, Msinga, Nqutu, and Umvoti.

In order to identify the backlogs, draft water supply footprints were digitised forming water supply polygons by using existing water infrastructure available from Umgeni Water and the

District Municipality. These water supply polygons were then used at the engagement meeting at UMzinyathi. The water and sanitation attributes were confirmed and updated by the operational and maintenance staff of UMzinyathi, and water and sanitation backlogs identified. Also, captured at the engagement meeting were the existing water schemes and associated water and sanitation infrastructure.

Geographic Information System (GIS) analysis was used to capture all infrastructural attributes and the 2011 Eskom household points used to determine the backlogs numbers per water supply polygon. Statistics SA census data was used to calculate the average growth rate per annum between 2001/ 2011. The percentage growth was then applied to the 2011 to 2014 household's counts to determine the current estimated household counts. The Department of Human Settlement income was also used to determine the required consumptions and capacity requirements. Majority of the backlogs identified fall in the category of informal with no formal connection which equates to max per capita consumption of 70 l/c/d. This was the applied to the water supply polygons and the required consumptions identified in order to determine the conceptual bulk schemes.

To address these short term water and sanitation backlogs, conceptual water supply schemes were developed and costed according to the infrastructure rates given by Umgeni Water and SMEC South Africa's current water and sanitation projects undertaken. A total of 84 conceptual bulk schemes have been identified to address the water and sanitation backlogs ranging from schemes with small water treatment plants to bulk lines, reservoirs to reticulation and stand pipes connections to boreholes with tanks and hand-pumps. The selections of these conceptual schemes incorporated different factors such as income levels with consumption requirements, local topography, and number of households affected, spacing of the polygons without access to water, and the adjacent polygons with access to water.

This UAP encompassed the identification of gaps/backlogs in water and sanitation service delivery, and the provision of conceptual plans focusing on regional and bulk schemes with the associated cost estimates for the supply of these services. In areas where regional and bulk schemes aren't viable or where an interim water supply is needed, an alternative local scheme has been identified for prioritisation.



The Statics SA Census 2011 indicates that the current population is currently at 510 839 with the total number of households at 113 472. The current average growth rate for the Umzinyathi District Municipality is estimated at 0.53% from the 2011 Census.

The total water backlogs identified from the Census data for the Umzinyathi District Municipality is 51 426 households which equates to 45% of the DM and the total backlogs identified from the engagements with the Umzinyathi District Municipality using the Eskom household points are 15 097 households, which is 18% of the DM. Also, to be noted that there is a large difference in number of households from the 2011 Census data to the 2011 Eskom household dwelling count. The 2011 Eskom household dwelling counts are used to determine the backlogs.

**Table 5: Census 2011 Water Services Backlogs**

Municipality	2011 Census Number of Households	Water Served Households	Water Backlogs Households	Percentage of Water Backlogs
Endumeni LM	16852	14981	1871	11.10%
Msinga LM	37724	12812	24912	66.04%
Nqutu LM	31613	19861	11752	37.17%
Umvoti LM	27283	14392	12891	47.25%
<b>Umzinyathi District Municipality</b>	<b>113472</b>	<b>62046</b>	<b>51426</b>	<b>45.32%</b>

**Table 6: Water Service Backlogs Captured at Engagement with DM**

Municipality	2011 Eskom Household Dwellings	Growth Rate %	Factor	2014 Escalated ESKOM Household Dwellings	Water Backlogs Households	Percentage of Water Backlog
Endumeni LM	12653	2.38	1.0238	12944	138	1.07%
Msinga LM	23615	0.60	1.0060	23757	7 259	30.56%
Nqutu LM	27324	-0.25	1	27324	5 427	19.86%
Umvoti LM	17763	1.11	1.0111	17960	2 273	12.66%
<b>Umzinyathi District Municipality</b>	<b>81355</b>			<b>81985</b>	<b>15 097</b>	<b>18.41%</b>

The backlogs for sanitation in the Umzinyathi District Municipality from Census data reflects a total of 59 824 households which equates to approximately 53% of the DM and a total number

of 19 414 households were indicated as having backlogs from the engagement meetings which equates to approximately 24% of the DM.

**Table 7: Census 2011 Sanitation Backlogs**

Municipality	Households	Sanitation Served	Backlogs	Percentage Backlogs
Endumeni LM	16853	13669	3184	18.89%
Msinga LM	37722	13965	23757	62.98%
Nqutu LM	31611	12877	18734	59.26%
Umvoti LM	27281	13132	14149	51.86%
<b>Umzinyathi District Municipality</b>	<b>113467</b>	<b>53643</b>	<b>59824</b>	<b>52.72%</b>

**Table 8: Sanitation Backlogs Captured at Engagement with DM**

Municipality	Water Borne	VIP	Pits	Pit and Septic Tanks	Septic Tanks	None	Total Households	Percentage Backlogs
Endumeni LM	10134	112	0	0	658	2041	12944	20.85%
Msinga LM	639	12937	7359	0	0	2822	23757	42.85%
Nqutu LM	3705	23619	0	0	0	0	27324	0.00%
Umvoti LM	3918	7507	3140	2693	0	702	17960	36.38%
<b>Umzinyathi District Municipality</b>	<b>18396</b>	<b>44175</b>	<b>10499</b>	<b>2693</b>	<b>658</b>	<b>5564</b>	<b>81985</b>	<b>23.68%</b>
	<b>62571</b>		<b>19414</b>					
	<b>76%</b>		<b>24%</b>					
	<b>Access</b>		<b>Backlog</b>					

Conceptual schemes to eradicate the water backlogs have been proposed and costed accordingly in order to determine the total amount of funding needed for the DM. The total cost for the 84 proposed water schemes is approximately R347 million. The cost to eradicate the sanitation backlogs was based on data obtained from service providers who are currently eradicating backlogs in the Harry Gwala District municipality. The rates used ranged between R6000 to R7000 to supply and lay a VIP per household, and hence we used a fixed rate of R7000. The total cost to eradicate sanitation backlogs is approximately R136 million.

Table 11 indicates the estimated water backlogs infrastructure costs based on the conceptual schemes. Table 12 below indicates the estimated sanitation backlogs infrastructure costs based on the conceptual schemes.

**Table 11: Water Infrastructural Costs**

Local Municipality	Total
Endumeni	R 2 266 189
Msinga	R 107 486 626
Nqutu	R 203 012 081
Umvoti	R 34 113 848
<b>Total</b>	<b>R 346 878 744</b>

**Table 12: Sanitation Infrastructural Costs**

Local Municipality	Rate/VIP	Remaining Expenditure
Endumeni	R 7 000	R 18 893 000
Msinga	R 7 000	R 71 267 000
Nqutu	R -	R -
Umvoti	R 7 000	R 45 745 000
<b>Totals</b>		<b>R 135 905 000</b>

The total cost with the study fees for the proposed water schemes is approximately R364 Million. The total cumulative cost for water and sanitation over the 5 years is approximately R542 Million which includes 10% escalation. The figure below indicates the total cumulative cost projection over the next 5 years for eradicating these backlogs.

The projects listed in the Integrated Development Plan and those set out by the Department of Water Affairs which are shown in Annexure A and D are regional bulk schemes which are long term solutions to address backlogs and improve current water and sanitation infrastructure. These projects have are funded through the Municipal Infrastructure Grant and Municipal Water Infrastructure Grant which we have not considered when proposing conceptual alternate schemes to eradicate current backlogs. There could be overlapping of the proposed conceptual schemes to the regional bulk schemes and thus overlapping of infrastructure costs. The main

reason that infrastructure cost could be overlapped is due to our mandate to develop conceptual schemes to eradicate the backlogs identified at the engagement meeting with the district municipalities. The staff could not identify the boundaries of the regional bulk schemes nor provide information on start and completion dates.

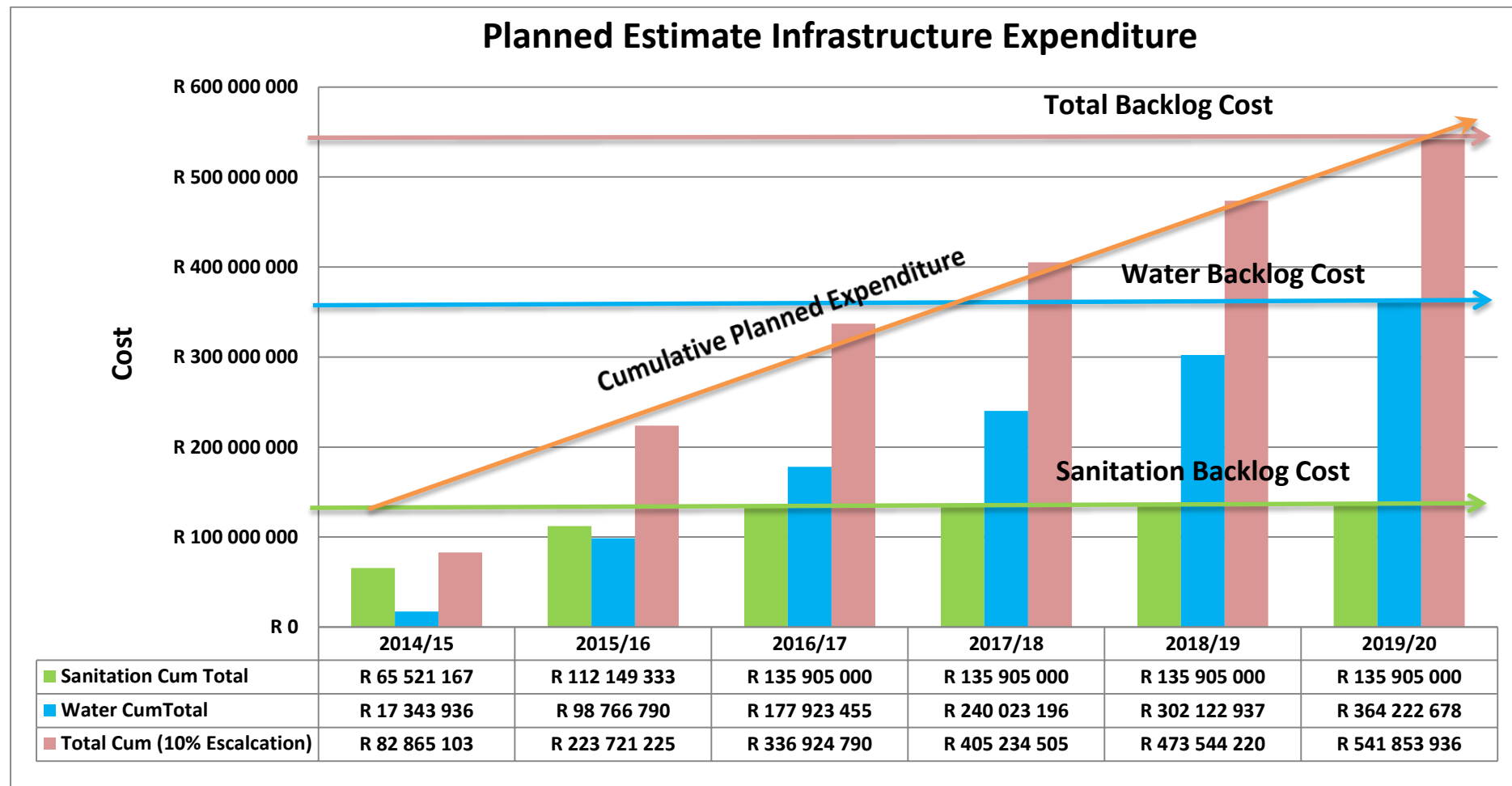


Figure 10: Water and Sanitation 5 Year Budget Plan

## 2 INTRODUCTION

In terms of the 'Department of Cooperative Governance and Traditional Affairs' (CoGTA's) strategic priorities 2013/14 Programme 3 (Development Planning), the Department has been mandated to prepare a Universal Access Plan (UAP) with a specific focus on access to water and sanitation.

Whilst a significant number of municipalities in KwaZulu-Natal are close to achieving universal access regarding key municipal infrastructure services such as water, sanitation and electricity; a need was identified, to formulate a plan to allow for the remaining backlogs to be quantified and the approximate costs of remedying these situations, established.

As a result, CoGTA's 'Municipal Infrastructure Development Business Unit' was directed to undertake the collection of all basic infrastructure backlog data; the verification of this data and the compilation of a Universal Access Plan document with a geo-database and an implementation programme, indicating the relevant milestones and associated infrastructure costs.

CoGTA thus enlisted Umgeni Water (UW), with the assistance of the 'Department of Water Affairs' (DWA), to act as the Implementing Agent (IA) for this project. This was aligned with the DWA's mandate to provide potable water to the people of South Africa; as well as the development of bulk Infrastructure Master Plans (IMP's) by water utilities such as Umgeni Water, uThukela Water, Umhlathuze Water and the like.

In terms of Section 1 of the Water Services Act, 1997, the District Municipalities are the mandated Water Service Authorities (WSA's) that are required to develop 'Integrated Development Plans' (IDP's) and 'Water Services Development Plans' (WSDP's). In addition to these water supply plans, there are currently several other supporting programmes which include the DWA's 'Total Water Services Business Master Planning Process'; the 'All Town Study/Reconciliation Studies', the 'Prioritisation of Water Services to 24 District Municipalities', the 'Interim/Intermediate Water Supply Programme' (IIWSP) and the 'Municipal Infrastructure Grant' (MIG). Despite these many plans, it was still recognised by CoGTA that the water planning process to date, has not entirely fulfilled the water planning requirements of the province, as well as originally envisaged. Hence, on the 6<sup>th</sup> September 2013, Umgeni Water was requested by CoGTA to manage the water supply planning programme in KwaZulu-Natal and from this was born the design of the Universal Access Plan (UAP).

LDM was appointed by The Municipal Infrastructure Development Business Unit of CoGTA, to develop these Universal Access Plans, for Water & Sanitation, within five of the ten Districts, namely, UMzinyathi, Harry Gwala, Umzinyathi, Uthungulu and Umgungundlovu. The process of developing these plans included the collection of infrastructure backlog data; the capture of water supply footprints and their verification; and confirmations of the existing bulk, reticulation networks and proposed new schemes; for each of the five awarded districts. Also crucial, was the identification and mapping of 'gaps" of settled or residential areas that are without access to an acceptable level of water and sanitation services; and also the provision of conceptual plans focusing on regional and bulk schemes for the provision of these services. In areas where regional and bulk schemes are currently not feasible or where an interim water supply is needed, a local scheme was opted be used.

### 3 MAIN DELIVERABLES

In order to develop these Universal Access Plans, specific to each District Municipality, the following guidelines have been set by Umgeni Water:

- Assessment of water planning status quo;
- Identification of existing water supply schemes;
- Identification of already proposed future water supply options;
- Development of continuous water supply footprint areas covering the entire province, showing demographics, as well as current and required levels of service;
- Planned supply schemes (at a conceptual level) that can be constructed to supply all areas;
- Reconciliation of existing and proposed water supply and demand options;
- Provision of an updated geo-database including meta data of all relevant information; and finally the,
- Compilation of a UAP report for each DM.

#### 4 UMZINYATHI DISTRICT MUNICIPALITY

The uMzinyathi District Municipality covers a municipal area of 8079 square kilometres. The DM is bordered in the North by the aMajuba DM, in the West by the uThukela DM, in the South West by uMgungundlovu DM, in the South East by the UMzinyathi DM, and in the East by uThungulu DM. Umzinyathi consists of four Local Municipalities, namely, Endumeni, Msinga, Nqutu and Umvoti.

Figure 1 below shows the orientation of these local municipalities within the district.



Figure 1: uMzinyathi Local Municipality Locality Map



#### 4.1 Demographic Trends and Settlement Growth

The uMzinyathi DM has grown over the past 10 years as indicated in Table 1 below. The Statistic SA census 2011 indicates an overall increase in population growth. The statistic SA indicates that three local municipalities experienced an increase in population growth i.e. Endumeni, Msinga and Umvoti, while Nquthu Municipality experienced a decline in terms of population growth. The strongest population growth was evident in Endumeni Municipality as one of the major economic centres of the district. As per the Census 2011 data of Statistic SA, the current population for Umzinyathi is over Five hundred thousand (510 839), with the total number of households counted at over one hundred and thirteen thousand (113 470). The split per Local municipality is indicated in Table 1 below. For an illustration of the dwellings within the Umzinyathi District Municipality refer to Map 2 in Annexure B.

**Table 1: Umzinyathi District Municipality Population & Household Figures**

Local Municipality	KZN Code	2001			2011		
		Population	%	Households	Population	%	Households
Endumeni	KZ 241	51 101	10.6%	12 278	64 862	12.7%	16852
Msinga	KZ 244	167 274	34.8%	32 505	177 577	34.8%	37723
Nqutu	KZ 242	169 419	35.3%	29 318	165 307	32.4%	31613
Umvoti	KZ 245	92 294	19.2%	19 669	103 093	20.2%	27282
<b>Umzinyathi District Municipality</b>		<b>480 088</b>	<b>100%</b>	<b>93 770</b>	<b>510 839</b>	<b>100%</b>	<b>113470</b>

Stats SA 2011

## 5 WATER AND SANITATION STATUS QUO

The Umzinyathi District Municipality is facing a series of challenges based on the status quo analysis, which needs to be addressed to allow for the creation of a conducive environment for socio-economic and infrastructure development. This will allow for significant improvement in the lives of the respective community members.

During the end of the 2012/13 financial year, the municipality had a backlog 28 181 households having no water and 18 332 households without sanitation. The complete eradication of the current backlogs requires R 4 billion (as specified in the IDP) thereby achieving the RDP

standards. Based on the current allocations for the Municipal Infrastructure Grants, the municipality is unable to eradicate backlogs in line with the Millennium Development Goals.

## 5.1 Bulk Water Infrastructure

In order to efficiently plan the delivery of water, a Water Services Development Plan has been developed to assist the municipality to align the projects set out by the Water Services Authority and that of the Integrated Development Plan (IDP) in terms of providing water and sanitation services to the entire district.

The municipality has reviewed the bulk water and sanitation strategy which has quantified the backlogs for each local municipality, funding required to eradicate backlogs and also funding sources. The Strategy for water is as follows:

- Too many small stand-alone schemes are being planned;
- Planned schemes are very costly - above the Department of Water Affairs bench mark guidelines;
- Serious concerns with regards to the availability of reliable and sustainable water sources in the district;

Strategic issues to be addressed:

- Bulk Schemes to be assessed to extend services to other areas;
  - Benefits-reduced capital costs;
  - Sustainable water sources, as many boreholes are drying up;
  - O&M costs reduced;
  - Shorten construction time and increase speed of service delivery; and
- Avoid duplication of bulk infrastructure costs.

The Strategy for sanitation is as follows:

- Sanitation Area Based Business Plans were prepared to address the Backlogs at:
  - Umvoti,
  - Msinga, and
  - Nquthu;
- Significant migration patterns across Wards and increase in population has been observed;
- Actual household counts from recently approved Sanitation Business Plans, has supported significant population growth and household counts.

The water and sanitation funding requirements for the district and local municipalities as determined through the bulk strategy to eradicate backlogs thereby meeting the Millennium Development Targets.

The IDP's states that the total funding required for the entire district for water is estimated to be approximately R 4 billion and sanitation estimated at R 420 million.

Umgeni Water has provided the LDM consortium, also comprising of SMEC South Africa (LDM/SMEC) with the GIS data of some of their already captured water supply footprints and current water infrastructure; as well as DWA data such as the All Town Study. LDM/SMEC also obtained all IDP's and SDF's per District Municipality, in order to determine what infrastructural plans are in place within the UMzinyathi District. All of this existing information was used as the basis in which to verify and enhance the data captured during the engagement meetings. These sessions played a pivotal role in acquiring the knowledge of local technical specialists within the District and Local Municipalities, in a collective bid to determining reasonably accurate backlogs. Refer to Annexure A and D for a list of projects and their descriptions as per DWA's Priority Action Plans (2013) and the IDP respectively.

## 5.2 Access to Water

Table 2 below gives an indication of the various types of 'water connections' within the Umzinyathi District Municipality. The following information was captured at the engagement meetings held in March, and April with representatives from each of the LM's. Approximately 57% of the households in Umzinyathi District Municipality are supplied by standpipes less than 200m walking distance from the respective households and 18% have household connections, and mainly constitute those houses located near the major towns within the District. There is a total of 24% of households that have no access to water, or access below that of RDP standards.

Refer to Map 3: Umzinyathi District Municipality Water Connection Types in Annexure B for an illustration of the water connections across the Umzinyathi District Municipality.

**Table 2: Access to Water**

Access to Water	Above RDP Standards				Below RDP Standards				Grand Total
	Household Connections	House and Standpipe	Yard taps	Stand pipe	None	Water Tanker	Hand Pump	Jojo Tanks	
Endumeni	10134	658	0	112	2041	0	0	0	12944
Msinga	276	72	0	16585	3071	95	3658	0	23757
Nquthu	0	17793	0	3581	5427	0	0	523	27324
Umvoti	3918	0	831	8150	4966	0	95	0	17960
<b>Total</b>	<b>14327</b>	<b>18523</b>	<b>831</b>	<b>28428</b>	<b>15505</b>	<b>95</b>	<b>3753</b>	<b>523</b>	<b>81985</b>
	<b>17.48%</b>	<b>22.59%</b>	<b>1.01%</b>	<b>34.67%</b>	<b>18.91%</b>	<b>0.12%</b>	<b>4.58%</b>	<b>0.64%</b>	<b>100%</b>
	<b>75.76%</b>				<b>24.24%</b>				<b>100%</b>

### 5.3 Current Water Supply Status

The current water supply status offers an indication of water provision/delivery to households; as well as if they fall within municipal jurisdiction or within privately owned sectors, primarily farm lands. This is depicted in Figures 2 and 3.

This information is as a result of the engagement meetings that were held at the Umzinyathi District Municipality, and indicates that approximately 77% of all households in the District have access to water at a minimum RDP standard, while 18% of households do not have access to drinking water or have water supplied at standards that are below that of the RDP minimum, and finally just 5% fall within privately-owned properties.

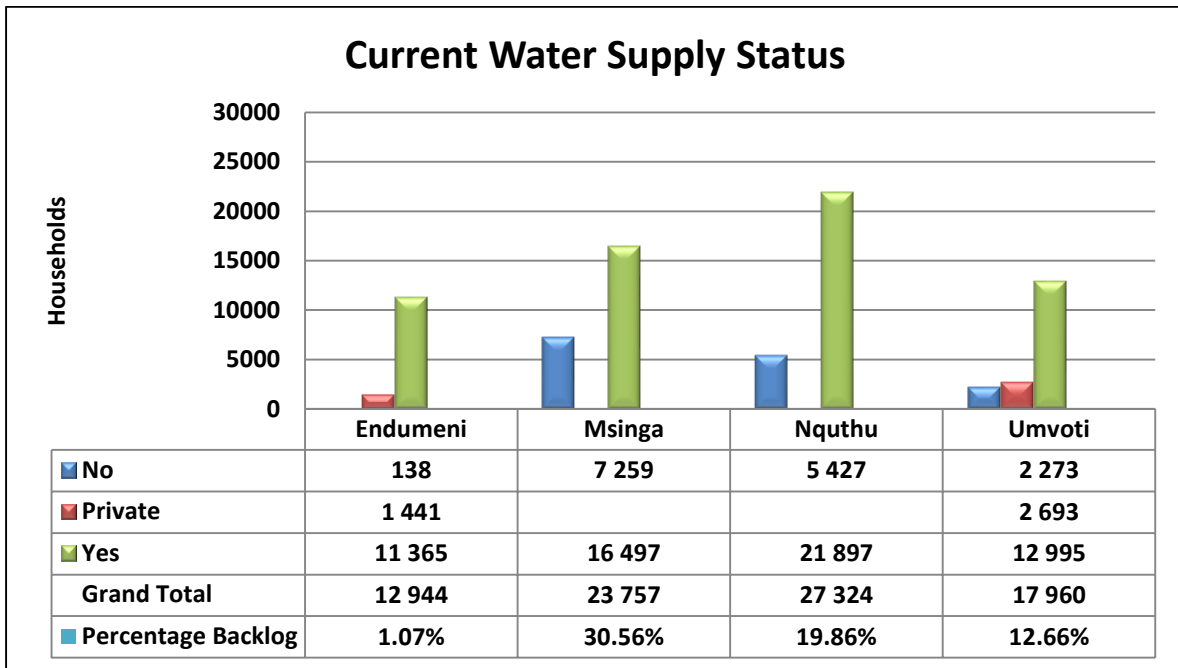


Figure 2 : Current Water Supply Status

In Figure 2 above, No refers to households below RDP standards which constitute a backlog, while Yes refers to households that have access to water above that of RDP Standards.

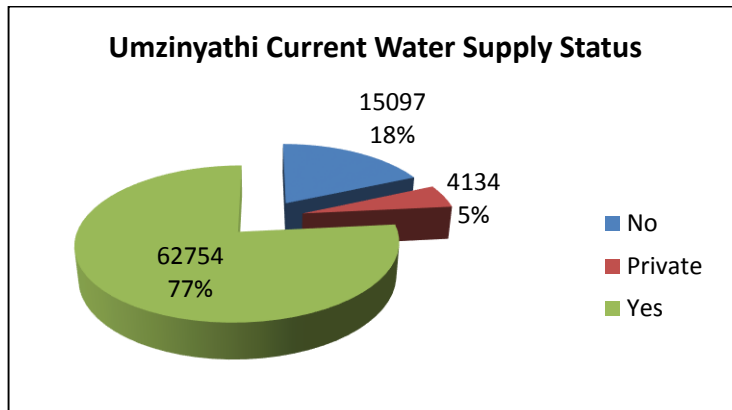


Figure 3 : Current Water Supply Status Percentage Breakdown

Refer to Map 1: Umzinyathi District Municipality Water Supply in Annexure B for a depiction of the water supply in the District.

## 6 CONTINUOUS WATER SUPPLY FOOTPRINTS

One of the main deliverables of this project was to develop a continuous water supply footprint that describes the current and future supply capacity for the DM. These footprints comprise of polygons that define autonomous supply zones that are either currently supplied or have the potential to be supplied with water from a particular water source.

### 6.1 Capturing of Draft Water Supply Footprints

Infrastructure data such as bulk infrastructure and reticulation networks obtained from Umgeni Water was initially used to capture and digitise these water supply footprints as polygons on GIS. Where no reticulation was present, then the assumption was made that households located within these polygons do not have basic services. Having drawn up the footprint polygons, the water supply or lack thereof was then confirmed with the DM at the Delphi engagement meetings and all polygons and associated attribute data was updated accordingly.

The water supply polygons that were confirmed as having sustainable drinking water have been updated, with their attributes in Annexure C.

The polygons representing footprint areas that do not have sustainable drinking water have been grouped and conceptual schemes have been proposed. These conceptual schemes may consist of borehole schemes, small bulk schemes with package plants, pump stations, bulk lines and reservoirs with reticulation; and in more remote and sparsely populated areas spring protection and water harvesting schemes have been proposed.

Households identified with no current water supply, but were situated close to towns that have bulk infrastructure, have been incorporated into these existing bulk scheme. If these current bulk schemes have inadequate capacity to supply the no-supply households, then an upgrade or expansion to the existing water treatment works, as well as new reservoirs, was proposed. Refer to Maps 11, 14, 17, and 20 in Annexure B for the illustration of water supply footprints in each of the LMs.

The establishment of footprints for sanitation provision was undertaken in a similar way to that of water supply and areas where mapped accordingly. Sanitation infrastructure included both ventilated improved pit latrines (VIP's) and waterborne sewerage systems. Refer to Maps 13, 16, 19, and 22, in Annexure B for the illustration of sanitation supply in each of the LMs.

## 6.2 Water & Sanitation Attribute Data

Figure 4 below illustrates the Delphi/Engagement data capture processes that have been applied in order to obtain the necessary data required for the Water Footprint Areas. These attributes or required information, have been extracted from the Umgeni Water terms of reference and is a means of providing value to the GIS data that is being captured. This data will also be handed back to the DMs for their own use. Attribute data for the infrastructure was captured as it was provided to us by the staff during the engagement meetings. In the event that municipal operational staff could not provide us with the necessary information; assumptions had to be made on their part, so as to allow for reasonably complete data collection. All collected data was supported by a 'confidence level indicator', which in such cases, was selected as 'low'. The reverse of 'high', being allocated to those attributes of which the staff were sure of. The collected/confirmed attribute data for the infrastructure was then collectively applied to the captured water supply footprint with additional information regarding the current supply. The data obtained within the Delphi sessions was then used to compile the UAP for the Umzinyathi District Municipality. It was therefore essential that all data captured was accurate and reliable.

A detailed description of the attribute fields listed in Figure 4 below is indicated in Annexure C. This represents the level of attribute data which was collected at the engagement meetings with the Districts Municipalities, wherein which these attributes were confirmed.

## 6.3 Engagement Meeting to Verify GIS Information

The process followed in capturing water schemes was such that the supply source was firstly identified. This source then led either directly to reservoirs; or to a water treatment facility, prior to a reservoir; and in some cases, directly to pump stations, used to get the water to the reservoirs itself. Bulk water pipelines were identified for the movement of water from the supply source through to the reservoirs. From the reservoirs water would reticulate to households or to communal standpipes. All of this information was captured in the GIS.

This process of verifying all GIS data with the Umzinyathi District Municipality was completed at the end of April 2014. The data collected at the Delphi/Engagement meeting was processed and the attributes updated on the Geo-Database for the Umzinyathi District Municipality. The data has confirmed backlogs and areas that require interventions with regards to water and sanitation upgrades, existing schemes, proposed new schemes and the cost thereof.

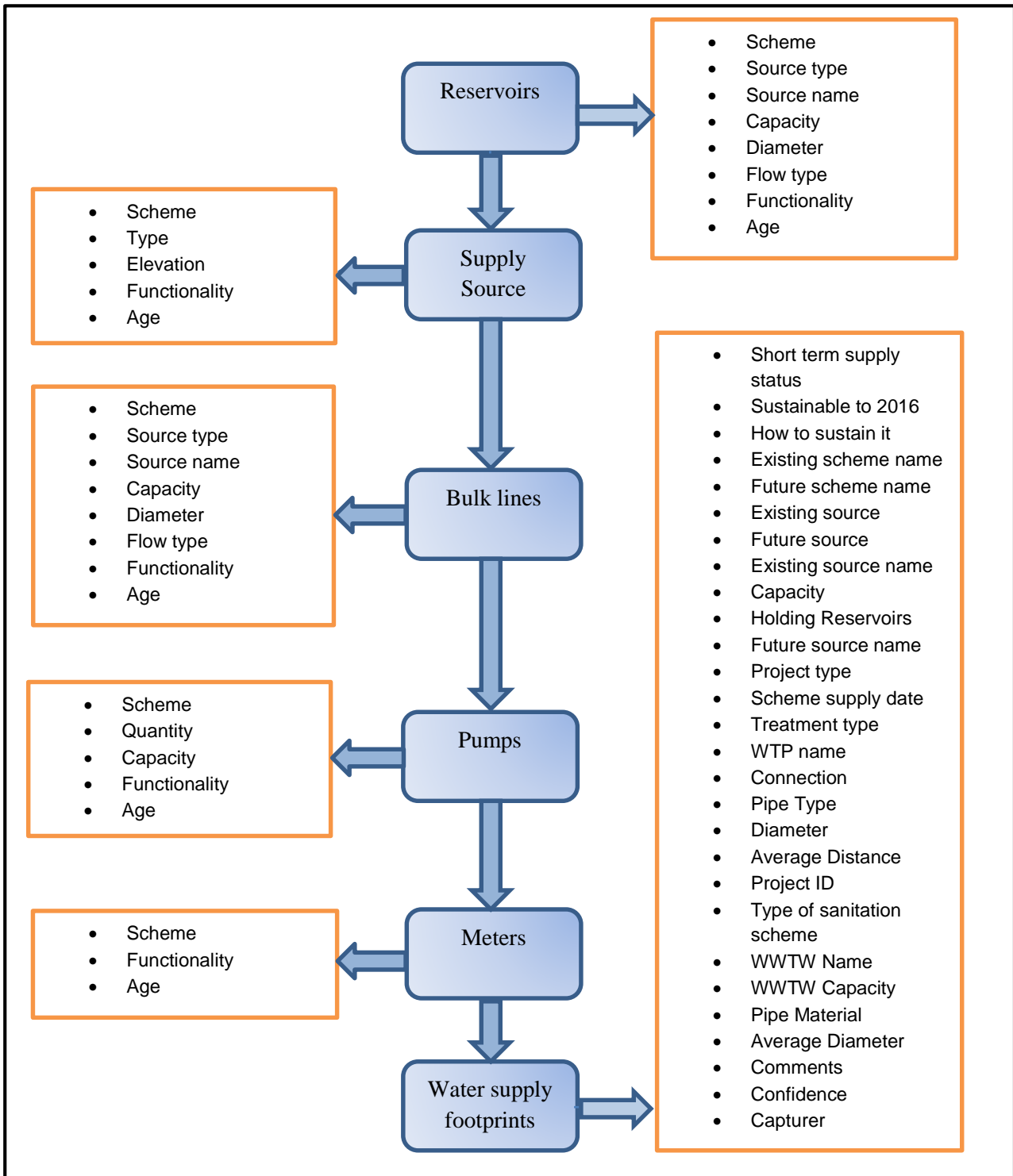


Figure 4: Water & Sanitation Attributes Data



## 7 EXISTING WATER SCHEMES

The identification of the existing water and sanitation schemes, have been determined via confirmations with the UMzinyathi DM during the engagement meetings. The process involved identifying areas which have access to piped water either from known sources such as water treatment works, reservoirs, boreholes or springs; to household connections or standpipes.

