

## DEPARTMENT OF WATER AND SANITATION

NO. 1386

08 DECEMBER 2017

**NATIONAL WATER ACT, 1998  
(ACT NO. 36 OF 1998)****CLASSES OF WATER RESOURCES AND RESOURCE QUALITY OBJECTIVES FOR THE  
CATCHMENTS OF THE MVOTI TO UMZIMKULU**

I, Sifiso Mkhize, in my capacity as Acting Director-General of the Department of Water and Sanitation, and duly authorised in terms of section 13(1) and 63(1)(a) of the National Water Act, 1998 (Act No.36 of 1998), hereby publish, the notice for the classes of water resources and the resource quality objectives for the Mvoti to Umzimkulu catchments.

Director: Water Resource Classification  
Attention: Ms Lebogang Matlala  
Department of Water and Sanitation  
Ndinaye Building 5046  
178 Francis Baard Street  
Private Bag x 313  
Pretoria  
0001  
E-mail: [matlatal@dw.gov.za](mailto:matlatal@dw.gov.za)

Facsimile: 012 336 6712

  
**MR SIFISO MKHIZE****ACTING DIRECTOR-GENERAL OF THE DEPARTMENT OF WATER AND SANITATION****DATE:** 08/11/2017

## SCHEDULE

### DESCRIPTION OF WATER RESOURCE

The classes and resource quality objectives are determined for all or part of every significant water resource within the catchments of the Mvoti to Umzimkulu as set out below:

|                 |                                                                                          |
|-----------------|------------------------------------------------------------------------------------------|
| Catchments:     | Mvoti to Umzimkulu                                                                       |
| Drainage areas: | Secondary drainage areas T40 (Mtamvuna) and T52 (Umzimkulu)                              |
| River(s):       | Major rivers include the Mvoti, uMngeni, uMkhomazi, Umzimkulu and Mtamvuna river systems |

#### A. CLASSES OF WATER RESOURCES AS REQUIRED IN TERMS OF SECTION 13(1)(a) OF THE NATIONAL WATER ACT, 1998

- i. A summary of the water resource classes for integrated units of analysis (IUA) (Figure 1-3) and ecological categories (EC) per biophysical node are set out in Table 1.
- ii. IUAs are classified in terms of their extent of permissible utilisation and protection as either Class I: indicating high environmental protection and minimal utilisation; Class II indicating moderate protection and moderate utilisation; and Class III indicating sustainable minimal protection and high utilisation.
- iii. Table 1 provides the IUA, its water resource classes and its respective catchment configuration. The catchment configuration consists of a number of biophysical nodes representing river reaches or resource units (RUs). The target EC for each RU in the IUA is provided.

#### B. RESOURCE QUALITY OBJECTIVES OF WATER RESOURCES AS REQUIRED IN TERMS OF SECTION 13(1)(b) OF THE NATIONAL WATER ACT, 1998

- i. Resource Quality Objectives (RQOs) are defined for each prioritized resource unit (RU) for every IUA in terms of water quantity, habitat and biota, and water quality.
- ii. Table 2 to Table 4 provide the RQOs for each RU which is represented by a biophysical node.

- iii. Table 5 represents the water quality RQOs for each IUA for HIGH priority Resource Units represented by EWR sites.
- iv. Table 6 represents the ECs and associated RQOs of Estuaries for water quality, geomorphology, vegetation, invertebrates, fish and birds, respectively to achieve the target EC listed in Table 1.
- v. Table 7 represents the water quality RQOs for each HIGH PRIORITY water quality (WQ) RU. RQOs will apply from the date signed off as determined in terms of Section 13(1) of the National Water Act, 1998, unless otherwise specified by the Minister.