LDM/SMEC South Africa have engaged with the various LM's and departments to determine the accuracy of the GIS water supply footprints and confirmed all attribute data as per Figure 5, 6 and Annexure C. The data has been updated in the Geo-Database and will form part of the deliverable to CoGTA.

### Water Scheme Options

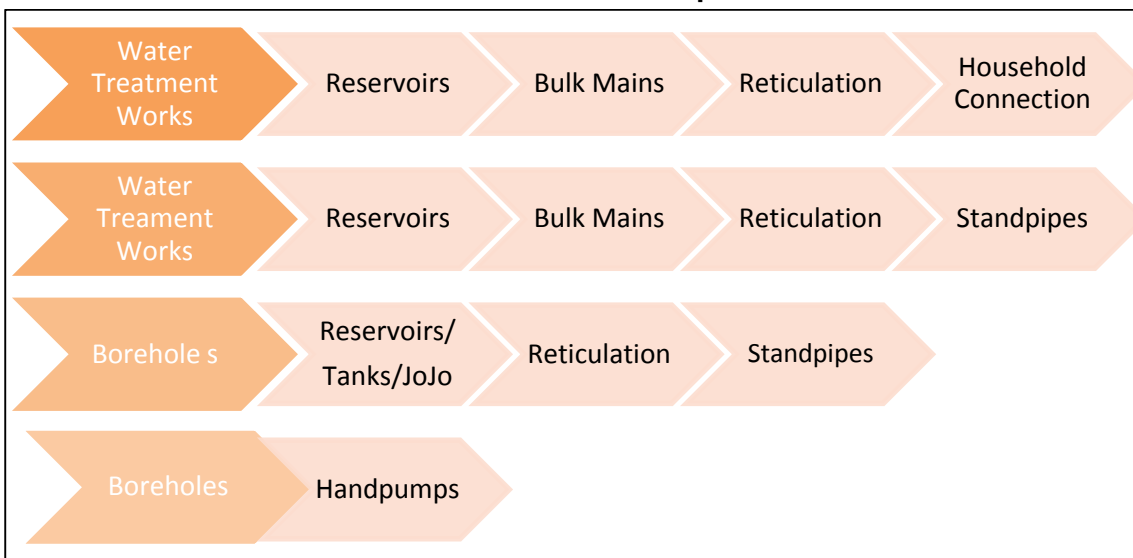


Figure 5 : Water Scheme Options

### Sanitation Scheme Options

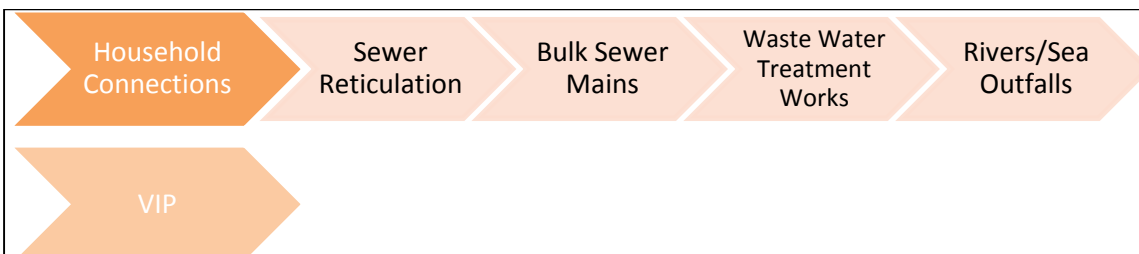


Figure 6: Sanitation Scheme Options

In total 293 schemes have been captured in the Umzinyathi District Municipality. These schemes range from bulk schemes with water treatment facilities to rudimentary schemes with boreholes and springs feeding reservoirs. Table 3 below indicates the number of existing schemes in each LM for the Umzinyathi District Municipality.

**Table 3: Number of Existing Water Schemes**

	Endumeni	Msinga	Nquthu	Umvoti	Total
Existing Schemes	7	92	130	64	293

Each of the water schemes captured has either one or multiple sources feeding that particular scheme. The attributes captured during the engagement meetings for the water supply footprints in terms of the existing sources have been listed in Table 4 below. The majority of the footprints get water from reservoirs. There are 270 captured footprints that have no water sources and we have proposed alternate schemes for these areas.

**Table 4 : Existing Water Sources of Existing Schemes**

Existing Sources	Number
Local Water Scheme	42
Reservoir	196
Borehole	48
Spring	3
Borehole and Water Tanker	22
Water Tanker	57
Hand Pumps	24
Lake	1
River	67
River / Water Tanker	4
None	270
<b>Grand Total</b>	<b>734</b>

## 8 RECONCILIATION OF EXISTING & PROPOSED WATER SUPPLY

On completion of the engagement meetings with the Umzinyathi District Municipality, the data has been processed and existing water and sanitation schemes identified. This has assisted in indicating those areas where there is a backlog on services or where local/bulk schemes are required. In order to meet full Universal Access, we have proposed schemes to eradicate the backlogs. This is in the form of conceptual design schemes. These proposed schemes are provided in the Geo-Database.

In terms of water resources, Umzinyathi has four major rivers that are used as a source of water for the District Municipality. These rivers are the Buffalo, Tugela, Umvoti, and Blood River. Water is abstracted from these rivers which are then treated at the various treatment facilities. Refer to Map 6 for an illustration of the water resources in the Umzinyathi District Municipality.

### 8.1 Water Backlogs

Water and sanitation backlogs may be defined as households (excluding farms) without access to safe water & sanitation services. In the case of water, safe access is deemed to include communal standpipes, yard standpipes and household connections. Households without access to these minimum services therefore constitute a backlog.

With regards to sanitation, safe access is deemed to include VIP's and chemical toilets. Households with levels of service below the minimum level i.e. unimproved pit latrines / rudimentary pit toilets and no sanitation at all, therefore constitute sanitation backlogs. Refer to Maps 4 and 9 in Annexure B for the illustration of the water and sanitation backlogs respectively.

Table 5 indicates the backlogs in terms of households for each LM and for the DM that have been identified from the 2011 census data. From here we can see that the LM with the greatest amount of backlogs is Msinga with a backlog of 66%. Endumeni has the lowest amount of backlogs of approximately 11%. The total backlogs identified from the Census data for the Umzinyathi District Municipality is 51426 households which equates to 45% of the DM.

Table 6 indicates the backlogs that have been captured from the engagement meetings with the Umzinyathi District Municipality. There is a significant difference in the percentage of backlogs in each local municipality from the Census 2011 information. This could be that water backlogs

in these local municipalities have been eradicated. Also, there is a difference of approximately 32000 in the total number of households in the Umzinyathi District Municipality from Census 2011 data. We have used the ESKOM household data as the correct number of households in the Umzinyathi District Municipality. The total backlogs identified from the engagements with the Umzinyathi District Municipality using the Eskom household points are 15097 households, which is 18% of the DM.

The discrepancy in the household points of approximately 32000 between the Census and Eskom data is due to the reason that the Eskom household points are based on 2006 to 2010 data and is not current. We have also only used points that fall within and around the polygons that was captured. Some Eskom household points fall spatially onto rocks and boulders and have thus not been considered. These polygons were also captured using imagery dated 2010 and there is a possibility that these images may be dated prior to 2010.

**Table 5: Census 2011 Water Services Backlogs**

Municipality	2011 Census Number of Households	Water Served Households	Water Backlogs Households	Percentage of Water Backlogs
Endumeni LM	16852	14981	1871	11.10%
Msinga LM	37724	12812	24912	66.04%
Nqutu LM	31613	19861	11752	37.17%
Umvoti LM	27283	14392	12891	47.25%
<b>Umzinyathi Municipality District</b>	<b>113472</b>	<b>62046</b>	<b>51426</b>	<b>45.32%</b>

The Eskom household data that was received was based on 2011 data and has been factored to reflect as 2014 household counts. Where LM's had a negative growth rate, the value of households in 2011 was used as the 2014 value. The growth rate has been obtained from Stats SA and can be seen in Table 6 below.

**Table 6: Water Service Backlogs Captured at Engagement with DM**

Municipality	2011 Eskom Household Dwellings	Growth Rate %	Factor	2014 Escalated ESKOM Household Dwellings	Water Backlogs Households	Percentage of Water Backlog
Endumeni LM	12653	2.38	1.0238	12944	138	1.07%
Msinga LM	23615	0.60	1.0060	23757	7 259	30.56%
Nqutu LM	27324	-0.25	1	27324	5 427	19.86%
Umvoti LM	17763	1.11	1.0111	17960	2 273	12.66%

<b>Umzinyathi District Municipality</b>	<b>81355</b>			<b>81985</b>	<b>15 097</b>	<b>18.41%</b>
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## 8.2 Sanitation Backlogs

Table 7 below indicates the backlogs in sanitation captured in the 2011 Census with a total of 113 467 households recorded. There is a high percentage of backlogs for sanitation in the Umzinyathi District Municipality with a total of 59 824 households which equates to approximately 53%.

Table 8 below indicates the backlogs in sanitation captured at the engagement meetings. A total number of 19 414 households were indicated as having sanitation below that of RDP standards, and thus being a backlog. This equates to approximately 24% of the Umzinyathi District Municipality. Refer to Maps 7 and 8 in Annexure B for the illustration of the sanitation supply and the sanitation types for the Umzinyathi District Municipality respectively.

**Table 7: Census 2011 Sanitation Backlogs**

Municipality	Households	Sanitation Served	Backlogs	Percentage Backlogs
Endumeni LM	16853	13669	3184	18.89%
Msinga LM	37722	13965	23757	62.98%
Nqutu LM	31611	12877	18734	59.26%
Umvoti LM	27281	13132	14149	51.86%
<b>Umzinyathi District Municipality</b>	<b>113467</b>	<b>53643</b>	<b>59824</b>	<b>52.72%</b>

**Table 8: Sanitation Backlogs Captured at Engagement with DM**

Municipality	Water Borne	VIP	Pits	Pit and Septic Tanks	Septic Tanks	None	Total Households	Percentage Backlogs
Endumeni LM	10134	112	0	0	658	2041	12944	20.85%
Msinga LM	639	12937	7359	0	0	2822	23757	42.85%
Nqutu LM	3705	23619	0	0	0	0	27324	0.00%
Umvoti LM	3918	7507	3140	2693	0	702	17960	36.38%
<b>Umzinyathi District Municipality</b>	<b>18396</b>	<b>44175</b>	<b>10499</b>	<b>2693</b>	<b>658</b>	<b>5564</b>	<b>81985</b>	<b>23.68%</b>
	<b>62571</b>		<b>19414</b>					
	<b>76%</b>		<b>24%</b>					
	<b>Access</b>		<b>Backlog</b>					

### 8.3 Level of Service

The municipality provides various levels of service (LOS) to cater for the varying and unique needs to the different communities, within the confines of sustainability. Each level of service is unique to the various conditions relating to the use and upgrade and has different implications for the municipality in terms of capital and operational costs. The LOS addresses the basic standards and supports the concept of progressive improvement of LOS. In addition to these levels of service, the municipality also provides a rudimentary service, referred to as safe access, as an interim measure in areas that cannot be guaranteed with sustainable water resources.

Table 9: Umzinyathi District Level of Service

Water Level of Service	Comments
LOS 1 - Communal Water Point	Basic LOS, consists of communal water points <ul style="list-style-type: none"> <li>• Reticulated standpipes</li> <li>• Stationary water tank</li> <li>• &lt; than 200m from households</li> </ul>
LOS 2 - Yard Standpipe on each property	Metered or unmetered
LOS 3 - Metered Pressurised water connection on each property	Metered and connected to private plumbing
Sanitation Level of Service	Comments
LOS 1 - VIP on every informal property	<ul style="list-style-type: none"> <li>• Preferred option Rural and informal settlements</li> <li>• Ventilated Improved Pit (VIP) latrine located on each site.</li> </ul>
LOS 2 - Septic & Conservancy Tanks	<ul style="list-style-type: none"> <li>• Not serviced by sewer reticulation and treatment system</li> <li>• Typically be provided too many formal housing developments.</li> </ul>
LOS 3 - Water Borne Sewage on each serviced site	<ul style="list-style-type: none"> <li>• Conventional waterborne municipal sewage network with individual sewer connections to each erf.</li> </ul>

## 9 PLANNED AND PROPOSED WATER & SANITATION SCHEMES

### 9.1 Conceptual Design Approach

Various engagements meetings were held with the Umzinyathi District Municipality to identify existing schemes and backlogs with regards to water and sanitation needs. At these meetings operational staff determined the accuracy of GIS data and assisted with updating the water and sanitation attribute data. This information was then processed and backlogs identified.

Using the Eskom household data, we were able to identify the total number of households in a specific area that had backlogs. We then used the Census income categories as listed in Table 11 to determine the demand for the area. Based on the number of households, and the density of these areas, a conceptual proposed scheme was put into place. Where areas were highly dense and there was a river nearby, water was to be extracted from the river and a small package plant was proposed for the treatment of water. Where no rivers are present, boreholes have been proposed. The surrounding areas with water supply were analysed to identify how water was obtained, and a similar approach was proposed. Using the topography of the area, high points were identified for placement of reservoirs and for the routing of the bulk lines. Areas that had a minimal number of households, and that was sparsely located, had boreholes with hand pumps proposed for them. It should also be noted that a feasibility study for the positioning of boreholes would need to be undertaken as their positions are subject to change.

An illustrative example of the proposed schemes that can be found in the geo-data base can be seen in figures 7, 8, and 9 below. Figure 7 represents a scheme where water is obtained from a river and is pumped up to a WTW, and then it is pumped to 3 reservoirs which will reticulate to standpipes. A typical rudimentary scheme where water is pumped from a borehole to reservoirs and then gravitates to standpipes can be seen in figure 8. Figure 9 illustrates an area where households are isolated in an area away from densely populated areas. This area has been provided with an alternate supply scheme of a borehole with a hand pump as it is not feasible to construct a reservoir and supply them with stand pipes.

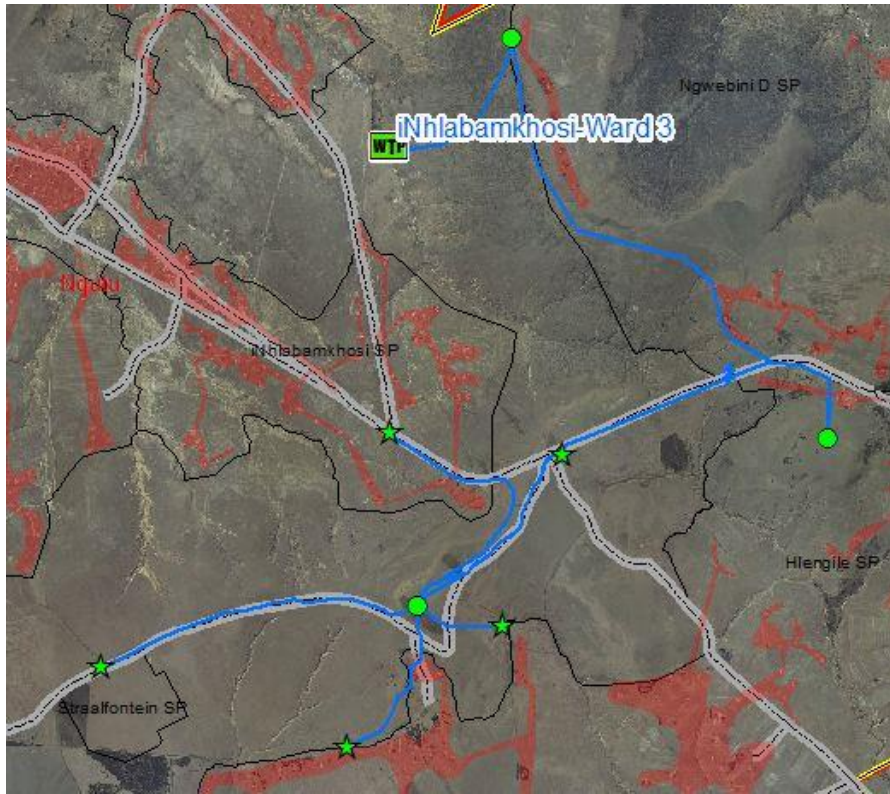


Figure 7: WTW to Reservoir Scheme



Figure 8: Borehole to Reservoir Scheme





Figure 9: Borehole with Hand Pump Scheme

## 9.2 Assumptions

In order to cost the water and sanitation backlogs, certain assumptions had to be made and are as follows:

### 9.2.1 Water

- 6 people per household;
- Reservoirs have a minimum storage capacity of 48 hrs;
- All reservoir pipework included in the cost of reservoir;
- All SCADA and electrical included in cost of reservoir;
- Reservoirs are concrete;
- All existing boreholes are functional;
- New borehole depths range from 100m to 200m;
- Water quality is good;
- Assume that yield and water quality testing are included in the cost of the borehole;
- Diameter of boreholes 150mm – 200mm with steel casting;
- All electrical pumps associated with the boreholes are included in the cost;
- All schemes have some form of power supply;
- Existing schemes have the potential to be upgraded;
- Reticulation costs are estimated at 40% of the overall bulk infrastructure costs;
- Reticulation pipes range from 25mm to 75mm dia. HDPE;
- No house connections are costed in proposed schemes;
- All end connections are standpipe connections not exceeding 200m;

- Where areas are extremely rural and scattered, then boreholes with hand pumps are proposed;
- All bulk pipelines range from 75mm to 250mm uPVC;
- Positions/location of reservoirs, boreholes, pump stations/booster pump stations, water treatment works/package plants and bulk lines are subject to change after a full pre-feasibility study has been undertaken.

### 9.2.2 Sanitation

- All sanitation backlogs are based on Ventilated Improved Pit (VIP).

### 9.3 Infrastructure Water & Sanitation Costs

The water demand was determined based on the household annual income. Table 10 below indicates the daily demand per capita required for the different categories of household income. The income values used was obtained from Stats SA Census 2011 data. The data reflects income at a Sub Place level and due to this, additional verification was done on the households without water as some of them fall in high income areas such as category 1 and 2. These categories were manually updated by looking at the surrounding Sub Place income categories and by spatial imagery depicting the type of dwelling. Refer to Maps 12, 15, 18, and 21 in Annexure B for the illustration of the proposed alternate schemes in each of the LMs and to Map 10 for an illustration of the Household Income Categories.

**Table 10: Demand based on Household Income**

Category	Description of consumer category	Household Annual Income range	Per capita cons (l/c/d)		
			Min	Ave.	Max.
1	Very High Income; villas, large detached house, large luxury flats	>R1 228 000	320	410	500
2	Upper middle income: detached houses, large flats	153 601 – 1 228 000	240	295	350
3	Average Middle Income: 2 - 3 bedroom houses or flats with 1 or 2 WC, kitchen, and one bathroom, shower	38 401 – 153 600	180	228	275
4	Low middle Income: Small houses or flats with WC, one kitchen, one bathroom	9 601– 38 400	120	170	220
5	Low income: flatlets, bedsits with kitchen & bathroom, informal household	1- 9600	60	100	140
6	No income & informal supplies with yard connections		60	80	100
7	Informal with no formal connection		30	50	70
8	Informal below 25 l/c/d		0	12	25

### 9.3.1 Water Costs

Table 11 indicates the estimated water infrastructural costs for the short term interventions in each LM for the Umzinyathi District Municipality. The rates used to compile these costs were obtained from the Umgeni Water terms of reference, as well as from rates used internally on other projects. A Detailed list for the costing of infrastructure is provided in the geodatabase that is provided in conjunction with this report. The total cost to eradicate backlogs in the Umzinyathi District Municipality is approximately R347 Million. A summarised list of the infrastructure in each proposed scheme and the cost associated to it is listed in Table 14.

The projects listed in the Integrated Development Plan and those set out by DWA which are shown in Annexure A and D are regional bulk schemes which are long term solutions to address backlogs and improve current water and sanitation infrastructure. These projects have are funded through the Municipal Infrastructure Grant and Municipal Water Infrastructure Grant which we have not considered when proposing conceptual alternate schemes to eradicate current backlogs. There could be overlapping of the proposed conceptual schemes to the regional bulk schemes and thus overlapping of infrastructure costs. The main reason that infrastructure cost could be overlapped is due to our mandate to develop conceptual schemes to eradicate the backlogs identified at the engagement meeting with the district municipalities. The staff could not identify the boundaries of the regional bulk schemes nor provide information on start and completion dates.

**Table 11: Water Infrastructural Costs**

Local Municipality	Total
Endumeni	R 2 266 189
Msinga	R 107 486 626
Nqutu	R 203 012 081
Umvoti	R 34 113 848
<b>Total</b>	<b>R 346 878 744</b>

### 9.3.2 Sanitation Costs

Table 12 indicates the estimated sanitation infrastructural costs for Ventilated Improved Pits. The cost to eradicate the sanitation backlogs was based on data obtained from service providers who are currently eradicating backlogs in the Harry Gwala District municipality. The rates used ranged between R6000 to R7000 to supply and lay a VIP per household, and hence we used a fixed rate of R7000 per VIP per household. The total number of households that have backlogs were identified from the engagement meetings and used to calculate the cost to eradicate sanitation backlogs. The total cost to eradicate backlogs in the Umzinyathi District Municipality is approximately R136 Million. There was no sanitation backlogs indicated during the engagements with the DM for the Nqutu LM.

**Table 12: Sanitation Infrastructural Costs**

LM Name	Rate/VIP	Remaining Expenditure
Endumeni	R 7 000	R 18 893 000
Msinga	R 7 000	R 71 267 000
Nqutu	R -	R -
Umvoti	R 7 000	R 45 745 000
<b>Totals</b>		<b>R 135 905 000</b>

### 9.4 Five Year Budget Plan for Water and Sanitation

Table 14 indicates the estimated short term budget expenditure. This estimate is based on the current sanitation projects currently being undertaken. The estimated expenditure per year for the next five (5) years is based on the average expenditure over the last 5 years from the three service providers that are currently undertaking and eradicating the backlogs in the three (3) LM's.

Water cost estimates are based on a straight line over the next five years without any infrastructural expenditure in this current financial year besides planning and or feasibility study fees. The estimated feasibility study fees are based on 5% of the estimated construction cost. Escalation is estimated at 10% per year.

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It must be noted that the identified short term schemes could be completed within 5 years if feasibility studies are undertaken in this financial year subject to the Umzinyathi District Municipality having the funds to undertake these studies. The total cumulative cost to eradicate the water backlogs with 84 proposed schemes and the sanitation backlogs over the 5 years is approximately R542 Million which includes escalation. This projection over 5 years is subject to change if necessary. An illustration of the cumulative costing for the five years can be seen in figure 10 below.

Table 13: Five Year Budget Plan for Water &amp; Sanitation

Local Municipality	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20
<b>Endumeni (Water)</b>	R 113 309	R 2 266 189	R -	R -	R -	R -
<b>Endumeni (Sanitation)</b>	R 18 893 000	R -	R -	R -	R -	R -
<b>Msinga (Water)</b>	R 5 374 331	R 21 497 325	R 21 497 325	R 21 497 325	R 21 497 325	R 21 497 325
<b>Msinga (Sanitation)</b>	R 23 755 667	R 23 755 667	R 23 755 667	R -	R -	R -
<b>Nqutu (Water)</b>	R 10 150 604	R 40 602 416	R 40 602 416	R 40 602 416	R 40 602 416	R 40 602 416
<b>Nqutu (Sanitation)</b>	R -	R -	R -	R -	R -	R -
<b>Umvoti (Water)</b>	R 1 705 692	R 17 056 924	R 17 056 924	R -	R -	R -
<b>Umvoti (Sanitation)</b>	R 22 872 500	R 22 872 500	R -	R -	R -	R -
<b>Totals</b>	<b>R 82 865 104</b>	<b>R 128 051 021</b>	<b>R 102 912 332</b>	<b>R 62 099 741</b>	<b>R 62 099 741</b>	<b>R 62 099 741</b>
<b>Escalation (10%)</b>	<b>R -</b>	<b>R 140 856 123</b>	<b>R 113 203 565</b>	<b>R 68 309 716</b>	<b>R 68 309 716</b>	<b>R 68 309 716</b>
<b>Cumulative Total</b>	<b>R 82 865 104</b>	<b>R 223 721 227</b>	<b>R 336 924 792</b>	<b>R 405 234 508</b>	<b>R 473 544 223</b>	<b>R 541 853 939</b>

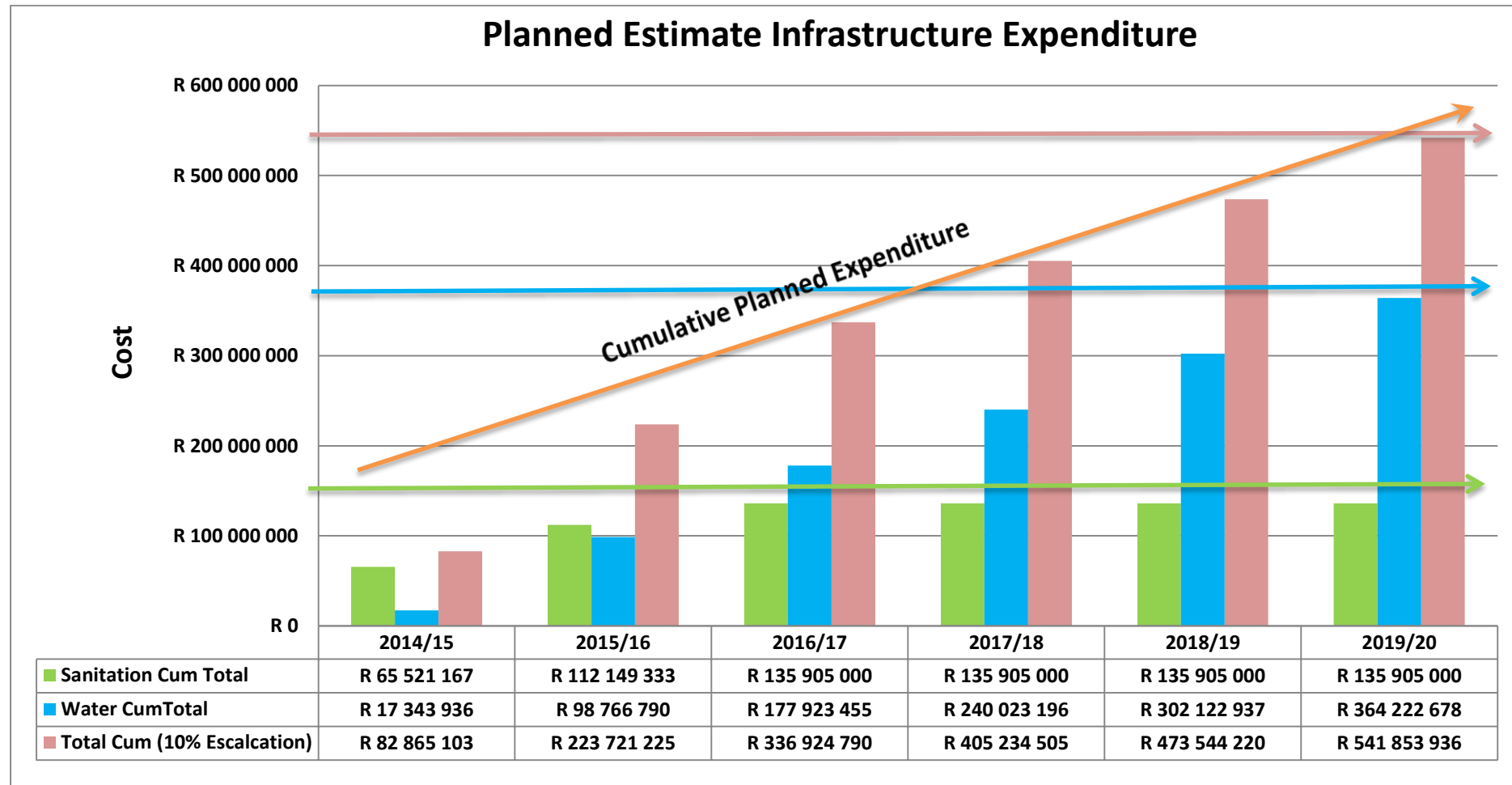


Figure 10: Water and Sanitation 5 Year Budget Plan

Table 14: Proposed Alternate Schemes

Scheme Name	Type	Name	Local Municipality	Infrastructure Cost	Total Cost
Bloed Rivier-Ward 6	Borehole	Borehole 01 UAPEND01	Endumeni	R 300 000	
Bloed Rivier-Ward 6	Reservoir	Res 01 UAPEND01	Endumeni	R 432 519	
Bloed Rivier-Ward 6	Bulk Line	Borehole 01 UAPEND01	Endumeni	R 307 616	
Bloed Rivier-Ward 6	Reticulation	RET_UAPEND01	Endumeni	R 416 054	
<b>Bloed Rivier-Ward 6</b>	<b>Total</b>				<b>R 1 456 189</b>
Endumeni NU-Ward 6/1	Borehole	Borehole 01 UAPEND02	Endumeni	R 270 000	
<b>Endumeni NU-Ward 6/1</b>	<b>Total</b>				<b>R 270 000</b>
Endumeni NU-Ward 6/2	Borehole	Borehole 01 UAPEND03	Endumeni	R 270 000	
<b>Endumeni NU-Ward 6/2</b>	<b>Total</b>				<b>R 270 000</b>
Endumeni NU-Ward 6/3	Borehole	Borehole 01 UAPEND04	Endumeni	R 270 000	
<b>Endumeni NU-Ward 6/3</b>	<b>Total</b>				<b>R 270 000</b>
Nhlonga-Ward 13	River	River 01 UAPMSI01	Msinga	R 300 000	
Nhlonga-Ward 13	Reservoir	Res 01 UAPMSI01	Msinga	R 2 197 636	
Nhlonga-Ward 13	Bulk Line	River 01 UAPMSI01	Msinga	R 589 964	
Nhlonga-Ward 13	Pumpstation	Pump01 UAPMSI01	Msinga	R 4 422 620	
Nhlonga-Ward 13	Reticulation	RET_UAPMSI01	Msinga	R 3 004 088	
<b>Nhlonga-Ward 13</b>	<b>Total</b>				<b>R 10 514 306</b>
KwaMathonsi-Ward 7	Borehole	Borehole 01 UAPMSI02	Msinga	R 270 000	
<b>KwaMathonsi-Ward 7</b>	<b>Total</b>				<b>R 270 000</b>
Ekuvukeni-Ward 8	Borehole	Borehole 01 UAPMSI03	Msinga	R 300 000	
Ekuvukeni-Ward 8	Borehole	Borehole 02 UAPMSI03	Msinga	R 300 000	
Ekuvukeni-Ward 8	Reservoir	Res 01 UAPMSI03	Msinga	R 740 757	
Ekuvukeni-Ward 8	Bulk Line	Borehole 01 UAPMSI03	Msinga	R 90 667	



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Scheme Name	Type	Name	Local Municipality	Infrastructure Cost	Total Cost
Ekuvukeni-Ward 8	Bulk Line	Borehole 02 UAPMSI03	Msinga	R 109 387	
Ekuvukeni-Ward 8	Reticulation	RET_UAPMSI03	Msinga	R 616 324	
<b>Ekuvukeni-Ward 8</b>	<b>Total</b>				<b>R 2 157 135</b>
Chunu A-Ward 6	Borehole	Borehole 01 UAPMSI04	Msinga	R 300 000	
Chunu A-Ward 6	Borehole	Borehole 02 UAPMSI04	Msinga	R 300 000	
Chunu A-Ward 6	Reservoir	Res 01 UAPMSI04	Msinga	R 824 662	
Chunu A-Ward 6	Bulk Line	Borehole 01 UAPMSI04	Msinga	R 184 262	
Chunu A-Ward 6	Bulk Line	Borehole 02 UAPMSI04	Msinga	R 118 587	
Chunu A-Ward 6	Reticulation	RET_UAPMSI04	Msinga	R 691 004	
<b>Chunu A-Ward 6</b>	<b>Total</b>				<b>R 2 418 515</b>
Mathima-Ward 6	Borehole	Borehole 01 UAPMSI05	Msinga	R 300 000	
Mathima-Ward 6	Borehole	Borehole 02 UAPMSI05	Msinga	R 300 000	
Mathima-Ward 6	Reservoir	Res 01 UAPMSI05	Msinga	R 2 677 374	
Mathima-Ward 6	Bulk Line	Borehole 01 UAPMSI05	Msinga	R 393 885	
Mathima-Ward 6	Bulk Line	Borehole 02 UAPMSI05	Msinga	R 406 499	
Mathima-Ward 6	Reticulation	RET_UAPMSI05	Msinga	R 1 631 103	
<b>Mathima-Ward 6</b>	<b>Total</b>				<b>R 5 708 861</b>
Dungamanzi-Ward 5/1	River	River 01 UAPMSI06	Msinga	R 300 000	
Dungamanzi-Ward 5/1	Reservoir	Res 01 UAPMSI06	Msinga	R 567 752	
Dungamanzi-Ward 5/1	Bulk Line	River 01 UAPMSI06	Msinga	R 118 466	
Dungamanzi-Ward 5/1	Pumpstation	Pump01 UAPMSI06	Msinga	R 1 315 181	
Dungamanzi-Ward 5/1	Reticulation	RET_UAPMSI06	Msinga	R 920 560	
<b>Dungamanzi-Ward 5/1</b>	<b>Total</b>				<b>R 3 221 959</b>
Cwaka-Ward 16	Borehole	Borehole 02 UAPMSI07	Msinga	R 300 000	

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Scheme Name	Type	Name	Local Municipality	Infrastructure Cost	Total Cost
Cwaka-Ward 16	Borehole	Borehole 01 UAPMSI07	Msinga	R 300 000	
Cwaka-Ward 16	Reservoir	Res 01 UAPMSI07	Msinga	R 3 501 465	
Cwaka-Ward 16	Bulk Line	Borehole 01 UAPMSI07	Msinga	R 127 737	
Cwaka-Ward 16	Bulk Line	Borehole 02 UAPMSI07	Msinga	R 228 901	
Cwaka-Ward 16	Reticulation	RET_UAPMSI07	Msinga	R 1 783 241	
<b>Cwaka-Ward 16</b>	<b>Total</b>				<b>R 6 241 344</b>
Msinga NU-Ward 19/1	Borehole	Borehole 01 UAPMSI08	Msinga	R 300 000	
Msinga NU-Ward 19/1	Borehole	Borehole 02 UAPMSI08	Msinga	R 300 000	
Msinga NU-Ward 19/1	Reservoir	Res 01 UAPMSI08	Msinga	R 567 752	
Msinga NU-Ward 19/1	Bulk Line	Borehole 01 UAPMSI08	Msinga	R 80 952	
Msinga NU-Ward 19/1	Bulk Line	Borehole 02 UAPMSI08	Msinga	R 158 207	
Msinga NU-Ward 19/1	Reticulation	RET_UAPMSI08	Msinga	R 562 764	
<b>Msinga NU-Ward 19/1</b>	<b>Total</b>				<b>R 1 969 676</b>
Msinga NU-Ward 19/2	Borehole	Borehole 01 UAPMSI09	Msinga	R 270 000	
Msinga NU-Ward 19/2	Borehole	Borehole 02 UAPMSI09	Msinga	R 270 000	
<b>Msinga NU-Ward 19/2</b>	<b>Total</b>				<b>R 540 000</b>
Msinga NU-Ward 19/3	Borehole	Borehole 01 UAPMSI10	Msinga	R 270 000	
<b>Msinga NU-Ward 19/3</b>	<b>Total</b>				<b>R 270 000</b>
Msinga NU-Ward 19/4	Borehole	Borehole 01 UAPMSI11	Msinga	R 300 000	
Msinga NU-Ward 19/4	Borehole	Borehole 01 UAPMSI11	Msinga	R 300 000	
Msinga NU-Ward 19/4	Reservoir	Res 01 UAPMSI11	Msinga	R 3 089 419	
Msinga NU-Ward 19/4	Bulk Line	Borehole 01 UAPMSI11	Msinga	R 678 345	
Msinga NU-Ward 19/4	Bulk Line	Borehole 02 UAPMSI11	Msinga	R 314 148	
Msinga NU-Ward 19/4	Reticulation	RET_UAPMSI11	Msinga	R 1 872 765	

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Scheme Name	Type	Name	Local Municipality	Infrastructure Cost	Total Cost
<b>Msinga NU-Ward 19/4</b>	<b>Total</b>				<b>R 6 554 677</b>
Msinga NU-Ward 18	Borehole	Borehole 02 UAPMSI12	Msinga	R 300 000	
Msinga NU-Ward 18	Borehole	Borehole 01 UAPMSI12	Msinga	R 300 000	
Msinga NU-Ward 18	Reservoir	Res 01 UAPMSI12	Msinga	R 1 419 164	
Msinga NU-Ward 18	Bulk Line	Borehole 01 UAPMSI12	Msinga	R 719 278	
Msinga NU-Ward 18	Bulk Line	Borehole 02 UAPMSI12	Msinga	R 331 943	
Msinga NU-Ward 18	Reticulation	RET_UAPMSI12	Msinga	R 1 228 154	
<b>Msinga NU-Ward 18</b>	<b>Total</b>				<b>R 4 298 541</b>
Mahlaba-Ward 18/1	Borehole	Borehole 01 UAPMSI13	Msinga	R 300 000	
Mahlaba-Ward 18/1	Borehole	Borehole 02 UAPMSI13	Msinga	R 300 000	
Mahlaba-Ward 18/1	Reservoir	Res 01 UAPMSI13	Msinga	R 2 197 636	
Mahlaba-Ward 18/1	Bulk Line	Borehole 02 UAPMSI13	Msinga	R 158 505	
Mahlaba-Ward 18/1	Bulk Line	Borehole 01 UAPMSI13	Msinga	R 235 263	
Mahlaba-Ward 18/1	Reticulation	RET_UAPMSI13	Msinga	R 1 276 561	
<b>Mahlaba-Ward 18/1</b>	<b>Total</b>				<b>R 4 467 965</b>
Mazabeko-Ward 16/1	Borehole	Borehole 01 UAPMSI14	Msinga	R 300 000	
Mazabeko-Ward 16/1	Borehole	Borehole 02 UAPMSI14	Msinga	R 300 000	
Mazabeko-Ward 16/1	Reservoir	Res 01 UAPMSI14	Msinga	R 567 752	
Mazabeko-Ward 16/1	Bulk Line	Borehole 01 UAPMSI14	Msinga	R 94 262	
Mazabeko-Ward 16/1	Bulk Line	Borehole 02 UAPMSI14	Msinga	R 133 539	
Mazabeko-Ward 16/1	Reticulation	RET_UAPMSI14	Msinga	R 558 221	
<b>Mazabeko-Ward 16/1</b>	<b>Total</b>				<b>R 1 953 773</b>
Mazabeko-Ward 16/2	Borehole	Borehole 01 UAPMSI15	Msinga	R 270 000	
Mazabeko-Ward 16/2	Borehole	Borehole 02 UAPMSI15	Msinga	R 270 000	

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Scheme Name	Type	Name	Local Municipality	Infrastructure Cost	Total Cost
Mazabeko-Ward 16/2	Borehole	Borehole 03 UAPMSI15	Msinga	R 270 000	
<b>Mazabeko-Ward 16/2</b>	<b>Total</b>				<b>R 810 000</b>
Esifuleni-Ward 16	Borehole	Borehole 01 UAPMSI16	Msinga	R 300 000	
Esifuleni-Ward 16	Borehole	Borehole 02 UAPMSI16	Msinga	R 300 000	
Esifuleni-Ward 16	Reservoir	Res 01 UAPMSI16	Msinga	R 1 717 897	
Esifuleni-Ward 16	Bulk Line	Borehole 01 UAPMSI16	Msinga	R 588 792	
Esifuleni-Ward 16	Bulk Line	Borehole 02 UAPMSI16	Msinga	R 470 359	
Esifuleni-Ward 16	Reticulation	RET_UAPMSI16	Msinga	R 1 350 819	
<b>Esifuleni-Ward 16</b>	<b>Total</b>				<b>R 4 727 867</b>
Wolwane-Ward 15	Borehole	Borehole 01 UAPMSI17	Msinga	R 300 000	
Wolwane-Ward 15	Borehole	Borehole 02 UAPMSI17	Msinga	R 300 000	
Wolwane-Ward 15	Borehole	Borehole 03 UAPMSI17	Msinga	R 300 000	
Wolwane-Ward 15	Reservoir	Res 01 UAPMSI17	Msinga	R 3 501 465	
Wolwane-Ward 15	Bulk Line	Borehole 01 UAPMSI17	Msinga	R 191 187	
Wolwane-Ward 15	Bulk Line	Borehole 02 UAPMSI17	Msinga	R 301 271	
Wolwane-Ward 15	Bulk Line	Borehole 03 UAPMSI17	Msinga	R 554 250	
Wolwane-Ward 15	Reticulation	RET_UAPMSI17	Msinga	R 2 179 269	
<b>Wolwane-Ward 15</b>	<b>Total</b>				<b>R 7 627 441</b>
KwaNtonga-Ward 4	Borehole	Borehole 01 UAPMSI18	Msinga	R 300 000	
KwaNtonga-Ward 4	Borehole	Borehole 02 UAPMSI18	Msinga	R 300 000	
KwaNtonga-Ward 4	Borehole	Borehole 03 UAPMSI18	Msinga	R 300 000	
KwaNtonga-Ward 4	Reservoir	Res 01 UAPMSI18	Msinga	R 3 089 419	
KwaNtonga-Ward 4	Bulk Line	Borehole 01 UAPMSI18	Msinga	R 306 066	
KwaNtonga-Ward 4	Bulk Line	Borehole 02 UAPMSI18	Msinga	R 348 304	

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Scheme Name	Type	Name	Local Municipality	Infrastructure Cost	Total Cost
KwaNtonga-Ward 4	Bulk Line	Borehole 03 UAPMSI18	Msinga	R 311 103	
KwaNtonga-Ward 4	Reticulation	RET_UAPMSI18	Msinga	R 1 981 957	
<b>KwaNtonga-Ward 4</b>	<b>Total</b>				<b>R 6 936 849</b>
Ngubevu-Ward 15	Borehole	Borehole 01 UAPMSI19	Msinga	R 300 000	
Ngubevu-Ward 15	Borehole	Borehole 02 UAPMSI19	Msinga	R 300 000	
Ngubevu-Ward 15	Reservoir	Res 01 UAPMSI19	Msinga	R 478 652	
Ngubevu-Ward 15	Bulk Line	Borehole 01 UAPMSI19	Msinga	R 225 623	
Ngubevu-Ward 15	Bulk Line	Borehole 02 UAPMSI19	Msinga	R 222 359	
Ngubevu-Ward 15	Reticulation	RET_UAPMSI19	Msinga	R 610 653	
<b>Ngubevu-Ward 15</b>	<b>Total</b>				<b>R 2 137 286</b>
Othame-Ward 14/1	Borehole	Borehole 01 UAPMSI20	Msinga	R 300 000	
Othame-Ward 14/1	Borehole	Borehole 02 UAPMSI20	Msinga	R 300 000	
Othame-Ward 14/1	Reservoir	Res 01 UAPMSI20 - Existing res	Msinga	R 1 419 164	
Othame-Ward 14/1	Bulk Line	Borehole 01 UAPMSI20	Msinga	R 183 801	
Othame-Ward 14/1	Bulk Line	Borehole 02 UAPMSI20	Msinga	R 31 036	
Othame-Ward 14/1	Reticulation	RET_UAPMSI20	Msinga	R 893 600	
<b>Othame-Ward 14/1</b>	<b>Total</b>				<b>R 3 127 601</b>
Othame-Ward 14/2	Borehole	Borehole 01 UAPMSI21	Msinga	R 300 000	
Othame-Ward 14/2	Borehole	Borehole 02 UAPMSI21	Msinga	R 300 000	
Othame-Ward 14/2	Reservoir	Res 01 UAPMSI21 - Existing res	Msinga	R 656 852	
Othame-Ward 14/2	Bulk Line	Borehole 01 UAPMSI21	Msinga	R 446 681	
Othame-Ward 14/2	Bulk Line	Borehole 02 UAPMSI21	Msinga	R 237 356	
Othame-Ward 14/2	Reticulation	RET_UAPMSI21	Msinga	R 776 355	
<b>Othame-Ward 14/2</b>	<b>Total</b>				<b>R 2 717 244</b>

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Scheme Name	Type	Name	Local Municipality	Infrastructure Cost	Total Cost
Othame-Ward 15	Borehole	Borehole 01 UAPMSI22	Msinga	R 300 000	
Othame-Ward 15	Borehole	Borehole 02 UAPMSI22	Msinga	R 300 000	
Othame-Ward 15	Reservoir	Res 01 UAPMSI22	Msinga	R 567 752	
Othame-Ward 15	Bulk Line	Borehole 01 UAPMSI22	Msinga	R 144 890	
Othame-Ward 15	Bulk Line	Borehole 02 UAPMSI22	Msinga	R 219 840	
Othame-Ward 15	Reticulation	RET_UAPMSI22	Msinga	R 612 993	
<b>Othame-Ward 15</b>	<b>Total</b>				<b>R 2 145 475</b>
Nhlesi-Ward 13	Borehole	Borehole 01 UAPMSI23	Msinga	R 300 000	
Nhlesi-Ward 13	Borehole	Borehole 02 UAPMSI23	Msinga	R 300 000	
Nhlesi-Ward 13	Reservoir	Res 01 UAPMSI23 - Existing res	Msinga	R 1 120 431	
Nhlesi-Ward 13	Bulk Line	Borehole 01 UAPMSI23	Msinga	R 59 427	
Nhlesi-Ward 13	Bulk Line	Borehole 02 UAPMSI23	Msinga	R 87 118	
Nhlesi-Ward 13	Reticulation	RET_UAPMSI23	Msinga	R 746 791	
<b>Nhlesi-Ward 13</b>	<b>Total</b>				<b>R 2 613 767</b>
Dungamanzi-Ward 5/2	Borehole	Borehole 01 UAPMSI24	Msinga	R 300 000	
Dungamanzi-Ward 5/2	Borehole	Borehole 02 UAPMSI24	Msinga	R 300 000	
Dungamanzi-Ward 5/2	Reservoir	Res 01 UAPMSI24	Msinga	R 567 752	
Dungamanzi-Ward 5/2	Bulk Line	Borehole 01 UAPMSI24	Msinga	R 90 774	
Dungamanzi-Ward 5/2	Bulk Line	Borehole 02 UAPMSI24	Msinga	R 97 010	
Dungamanzi-Ward 5/2	Reticulation	RET_UAPMSI24	Msinga	R 542 214	
<b>Dungamanzi-Ward 5/2</b>	<b>Total</b>				<b>R 1 897 749</b>
Phakwe-Ward 12	Borehole	Borehole 01 UAPMSI25	Msinga	R 270 000	
Phakwe-Ward 12	Borehole	Borehole 02 UAPMSI25	Msinga	R 270 000	
<b>Phakwe-Ward 12</b>	<b>Total</b>				<b>R 540 000</b>

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Scheme Name	Type	Name	Local Municipality	Infrastructure Cost	Total Cost
iNdanyana B-Ward 19	Borehole	Borehole 01 UAPMSI26	Msinga	R 300 000	
iNdanyana B-Ward 19	Borehole	Borehole 02 UAPMSI26	Msinga	R 300 000	
iNdanyana B-Ward 19	Borehole	Borehole 03 UAPMSI26	Msinga	R 300 000	
iNdanyana B-Ward 19	Reservoir	Res 01 UAPMSI26	Msinga	R 1 717 897	
iNdanyana B-Ward 19	Bulk Line	Borehole 01 UAPMSI26	Msinga	R 55 744	
iNdanyana B-Ward 19	Bulk Line	Borehole 02 UAPMSI26	Msinga	R 31 716	
iNdanyana B-Ward 19	Bulk Line	Borehole 03 UAPMSI26	Msinga	R 55 062	
iNdanyana B-Ward 19	Reticulation	RET_UAPMSI26	Msinga	R 1 104 167	
<b>iNdanyana B-Ward 19</b>	<b>Total</b>				<b>R 3 864 586</b>
Mngeni-Ward 16	Borehole	Borehole 01 UAPMSI27	Msinga	R 300 000	
Mngeni-Ward 16	Borehole	Borehole 02 UAPMSI27	Msinga	R 300 000	
Mngeni-Ward 16	Reservoir	Res 01 UAPMSI27	Msinga	R 432 519	
Mngeni-Ward 16	Bulk Line	Borehole 01 UAPMSI27	Msinga	R 69 146	
Mngeni-Ward 16	Bulk Line	Borehole 02 UAPMSI27	Msinga	R 106 944	
Mngeni-Ward 16	Reticulation	RET_UAPMSI27	Msinga	R 483 443	
<b>Mngeni-Ward 16</b>	<b>Total</b>				<b>R 1 692 052</b>
Nqabeni-Ward 15	Borehole	Borehole 01 UAPMSI28	Msinga	R 300 000	
Nqabeni-Ward 15	Borehole	Borehole 02 UAPMSI28	Msinga	R 300 000	
Nqabeni-Ward 15	Reservoir	Res 01 UAPMSI28	Msinga	R 478 652	
Nqabeni-Ward 15	Bulk Line	Borehole 01 UAPMSI28	Msinga	R 39 950	
Nqabeni-Ward 15	Bulk Line	Borehole 02 UAPMSI28	Msinga	R 71 276	
Nqabeni-Ward 15	Reticulation	RET_UAPMSI28	Msinga	R 475 951	
<b>Nqabeni-Ward 15</b>	<b>Total</b>				<b>R 1 665 829</b>
Gabela-Ward 17	Borehole	Borehole 01 UAPMSI29	Msinga	R 300 000	

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Scheme Name	Type	Name	Local Municipality	Infrastructure Cost	Total Cost
Gabela-Ward 17	Borehole	Borehole 02 UAPMSI29	Msinga	R 300 000	
Gabela-Ward 17	Reservoir	Res 01 UAPMSI29	Msinga	R 740 757	
Gabela-Ward 17	Bulk Line	Borehole 01 UAPMSI29	Msinga	R 94 113	
Gabela-Ward 17	Bulk Line	Borehole 02 UAPMSI29	Msinga	R 135 195	
Gabela-Ward 17	Reticulation	RET_UAPMSI29	Msinga	R 628 026	
<b>Gabela-Ward 17</b>	<b>Total</b>				<b>R 2 198 091</b>
Gxushaneni-Ward 16	Borehole	Borehole 01 UAPMSI30	Msinga	R 300 000	
Gxushaneni-Ward 16	Borehole	Borehole 02 UAPMSI30	Msinga	R 300 000	
Gxushaneni-Ward 16	Reservoir	Res 01 UAPMSI30	Msinga	R 1 120 431	
Gxushaneni-Ward 16	Bulk Line	Borehole 01 UAPMSI30	Msinga	R 77 745	
Gxushaneni-Ward 16	Bulk Line	Borehole 02 UAPMSI30	Msinga	R 146 081	
Gxushaneni-Ward 16	Reticulation	RET_UAPMSI30	Msinga	R 777 703	
<b>Gxushaneni-Ward 16</b>	<b>Total</b>				<b>R 2 721 959</b>
Mahlaba-Ward 18/2	Borehole	Borehole 01 UAPMSI31	Msinga	R 300 000	
Mahlaba-Ward 18/2	Borehole	Borehole 02 UAPMSI31	Msinga	R 300 000	
Mahlaba-Ward 18/2	Reservoir	Res 01 UAPMSI31	Msinga	R 432 519	
Mahlaba-Ward 18/2	Bulk Line	Borehole 01 UAPMSI31	Msinga	R 145 550	
Mahlaba-Ward 18/2	Bulk Line	Borehole 02 UAPMSI31	Msinga	R 107 345	
Mahlaba-Ward 18/2	Reticulation	RET_UAPMSI31	Msinga	R 514 166	
<b>Mahlaba-Ward 18/2</b>	<b>Total</b>				<b>R 1 799 580</b>
Dungamanzi-Ward 10	Borehole	Borehole 01 UAPMSI32	Msinga	R 300 000	
Dungamanzi-Ward 10	Borehole	Borehole 02 UAPMSI32	Msinga	R 300 000	
Dungamanzi-Ward 10	Borehole	Borehole 03 UAPMSI32	Msinga	R 300 000	
Dungamanzi-Ward 10	Reservoir	Res 01 UAPMSI32 - Existing res	Msinga	R 2 677 374	



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Scheme Name	Type	Name	Local Municipality	Infrastructure Cost	Total Cost
Dungamanzi-Ward 10	Bulk Line	Borehole 01 UAPMSI32	Msinga	R 188 231	
Dungamanzi-Ward 10	Bulk Line	Borehole 02 UAPMSI32	Msinga	R 252 454	
Dungamanzi-Ward 10	Bulk Line	Borehole 03 UAPMSI32	Msinga	R 98 797	
Dungamanzi-Ward 10	Reticulation	RET_UAPMSI32	Msinga	R 1 646 743	
<b>Dungamanzi-Ward 10</b>	<b>Total</b>				<b>R 5 763 600</b>
Macanco-Ward 2	Borehole	Borehole 01 UAPMSI33	Msinga	R 300 000	
Macanco-Ward 2	Borehole	Borehole 02 UAPMSI33	Msinga	R 300 000	
Macanco-Ward 2	Reservoir	Res 01 UAPMSI33	Msinga	R 478 652	
Macanco-Ward 2	Bulk Line	Borehole 01 UAPMSI33	Msinga	R 109 494	
Macanco-Ward 2	Bulk Line	Borehole 02 UAPMSI33	Msinga	R 178 210	
Macanco-Ward 2	Reticulation	RET_UAPMSI33	Msinga	R 546 542	
<b>Macanco-Ward 2</b>	<b>Total</b>				<b>R 1 912 898</b>
Ngwempisi-Ward 1	Borehole	Borehole 01 UAPUMV01	Umvoti	R 300 000	
Ngwempisi-Ward 1	Borehole	Borehole 02 UAPUMV01	Umvoti	R 300 000	
Ngwempisi-Ward 1	Borehole	Borehole 03 UAPUMV01	Umvoti	R 300 000	
Ngwempisi-Ward 1	Borehole	Borehole 04 UAPUMV01	Umvoti	R 300 000	
Ngwempisi-Ward 1	Reservoir	Res 01 UAPUMV01	Umvoti	R 1 717 897	
Ngwempisi-Ward 1	Reservoir	Res 02 UAPUMV01	Umvoti	R 2 197 636	
Ngwempisi-Ward 1	Bulk Line	Borehole 01 UAPUMV01	Umvoti	R 85 330	
Ngwempisi-Ward 1	Bulk Line	Borehole 02 UAPUMV01	Umvoti	R 88 808	
Ngwempisi-Ward 1	Bulk Line	Borehole 03 UAPUMV01	Umvoti	R 91 475	
Ngwempisi-Ward 1	Bulk Line	Borehole 04 UAPUMV01	Umvoti	R 92 600	
Ngwempisi-Ward 1	Reticulation	RET_UAPUMV01	Umvoti	R 2 189 498	
<b>Ngwempisi-Ward 1</b>	<b>Total</b>				<b>R 7 663 243</b>

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Scheme Name	Type	Name	Local Municipality	Infrastructure Cost	Total Cost
Umvoti NU-Ward 11	Borehole	Borehole 01 UAPUMV02	Umvoti	R 300 000	
Umvoti NU-Ward 11	Reservoir	Res 01 UAPUMV02	Umvoti	R 567 752	
Umvoti NU-Ward 11	Bulk Line	Borehole 01 UAPUMV02	Umvoti	R 78 665	
Umvoti NU-Ward 11	Reticulation	RET_UAPUMV02	Umvoti	R 378 567	
<b>Umvoti NU-Ward 11</b>	<b>Total</b>				<b>R 1 324 984</b>
Vaalkrans-Ward 11	Borehole	Borehole 01 UAPUMV03	Umvoti	R 270 000	
<b>Vaalkrans-Ward 11</b>	<b>Total</b>				<b>R 270 000</b>
Broedershoek-Ward 5	Borehole	Borehole 01 UAPUMV04	Umvoti	R 300 000	
Broedershoek-Ward 5	Reservoir	Res 01 UAPUMV04	Umvoti	R 567 752	
Broedershoek-Ward 5	Bulk Line	Borehole 01 UAPUMV04	Umvoti	R 41 745	
Broedershoek-Ward 5	Reticulation	RET_UAPUMV04	Umvoti	R 363 799	
<b>Broedershoek-Ward 5</b>	<b>Total</b>				<b>R 1 273 295</b>
Umvoti NU-Ward 6	Borehole	Borehole 01 UAPUMV05	Umvoti	R 300 000	
Umvoti NU-Ward 6	Borehole	Borehole 02 UAPUMV05	Umvoti	R 300 000	
Umvoti NU-Ward 6	Reservoir	Res 01 UAPUMV05	Umvoti	R 5 104 489	
Umvoti NU-Ward 6	Bulk Line	Borehole 01 UAPUMV05	Umvoti	R 106 897	
Umvoti NU-Ward 6	Bulk Line	Borehole 02 UAPUMV05	Umvoti	R 127 877	
Umvoti NU-Ward 6	Reticulation	RET_UAPUMV05	Umvoti	R 2 375 705	
<b>Umvoti NU-Ward 6</b>	<b>Total</b>				<b>R 8 314 968</b>
Eshane-Ward 4	Borehole	Borehole 01 UAPUMV06	Umvoti	R 270 000	
Eshane-Ward 4	Borehole	Borehole 02 UAPUMV06	Umvoti	R 270 000	
<b>Eshane-Ward 4</b>	<b>Total</b>				<b>R 540 000</b>
Thulwini-Ward 5	Borehole	Borehole 01 UAPUMV07	Umvoti	R 300 000	
Thulwini-Ward 5	Borehole	Borehole 02 UAPUMV07	Umvoti	R 300 000	

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Scheme Name	Type	Name	Local Municipality	Infrastructure Cost	Total Cost
Thulwini-Ward 5	Borehole	Borehole 03 UAPUMV07	Umvoti	R 300 000	
Thulwini-Ward 5	Reservoir	Res 01 UAPUMV07	Umvoti	R 567 752	
Thulwini-Ward 5	Reservoir	Res 02 UAPUMV07	Umvoti	R 1 120 431	
Thulwini-Ward 5	Reservoir	Res 03 UAPUMV07	Umvoti	R 567 752	
Thulwini-Ward 5	Bulk Line	Borehole 01 UAPUMV07	Umvoti	R 59 266	
Thulwini-Ward 5	Bulk Line	Borehole 02 UAPUMV07	Umvoti	R 52 165	
Thulwini-Ward 5	Bulk Line	Borehole 03 UAPUMV07	Umvoti	R 127 994	
Thulwini-Ward 5	Reticulation	RET_UAPUMV07	Umvoti	R 1 358 144	
<b>Thulwini-Ward 5</b>	<b>Total</b>				<b>R 4 753 504</b>
Mhlangandlovu-Ward 1	Borehole	Borehole 02 UAPUMV08	Umvoti	R 270 000	
Mhlangandlovu-Ward 1	Borehole	Borehole 01 UAPUMV08	Umvoti	R 270 000	
<b>Mhlangandlovu-Ward 1</b>	<b>Total</b>				<b>R 540 000</b>
Mvoti-Ward 3/1	Borehole	Borehole 01 UAPUMV09	Umvoti	R 300 000	
Mvoti-Ward 3/1	Reservoir	Res 01 UAPUMV09	Umvoti	R 432 519	
Mvoti-Ward 3/1	Bulk Line	Borehole 01 UAPUMV09	Umvoti	R 144 655	
Mvoti-Ward 3/1	Reticulation	RET_UAPUMV09	Umvoti	R 350 869	
<b>Mvoti-Ward 3/1</b>	<b>Total</b>				<b>R 1 228 043</b>
Mvoti-Ward 3/2	Borehole	Borehole 01 UAPUMV10	Umvoti	R 300 000	
Mvoti-Ward 3/2	Reservoir	Res 01 UAPUMV10	Umvoti	R 740 757	
Mvoti-Ward 3/2	Bulk Line	Borehole 01 UAPUMV10	Umvoti	R 122 450	
Mvoti-Ward 3/2	Reticulation	RET_UAPUMV10	Umvoti	R 465 283	
<b>Mvoti-Ward 3/2</b>	<b>Total</b>				<b>R 1 628 489</b>
Umvoti NU-Ward 8	Borehole	Borehole 01 UAPUMV11	Umvoti	R 300 000	
Umvoti NU-Ward 8	Reservoir	Res 01 UAPUMV11	Umvoti	R 432 519	