## 1. WATER RESOURCE CLASSES AND CATCHMENT CONFIGURATION

**Table 1 Summary of Water Resource Classes and Ecological Categories**

| IUA           | Water Resource Class | Biophysical Nodes | River name    | Target EC |
|---------------|----------------------|-------------------|---------------|-----------|
| T4: MTAMVUNA  |                      |                   |               |           |
| T4-1          | II                   | T40A-05450        | Mafadobo      | B         |
|               |                      | T40A-05487        | Goxe          | B         |
|               |                      | T40B-05337        | Weza          | C         |
|               |                      | T40C-05510        | Mtamvuna      | B         |
|               |                      | T40C-05520        | Mtamvuna      | C         |
|               |                      | T40C-05530        | Mtamvuna      | B         |
|               |                      | T40C-05566        | Ludeke        | B         |
|               |                      | T40C-05589        | KuNtlamvukazi | B         |
|               |                      | T40C-05600        | Ludeke        | B         |
|               |                      | T40D-05537        | Mtamvuna      | C         |
|               |                      | T40D-05584        | Mtamvuna      | C         |
|               |                      | T40D-05615        | Tungwana      | B         |
|               |                      | T40D-05643        | Gwala         | B         |
|               |                      | T40D-05683        | Ntelekweni    | B/C       |
|               |                      | T40D-05707        | Mtamvuna      | C         |
|               |                      | T40D-05719        | Londobezi     | B         |
|               |                      | Mt_R_EWR1         | Mtamvuna      | C         |
|               |                      | T40E-05767        | Hlolweni      | B         |
| T5: UMZIMKULU |                      |                   |               |           |
| T5-1          | I                    | T51A-04431        | Mzimkhulu     | B         |
|               |                      | T51A-04522        | Mzimude       | B         |
|               |                      | T51A-04608        |               | B         |
|               |                      | T51A-04551        | Mzimude       | B         |
|               |                      | T51B-04421        | Mzimkhulu     | B         |
|               |                      | T51D-04404        | Pholela       | B         |
|               |                      | T51F-04566        | Boesmans      | A         |
|               |                      | T51F-04674        |               | C         |
|               |                      | T51G-04669        | Ndawana       | B         |
|               |                      | T51G-04722        | Ndawana       | C         |

| IUA           | Water Resource Class | Biophysical Nodes | River name   | Target EC |
|---------------|----------------------|-------------------|--------------|-----------|
| T5-2          | II                   | T51C-04606        |              | C         |
|               |                      | MzEWR2i           | Mzimkhulu    | B         |
|               |                      | T51D-04460        | Pholelana    | D/E       |
|               |                      | T51E-04536        |              | C         |
|               |                      | MzEWR9r           | Pholela      | B/C       |
|               |                      | T51F-04611        | Ngwangwane   | A         |
|               |                      | MzEWR8r           | Ngwangwane   | C         |
|               |                      | T51G-04751        |              | B         |
|               |                      | T51H-04828        | Gungununu    | A/B       |
|               |                      | T51H-04846        | Lubhukwini   | A         |
|               |                      | T51H-04913        | Nonginqa     | B/C       |
|               |                      | T51H-04923        | Malenge      | B         |
|               |                      | T51H-04808        | Gungununu    | B         |
|               |                      | T51H-04884        | Gungununu    | B/C       |
|               |                      | T51H-04908        | Gungununu    | B/C       |
|               |                      | MzEWR3i           | Mzimkhulu    | B         |
|               |                      | T52B-04947        | Cabane       | B         |
|               |                      | T52C-04880        |              | C         |
|               |                      | T52C-04960        | Mzimkhulu    | B         |
|               |                      | T52D-05024        | Ncalu        | B         |
|               |                      | T52D-05061        | Mgodi        | B         |
|               |                      | T52D-04948        | Mzimkhulu    | B         |
|               |                      | T52D-05137        | Mzimkhulu    | B         |
|               |                      | T52E-05053        | Upper Bisi   | B         |
|               |                      | T52F-05104        | Little Bisi  | C         |
|               |                      | T52F-05190        | Mbumba       | B/C       |
|               |                      | T52F-05139        | Little Bisi  | B         |
|               |                      | T52G-05226        | uMbumbane    | B/C       |
|               |                      | T52G-05171        | Bisi         | B         |
|               |                      | T52H-05244        | Mahobe       | B/C       |
|               |                      | T52H-05178        | Bisi         | B         |
|               |                      | T52K-05475        | Nkondwana    | B/C       |
|               |                      | MzEWR17i          | Mzimkhulwana | B         |
| T5-3          | I                    | T52H-05295        | Magogo       | B         |
|               |                      | MzEWR14r          | Bisi         | B/C       |
|               |                      | T52H-05189        | Bisi         | B         |
|               |                      | MzEWR6i           | Mzimkhulu    | A/B       |
| U1: uMKHOMAZI |                      |                   |              |           |
| U1-1          | I                    | U10A-04115        | Lotheni      | A/B       |
|               |                      | U10A-04202        | Nhlathimbe   | B         |
|               |                      | U10A-04301        | Lotheni      | B         |
|               |                      | U10B-04239        | uMkhomazi    | B         |
|               |                      | U10B-04251        | uMkhomazi    | A         |
|               |                      | U10B-04274        | Nhlangeni    | A         |
|               |                      | U10B-04337        | uMkhomazi    | B         |
|               |                      | U10B-04343        | Mqatsheni    | B         |
|               |                      | U10C-04347        | Mkhomazana   | B         |
|               |                      | U10D-04199        | Nzinga       | A         |