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Scheme Name	Type	Name	Local Municipality	Infrastructure Cost	Total Cost
Umvoti NU-Ward 8	Bulk Line	Borehole 01 UAPUMV09	Umvoti	R 174 400	
Umvoti NU-Ward 8	Reticulation	RET_UAPUMV11	Umvoti	R 362 767	
<b>Umvoti NU-Ward 8</b>	<b>Total</b>				<b>R 1 269 686</b>
Muden-Ward 11	Borehole	Borehole 01 UAPUMV12	Umvoti	R 300 000	
Muden-Ward 11	Reservoir	Res 01 UAPUMV12	Umvoti	R 1 120 431	
Muden-Ward 11	Bulk Line	Borehole 01 UAPUMV12	Umvoti	R 327 762	
Muden-Ward 11	Reticulation	RET_UAPUMV12	Umvoti	R 699 278	
<b>Muden-Ward 11</b>	<b>Total</b>				<b>R 2 447 471</b>
Dayingubo-Ward 1	Borehole	Borehole 01 UAPUMV13	Umvoti	R 300 000	
Dayingubo-Ward 1	Borehole	Borehole 02 UAPUMV13	Umvoti	R 270 000	
Dayingubo-Ward 1	Borehole	Borehole 03 UAPUMV13	Umvoti	R 270 000	
Dayingubo-Ward 1	Reservoir	Res 01 UAPUMV13	Umvoti	R 1 120 431	
Dayingubo-Ward 1	Bulk Line	Borehole 01 UAPUMV13	Umvoti	R 82 544	
Dayingubo-Ward 1	Reticulation	RET_UAPUMV13	Umvoti	R 817 190	
<b>Dayingubo-Ward 1</b>	<b>Total</b>				<b>R 2 860 165</b>
St Mathews-Ward 17	Borehole	Borehole UAPUMZEND01	Nquthu	R 300 000	
St Mathews-Ward 17	Reservoir	ResUpgrade to 0.1	Nquthu	R 1 717 897	
St Mathews-Ward 17	Bulk Line	Borehole UAPUMZEND01	Nquthu	R 219 662	
St Mathews-Ward 17	Reticulation	RET_UAPUMZEND01	Nquthu	R 895 024	
<b>St Mathews-Ward 17</b>	<b>Total</b>				<b>R 3 132 583</b>
Nkandle-Ward 17	Borehole	Borehole 01 UAPUMZEND02	Nquthu	R 300 000	
Nkandle-Ward 17	Borehole	Borehole 02 UAPUMZEND02	Nquthu	R 300 000	
Nkandle-Ward 17	Reservoir	ResUAPUMZEND02	Nquthu	R 1 419 164	
Nkandle-Ward 17	Bulk Line	Borehole 01 UAPUMZEND02	Nquthu	R 135 156	

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Scheme Name	Type	Name	Local Municipality	Infrastructure Cost	Total Cost
Nkandle-Ward 17	Bulk Line	Borehole 02 UAPUMZEND02	Nquthu	R 371 386	
Nkandle-Ward 17	Reticulation	RET_UAPUMZEND02	Nquthu	R 1 010 282	
<b>Nkandle-Ward 17</b>	<b>Total</b>				<b>R 3 535 988</b>
HlathiDlamini-Ward 12	Borehole	Borehole UAPUMZEND03	Nquthu	R 270 000	
<b>HlathiDlamini-Ward 12</b>	<b>Total</b>				<b>R 270 000</b>
Malakatha-Ward 2	Borehole	Borehole 01 UAPUMZEND04	Nquthu	R 300 000	
Malakatha-Ward 2	Borehole	Borehole 02 UAPUMZEND04	Nquthu	R 300 000	
Malakatha-Ward 2	Reservoir	Res 01 UAPUMZEND04	Nquthu	R 656 852	
Malakatha-Ward 2	Reservoir	Res 02 UAPUMZEND04	Nquthu	R 656 852	
Malakatha-Ward 2	Bulk Line	Borehole 01 UAPUMZEND04	Nquthu	R 219 582	
Malakatha-Ward 2	Bulk Line	Borehole 02 UAPUMZEND04	Nquthu	R 76 520	
Malakatha-Ward 2	Reticulation	RET_UAPUMZEND04	Nquthu	R 883 922	
<b>Malakatha-Ward 2</b>	<b>Total</b>				<b>R 3 093 726</b>
Nqutu NU-Ward 2/1	Borehole	Borehole 01 UAPUMZEND05	Nquthu	R 300 000	
Nqutu NU-Ward 2/1	Borehole	Borehole 02 UAPUMZEND05	Nquthu	R 300 000	
Nqutu NU-Ward 2/1	Reservoir	ResUAPUMZEND05	Nquthu	R 478 652	
Nqutu NU-Ward 2/1	Bulk Line	Borehole 01 UAPUMZEND05	Nquthu	R 133 595	
Nqutu NU-Ward 2/1	Bulk Line	Borehole 02 UAPUMZEND05	Nquthu	R 381 911	
Nqutu NU-Ward 2/1	Reticulation	RET_UAPUMZEND05	Nquthu	R 637 663	
<b>Nqutu NU-Ward 2/1</b>	<b>Total</b>				<b>R 2 231 821</b>
Nqutu NU-Ward 1/1	Borehole	Borehole 01 UAPUMZEND06	Nquthu	R 270 000	
Nqutu NU-Ward 1/1	Borehole	Borehole 02 UAPUMZEND06	Nquthu	R 270 000	
<b>Nqutu NU-Ward 1/1</b>	<b>Total</b>				<b>R 540 000</b>
Nqutu NU-Ward 1/2	Borehole/Spring	UnknownSource 01	Nquthu	R 300 000	

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Scheme Name	Type	Name	Local Municipality	Infrastructure Cost	Total Cost
		UAPUMZEND07			
Nqutu NU-Ward 1/2	Borehole/Spring	UnknownSource 02 UAPUMZEND07	Nquthu	R 300 000	
Nqutu NU-Ward 1/2	Borehole	Borehole 01 UAPUMZEND07	Nquthu	R 300 000	
Nqutu NU-Ward 1/2	Reservoir	Current Res Upgrade_RepairUAPUMZEND0 7	Nquthu	R 2 197 636	
Nqutu NU-Ward 1/2	Bulk Line	UnknownSource 02 UAPUMZEND07	Nquthu	R 629 807	
Nqutu NU-Ward 1/2	Bulk Line	UnknownSource 01 UAPUMZEND07	Nquthu	R 397 931	
Nqutu NU-Ward 1/2	Bulk Line	Borehole 01 UAPUMZEND07	Nquthu	R 616 013	
Nqutu NU-Ward 1/2	Reticulation	RET_UAPUMZEND07	Nquthu	R 1 896 554	
<b>Nqutu NU-Ward 1/2</b>	<b>Total</b>				<b>R 6 637 940</b>
Nqutu NU-Ward 1/3	Borehole	Borehole 01 UAPUMZEND08	Nquthu	R 270 000	
Nqutu NU-Ward 1/3	Borehole	Borehole 02 UAPUMZEND08	Nquthu	R 270 000	
Nqutu NU-Ward 1/3	Borehole	Borehole 03 UAPUMZEND08	Nquthu	R 270 000	
Nqutu NU-Ward 1/3	Borehole	Borehole 04 UAPUMZEND08	Nquthu	R 270 000	
Nqutu NU-Ward 1/3	Borehole	Borehole 05 UAPUMZEND08	Nquthu	R 270 000	
<b>Nqutu NU-Ward 1/3</b>	<b>Total</b>				<b>R 1 350 000</b>
Ngqulu-Ward 1	Borehole	Borehole 01 UAPUMZEND09	Nquthu	R 300 000	
Ngqulu-Ward 1	Borehole	Borehole 02 UAPUMZEND09	Nquthu	R 300 000	
Ngqulu-Ward 1	Reservoir	ResUAPUMZEND09	Nquthu	R 478 652	
Ngqulu-Ward 1	Bulk Line	Borehole 01 UAPUMZEND09	Nquthu	R 178 290	
Ngqulu-Ward 1	Bulk Line	Borehole 02 UAPUMZEND09	Nquthu	R 237 896	

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Scheme Name	Type	Name	Local Municipality	Infrastructure Cost	Total Cost
Ngqulu-Ward 1	Reticulation	RET_UAPUMZEND09	Nquthu	R 597 935	
<b>Ngqulu-Ward 1</b>	<b>Total</b>				<b>R 2 092 773</b>
Shayanyawo B-Ward 1/1	Borehole	Borehole 01 UAPUMZEND10	Nquthu	R 300 000	
Shayanyawo B-Ward 1/1	Borehole	Borehole 02 UAPUMZEND10	Nquthu	R 300 000	
Shayanyawo B-Ward 1/1	Reservoir	ResUAPUMZEND10	Nquthu	R 432 519	
Shayanyawo B-Ward 1/1	Bulk Line	Borehole 01 UAPUMZEND10	Nquthu	R 139 053	
Shayanyawo B-Ward 1/1	Bulk Line	Borehole 02 UAPUMZEND10	Nquthu	R 173 582	
Shayanyawo B-Ward 1/1	Reticulation	RET_UAPUMZEND10	Nquthu	R 538 061	
<b>Shayanyawo B-Ward 1/1</b>	<b>Total</b>				<b>R 1 883 215</b>
Shayanyawo B-Ward 1/2	Borehole	Borehole UAPUMZEND11	Nquthu	R 270 000	
<b>Shayanyawo B-Ward 1/2</b>	<b>Total</b>				<b>R 270 000</b>
Qhudeni-Ward 1	Borehole	Borehole 01 UAPUMZEND12	Nquthu	R 270 000	
Qhudeni-Ward 1	Borehole	Borehole 02 UAPUMZEND12	Nquthu	R 270 000	
<b>Qhudeni-Ward 1</b>	<b>Total</b>				<b>R 540 000</b>
Ntanyeni-Ward 1	Borehole	Borehole 01 UAPUMZEND13	Nquthu	R 300 000	
Ntanyeni-Ward 1	Borehole	Borehole 02 UAPUMZEND13	Nquthu	R 300 000	
Ntanyeni-Ward 1	Borehole	Borehole 03 UAPUMZEND13	Nquthu	R 300 000	
Ntanyeni-Ward 1	Reservoir	ResUAPUMZEND13	Nquthu	R 2 197 636	
Ntanyeni-Ward 1	Bulk Line	Borehole 02 UAPUMZEND13	Nquthu	R 274 300	
Ntanyeni-Ward 1	Bulk Line	Borehole 01 UAPUMZEND13	Nquthu	R 454 393	
Ntanyeni-Ward 1	Bulk Line	Borehole 03 UAPUMZEND13	Nquthu	R 493 035	
Ntanyeni-Ward 1	Reticulation	RET_UAPUMZEND13	Nquthu	R 1 727 745	
<b>Ntanyeni-Ward 1</b>	<b>Total</b>				<b>R 6 047 108</b>
Masoka-Ward 2	Borehole	Borehole 01 UAPUMZEND14	Nquthu	R 300 000	

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Scheme Name	Type	Name	Local Municipality	Infrastructure Cost	Total Cost
Masoka-Ward 2	Borehole	Borehole 02 UAPUMZEND14	Nquthu	R 300 000	
Masoka-Ward 2	Borehole	Borehole 03 UAPUMZEND14	Nquthu	R 300 000	
Masoka-Ward 2	Borehole	Borehole 04 UAPUMZEND14	Nquthu	R 300 000	
Masoka-Ward 2	Reservoir	ResUAPUMZEND14	Nquthu	R 2 197 636	
Masoka-Ward 2	Bulk Line	Borehole 01 UAPUMZEND14	Nquthu	R 264 944	
Masoka-Ward 2	Bulk Line	Borehole 04 UAPUMZEND14	Nquthu	R 142 301	
Masoka-Ward 2	Bulk Line	Borehole 03 UAPUMZEND14	Nquthu	R 188 539	
Masoka-Ward 2	Bulk Line	Borehole 02 UAPUMZEND14	Nquthu	R 325 915	
Masoka-Ward 2	Reticulation	RET_UAPUMZEND14	Nquthu	R 1 727 734	
<b>Masoka-Ward 2</b>	<b>Total</b>				<b>R 6 047 069</b>
Nqutu NU-Ward 2/2	Borehole	Borehole 01 UAPUMZEND15	Nquthu	R 300 000	
Nqutu NU-Ward 2/2	Borehole	Borehole 02 UAPUMZEND15	Nquthu	R 300 000	
Nqutu NU-Ward 2/2	Borehole	Borehole 03 UAPUMZEND15	Nquthu	R 300 000	
Nqutu NU-Ward 2/2	Borehole	Borehole 04 UAPUMZEND15	Nquthu	R 300 000	
Nqutu NU-Ward 2/2	Reservoir	ResUAPUMZEND15	Nquthu	R 1 419 164	
Nqutu NU-Ward 2/2	Bulk Line	Borehole 04 UAPUMZEND15	Nquthu	R 492 976	
Nqutu NU-Ward 2/2	Bulk Line	Borehole 01 UAPUMZEND15	Nquthu	R 197 906	
Nqutu NU-Ward 2/2	Bulk Line	Borehole 02 UAPUMZEND15	Nquthu	R 327 266	
Nqutu NU-Ward 2/2	Bulk Line	Borehole 03 UAPUMZEND15	Nquthu	R 421 756	
Nqutu NU-Ward 2/2	Reticulation	RET_UAPUMZEND15	Nquthu	R 1 623 627	
<b>Nqutu NU-Ward 2/2</b>	<b>Total</b>				<b>R 5 682 695</b>
Silutshana B-Ward 2	Borehole	Borehole 01 UAPUMZEND16	Nquthu	R 300 000	
Silutshana B-Ward 2	Borehole	Borehole 02 UAPUMZEND16	Nquthu	R 300 000	
Silutshana B-Ward 2	Reservoir	ResUAPUMZEND16	Nquthu	R 1 419 164	



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Scheme Name	Type	Name	Local Municipality	Infrastructure Cost	Total Cost
Silutshana B-Ward 2	Bulk Line	Borehole 02 UAPUMZEND16	Nquthu	R 220 022	
Silutshana B-Ward 2	Bulk Line	Borehole 01 UAPUMZEND16	Nquthu	R 543 731	
Silutshana B-Ward 2	Reticulation	RET_UAPUMZEND16	Nquthu	R 1 113 167	
<b>Silutshana B-Ward 2</b>	<b>Total</b>				<b>R 3 896 083</b>
Mgxangala-Ward 2	Borehole	Borehole 01 UAPUMZEND17	Nquthu	R 270 000	
Mgxangala-Ward 2	Borehole	Borehole 02 UAPUMZEND17	Nquthu	R 270 000	
Mgxangala-Ward 2	Borehole	Borehole 03 UAPUMZEND17	Nquthu	R 270 000	
Mgxangala-Ward 2	Borehole	Borehole 04 UAPUMZEND17	Nquthu	R 270 000	
<b>Mgxangala-Ward 2</b>	<b>Total</b>				<b>R 1 080 000</b>
Hlazakazi A-Ward 2	Borehole	Borehole 01 UAPUMZEND18	Nquthu	R 300 000	
Hlazakazi A-Ward 2	Borehole	Borehole 02 UAPUMZEND18	Nquthu	R 300 000	
Hlazakazi A-Ward 2	Reservoir	ResUAPUMZEND18	Nquthu	R 567 752	
Hlazakazi A-Ward 2	Bulk Line	Borehole 01 UAPUMZEND18	Nquthu	R 192 818	
Hlazakazi A-Ward 2	Bulk Line	Borehole 02 UAPUMZEND18	Nquthu	R 268 863	
Hlazakazi A-Ward 2	Reticulation	RET_UAPUMZEND18	Nquthu	R 651 773	
<b>Hlazakazi A-Ward 2</b>	<b>Total</b>				<b>R 2 281 206</b>
Nqutu NU-Ward 3/1	Borehole	Borehole 01 UAPUMZEND19	Nquthu	R 300 000	
Nqutu NU-Ward 3/1	Borehole	Borehole 02 UAPUMZEND19	Nquthu	R 300 000	
Nqutu NU-Ward 3/1	Borehole	Borehole 03 UAPUMZEND19	Nquthu	R 300 000	
Nqutu NU-Ward 3/1	Borehole	Borehole 04 UAPUMZEND19	Nquthu	R 300 000	
Nqutu NU-Ward 3/1	Reservoir	ResUAPUMZEND19	Nquthu	R 1 120 431	
Nqutu NU-Ward 3/1	Bulk Line	Borehole 01 UAPUMZEND19	Nquthu	R 670 963	
Nqutu NU-Ward 3/1	Bulk Line	Borehole 04 UAPUMZEND19	Nquthu	R 606 448	
Nqutu NU-Ward 3/1	Bulk Line	Borehole 03 UAPUMZEND19	Nquthu	R 241 896	

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Scheme Name	Type	Name	Local Municipality	Infrastructure Cost	Total Cost
Nqutu NU-Ward 3/1	Bulk Line	Borehole 02 UAPUMZEND19	Nquthu	R 926 554	
Nqutu NU-Ward 3/1	Reticulation	RET_UAPUMZEND19	Nquthu	R 1 906 517	
<b>Nqutu NU-Ward 3/1</b>	<b>Total</b>				<b>R 6 672 809</b>
eSiggokweni-Ward 2	Borehole	Borehole 01 UAPUMZEND20	Nquthu	R 270 000	
eSiggokweni-Ward 2	Borehole	Borehole 02 UAPUMZEND20	Nquthu	R 270 000	
eSiggokweni-Ward 2	Borehole	Borehole 03 UAPUMZEND20	Nquthu	R 270 000	
eSiggokweni-Ward 2	Borehole	Borehole 04 UAPUMZEND20	Nquthu	R 270 000	
<b>eSiggokweni-Ward 2</b>	<b>Total</b>				<b>R 1 080 000</b>
eGezahlala B-Ward 3	Borehole	Borehole 01 UAPUMZEND21	Nquthu	R 270 000	
eGezahlala B-Ward 3	Borehole	Borehole 02 UAPUMZEND21	Nquthu	R 270 000	
eGezahlala B-Ward 3	Borehole	Borehole 03 UAPUMZEND21	Nquthu	R 270 000	
<b>eGezahlala B-Ward 3</b>	<b>Total</b>				<b>R 810 000</b>
Nqutu NU-Ward 3/2	Borehole	Borehole 01 UAPUMZEND22	Nquthu	R 300 000	
Nqutu NU-Ward 3/2	Borehole	Borehole 02 UAPUMZEND22	Nquthu	R 300 000	
Nqutu NU-Ward 3/2	Borehole	Borehole 03 UAPUMZEND22	Nquthu	R 300 000	
Nqutu NU-Ward 3/2	Reservoir	Res 01 UAPUMZEND22	Nquthu	R 1 419 164	
Nqutu NU-Ward 3/2	Reservoir	Res 02 UAPUMZEND22	Nquthu	R 1 419 164	
Nqutu NU-Ward 3/2	Bulk Line	Borehole 02 UAPUMZEND22	Nquthu	R 195 998	
Nqutu NU-Ward 3/2	Bulk Line	Borehole 01 UAPUMZEND22	Nquthu	R 647 446	
Nqutu NU-Ward 3/2	Bulk Line	Borehole 03 UAPUMZEND22	Nquthu	R 1 097 249	
Nqutu NU-Ward 3/2	Bulk Line	Res 01 UAPUMZEND22	Nquthu	R 1 130 756	
Nqutu NU-Ward 3/2	Bulk Line	Pump_UAPUMZEND22	Nquthu	R 969 903	
Nqutu NU-Ward 3/2	Pumpstation	Pump_UAPUMZEND22	Nquthu	R 2 862 453	
Nqutu NU-Ward 3/2	Reticulation	RET_UAPUMZEND22	Nquthu	R 4 256 854	

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Scheme Name	Type	Name	Local Municipality	Infrastructure Cost	Total Cost
<b>Nqutu NU-Ward 3/2</b>	<b>Total</b>				<b>R 14 898 988</b>
iNhlabamkhosi-Ward 3	Borehole	Borehole 01 UAPUMZEND23	Nquthu	R 300 000	
iNhlabamkhosi-Ward 3	Borehole	Borehole 02 UAPUMZEND23	Nquthu	R 300 000	
iNhlabamkhosi-Ward 3	Borehole	Borehole 03 UAPUMZEND23	Nquthu	R 300 000	
iNhlabamkhosi-Ward 3	Borehole	Borehole 04 UAPUMZEND23	Nquthu	R 300 000	
iNhlabamkhosi-Ward 3	Borehole	Borehole 05 UAPUMZEND23	Nquthu	R 300 000	
iNhlabamkhosi-Ward 3	River Extraction	RiverExtract_UAPUMZEND23	Nquthu	R 300 000	
iNhlabamkhosi-Ward 3	Reservoir	Res 01 UAPUMZEND23	Nquthu	R 2 197 636	
iNhlabamkhosi-Ward 3	Reservoir	Res 02 UAPUMZEND23	Nquthu	R 2 197 636	
iNhlabamkhosi-Ward 3	Reservoir	Res 04 UAPUMZEND23	Nquthu	R 2 197 636	
iNhlabamkhosi-Ward 3	Reservoir	Res 03 UAPUMZEND23	Nquthu	R 2 197 636	
iNhlabamkhosi-Ward 3	Bulk Line	Borehole 01 UAPUMZEND23	Nquthu	R 194 097	
iNhlabamkhosi-Ward 3	Bulk Line	Borehole 02 UAPUMZEND23	Nquthu	R 379 912	
iNhlabamkhosi-Ward 3	Bulk Line	Borehole 03 UAPUMZEND23	Nquthu	R 715 118	
iNhlabamkhosi-Ward 3	Bulk Line	Borehole 04 UAPUMZEND23	Nquthu	R 490 231	
iNhlabamkhosi-Ward 3	Bulk Line	Borehole 05 UAPUMZEND23	Nquthu	R 650 024	
iNhlabamkhosi-Ward 3	Bulk Line	Res 01 UAPUMZEND23	Nquthu	R 871 610	
iNhlabamkhosi-Ward 3	Bulk Line	Pump 01_UAPUMZEND23	Nquthu	R 356 134	
iNhlabamkhosi-Ward 3	Bulk Line	Pump 02_UAPUMZEND23	Nquthu	R 390 698	
iNhlabamkhosi-Ward 3	Bulk Line	Res 03 UAPUMZEND23	Nquthu	R 1 239 155	
iNhlabamkhosi-Ward 3	Pumpstation	Pump 01_UAPUMZEND23	Nquthu	R 4 422 620	
iNhlabamkhosi-Ward 3	Pumpstation	Pump 02_UAPUMZEND23	Nquthu	R 4 422 620	
iNhlabamkhosi-Ward 3	Package Plant	River Abstraction Works	Nquthu	R 42 000 000	
iNhlabamkhosi-Ward 3	Reticulation	RET_UAPUMZEND23	Nquthu	R 26 689 104	

Development of UAP for Water & Sanitation in Kwazulu-Natal



Scheme Name	Type	Name	Local Municipality	Infrastructure Cost	Total Cost
<b>iNhlabamkhosi-Ward 3</b>	<b>Total</b>				<b>R 93 411 865</b>
Ntabebomvu-Ward 3	Borehole	Borehole 01 UAPUMZEND24	Nquthu	R 270 000	
Ntabebomvu-Ward 3	Borehole	Borehole 02 UAPUMZEND24	Nquthu	R 270 000	
<b>Ntabebomvu-Ward 3</b>	<b>Total</b>				<b>R 540 000</b>
Nqutu NU-Ward 4/1	Borehole	Borehole 01 UAPUMZEND25	Nquthu	R 300 000	
Nqutu NU-Ward 4/1	Borehole	Borehole 02 UAPUMZEND25	Nquthu	R 300 000	
Nqutu NU-Ward 4/1	Borehole	Borehole 03 UAPUMZEND25	Nquthu	R 300 000	
Nqutu NU-Ward 4/1	Borehole	Borehole 04 UAPUMZEND25	Nquthu	R 300 000	
Nqutu NU-Ward 4/1	Borehole	Borehole 05 UAPUMZEND25	Nquthu	R 300 000	
Nqutu NU-Ward 4/1	Reservoir	Res 01 UAPUMZEND25	Nquthu	R 3 089 419	
Nqutu NU-Ward 4/1	Bulk Line	Borehole 01 UAPUMZEND25	Nquthu	R 437 049	
Nqutu NU-Ward 4/1	Bulk Line	Borehole 03 UAPUMZEND25	Nquthu	R 462 225	
Nqutu NU-Ward 4/1	Bulk Line	Borehole 02 UAPUMZEND25	Nquthu	R 384 425	
Nqutu NU-Ward 4/1	Bulk Line	Borehole 04 UAPUMZEND25	Nquthu	R 223 134	
Nqutu NU-Ward 4/1	Bulk Line	Borehole 05 UAPUMZEND25	Nquthu	R 305 084	
Nqutu NU-Ward 4/1	Reticulation	RET_UAPUMZEND25	Nquthu	R 2 560 535	
<b>Nqutu NU-Ward 4/1</b>	<b>Total</b>				<b>R 8 961 871</b>
Nqutu NU-Ward 4/2	Borehole	Borehole 01 UAPUMZEND26	Nquthu	R 300 000	
Nqutu NU-Ward 4/2	Borehole	Borehole 02 UAPUMZEND26	Nquthu	R 300 000	
Nqutu NU-Ward 4/2	Borehole	Borehole 03 UAPUMZEND26	Nquthu	R 300 000	
Nqutu NU-Ward 4/2	Reservoir	Res 01 UAPUMZEND26	Nquthu	R 1 717 897	
Nqutu NU-Ward 4/2	Bulk Line	Borehole 01 UAPUMZEND26	Nquthu	R 257 592	
Nqutu NU-Ward 4/2	Bulk Line	Borehole 02 UAPUMZEND26	Nquthu	R 423 793	
Nqutu NU-Ward 4/2	Bulk Line	Borehole 03 UAPUMZEND26	Nquthu	R 506 749	

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Scheme Name	Type	Name	Local Municipality	Infrastructure Cost	Total Cost
Nqutu NU-Ward 4/2	Reticulation	RET_UAPUMZEND26	Nquthu	R 1 522 412	
<b>Nqutu NU-Ward 4/2</b>	<b>Total</b>				<b>R 5 328 443</b>
Qwabe-Ward 2	Borehole	Borehole 01 UAPUMZEND27	Nquthu	R 270 000	
Qwabe-Ward 2	Borehole	Borehole 02 UAPUMZEND27	Nquthu	R 270 000	
Qwabe-Ward 2	Borehole	Borehole 03 UAPUMZEND27	Nquthu	R 270 000	
<b>Qwabe-Ward 2</b>	<b>Total</b>				<b>R 810 000</b>
KwaNyezi-Ward 3	Borehole	Borehole 01 UAPUMZEND28	Nquthu	R 270 000	
KwaNyezi-Ward 3	Borehole	Borehole 02 UAPUMZEND28	Nquthu	R 270 000	
KwaNyezi-Ward 3	Borehole	Borehole 03 UAPUMZEND28	Nquthu	R 270 000	
<b>KwaNyezi-Ward 3</b>	<b>Total</b>				<b>R 810 000</b>
Nqutu NU-Ward 5/1	Borehole	Borehole 01 UAPUMZEND29	Nquthu	R 300 000	
Nqutu NU-Ward 5/1	Borehole	Borehole 02 UAPUMZEND29	Nquthu	R 300 000	
Nqutu NU-Ward 5/1	Borehole	Borehole 03 UAPUMZEND29	Nquthu	R 300 000	
Nqutu NU-Ward 5/1	Reservoir	Res 01 UAPUMZEND29	Nquthu	R 1 717 897	
Nqutu NU-Ward 5/1	Bulk Line	Borehole 01 UAPUMZEND29	Nquthu	R 147 961	
Nqutu NU-Ward 5/1	Bulk Line	Borehole 02 UAPUMZEND29	Nquthu	R 168 166	
Nqutu NU-Ward 5/1	Bulk Line	Borehole 03 UAPUMZEND29	Nquthu	R 220 284	
Nqutu NU-Ward 5/1	Reticulation	RET_UAPUMZEND29	Nquthu	R 1 261 723	
<b>Nqutu NU-Ward 5/1</b>	<b>Total</b>				<b>R 4 416 032</b>
Nqutu NU-Ward 5/2	Borehole	Borehole 01 UAPUMZEND30	Nquthu	R 300 000	
Nqutu NU-Ward 5/2	Borehole	Borehole 02 UAPUMZEND30	Nquthu	R 300 000	
Nqutu NU-Ward 5/2	Borehole	Borehole 03 UAPUMZEND30	Nquthu	R 300 000	
Nqutu NU-Ward 5/2	Reservoir	Res 01 UAPUMZEND30	Nquthu	R 1 717 897	
Nqutu NU-Ward 5/2	Bulk Line	Borehole 01 UAPUMZEND30	Nquthu	R 112 045	

Development of UAP for Water & Sanitation in Kwazulu-Natal



Scheme Name	Type	Name	Local Municipality	Infrastructure Cost	Total Cost
Nqutu NU-Ward 5/2	Bulk Line	Borehole 02 UAPUMZEND30	Nquthu	R 142 475	
Nqutu NU-Ward 5/2	Bulk Line	Borehole 03 UAPUMZEND30	Nquthu	R 124 205	
Nqutu NU-Ward 5/2	Reticulation	RET_UAPUMZEND30	Nquthu	R 1 198 649	
<b>Nqutu NU-Ward 5/2</b>	<b>Total</b>				<b>R 4 195 271</b>
Nsubeni-Ward 4	Borehole	Borehole 01 UAPUMZEND31	Nquthu	R 300 000	
Nsubeni-Ward 4	Borehole	Borehole 02 UAPUMZEND31	Nquthu	R 300 000	
Nsubeni-Ward 4	Reservoir	Res 01 UAPUMZEND31	Nquthu	R 1 419 164	
Nsubeni-Ward 4	Bulk Line	Borehole 01 UAPUMZEND31	Nquthu	R 209 843	
Nsubeni-Ward 4	Bulk Line	Borehole 02 UAPUMZEND31	Nquthu	R 263 814	
Nsubeni-Ward 4	Reticulation	RET_UAPUMZEND31	Nquthu	R 997 129	
<b>Nsubeni-Ward 4</b>	<b>Total</b>				<b>R 3 489 951</b>
Vryheid B-Ward 4	Borehole	Borehole 01 UAPUMZEND32	Nquthu	R 300 000	
Vryheid B-Ward 4	Borehole	Borehole 02 UAPUMZEND32	Nquthu	R 300 000	
Vryheid B-Ward 4	Reservoir	Res 01 UAPUMZEND32	Nquthu	R 656 852	
Vryheid B-Ward 4	Bulk Line	Borehole 01 UAPUMZEND32	Nquthu	R 132 273	
Vryheid B-Ward 4	Bulk Line	Borehole 02 UAPUMZEND32	Nquthu	R 193 533	
Vryheid B-Ward 4	Reticulation	RET_UAPUMZEND32	Nquthu	R 633 063	
<b>Vryheid B-Ward 4</b>	<b>Total</b>				<b>R 2 215 720</b>
Nqutu NU-Ward 3/3	Borehole	Borehole 01 UAPUMZEND33	Nquthu	R 300 000	
Nqutu NU-Ward 3/3	Borehole	Borehole 02 UAPUMZEND33	Nquthu	R 300 000	
Nqutu NU-Ward 3/3	Reservoir	Res 01 UAPUMZEND33	Nquthu	R 478 652	
Nqutu NU-Ward 3/3	Bulk Line	Borehole 01 UAPUMZEND33	Nquthu	R 80 241	
Nqutu NU-Ward 3/3	Bulk Line	Borehole 02 UAPUMZEND33	Nquthu	R 180 315	
Nqutu NU-Ward 3/3	Reticulation	RET_UAPUMZEND33	Nquthu	R 535 683	

Development of UAP for Water & Sanitation in Kwazulu-Natal



Scheme Name	Type	Name	Local Municipality	Infrastructure Cost	Total Cost
<b>Nqutu NU-Ward 3/3</b>	<b>Total</b>				<b>R 1 874 892</b>
HlabaNkhosi-Ward 3	Borehole	Borehole 01 UAPUMZEND34	Nquthu	R 300 000	
HlabaNkhosi-Ward 3	Borehole	Borehole 02 UAPUMZEND34	Nquthu	R 300 000	
HlabaNkhosi-Ward 3	Reservoir	Res 01 UAPUMZEND34	Nquthu	R 1 120 431	
HlabaNkhosi-Ward 3	Bulk Line	Borehole 01 UAPUMZEND34	Nquthu	R 214 431	
HlabaNkhosi-Ward 3	Bulk Line	Borehole 02 UAPUMZEND34	Nquthu	R 125 160	
HlabaNkhosi-Ward 3	Reticulation	RET_UAPUMZEND34	Nquthu	R 824 009	
<b>HlabaNkhosi-Ward 3</b>	<b>Total</b>				<b>R 2 884 031</b>
<b>UMZINYATHI UNIVERSAL ACCESS PLAN</b>					<b>R 346 878 744</b>

## 10 RECOMMENDATIONS

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The following recommendation needs to be considered as these are likely to impact the water and sanitation services provisions in Umzinyathi:

- For areas where the borehole yield is not sufficient, alternative borehole sources need to be identified.
- The conceptual bulk schemes identified in this report should be used to form a basis for further investigations to address the current backlogs, pre-feasibilities and feasibility studies must be undertaken.
- It is recommended that a complete audit of current water and sanitation related assets is conducted so as to ensure more accurate costing and facility management in the future. GIS data collected during the Delphi Sessions would be a good starting point as data available within this newly created GIS could be used as a base from which to compile an updated Geodatabase.
- No Regional schemes have been confirmed by the district municipality. It is thus important to understand the long term plan to address backlogs and improve the water and sanitation infrastructure. District Municipality must be able to determine this long term plan.
- Although the focus may be on addressing the backlogs to those in need, Umzinyathi should also prioritise the maintenance of the existing infrastructure by introducing an asset management programme with appropriate budgets.
- There are areas where residents source water directly from a river. Within these situations, particular attention needs to be focussed on the quality of the water that is being consumed. A packaging plant or some form of water treatment should be implemented into these areas so as to reduce the risk of fatality or illness due to polluted water.
- Where areas have the required infrastructure, yet experience faults within the network to the extent where water tankers have been used as the main supplier of water, these schemes need to be repaired and maintained properly so as to reduce the need for water tankers.
- Alternate sources of funding are needed to be secured in order to expedite service delivery and address the current backlogs. The current budget will not be able to address all the backlogs hence it is important for alternative funding models to be



investigated. DWA study has confirmed that Umzinyathi requires approximately R 1.4 billion to improve its existing infrastructure together in addressing its current backlogs. Majority of these projects are waiting funding.

- GIS data provided by the district needs to be updated. A GIS data audit should be implemented so as to assist with future planning and costing initiatives.
- The projects listed in the Integrated Development Plan should be updated in terms of current progress and funding required for the completion of them.

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## 11 CONCLUSIONS

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Umzinyathi have conducted its own study and identified backlogs in water and sanitation. These backlogs have been costed and equate to R 550 million. In this study the estimated cost of eradication the current backlogs for both water and sanitation equate to R542 million.

Funding models must be investigated in order to address these backlogs. Planning of regional and bulk schemes is the first steps but without funding these can be implemented. UMzinyathi together with other stakeholders must conduct feasibility studies in order to accurately determine and quantify the cost and suitability of bulk and regional schemes.

The current backlogs for both water and sanitation identified at the engagement meeting with the district municipality are vastly different to the 2011 Census data. Hence it is important that these figures are confirmed through physical verification on site and could be incorporated in and asset management programme. This will identify current infrastructure for both water and sanitation hence from this assessment the backlogs could be more accurately quantified.

The short term schemes identified in the report are conceptual designs and are based on inputs from the operational staff at the engagement meeting. It is important that all water and sanitation infrastructure are confirmed through asset management programmes which will determine and confirm this infrastructure. This confirmation of infrastructure can be used for better water and sanitation planning and will update the current GIS database.

UMzinyathi should also prioritise the maintenance of the existing infrastructure by introducing an asset management programme with appropriate budget. Without maintenance and lack of maintenance could lead to an increase in backlogs numbers hence it is crucial that a maintenance budget set aside every year to maintain its current infrastructure.

The findings of this report and the GIS information collected should be used for future planning and decision making and must be further investigated through feasibility studies and must not be read in isolation from other studies undertaken in UMzinyathi District Municipality or other Water Authorities such as Umgeni Water and Department of Water Affairs.

The projects listed in the Integrated Development Plan and those set out by DWA which are shown in Annexure A and D are regional bulk schemes which are long term solutions to

address backlogs and improve current water and sanitation infrastructure. These projects have are funded through the Municipal Infrastructure Grant and Municipal Water Infrastructure Grant which we have not considered when proposing conceptual alternate schemes to eradicate current backlogs. There could be overlapping of the proposed conceptual schemes to the regional bulk schemes and thus overlapping of infrastructure costs. The main reason that infrastructure cost could be overlapped is due to our mandate to develop conceptual schemes to eradicate the backlogs identified at the engagement meeting with the district municipalities.

# Annexure A

## Umzinyathi District Municipality

### DWA Priority Actions Plans

PRJNR (MWIG Project Number)	Project Origin	LM	Project Name	Project Description	Project Status	Total Project Cost	Short Term Actions	Short Term Fund Requirement	Medium Term Actions	Medium Term Funding Requirement	Long Term Actions	Long Term Funding Requirement
2005MIGFDC240010	MIG	Nquthu	Hlazakazi Water Supply (AFA) MIS 204222	Construction of medium water supply to Hlazakazi. Nquthu Munic over wards 1,2 and 4. 7440 people, 1230 Households.	Construction	22 332 097	-	-	-	-	-	-
2005MIGFDC240017	MIG	Msinga	Mthembu West and Mathintha Water supply VO1 (AFA) MIS 161461	This project includes for the provision of basic water services (standpipes at 200m to 80% of households) to the tribal areas of Mthembu West and Mathintha within the Msinga Local Municipality (KZN 224) of Umzinyathi District Municipality (DC 24). The project area is some 60km <sup>2</sup> in extent area and lies to the south of the Tugela River some 12 km's west of Tugela Ferry.	Construction	27 518 919	-	-	-	-	-	-
2006MIGFDC245379	MIG	Umvoti	Eshane Water Supply Scheme Phase 1	Construction of 3 Boreholes	Tender	219 532	-	-	-	-	-	-
2007MIGFDC24122373	MIG	Msinga	Mbono Phase 2 Water Supply Scheme	The Umzinyathi District Municipality requires that an alternative source of bulk water for Mbono and the surrounding areas of Embondweni, Othame and Makhungubhe be investigated as a feasibility study / business plan for a regional water supply to the above areas. This MIG 1 form is a request for funding to compile a feasibility study / business plan.	Feasibility	408 234	-	-	-	-	-	-
2007MIGFDC24122374	MIG	Msinga	Ndaya Water Supply Scheme	The Ndaya is located in the Msinga Municipality of the Umzinyathi District Municipality. The project has two phases. The first phase is the planning stage whilst the second phase will be the construction of infrastructure. This Business Plan is for the planning stage which includes a Geohydrological exploration of a ground water source to feed the second phase of the project. This includes the drilling and pump testing of five (5) boreholes in order to establish an adequate, reliable and sustainable groundwater source.	Construction	474 067	-	-	-	-	-	-
2008MIGFDC24160191	MIG	Umvoti	Eshane Water Supply Scheme Phase 2 (AFA) MIS 192875	The project objective is to provide a safe, sustainable and reliable source of potable water to the community of Eshane and Lilani.	Construction	28 914 907	-	-	-	-	-	-
2008MIGFDC24160272	MIG	Umzinyathi	Umzinyathi District Municipality Rudimentary	Rudimentary services consist of a borehole equipped with a hand pump within 1000 m walking distance. The maximum flow rate will therefore be one third of the minimum national standard.	Construction	39 636 660	-	-	-	-	-	-
2008MIGFDC24160293	MIG	Msinga	Ngubukazi Water Supply Scheme Phase 2	This phase deals with the detailed design and construction of the following works to provide the Ngubukazi community with a potable water supply meeting the minimum RDP levels of service.	Construction	9 377 214	-	-	-	-	-	-
2008MIGFDC24160294	MIG	Msinga	Mbono Regional Bulk Water Supply Scheme (AFA) MIS 201127	The proposed area of development is approximately 8 km east of Tugela Ferry Town. The project covers an area of 5480 hectares. Water is sourced from Sampofu WTW and is supplied by Uthukela Water.	Construction	100 435 961	-	-	-	-	-	-
2008MIGFDC24160595	MIG	Umvoti	Makhabeleni Regional Water Supply Scheme: Phase 4 and 5 and Bulk Upgrade (AFA) MIS 193588	Upgrade of Makhabeleni Water Treatment Works on the Tugela River from 0.5MI/day to 4MI/day. 1.5MI/day is required for the Makhabeleni Phases.	Construction	46 200 117	-	-	-	-	-	-

PRJNR (MWIG Project Number)	Project Origin	LM	Project Name	Project Description	Project Status	Total Project Cost	Short Term Actions	Short Term Fund Requirement	Medium Term	Medium Term Funding	Long Term Actions	Long Term Funding Requirement
2009MIGFDC24162241	MIG	Endumeni	Sithembile Housing Bulk Services	The Sithembile Low Cost Housing Project consists of 750 units for PDI individuals in Glencoe located in the Endumeni Local Municipality (KZ241). The project includes the bulk water and sewer supply to the development itself from the existing Glencoe network including the construction of a new Pumpstation, 1.7MI reservoir and associated connecting pipelines for the development. The project also includes the installation of a new bulk water supply pipeline from the WTW at Dundee and an upgrade to the existing WWTW at Dundee.	Construction	26 134 342	-	-	-	-	-	-
2009MIGFDC24171951	MIG	Msinga	Muden Regional Bulk Water Supply Scheme	This MIG funding application is for the following infrastructure; 1) The extension of the Muden Water Treatment Plant, 2) The extension of the Keate's Drift Water Supply Scheme and 3) The development of the Ndaya Water Supply Scheme. The three components are collectively known as the Muden Regional Water Supply Scheme. The water supply schemes for Keate's Drift and Ndaya are situated north to north-east of Muden. The Muden Water Treatment Plant, situated to the South East of Keates Drift is to be upgraded to 6.9 MI/day and will be the primary source of treated water to the Ndaya and Keates Drift schemes.	Construction	189 253 289	-	-	-	-	-	-
2009MIGFDC24178897	MIG	Nquthu	Ntinini Water Project - (Implementation) (AFA) MIS 205754	The proposed supply area is divided into twenty seven settlements. The scope of works will consist of securing adequate water supply to the proposed project by geohydrological Survey, Drilling and Testing.	Construction	306 639 406	-	-	-	-	-	-
2009MIGFDC24181667	MIG	Umvoti	Hlimbithwa Makhabeleni Community Water Project	The project covers the following villages: Hlimbithwa, Makhabeleni and Mbulwane. All this villages are situated within uMzinyathi District Municipality. The proposed scheme entails supply of water from natural fall of selected site, new and existing boreholes and spring within the project areas. There will be a total of 1275 KL of water storage capacity 111, 809m of village reticulation pipe network and 60,373m of bulk pipes. The pumping main will be approximately 7500m long. The pipes will comprise of PVC and HDPE materials with diameter ranging from 32mm to 200mm and installing of approximately 287 standpipes to RDP standard. An amount of R676, 182.00 is required at this phase for the geohydrological study to be done. The total project cost is an estimated R71, 383,306.00.	Tender	676 182	-	-	-	-	-	-
2009MIGFDC24184014	MIG	Msinga	Douglas Water Supply Scheme	Phase 1 for planning, detailed geohydrological study to source suitable water. Once secured, phase 2 will envisage approx. 8000m bulk mains, 80 km of reticulation lines, 170 communal standpipes, 3 elevated storage tanks, yard connections with water meters and ancillaries such as air valves, scour valves etc.	Construction	1 252 731	-	-	-	-	-	-
2010MIGFDC24191201	MIG	Endumeni	Feasibility study for Dundee Bulk Water Supply	The feasibility studies require the following inputs: A Status Quo Review of the water source and bulk works; Identify future projects, which form part of the overall plan; Demographics – Footprints of future schemes; Determine future water requirements; Provide a technical assessment of future augmentation; Investigation of groundwater as a viable source of drinking water; ISD Inputs; Environmental Impact Assessment; Compile a Regional	Tender	2 780 548	-	-	-	-	-	-

PRJNR (MWIG Project Number)	Project Origin	LM	Project Name	Project Description	Project Status	Total Project Cost	Short Term Actions	Short Term Fund Requirement	Medium Term	Medium Term Funding	Long Term Actions	Long Term Funding Requirement
				Business Plan.								
2010MIGFDC24193444	MIG	Msinga	Mthembu West - Extension	The Mthembu West Extension Water Supply Scheme is located some 12 km southwest of Tugela Ferry in the Msinga Local Municipality (KZ 244) of the Umzinyathi District Municipality (DC 24). The project would provide potable water to the entire community. Public stand taps will be located within 200m walking distance of at least 95% of households in the area. The project includes for the provision of: Approximately 133 km of water reticulation pipelines ranging in size between 32mm and 110mm; Approximately 28 km of bulk water pipelines ranging in size between 63mm and 160mm; Approximately 210 community standpipes. The project will draw bulk potable water from the Ophathe Water Scheme, which has its Abstraction Works and Treatment Works on the Mooi River. This option will allow for the rationalisation of abstraction and treatment of water thus providing the benefit of economy of scale. Preliminary consultation with Ilifa Consulting, responsible for the design of the Ophathe Scheme, it was confirmed that there is sufficient capacity to supply the immediate demand for the proposed Mthembu West Extension Scheme.	Tender	31 745 056	-	-	-	-	-	-
2010MIGFDC24195759	MIG	Msinga	Msinga Regional Bulk Water Supply (AFA) MIS 200419	This project is for the provision of a Regional Bulk Water Supply in Msinga Local Municipality (KZN 224) from a reliable water source to serve wards 1-6, 10-13 and 17. Project thus far is for the feasibility studies and to compile a Business Plan, and also register the project with MIG. The main purpose of this report is to apply for funding required to carry out the Feasibility Studies for the Msinga Bulk Water Scheme from the Department of Water Affairs (DWA) under the auspices of MIG. The Feasibility Report and Business Plan will strongly motivate the viability of the to be recommended project option in terms of its technical soundness, economic cost and sustainability, social benefits, as well as community participation and empowerment.	Construction	286 739 115	-	-	-	-	-	-
2011MIGFDC24194324	MIG	Msinga	Msinga Top/ Othame Supply Scheme Geohydrological Investigation	The project footprint is outlined by the Msinga Top area situated in Msinga Local Municipality area. It is accessed using route R33 main road from Greytown to Pomeroy. The natural boundaries of the Tugela River and The Buffels River found in the South and east respectively define the project area. The population clusters are divided in and around an area of approximately 150 sqkm. The Project aims to assess the water sources in more detail; thereafter confirm the water demands of the communities and project future demands. Identification of the most feasible options will be sought after to meet the demands of the project. This will promote better upgrading and maintenance of existing Bulk and Reticulation lines.	Design	1 671 935	-	-	-	-	-	-

PRJNR (MWIG Project Number)	Project Origin	LM	Project Name	Project Description	Project Status	Total Project Cost	Short Term Actions	Short Term Fund Requirement	Medium Term	Medium Term Funding	Long Term Actions	Long Term Funding Requirement
2011MIGFDC24197640	MIG	Msinga	Ngubukazi Water Supply Phase 3	<p>This is the third phase of the project. Phase 1 consisted of a groundwater investigation to prove the source. Phase 2 entailed the construction of the bulk works. Phase 3 includes the design and construction of the reticulation scheme to Ngubukazi as well as the link to and construction of the bulk supply line to the neighbouring Gxusheneni community where the existing bulk scheme has failed but the reticulation scheme is in place. The source of water is a production borehole with water treatment etc undertaken under Phase 2. Under this phase of the project the following Works will be undertaken:</p> <p>The scope of works for the proposed Ngubukazi reticulation scheme will include: Construction of approximately 42 971m of reticulation mains, Construction of 59 communal standpipes, Construction of 4 break pressure tanks; Construction of pipeline ancillaries such as air valves, scour valves and isolating valves, and Road crossings under the R33.</p> <p>The scope of works for the feeder line to the Gxusheneni area will include: Construction of an additional 2600m of pipeline; Construction of a pressed steel tank 100kl capacity on a 10m high stand; and Construction of a mini booster pump station.</p>	Construction	24 473 378	-	-	-	-	-	-
2011MIGFDC24199164	MIG	Umvoti	Makhabeleni Regional Water Supply Scheme Phase 6	<p>The main objectives of the project are to provide, as per the Umzinyathi District Municipality's Water Services Development Plan priority schedule, an additional population of approximately 6,640 people located within the Nophethu and Kwasenge areas with potable water, incorporated into the Makhabeleni Regional Water Supply Scheme; to upgrade existing Basic Level 1 free water supplies to the communities of Phase 1-5, to metered household connections (comprising almost 12,000 people and over 1,500 households).</p>	Construction	52 253 311	-	-	-	-	-	-
2012MIGFDC24202816	MIG	Nquthu	Refurbishment of Vant's Drift Water Treatment Plant	<p>The project will focus on the abstraction scheme which is reported to have been installed some 20 - 30 years ago and which relies upon:</p> <ul style="list-style-type: none"> <li>- sunken wells/chambers which are gravitationally fed by perforated pipes laid across and in the river bed. There are four of these chambers with only three operating, i.e.; receiving water from the perforated pipes.</li> <li>- the chambers are linked with a pipe which conveys water to a pump tower from which water is pumped to the treatment works.</li> <li>- The perforated pipes are suspected of having collapsed, clogged, biofouled, bent, etc and have since captured less and less water over the years. This has resulted in the current abstraction rate going as low as about 40 % of the original design capacity.</li> </ul> <p>It is the wish of the uMzinyathi DM to refurbish this scheme by:</p> <ul style="list-style-type: none"> <li>- removing and replacing the collector pipes thereby increasing the current abstraction rate.</li> <li>- upgrading the existing backwashing system to cater for periodic cleaning of the collector pipes.</li> </ul>	Design	3 784 344	-	-	-	-	-	-



PRJNR (MWIG Project Number)	Project Origin	LM	Project Name	Project Description	Project Status	Total Project Cost	Short Term Actions	Short Term Fund Requirement	Medium Term	Medium Term Funding	Long Term Actions	Long Term Funding Requirement
ZKZNUMZ01	23DM	Nquthu	Nondweno Treatment Plant	The project will focus in upgrading the water treatment plant in order to supply water to 200 households without water	Awaiting Funding	400 000	Purchase Clarifiers	1 000 000	Design	3 000 000	Construct	-
ZKZNUMZ02	23DM	Endumeni	Stratford Farm Water Supply Augmentation	The project objective is to provide a safe, sustainable and reliable source of potable water to Stratford Farm	Awaiting Funding	6 000 000	Purchase of package plant and equipping of boreholes	1 500 000	Design	4 500 000	Construct	-
ZKZNUMZ03	23DM	Endumeni	Rhodesia Water Supply Augmentation	The project objective is to provide a safe, sustainable and reliable source of potable water to Rhodesia	Awaiting Funding	3 000 000	Design for the reticulation networks	210 000	Design	2 790 000	Construct	-
ZKZNUMZ04	23DM	Nquthu	7Ml/day package Clarifier at Vant's Drift	The project objective is to provide a safe, sustainable and reliable source of potable water to Mqutu	Awaiting Funding	4 400 000	Purchase clarifier	4 400 000	Design	-	Construct	-
ZKZNUMZ05	23DM	Umvoti	eSihlabeni Water Supply Project	The project objective is to provide a safe, sustainable and reliable source of potable water to the community of eSihlabeni	Conceptual	400 000	Business Plan and Feasibility	28 000	Design	372 000	Construct	-
ZKZNUMZ06	23DM	Umvoti	Tshekane Water Supply Project	The project objective is to provide a safe, sustainable and reliable source of potable water to the community of Thekane	Conceptual	400 000	Business Plan and Feasibility	28 000	Design	372 000	Construct	-
ZKZNUMZ07	23DM	Umvoti	Mkondeni Water Supply Project	The project objective is to provide a safe, sustainable and reliable source of potable water to the community of Mkondeni	Conceptual	600 000	Business Plan and Feasibility	42 000	Design	558 000	Construct	-
ZKZNUMZ08	23DM	Umvoti	Nkwawini Water Supply Project	The project objective is to provide a safe, sustainable and reliable source of potable water to the community of eSihlabeni	Conceptual	600 000	Business Plan and Feasibility	42 000	Design	558 000	Construct	-
ZKZNUMZ09	23DM	Umvoti	Hlimbithwa Makhabeleni Community Water Project	The project objective is to complete the existing scheme	Awaiting Funding	4 000 000	Construct	2 000 000	Construct	200 000	Construct	-
ZKZNUMZ10	23DM	Endumeni	Endumeni Settlement Borehole Equipment	The project objective is to provide a safe, sustainable and reliable source of potable water to various communities within the Endumeni Local Municipality	Awaiting Funding	2 500 000	Business Plan and Feasibility	175 000	Design	625 000	Construct	850 000
ZKZNUMZ11	23DM	Msinga	Mhlangana Water Supply Scheme	The project objective is to provide a safe, sustainable and reliable source of potable water to Mhlangana	Awaiting Funding	11 000 000	Business Plan and Feasibility	770 000	Design	550 000	Design	550 000
ZKZNUMZ12	23DM	Msinga	Nyonyana Water Supply Scheme	The project objective is to provide a safe, sustainable and reliable source of potable water to Nyonyana	Awaiting Funding	10 000 000	Business Plan and Feasibility	700 000	Design	500 000	Design	500 000
ZKZNUMZ13	23DM	Endumeni	Forestday/Dlamini Water Supply	The project objective is to provide a safe, sustainable and reliable source of potable water to Forestdale/Dlamini	Awaiting Funding	4 000 000	Business Plan and Feasibility	280 000	Design	1 000 000	Construct	2 720 000
ZKZNUMZ14	23DM	Endumeni	Sibingile Water Supply Augmentation	The project objective is to provide a safe, sustainable and reliable source of potable water to Sibingile	Awaiting Funding	3 000 000	Business Plan and Feasibility	210 000	Design	750 000	Construct	2 040 000
ZKZNUMZ15	23DM	Umvoti	Emthemeni-Nxamalala and Emvulweni Water Supply Augmentation	The project objective is to provide a safe, sustainable and reliable source of potable water to Emthemeni-Nxamalala and Emvulweni	Awaiting Funding	6 000 000	Business Plan and Feasibility	420 000	Design	1 500 000	Construct	4 080 000
ZKZNUMZ16	23DM	Umvoti	Nadi and Mabaleni Water Supply Augmentation	The project objective is to provide a safe, sustainable and reliable source of potable water to Nadi and Mabaleni	Awaiting Funding	2 000 000	Business Plan and Feasibility	140 000	Design	500 000	Construct	1 360 000
ZKZNUMZ17	23DM	Nquthu	Nqutu Town Water Supply Augmentation	The project objective is to provide a safe, sustainable and reliable source of potable water to Nqutu Town	Awaiting Funding	12 000 000	Business Plan and Feasibility	360 000	Design	3 000 000	Construct	3 266 667

PRJNR (MWIG Project Number)	Project Origin	LM	Project Name	Project Description	Project Status	Total Project Cost	Short Term Actions	Short Term Fund Requirement	Medium Term	Medium Term Funding	Long Term Actions	Long Term Funding Requirement
ZKZNUMZU018	23DM	Msinga	Extension of Pomeroy Bulk Water Supply Scheme to Include Mazebeke	The project objective is to provide a safe, sustainable and reliable source of potable water to Mazebeke by augmenting the existing Mazebeke bulk water supply scheme	Awaiting Funding	15 000 000	Business Plan and Feasibility	450 000	Design	3 750 000	Construct	3 208 333
ZKZNUMZ19	23DM	Msinga	Extension of Ngubukazi Water Supply Scheme to Include Gxushaneni	The project objective is to provide a safe, sustainable and reliable source of potable water to Gxushaneni by augmenting the existing Ngubukazi water supply scheme	Awaiting Funding	12 000 000	Business Plan and Feasibility	360 000	Design	3 000 000	Construct	2 566 667
ZKZNUMZ20	Other	Msinga	Extension of Cwaka Water Supply Scheme to Include Cwaka	The project objective is to provide a safe, sustainable and reliable source of potable water to Cwaka by augmenting the existing Mbono water supply scheme	Awaiting Funding	18 000 000	Business Plan and Feasibility	540 000	Design	4 500 000	Construct	3 850 000
ZKZNUMZ21	Other	Endumeni	Wasbank Water Supply Refurbishment	The project objective is to provide a safe, sustainable and reliable source of potable water to Wasbank Water Scheme by Refurbishing the existing scheme	Awaiting Funding	38 000 000	Business Plan and Feasibility	1 140 000	Design	4 750 000	Construct	4 750 000
ZKZNUMZ22	Other	Umvoti	Eradication of illegal water connections in Emthemeni-Nxamalala and Emvulweni	The project objective is to provide a safe, sustainable and reliable source of potable water to Emthemeni-Nxamalala and Emvulweni by training artisans and operators, eradicate illegal connections and refurbishment of the existing infrastructure	Awaiting Funding	5 000 000	Business Plan and Feasibility	150 000	Design	1 250 000	Construct	3 600 000
ZKZNUMZ23	Other	Umvoti	Eradication of illegal water connections in Hemansburg-Nseleni and Mhlazane Areas	The project objective is to provide a safe, sustainable and reliable source of potable water to Hemansburg-Nseleni and Mhlazane by training artisans and operators, eradicate illegal connections and refurbishment of the existing infrastructure	Awaiting Funding	3 000 000	Business Plan and Feasibility	90 000	Design	750 000	Construct	2 160 000
ZKZNUMZ24	Other	Umvoti	Eradication of illegal water connections in Gcothoyi	The project objective is to provide a safe, sustainable and reliable source of potable water to Gcothoyi by training artisans and operators, eradicate illegal connections and refurbishment of the existing infrastructure	Awaiting Funding	2 000 000	Business Plan and Feasibility	60 000	Design	500 000	Construct	1 440 000
ZKZNUMZ25	Other	Umvoti	Eradication of illegal water connections in Matimatolo	The project objective is to provide a safe, sustainable and reliable source of potable water to Matimatolo by training artisans and operators, eradicate illegal connections and refurbishment of the existing infrastructure	Awaiting Funding	800 000	Business Plan and Feasibility	24 000	Design	200 000	Construct	576 000
ZKZNUMZ26	Other	Umvoti	Eradication of illegal water connections in Ophathe	The project objective is to provide a safe, sustainable and reliable source of potable water to Ngome Game Park by securing Electricity Supply	Awaiting Funding	1 200 000	Business Plan and Feasibility	36 000	Design	300 000	Construct	864 000
ZKZNUMZ27	Other	Umvoti	Eradication of illegal water connections in Ntembisweni	The project objective is to provide a safe, sustainable and reliable source of potable water to Ntembisweni by training artisans and operators, eradicate illegal connections and refurbishment of the existing infrastructure	Awaiting Funding	1 000 000	Business Plan and Feasibility	30 000	Design	250 000	Construct	720 000
ZKZNUMZ28	Other	Umvoti	Funding for ESKOM Connection at Ngome Game Park	The project objective is to provide a safe, sustainable and reliable source of potable water to Ngome Game Park by training artisans and operators, eradicate illegal connections and refurbishment of the existing infrastructure	Awaiting Funding	1 100 000	Business Plan and Feasibility	33 000	Design	275 000	Construct	792 000
ZKZNUMZ29	Other	Nquthu	Eradication of illegal water connections in Nqutu	The project objective is to provide a safe, sustainable and reliable source of potable water to Nqutu by training artisans and operators, eradicate illegal connections and refurbishment of the existing infrastructure	Awaiting Funding	12 000 000	Business Plan and Feasibility	360 000	Design	3 000 000	Construct	8 640 000
ZKZNUMZ30	Other	Nquthu	Eradication of illegal water connections in Nondweni	The project objective is to provide a safe, sustainable and reliable source of potable water to Nondweni by training artisans and operators, eradicate illegal connections and refurbishment	Awaiting Funding	8 000 000	Business Plan and Feasibility	240 000	Design	2 000 000	Construct	5 760 000

PRJNR (MWIG Project Number)	Project Origin	LM	Project Name	Project Description	Project Status	Total Project Cost	Short Term Actions	Short Term Fund Requirement	Medium Term	Medium Term Funding	Long Term Actions	Long Term Funding Requirement
				of the existing infrastructure								
ZKZNUMZ31	Other	Nquthu	Eradication of illegal water connections in Ngkololo	The project objective is to provide a safe, sustainable and reliable source of potable water to Ngkololo by training artisans and operators, eradicate illegal connections and refurbishment of the existing infrastructure	Awaiting Funding	6 000 000	Business Plan and Feasibility	180 000	Design	1 500 000	Construct	4 320 000
ZKZNUMZ32	Other	Nquthu	Eradication of illegal water connections in Leneha	The project objective is to provide a safe, sustainable and reliable source of potable water to Leneha by training artisans and operators, eradicate illegal connections and refurbishment of the existing infrastructure	Awaiting Funding	3 000 000	Business Plan and Feasibility	90 000	Design	750 000	Construct	2 160 000
ZKZNUMZ33	Other	Nquthu	Eradication of illegal water connections in Ntanyandlovu, Ndindindi and Isandlawana	The project objective is to provide a safe, sustainable and reliable source of potable water to Ntanyandlovu, Ndindindi and Isandlawana by training artisans and operators, eradicate illegal connections and refurbishment of the existing infrastructure	Awaiting Funding	2 000 000	Business Plan and Feasibility	60 000	Design	500 000	Construct	1 440 000
ZKZNUMZ34	Other	Msinga	Eradication of illegal water connections in Mthembu West	The project objective is to provide a safe, sustainable and reliable source of potable water to Mthembu West by training artisans and operators, eradicate illegal connections and refurbishment of the existing infrastructure	Awaiting Funding	6 000 000	Business Plan and Feasibility	180 000	Design	1 500 000	Construct	4 320 000
ZKZNUMZ35	Other	Msinga	Eradication of illegal water connections in Pthame-Msinga Top	The project objective is to provide a safe, sustainable and reliable source of potable water to Pthame-Msinga Top by training artisans and operators, eradicate illegal connections and refurbishment of the existing infrastructure	Awaiting Funding	8 000 000	Business Plan and Feasibility	240 000	Design	2 000 000	Construct	5 760 000
ZKZNUMZ36	Other	Msinga	Eradication of illegal water connections in eThembeni	The project objective is to provide a safe, sustainable and reliable source of potable water to eThembeni by training artisans and operators, eradicate illegal connections and refurbishment of the existing infrastructure	Awaiting Funding	6 000 000	Business Plan and Feasibility	180 000	Design	1 500 000	Construct	4 320 000
ZKZNUMZ37	Other	Msinga	Eradication of illegal water connections in Keats Drift	The project objective is to provide a safe, sustainable and reliable source of potable water to Keats Drift by training artisans and operators, eradicate illegal connections and refurbishment of the existing infrastructure	Awaiting Funding	4 000 000	Business Plan and Feasibility	120 000	Design	1 000 000	Construct	2 880 000
ZKZNUMZ38	Other	Msinga	Eradication of illegal water connections in Mazabeko (kwaHoza area-ElandsKraal)	The project objective is to provide a safe, sustainable and reliable source of potable water to Mazabeko (kwaHoza area-ElandsKraal) by training artisans and operators, eradicate illegal connections and refurbishment of the existing infrastructure	Awaiting Funding	10 000 000	Business Plan and Feasibility	300 000	Design	2 500 000	Construct	7 200 000
ZKZNUMZ39	Other	Msinga	Eradication of illegal water connections in Gcothoyi	The project objective is to provide a safe, sustainable and reliable source of potable water to KwaSomhashi by training artisans and operators, eradicate illegal connections and refurbishment of the existing infrastructure	Awaiting Funding	3 000 000	Business Plan and Feasibility	90 000	Design	750 000	Construct	2 160 000
ZKZNUMZ40	Other	Msinga	Eradication of illegal water connections in Machunwini	The project objective is to provide a safe, sustainable and reliable source of potable water to Machunwini by training artisans and operators, eradicate illegal connections and refurbishment of the existing infrastructure	Awaiting Funding	7 000 000	Business Plan and Feasibility	210 000	Design	1 750 000	Construct	5 040 000
ZKZNUMZ41	Other	Msinga	Eradication of illegal water connections in Gcothoyi	The project objective is to provide a safe, sustainable and reliable source of potable water to Gcothoyi by training artisans and operators, eradicate illegal connections and refurbishment of the existing infrastructure	Awaiting Funding	4 000 000	Business Plan and Feasibility	120 000	Design	1 000 000	Construct	2 880 000

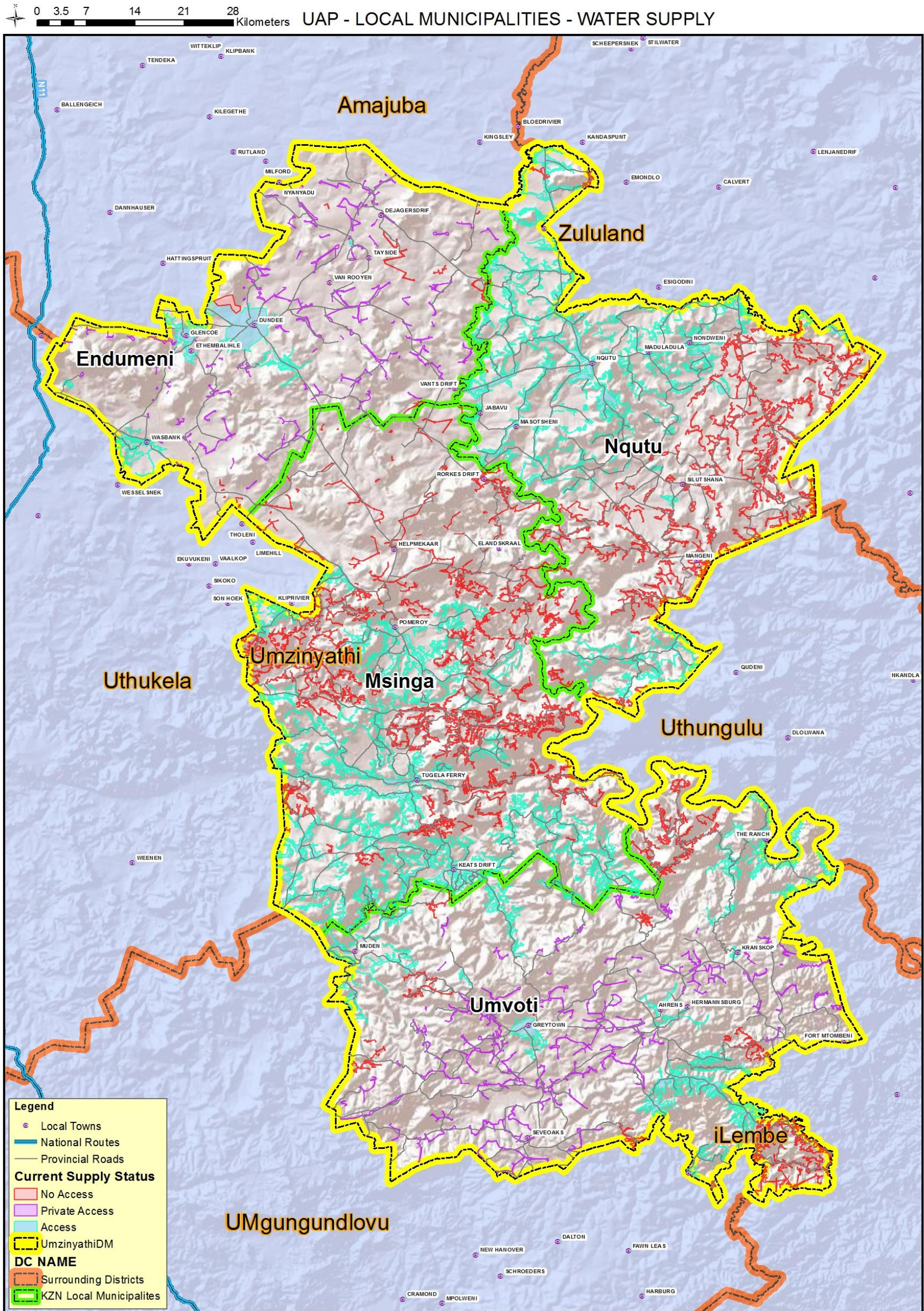
Development of UAP for Water & Sanitation in Kwazulu-Natal



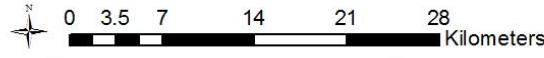
PRJNR (MWIG Project Number)	Project Origin	LM	Project Name	Project Description	Project Status	Total Project Cost	Short Term Actions	Short Term Fund Requirement	Medium Term	Medium Term Funding	Long Term Actions	Long Term Funding Requirement
ZKZNUMZ42	Other	Endumeni	Water Source Development in Endumeni-(Dundee)	The project objective is to provide a safe, sustainable and reliable source of potable water to Endumeni-(Dundee)	Awaiting Funding	15 000 000	Business Plan and Feasibility	450 000	Design	1 875 000	Design	1 875 000
ZKZNUMZ43	Other	Umvoti	Water Source Development in Emthemeni-Nxamalala and Emvulweni	The project objective is to provide a safe, sustainable and reliable source of potable water to Emthemeni-Nxamalala and Emvulweni	Awaiting Funding	3 000 000	Business Plan and Feasibility	90 000	Design	375 000	Construct	2 535 000
ZKZNUMZ44	Other	Umvoti	Water Source Development in Hemansburg-Nseleni and Mhlazane	The project objective is to provide a safe, sustainable and reliable source of potable water to Hemansburg-Nseleni and Mhlazane	Awaiting Funding	2 000 000	Business Plan and Feasibility	60 000	Design	250 000	Construct	1 690 000
ZKZNUMZ45	Other	Umvoti	Water Source Development in Gcothoyi	The project objective is to provide a safe, sustainable and reliable source of potable water to Gcothoyi	Awaiting Funding	1 500 000	Business Plan and Feasibility	45 000	Design	187 500	Construct	1 267 500
ZKZNUMZ46	Other	Umvoti	Water Source Development in Matimatolo	The project objective is to provide a safe, sustainable and reliable source of potable water to Matimatolo	Awaiting Funding	1 500 000	Business Plan and Feasibility	45 000	Design	187 500	Construct	1 267 500
ZKZNUMZ47	Other	Umvoti	Water Source Development in Ophathe	The project objective is to provide a safe, sustainable and reliable source of potable water to Ophathe	Awaiting Funding	1 500 000	Business Plan and Feasibility	45 000	Design	187 500	Construct	1 267 500
ZKZNUMZ48	Other	Umvoti	Water Source Development in Ntembisweni	The project objective is to provide a safe, sustainable and reliable source of potable water to Ntembisweni	Awaiting Funding	2 000 000	Business Plan and Feasibility	60 000	Design	250 000	Construct	1 690 000
ZKZNUMZ49	Other	Umvoti	Water Source Development in Ngome Game Park	The project objective is to provide a safe, sustainable and reliable source of potable water to Ngome Game Park	Awaiting Funding	500 000	Business Plan and Feasibility	15 000	Design	62 500	Construct	422 500
ZKZNUMZ50	Other	Nquthu	Water Source Development in Nquntu	The project objective is to provide a safe, sustainable and reliable source of potable water to various settlements in Nquntu	Awaiting Funding	3 500 000	Business Plan and Feasibility	105 000	Design	437 500	Construct	2 957 500
ZKZNUMZ51	Other	Msinga	Water Source Development in Msinga	The project objective is to provide a safe, sustainable and reliable source of potable water to various settlements in Msinga	Awaiting Funding	2 800 000	Business Plan and Feasibility	84 000	Design	350 000	Construct	2 366 000
		Endumeni				100 414 890	-	3 965 000	-	16 290 000	-	12 235 000
		Msinga				790 149 899	-	4 344 000	-	24 650 000	-	47 601 000
		Nquthu				384 055 847	-	6 795 000	-	14 187 500	-	28 544 167
		Umvoti				168 364 049	-	3 483 000	-	9 085 000	-	25 732 000
		Umzinyathi				39 636 660	-	-	-	-	-	-
<b>Totals</b>						<b>1 482 621 345</b>	<b>-</b>	<b>14 622 000</b>	<b>-</b>	<b>47 922 500</b>	<b>-</b>	<b>101 877 167</b>

## Annexure B

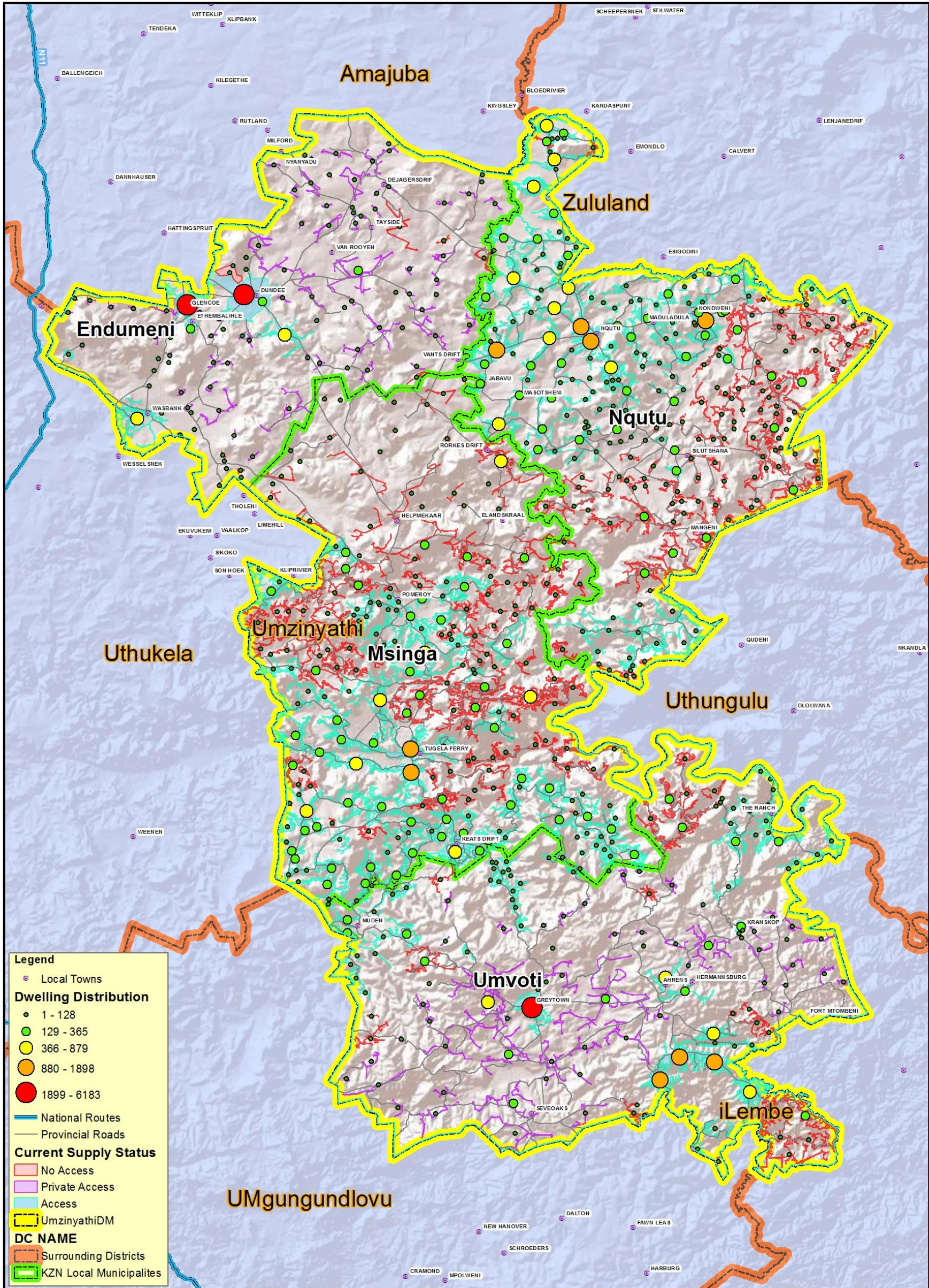
# Water Supply & Sanitation Footprints



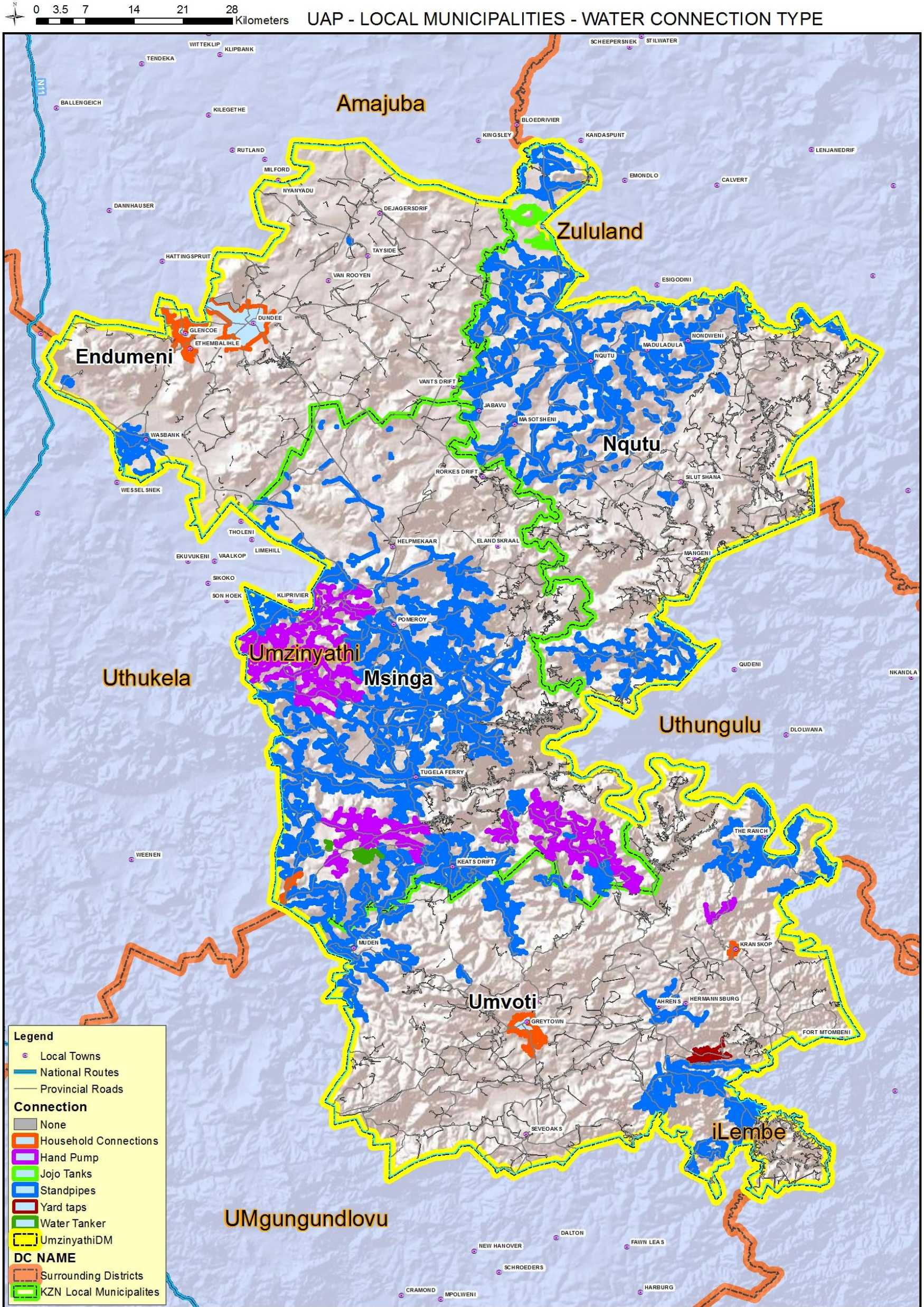
Map 1: Umzinyathi District Municipality Water Supply



UAP - UMZINYATHI DISTRICT - DWELLING DISTRIBUTION



Map 2: Umzinyathi District Municipality Dwelling Distribution

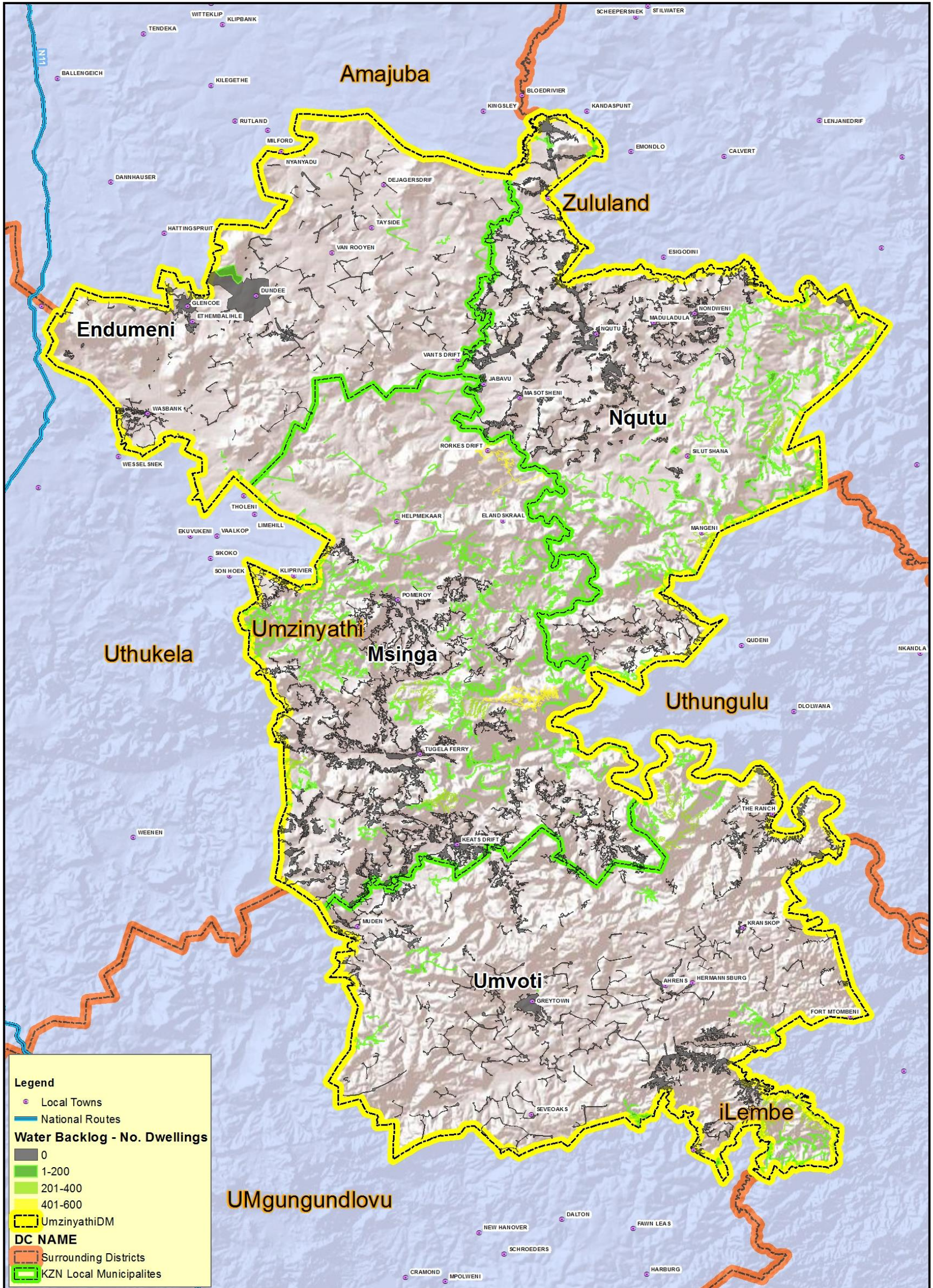


Map 3: Umzinyathi District Municipality Water Connection Types

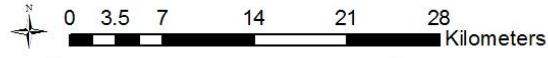




UAP - UMZINYATHI DISTRICT - WATER BACKLOG



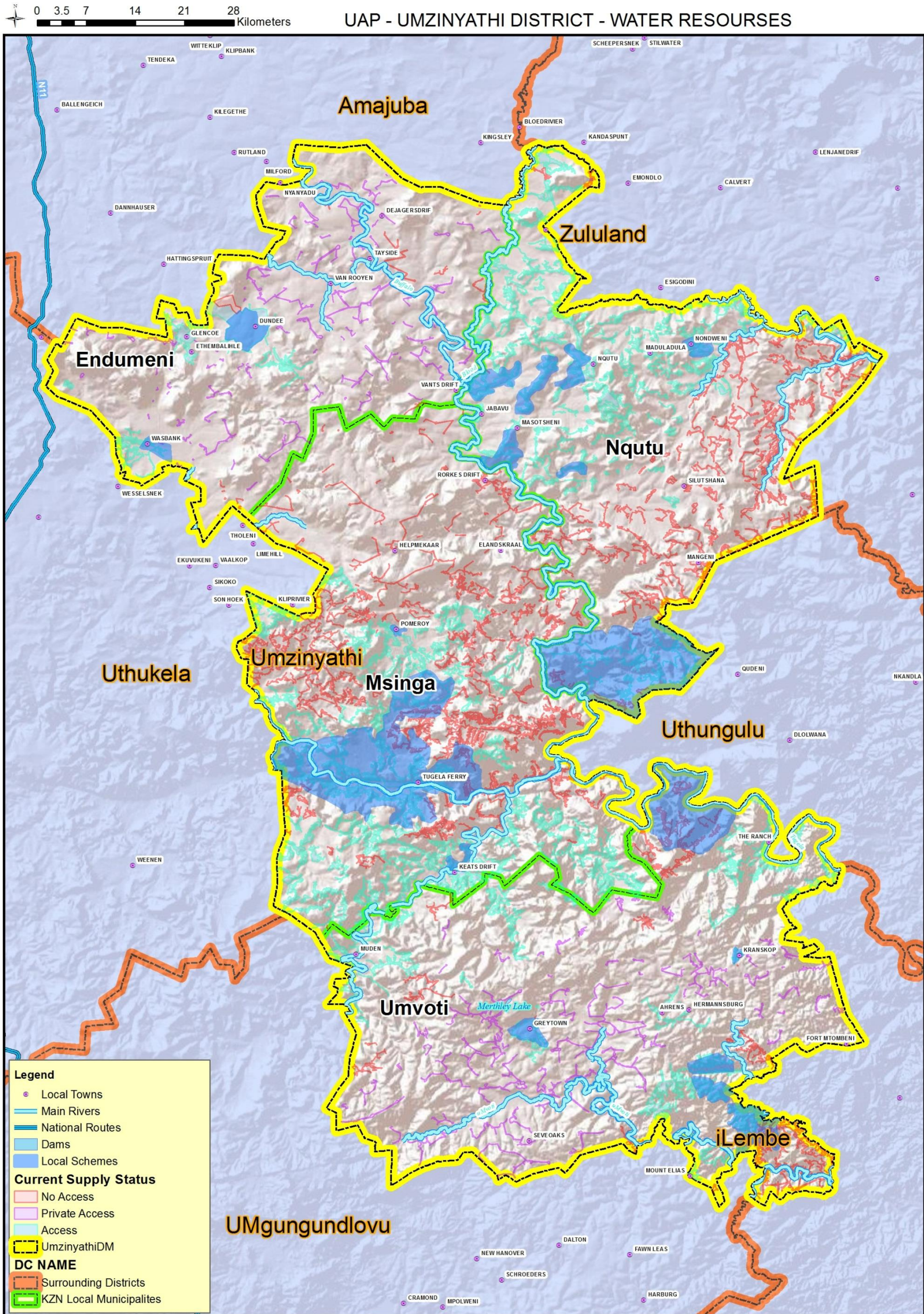
Map 4: Umzinyathi District Municipality Water Backlogs



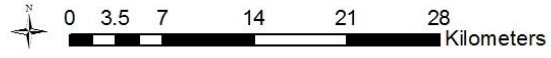
UAP - UMZINYATHI DISTRICT - LOCAL SCHEMES



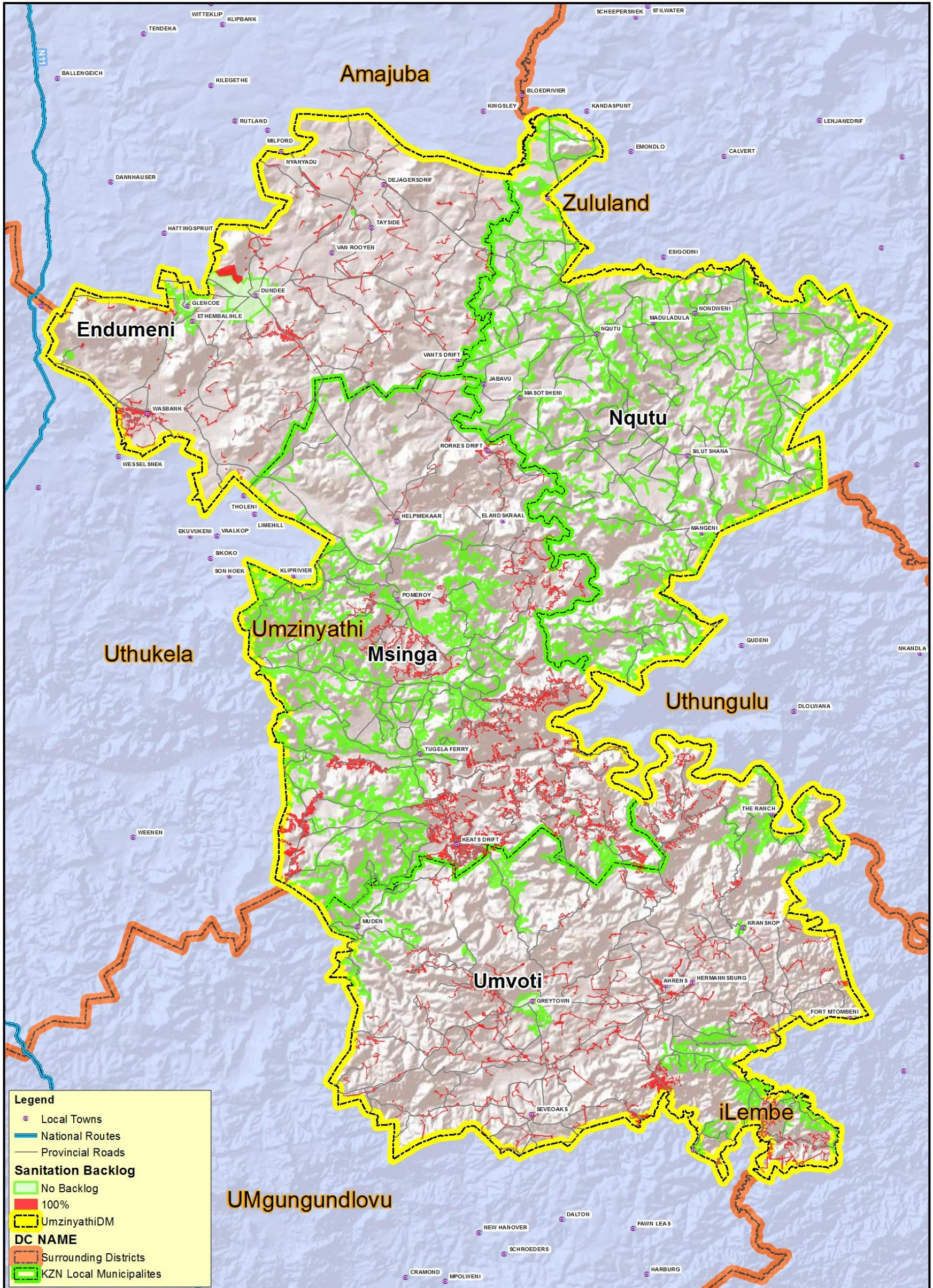
Map 5: Umzinyathi District Municipality Local Schemes



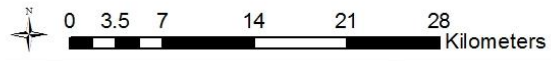
**Map 6: Umzinyathi District Water Resources**



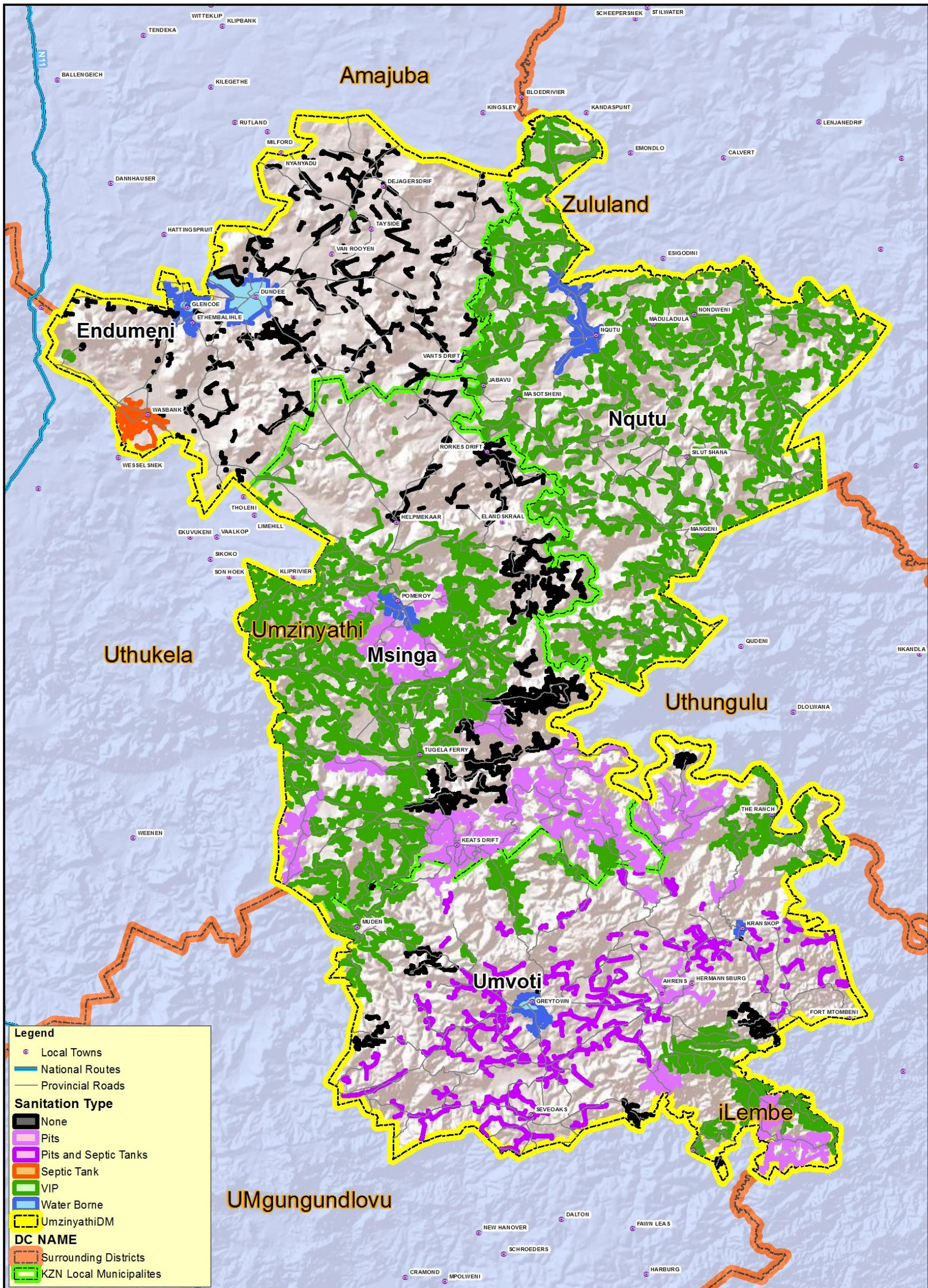
UAP - LOCAL MUNICIPALITIES - SANITATION SUPPLY



Map 7: Umzinyathi District Municipality Sanitation Supply



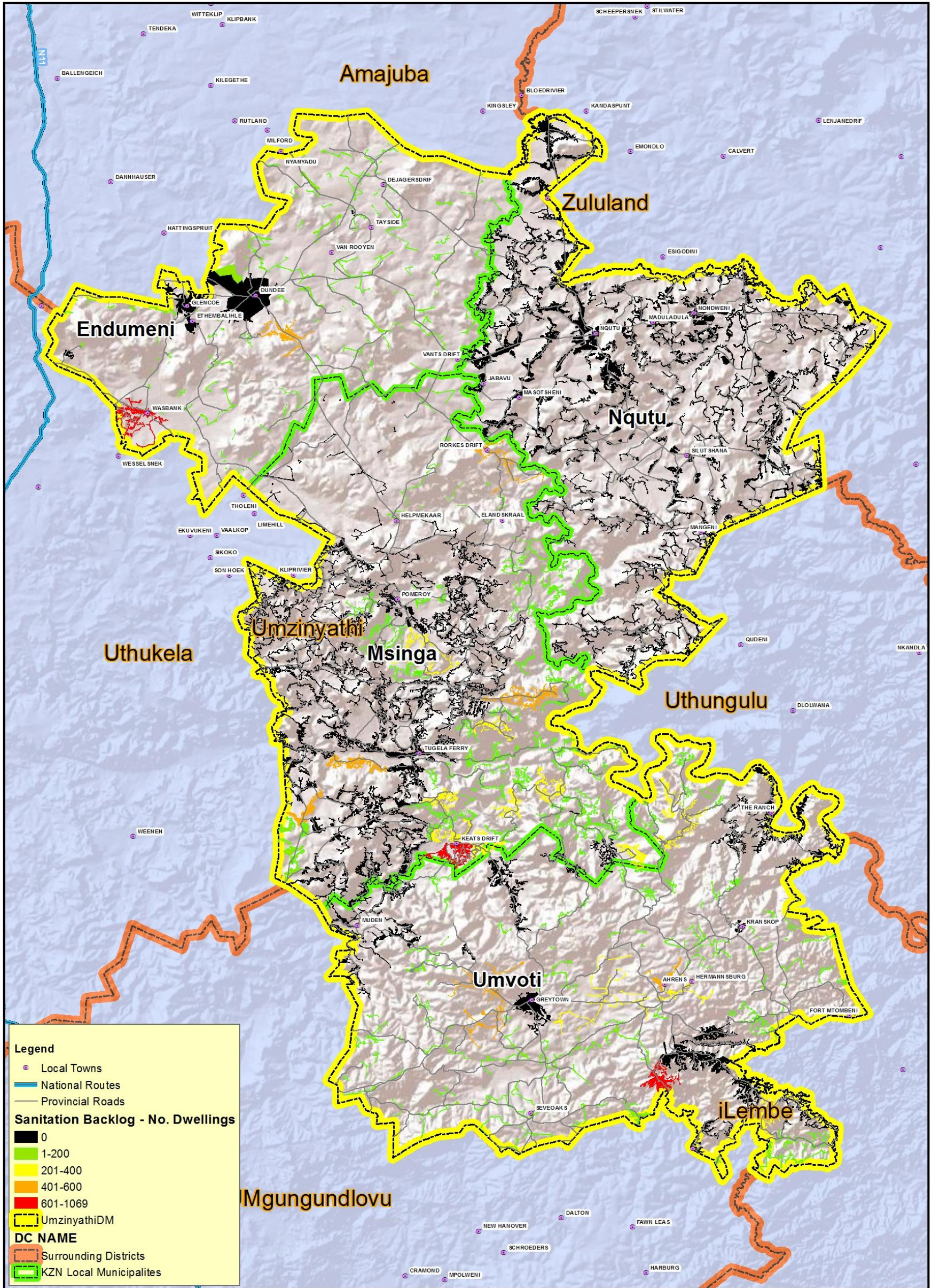
UAP - LOCAL MUNICIPALITIES - SANITATION TYPE



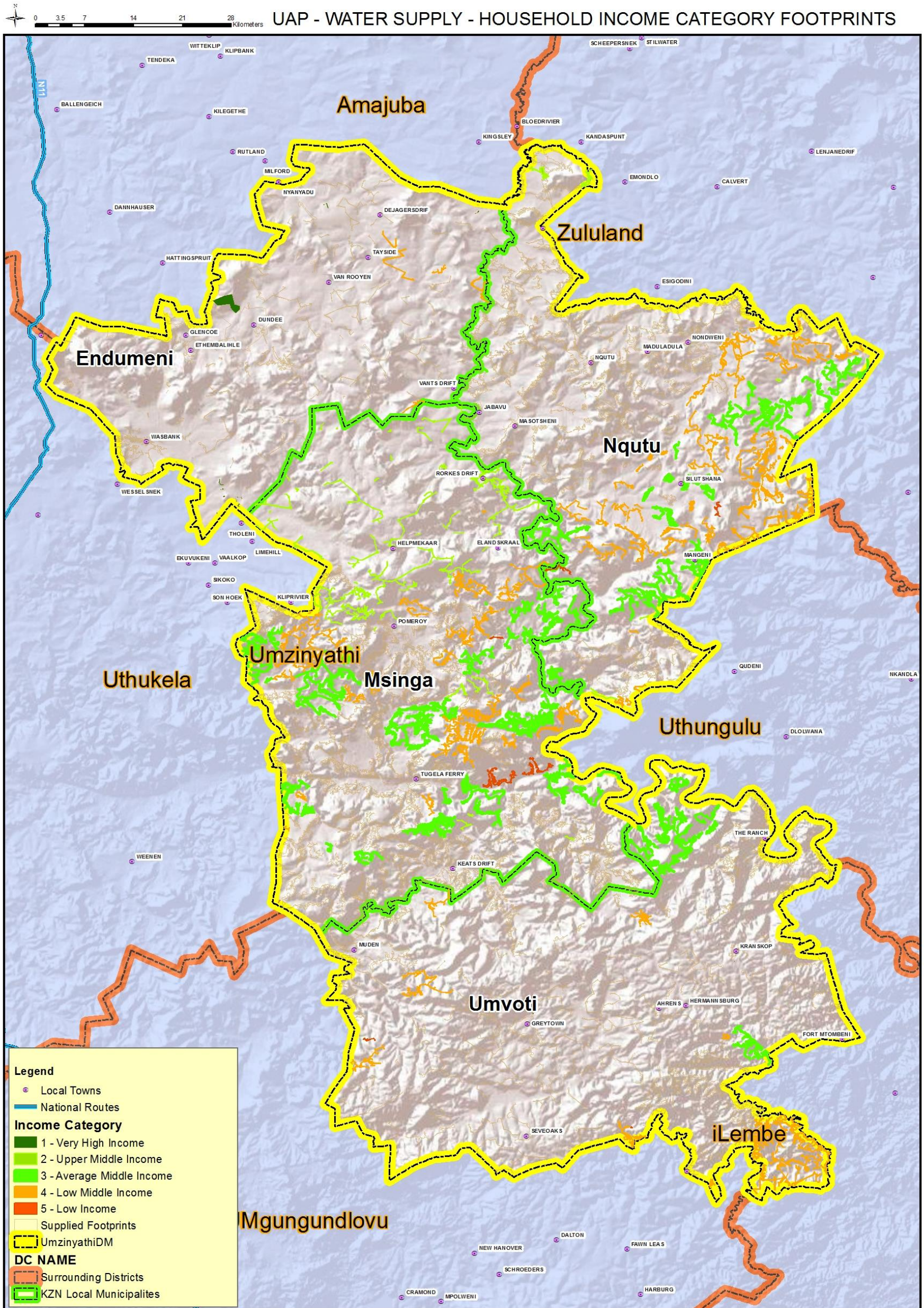
Map 8: Umzinyathi District Municipality Sanitation Types



UAP - UMZINYATHI DISTRICT - SANITATION BACKLOG



Map 9: Umzinyathi District Municipality Sanitation Backlogs



**Map 10: Umzinyathi District Municipality Household Income Categories**

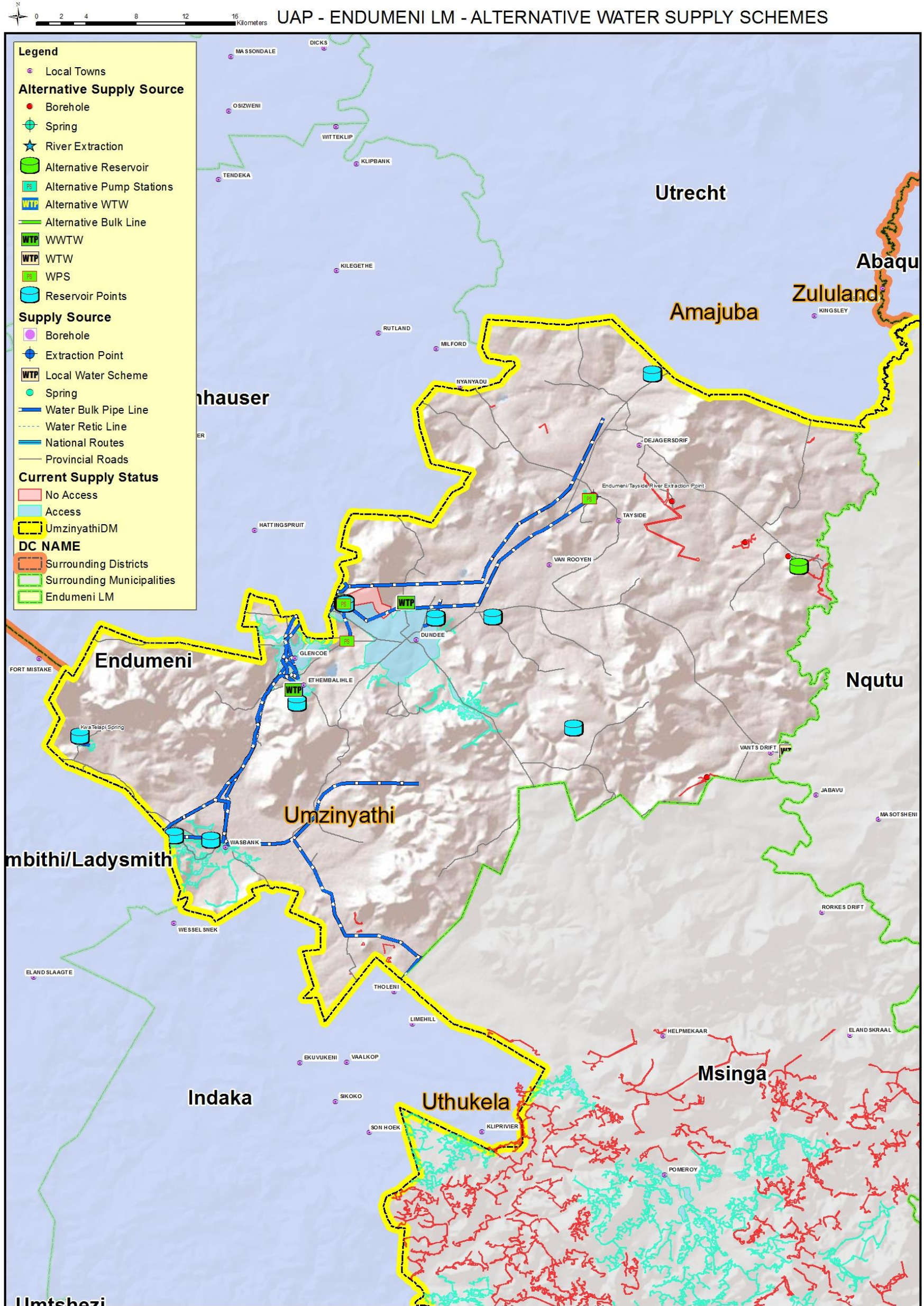
## Endumeni

## Water & Sanitation Maps

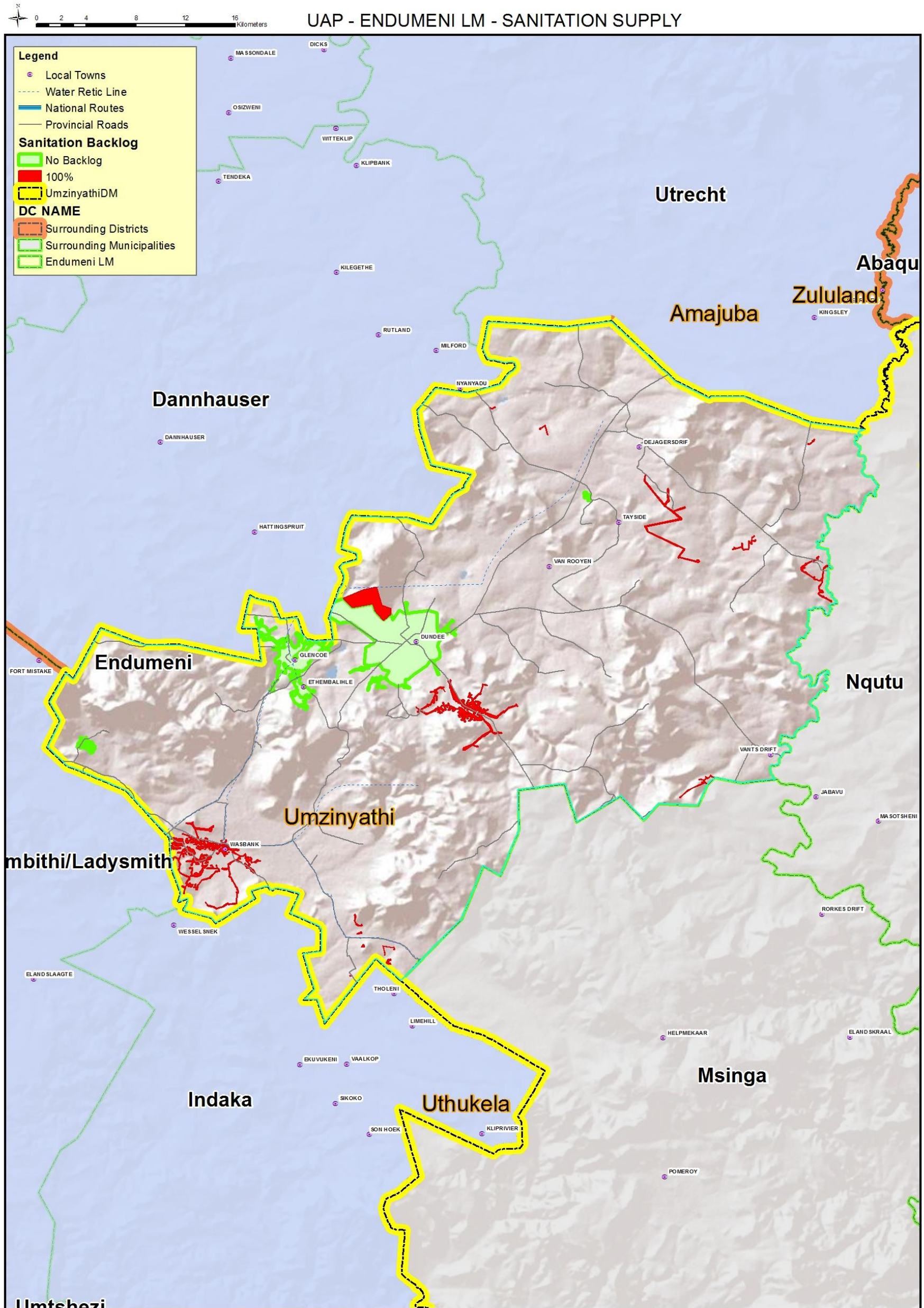




Map 11: Endumeni Water Supply



Map 12: Endumeni Proposed Alternate Schemes



Map 13: Endumeni Sanitation Supply

## Msinga

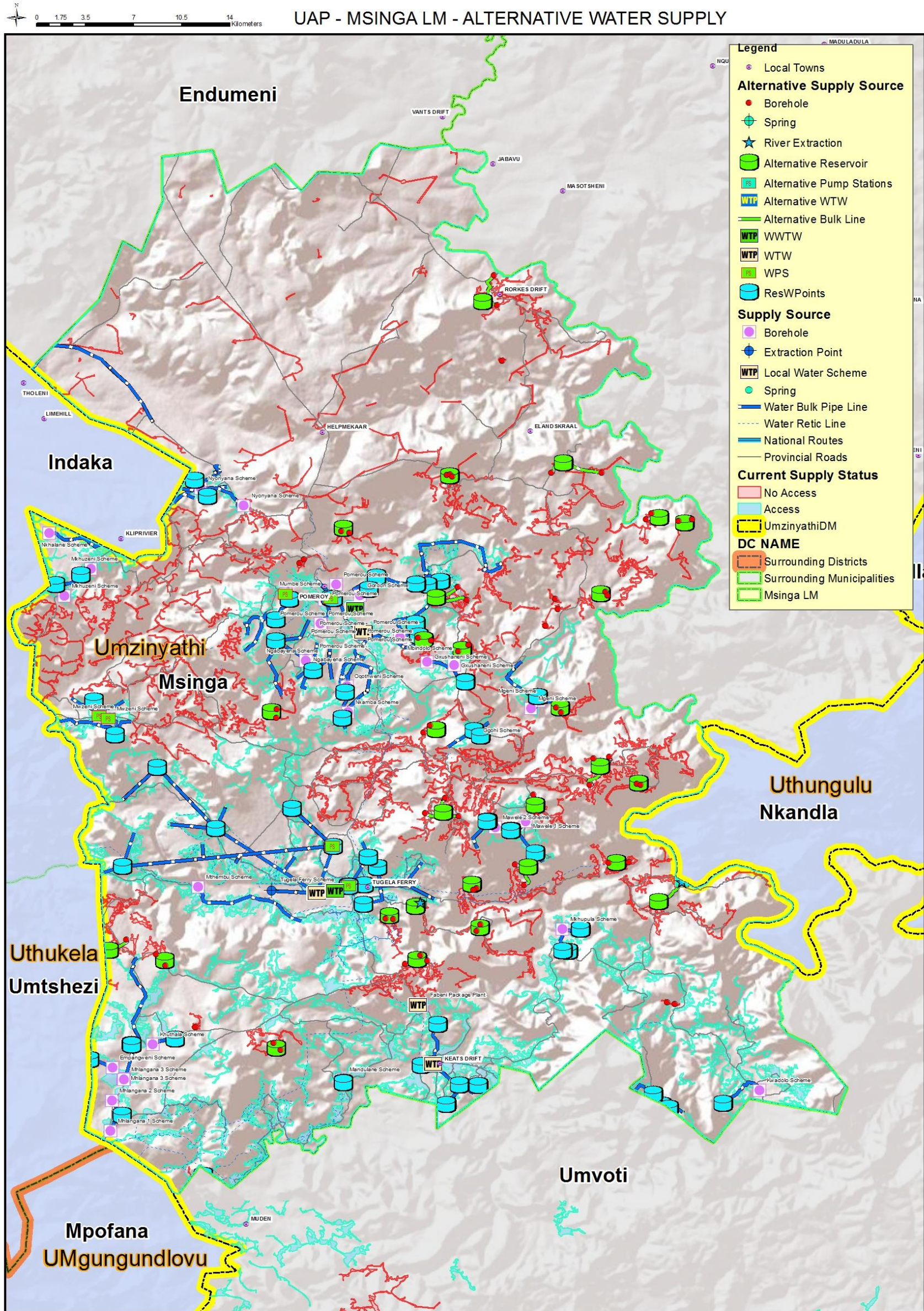
## Water & Sanitation Maps



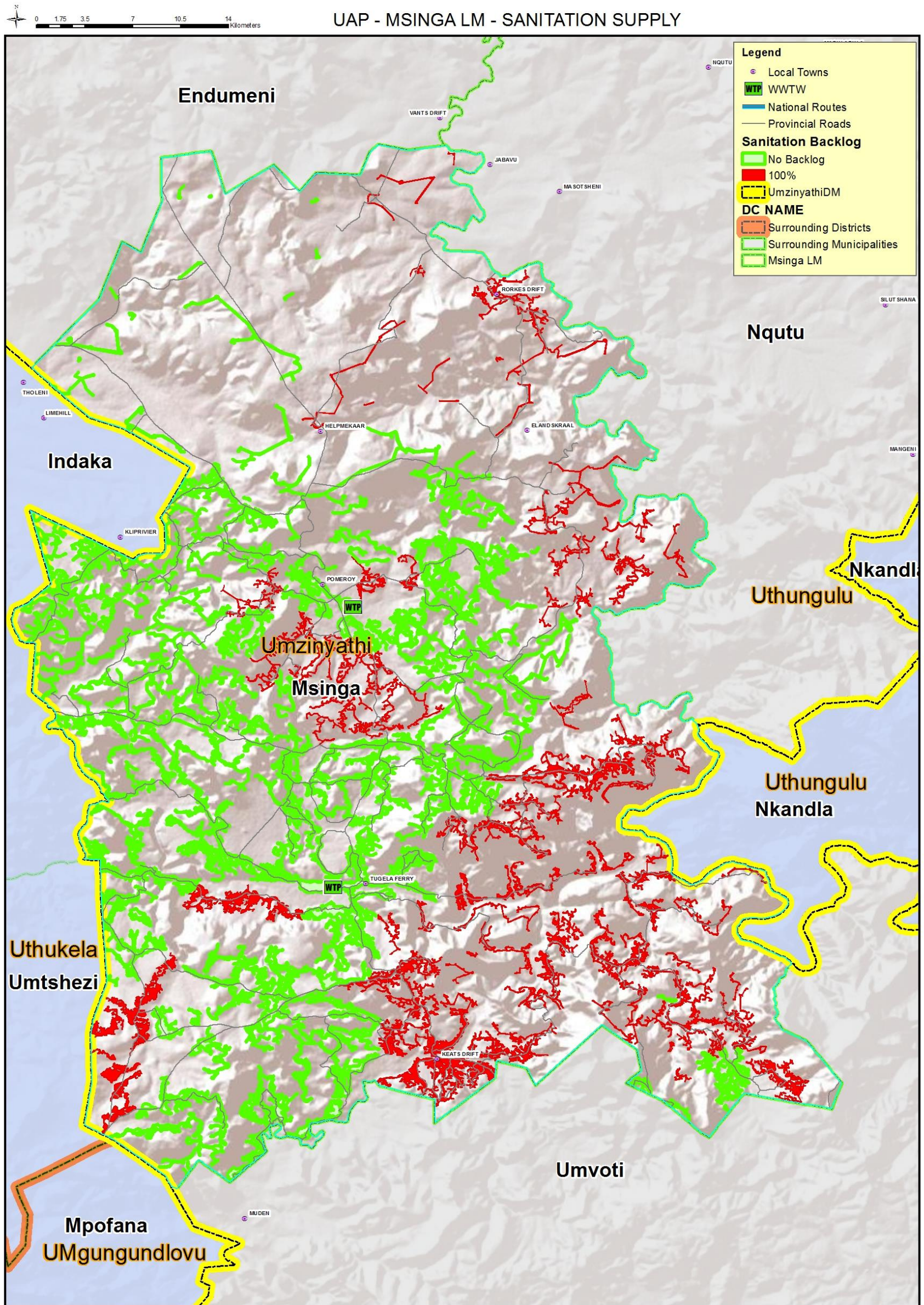
UAP - MSINGA LM - WATER SUPPLY



Map 14: Msinga Water Supply



**Map 15: Msinga Proposed Alternate Schemes**



**Map 16: Msinga Sanitation Supply**

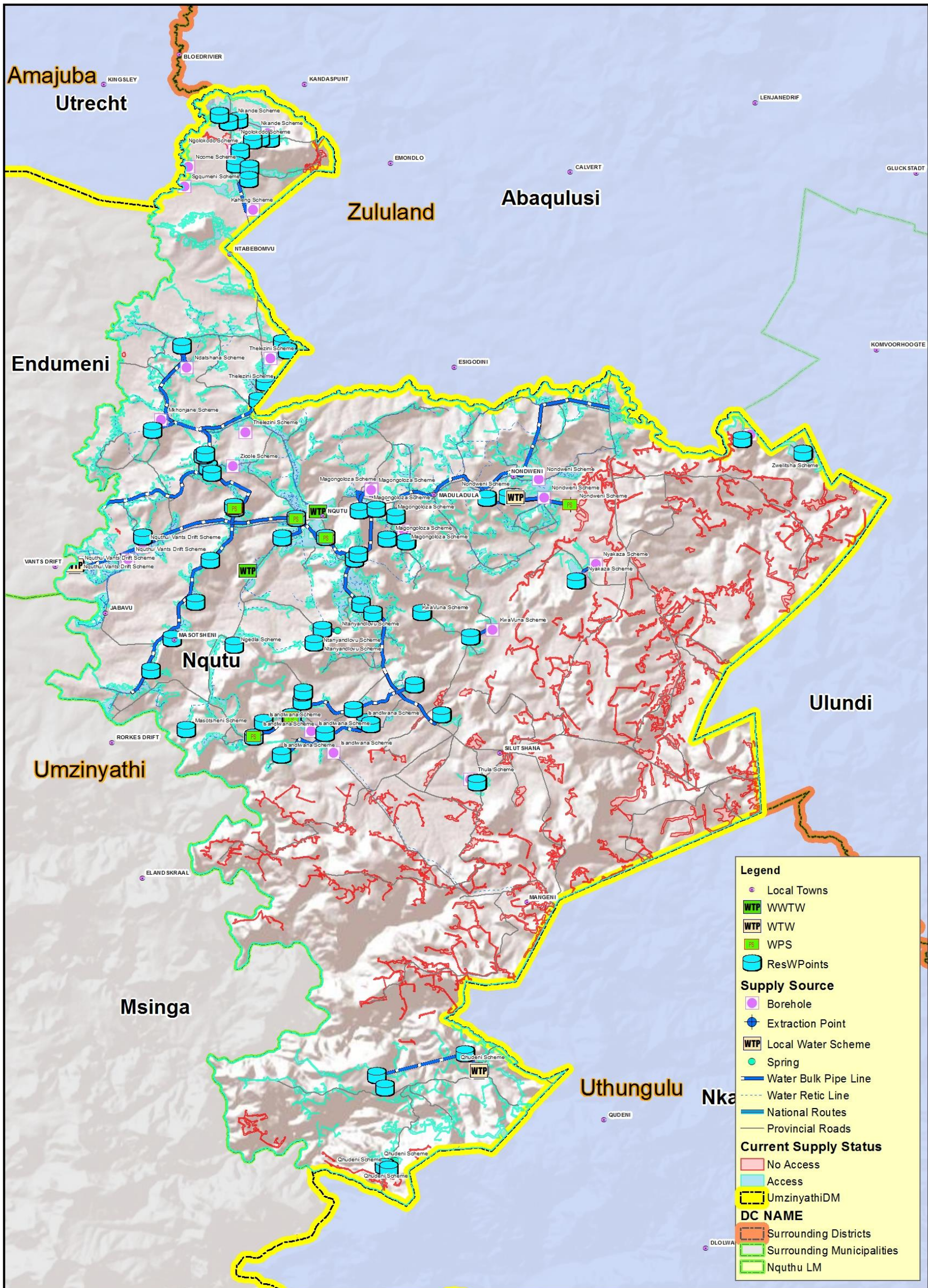
## Nqutu

## Water & Sanitation Maps

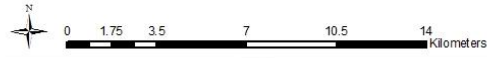




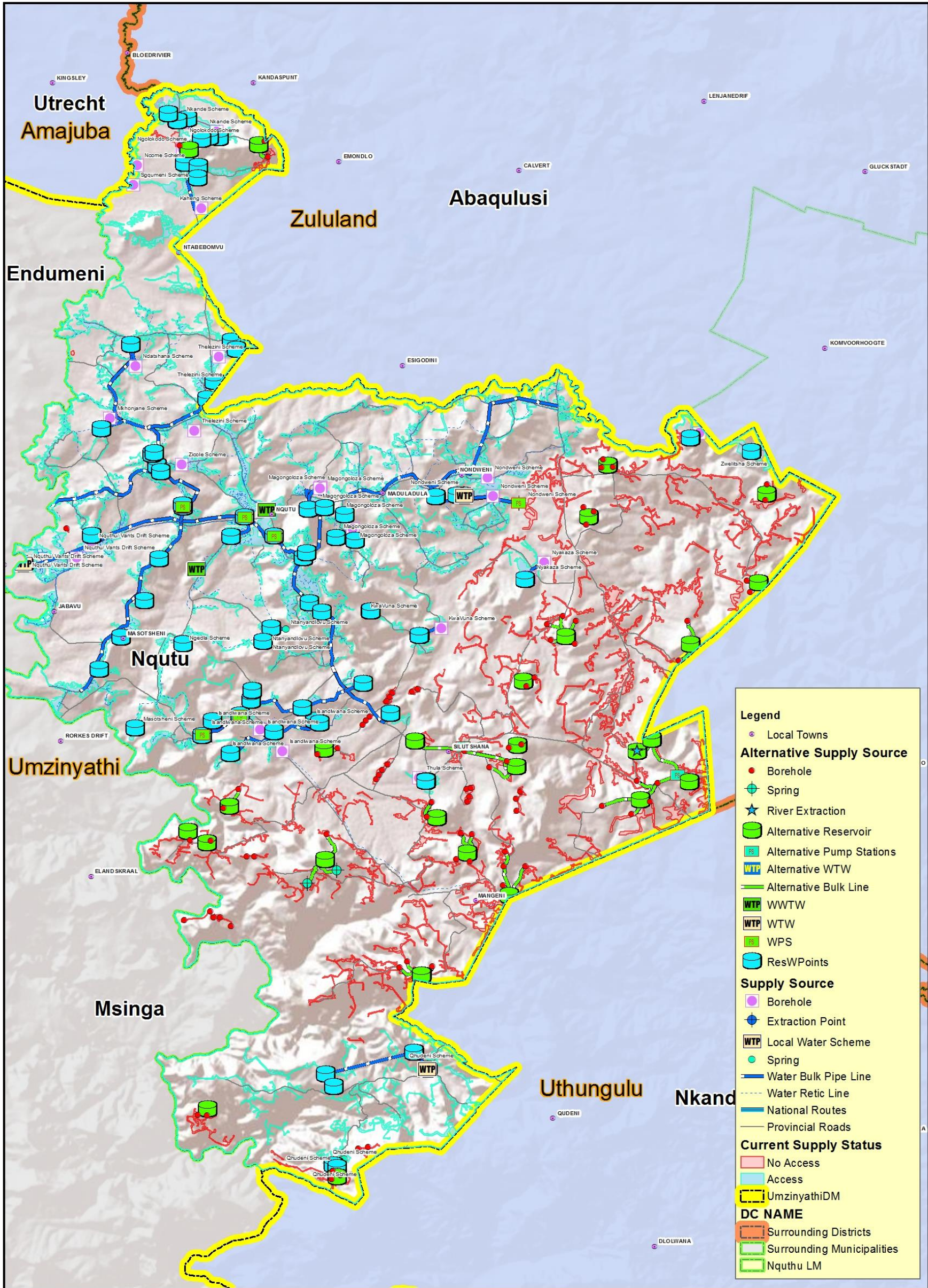
UAP - NQUTHU LM - WATER SUPPLY



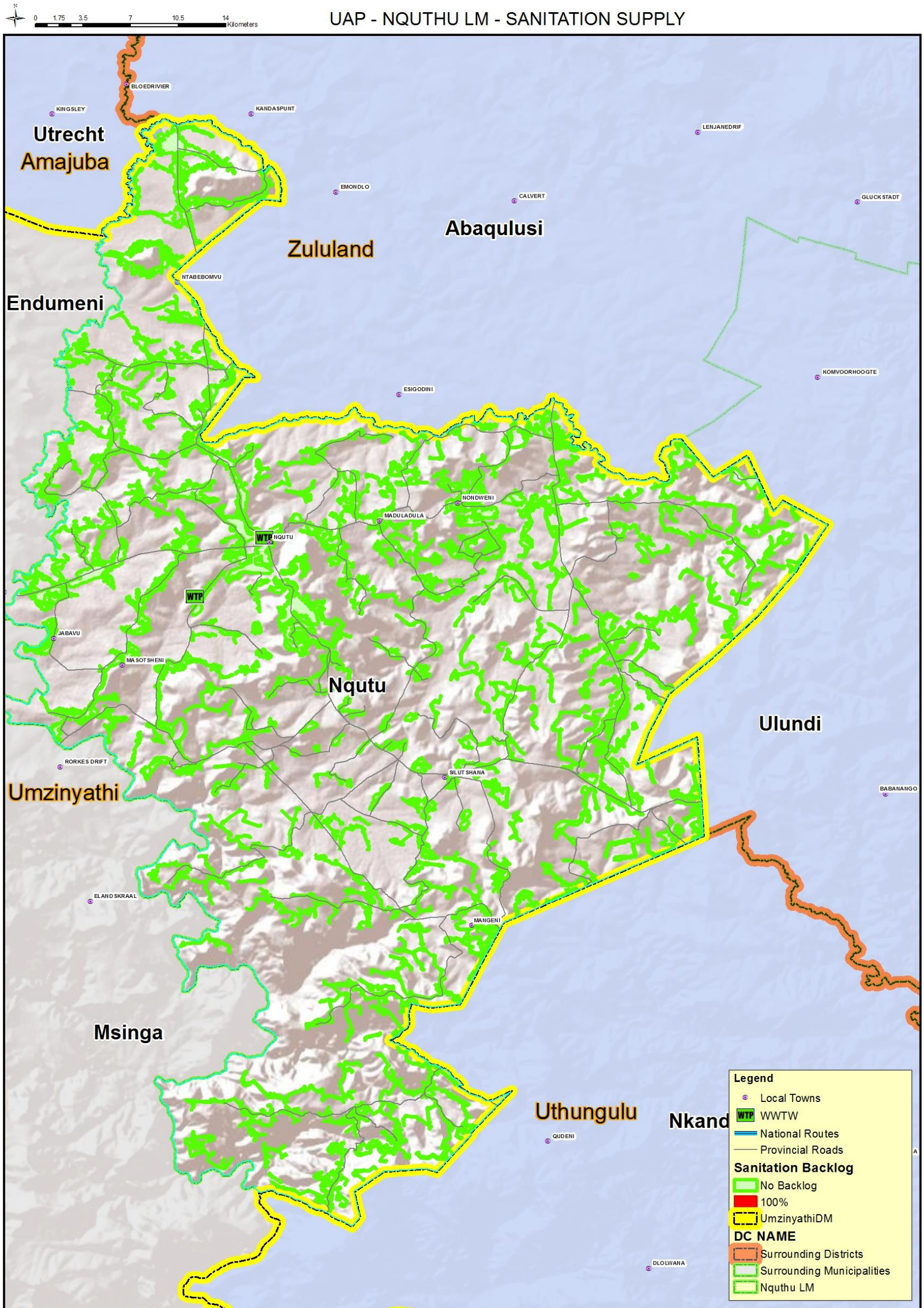
Map 17: Nqutu Water Supply



UAP - NQUTHU LM - ALTERNATIVE WATER SUPPLY



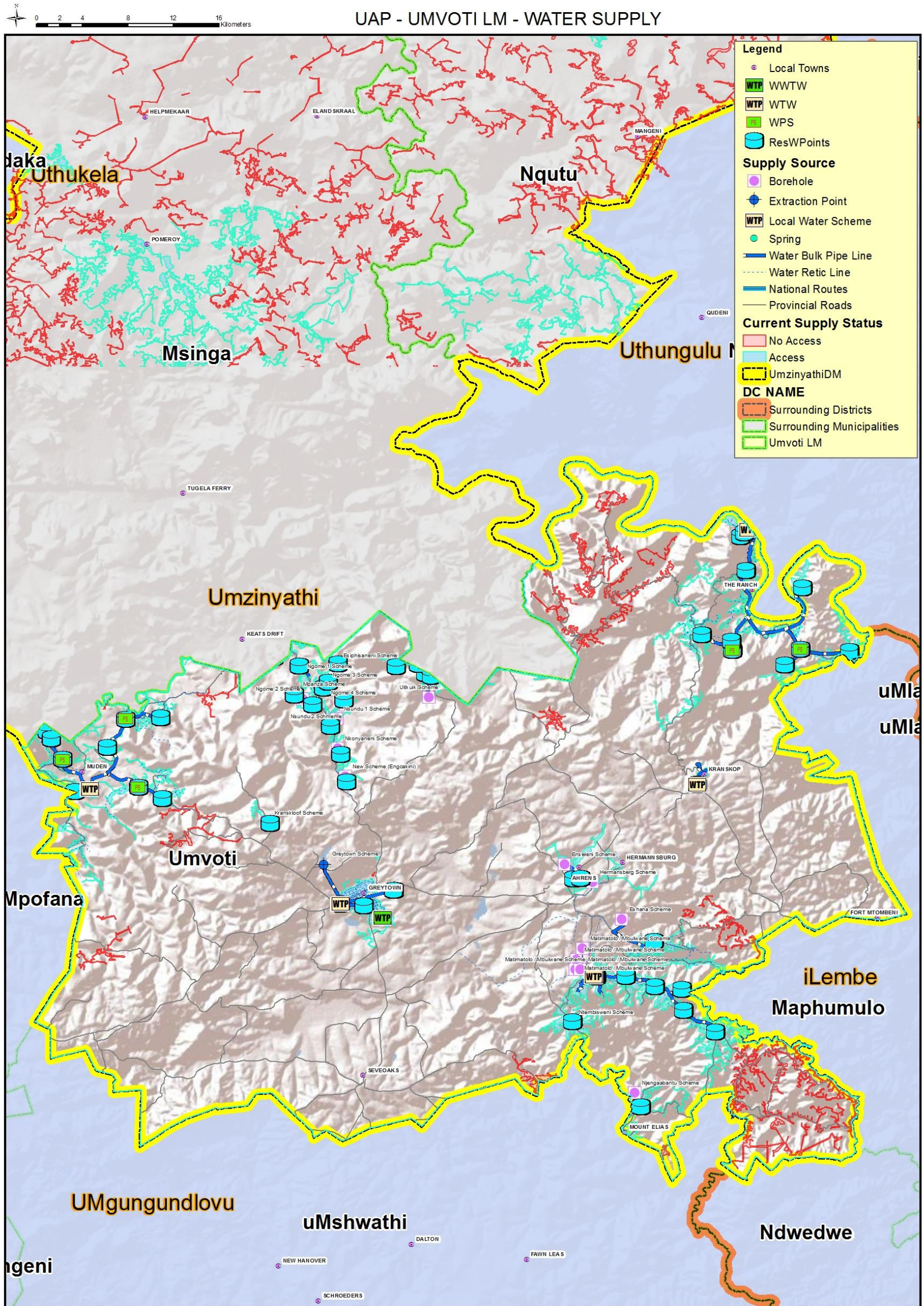
Map 18: Nquthu Proposed Alternate Schemes



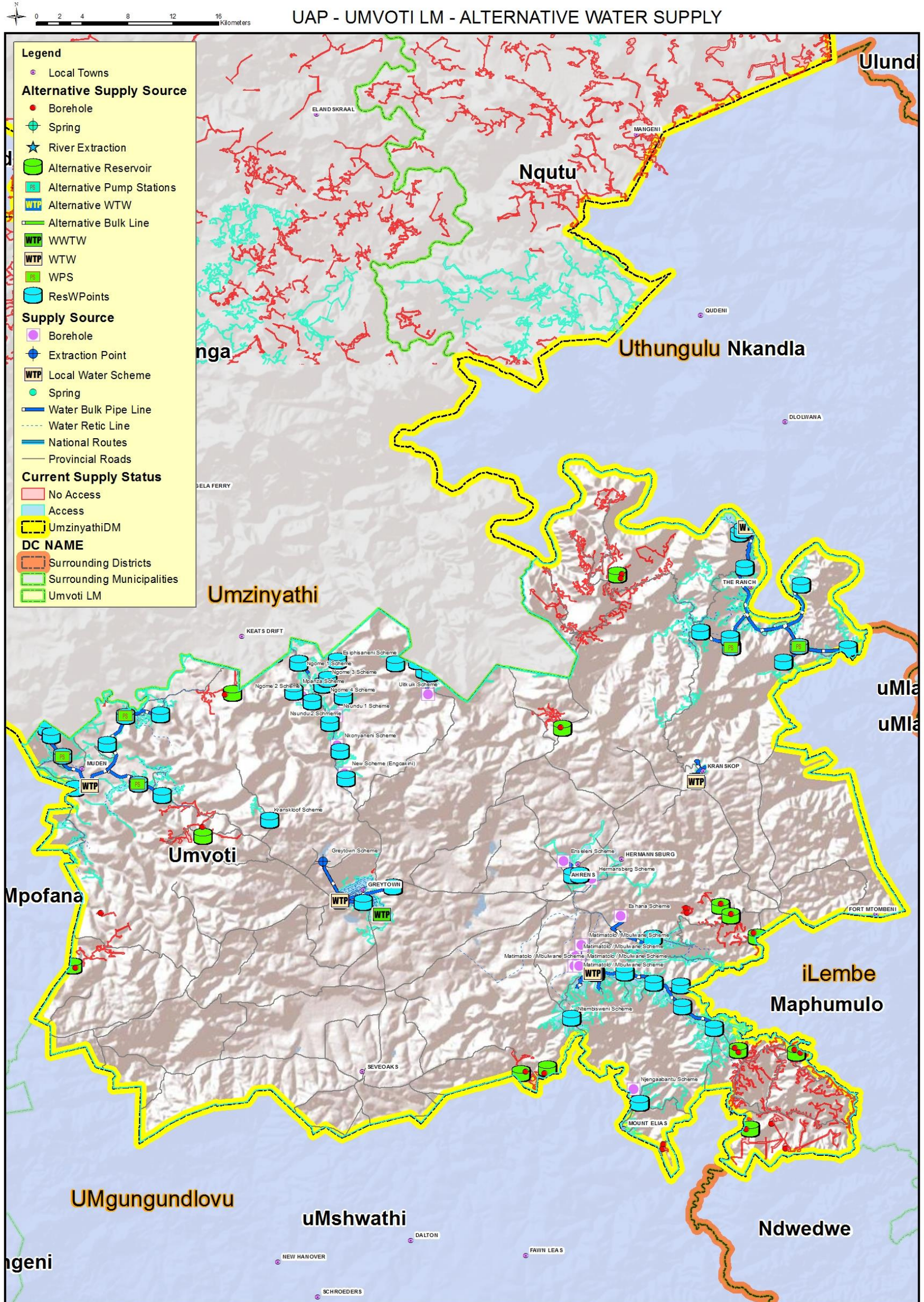
**Map 19: Nqutu Sanitation Supply**

## Umvoti

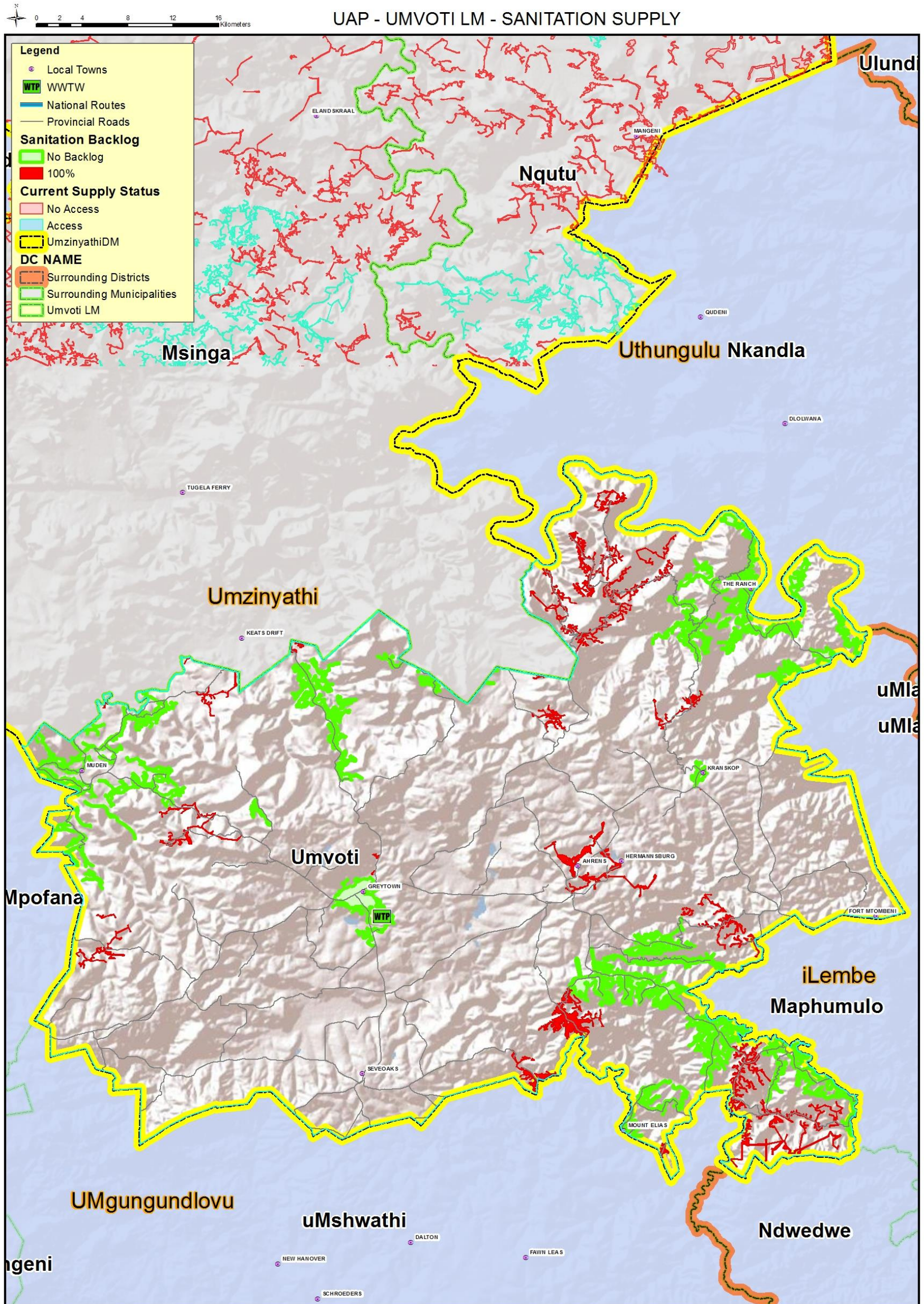
## Water & Sanitation Maps



Map 20: Umvoti Water Supply



Map 21: Umvoti Proposed Alternate Schemes



Map 22: Umvoti Sanitation Supply

# Annexure C

## Attributes Data/Tables



## Water Supply Footprints

Field Name	SMEC Field	Alias	Description	Units	Source
DM		District Municipality	Name of the municipality in which the area falls	Text Description	GIS (Pre Populated)
Area_m2		Area in square metres	GIS calculated	Number	GIS (Pre Populated)
Name		Name	Name of area if known	Text Description	GIS (Pre Populated)
Short_SS	Wat_Supp	Short term supply status	Defines existing supply status	Y/N	Delphi
	Sust_2016		Is existing supply sustainable to 2016?	Y/N	Delphi
	Sust_2016Need		If N, What needs to be done to ensure sustainable supply to 2016?	Text Description	Delphi
	Plan_Aft2016		Are there existing plans to ensure sustainably beyond 2016?	Y/N	Infrastructure Manager/ MIG/ WIG/IDP
	30Yr_Pln		If Y, are these plans for 30 year horizon?	Y/N	Infrastructure Manager/ MIG/ WIG/IDP
	30Yr_PlnDesc		If Y, what are these plans.	Text Description	Infrastructure Manager/ MIG/ WIG/IDP
			If N, What needs to be done to ensure sustainable supply to 2046?	Text Description	Infrastructure Manager/ MIG/ WIG/IDP
Schm_E		Existing scheme name	Name of any existing supply scheme	Text Description	Delphi
Schm_F		Future scheme name	Name of any future proposed scheme	Text Description	Delphi
Sou_E		Existing source	Existing water source from lookup table	Lookup Value	Delphi
Sou_F		Future source	Future water source from lookup table	Lookup Value	Delphi
WatNam_E		Existing source name	Name of existing source	Text Description	Delphi
WatNam_F		Future source name	Name of future source	Text Description	Delphi
Proj_Typ		Project type	Type of project from lookup table	Text Description	Delphi
SuppDate		Scheme supply date	Date of proposed intervention	Date	Delphi
Treat		Treatment type	Existing treatment type from lookup table	Lookup Value	Delphi
WTP_Nam		WTP name	Name of water treatment plant	Text Description	Delphi
Conn		Connection	Type of water connection from lookup table	Lookup Value	Delphi
Design_E		Existing design demand	Demand for which this scheme has been designed	Million m <sup>3</sup> p.a.	Infrastructure Manager/ MIG/ WIG/IDP/Housedold Data/Stats Data
Dem_L		Demand Low	Low demand forecast	Million m <sup>3</sup> p.a.	Infrastructure Manager/ MIG/ WIG/IDP/Housedold Data/Stats Data
Dem_H		Demand High	High demand forecast	Million m <sup>3</sup> p.a.	Infrastructure Manager/ MIG/ WIG/IDP/Housedold Data/Stats Data
Dem_P		Probable demand	Probable demand forecast	Million m <sup>3</sup> p.a.	Infrastructure Manager/ MIG/ WIG/IDP/Housedold Data/Stats Data
Supp_E		Existing supply	Current water supply capacity	Million m <sup>3</sup> p.a.	Infrastructure Manager/ MIG/ WIG/IDP/Housedold Data/Stats Data
Supp_R		Water requirements	Current water requirements	Million m <sup>3</sup> p.a.	Infrastructure Manager/ MIG/ WIG/IDP/Housedold Data/Stats Data
Supp_F		Future water requirements	Future water requirements	Million m <sup>3</sup> p.a.	Infrastructure Manager/ MIG/ WIG/IDP/Housedold Data/Stats Data
Proj_ID		Project ID	ID of project if known	Text Description	Delphi
HH_Low		Households low	Lowest estimate of households served	Number	Infrastructure Manager/ MIG/ WIG/IDP/Housedold Data/Stats Data
HH_High		Households high	Highest estimate of households served	Number	Infrastructure Manager/ MIG/ WIG/IDP/Housedold Data/Stats Data
Pop_Low		Population low	Lowest estimate of number of people	Number	Household Data/Stats Data
Pop_High		Population high	Highest estimate of number of people	Number	Household Data/Stats Data
Capturer		Capturer	Person who captured the area from lookup table	Text Description	Delphi
Sanitation		Type of sanitation scheme	Type of sanitation scheme from lookup table	Lookup Value	Delphi
Comments		Comments	General comments	Text Description	Delphi

### Water Supply Footprints - Delphi

Field Name	SMEC Field	Alias	Description	Units	Source
Short_SS	Wat_Supp	Short term supply status	Defines existing supply status	Y/N	Delphi
	Sust_2016		Is existing supply sustainable to 2016?	Y/N	Delphi
	Sust_2016Need		If N, What needs to be done to ensure sustainable supply to 2016?	Text Description	Delphi
Schm_E		Existing scheme name	Name of any existing supply scheme	Text Description	Delphi
Schm_F		Future scheme name	Name of any future proposed scheme	Text Description	Delphi
Sou_E		Existing source	Existing water source from lookup table	Lookup Value	Delphi
Sou_F		Future source	Future water source from lookup table	Lookup Value	Delphi
WatNam_E		Existing source name	Name of existing source	Text Description	Delphi
	W_Capacity	W_Capacity	Source Capacity	ML	Delphi
	HoldingRes	HoldingRes	Holding Reservoir / Feeding Reservoir	Text Description	Delphi
WatNam_F		Future source name	Name of future source	Text Description	Delphi
Proj_Typ		Project type	Type of project from lookup table	Text Description	Delphi
SuppDate		Scheme supply date	Date of proposed intervention	Date	Delphi
Treat		Treatment type	Existing treatment type from lookup table	Lookup Value	Delphi
WTP_Nam		WTP name	Name of water treatment plant	Text Description	Delphi
Conn		Connection	Type of water connection from lookup table	Lookup Value	Delphi
	W_Material	PipeType	Pipe Material	Text Description	Delphi
	W_Diameter	Diameter	Average Diameter	Text Description	Delphi
	AvgDist	AvgDist	Average Distance to Water Source	Text Description	Delphi
Proj_ID		Project ID	ID of project if known	Text Description	Delphi
Sanitation		Type of sanitation scheme	Type of sanitation scheme from lookup table	Lookup Value	Delphi
	WWTW_N	WWTW_N	WWTW Name	Text Description	Delphi
	S_Capacity		WWTW Capacity	Text Description	Delphi
	S_Material		Pipe Material	Text Description	Delphi
	S_Diameter		Average Diameter	Text Description	Delphi
Comments		Comments	General comments	Text Description	Delphi
	Confid	Confid	Level of Confidence	Text Description	Delphi
Capturer		Capturer	Person who captured the area from lookup table	Text Description	Delphi

### Bulk Pipelines

Field Name	Alias	Description	Units	Source
Schm_E	Scheme Name	Name of the supply scheme	Text Description	Delphi
Sou_E	Water source	Type of Water source from lookup table	Lookup Value	Delphi
WatNam_E	Name of Water Source	Name of Water Source	Text Description	Delphi
Diameter	Diameter	Diameter of Pipeline	Text Description	Delphi
Flow	Flow	Flow type - Gravity/ Pumped	Lookup Value	Delphi
Functionality	Functionality	Operational functionality of the pipeline	Lookup Value	Delphi
Age	Age	Age of the pipeline	Text Description	Delphi
Capturer	Capturer	Data capturer from lookup table	Text Description	Delphi
Comments	Comments	General comments	Text Description	Delphi

## Supply Source

Field Name	Alias	Description	Units	Source
Schm_E	Scheme Name	Name of the supply scheme	Text Description	Delphi
Type	Type	Type of Source	Lookup Value	Delphi
Elevation	Elevation	Elevation of Source	Text Description	Delphi
Functionality	Functionality	Operational functionality of the pipeline	Lookup Value	Delphi
Age	Age	Age of the pipeline	Text Description	Delphi
Capturer	Capturer	Data capturer from lookup table	Text Description	Delphi
Comments	Comments	General comments	Text Description	Delphi

## Meters

Field Name	Alias	Description	Units	Source
Schm_E	Scheme Name	Name of the supply scheme	Text Description	Delphi
Functionality	Functionality	Operational functionality of the pipeline	Lookup Value	Delphi
Age	Age	Age of the pipeline	Text Description	Delphi
Capturer	Capturer	Data capturer from lookup table	Text Description	Delphi
Comments	Comments	General comments	Text Description	Delphi

## Reservoirs

Field Name	Alias	Description	Units	Source
Schm_E	Scheme Name	Name of the supply scheme	Text Description	Delphi
Sou_E	Water source	Type of Water source from lookup table	Lookup Value	Delphi
WatNam_E	Name of Water Source	Name of Water Source	Text Description	Delphi
Capacity	Capacity	Capacity of the Reservoir	Text Description	Delphi
Diameter	Diameter	Diameter of Pipeline	Text Description	Delphi
Flow	Flow	Flow type - Gravity/ Pumped	Lookup Value	Delphi
Functionality	Functionality	Operational functionality of the pipeline	Lookup Value	Delphi
Age	Age	Age of the pipeline	Text Description	Delphi
Capturer	Capturer	Data capturer from lookup table	Text Description	Delphi
Comments	Comments	General comments	Text Description	Delphi

## Pumps

Field Name	Alias	Description	Units	Source
Schm_E	Scheme Name	Name of the supply scheme	Text Description	Delphi
Qty	Qty	Number of pumps	Text Description	Delphi
Capacity	Capacity	Capacity of the pump	Text Description	Delphi
Functionality	Functionality	Operational functionality of the pipeline	Lookup Value	Delphi
Age	Age	Age of the pipeline	Text Description	Delphi
Capturer	Capturer	Data capturer from lookup table	Text Description	Delphi
Comments	Comments	General comments	Text Description	Delphi

## Lookup Values

### Water Footprints

Field Description	Field Name	Lookup Description	Lookup Value
Existing Source	Sou_E	Local Water Scheme	1
		Borehole	2
		Water Tanker	3
		Regional Water Scheme	4
		Spring	5
		Reservoir	6
Future Source	Sou_F	Local Water Scheme	1
		Borehole	2
		Water Tanker	3
		Regional Water Scheme	4
		Spring	5
		Reservoir	6
Water Treatment Type	Treat	WTP	1
		Chlorination	2
		Sand Filter	3
		Package Plant	4
Type of Water Connection	Conn	House	1
		Jojo	2
		Standpipe	3
Type of Sanitation Scheme	Sanitation		
Flow	Flow	Gravity	1
		Pumped	2
Functionality	Functionality		
Project Type	Proj_Typ	MWIG	1
		UW	2

## Annexure D

# uMzinyathi District Municipality Water & Sanitation Project List

Water, Sanitation and Infrastructure Projects	Area	Revised Budget 2012/2013	Revised April Budget 2012/2013	Proposed Budget 2013/2014	Proposed Budget 2014/2015	Proposed Budget 2015/2016
Glenco/Sithembile Bulk Water Services Upgrade	Endumeni Municipality	R 7 000 000	R 7 000 000			R 15 254 000
<b>Sub Total</b>		<b>R 7 000 000</b>	<b>R 7 000 000</b>	<b>R -</b>	<b>R -</b>	<b>R 15 254 000</b>
Kwakopi-Mhangana Sanitation	Msinga Municipality			R 3 500 000		
Mthembu West - Tugela Ferry Water	Msinga Municipality	R 12 000 000	R 12 000 000		R 20 000 000	R 3 000 000
Ngubukazi Water Scheme	Msinga Municipality	R 6 500 000	R 6 500 000	R 12 000 000		
Keates Drift Water Scheme	Msinga Municipality	R 19 082 297	R 19 082 297			
Mbono Water	Msinga Municipality	R 16 000 000	R 16 000 000	R 16 000 000		
Ndaya Water	Msinga Municipality	R 12 000 000	R 12 000 000			
Msinga bulk	Msinga Municipality	R 15 000 000	R 15 000 000	R 14 540 000	R 30 000 000	R 40 000 000
Muden - Keates Drift					R 2 132 000	
Muden -Ndaya - Keates Drift	uMvoti Municipality			R 57 265 000	R 10 000 000	
<b>Sub Total</b>		<b>R 80 582 297</b>	<b>R 80 582 297</b>	<b>R 103 305 000</b>	<b>R 62 132 000</b>	<b>R 43 000 000</b>
Hlazakazi Water Scheme	Nquthu Municipality	R 9 540 000	R 9 540 000		R 45 000 000	R 50 000 000
Ntinini Regional Water	Nquthu Municipality	R 20 000 000	R 20 000 000		R 40 000 000	R 55 000 000
Nquthu Sanitation		R 3 000 000	R 3 000 000	R 18 000 000		
<b>Sub Total</b>		<b>R 32 540 000</b>	<b>R 32 540 000</b>	<b>R 18 000 000</b>	<b>R 85 000 000</b>	<b>R 105 000 000</b>
Mbulwane/ Hlimbithwa Sanitation	uMvoti Municipality	R 5 124 703	R 5 124 703	R 2 500 000		
Muden Regional Water	uMvoti Municipality	R 15 000 000	R 15 000 000		R 10 000 000	
Makhabeleni Water Phase 4,5 ,6 and Bulk Upgrade	uMvoti Municipality	R 6 000 000	R 6 000 000		R 2 000 000	
Ophathe - Water	uMvoti Municipality	R 11 000 000	R 11 000 000			
Eshane Water Supply Scheme Phase 1	uMvoti Municipality					
Makhabeleni Phase 6	uMvoti Municipality			R 17 000 000		
Mbulwane/ Hlimbithwa Water	uMvoti Municipality	R 2 100 000	R 2 100 000	R 2 100 000		
Umvoti Sanitation Area Plan	uMvoti Municipality	R 3 000 000	R 3 000 000	R 6 000 000		
Othame Sanitation	Msinga Municipality	R 2 000 000	R 2 000 000	R 5 000 000		
KwaKopi - Mhlangana Sanitation	Msinga Municipality	R 3 500 000	R 3 500 000			
Pomeroy - Douglas - Nkalane Sanitation	Msinga Municipality	R 10 600 000	R 10 600 000	R 10 600 000	R 10 000 000	
Muden Sanitation	uMvoti Municipality			R 6 000 000		
<b>Sub Total</b>		<b>R 58 324 703</b>	<b>R 58 324 703</b>	<b>R 49 200 000</b>	<b>R 22 000 000</b>	<b>R -</b>
<b>Total Project Breakdown</b>		<b>R 178 447 000</b>	<b>R 178 447 000</b>	<b>R 170 505 000</b>	<b>R 169 132 000</b>	<b>R 163 254 000</b>
<b>Water Projects</b>		<b>R 151 222 297</b>	<b>R 151 222 297</b>	<b>R 118 905 000</b>	<b>R 159 132 000</b>	<b>R 163 254 000</b>
<b>Sanitation Projects</b>		<b>R 27 224 703</b>	<b>R 27 224 703</b>	<b>R 51 600 000</b>	<b>R 10 000 000</b>	<b>R -</b>

### MWIG Programmes

Municipal Water Infrastructure Grant	Revised Budget 2012/2013	Revised April Budget 2012/2013	Proposed Budget 2013/2014	Proposed Budget 2014/2015	Proposed Budget 2015/2016
Nondweni Treatment Plant			R 4 000 000.00		
Stratford Farm Water Supply			R 6 000 000.00		
Rhodesia Water Supply			R 2 000 000.00		
7ML/day package clarifier at vant'sdrift			R 4 050 000.00		
UDM Rudimentary				R 10 000 000.00	
Equiping of Hand Pumps				R 2 500 000.00	
Ethembeni Nxamalala Emvulweni				R 6 000 000.00	
Nadi & Mabalane Water Supply				R 1 275 000.00	
<b>Total Project Breakdown</b>	<b>R -</b>	<b>R -</b>	<b>R 16 050 000.00</b>	<b>R 19 775 000.00</b>	<b>R -</b>