| IUA         | Water Resource Class | Biophysical Nodes | River name     | Target EC |
|-------------|----------------------|-------------------|----------------|-----------|
|             |                      | U10D-04222        | Rooidraai      | B         |
|             |                      | U10D-04298        | Nzinga         | B         |
|             |                      | U10D-04349        | uMkhomazi      | B         |
|             |                      | U10D-04434        | uMkhomazi      | B         |
| U1-2        | II                   | U10E-04380        | uMkhomazi      | C         |
|             |                      | U10F-04528        | uMkhomazi      | C         |
|             |                      | Mk_I_EWR1         | uMkhomazi      | C         |
|             |                      | U10G-04388        | Elands         | B         |
|             |                      | U10G-04405        |                | C         |
|             |                      | U10G-04473        | Elands         | B         |
| U1-3        | I                    | U10H-04576        | Tholeni        | B         |
|             |                      | U10H-04666        | Ngudwini       | B         |
|             |                      | U10H-04708        | Ngudwini       | B         |
|             |                      | U10H-04729        | Mzalanyoni     | C         |
|             |                      | Mk_I_EWR2         | uMkhomazi      | B         |
|             |                      | U10J-04721        | Pateni         | B         |
| U1-4        | II                   | U10J-04713        | Mkobeni        | B         |
|             |                      | U10J-04820        | Lufafa         | B         |
|             |                      | U10J-04837        |                | A/B       |
|             |                      | U10K-04842        | Nhlavini       | B         |
|             |                      | U10K-04899        | Xobho          | C/D       |
|             |                      | U10K-04946        | Nhlavini       | B/C       |
|             |                      | Mk_I_EWR3         | uMkhomazi      | C         |
| U2: uMNGENI |                      |                   |                |           |
| U2-1        | II                   | Mg_R_EWR1         | uMngeni        | C/D       |
|             |                      | U20B-04074        | Ndiza          | B         |
|             |                      | U20B-04144        | Mpofana        | C         |
|             |                      | U20B-04173        | Lions          | B         |
|             |                      | U20B-04185        | Lions          | B/C       |
|             |                      | U20C-04190        | Lions          | B         |
|             |                      | U20C-04332        | Gqishi         | B         |
|             |                      | U20C-04340        | Nguklu         | C         |
| U2-2        | III                  | U20D-04029        | Yarrow         | B         |
|             |                      | U20D-04032        | Karkloof       | C         |
|             |                      | U20D-04098        | Kusane         | D         |
|             |                      | U20D-04151        | Karkloof       | B         |
|             |                      | U20E-04136        | Nculwane       | C         |
|             |                      | Mg_R_EWR3         | Karkloof       | B         |
|             |                      | U20E-04221        | uMngeni        | B/C       |
|             |                      | Mg_I_EWR 2        | uMngeni        | C         |
|             |                      | U20E-04271        | Doring Spruit  | B/C       |
|             |                      | U20F-04011        | Sterkspruit    | C/D       |
| U2-3        | III                  | U20F-04095        | Mpolweni       | C/D       |
|             |                      | U20F-04131        | Mhlalane       | C/D       |
|             |                      | U20F-04204        | Sterkspruit    | B/C       |
|             |                      | U20F-04224        | Mpolweni       | B/C       |
|             |                      | U20G-04194        | Mkabela        | C/D       |
|             |                      | U20G-04215        | Cramond Stream | B/C       |

| IUA                        | Water Resource Class | Biophysical Nodes | River name      | Target EC |
|----------------------------|----------------------|-------------------|-----------------|-----------|
|                            |                      | U20G-04240        | uMngeni         | B/C       |
|                            |                      | U20G-04259        | uMngeni         | B/C       |
|                            |                      | U20G-04385US      | uMngeni         | B/C       |
| U2-4                       | II                   | U20H-04410        | Nqabeni         | C         |
|                            |                      | U20H-04449        | uMnsunduze      | C         |
|                            |                      | Mg_R_EWR4         | uMnsunduze      | D         |
|                            |                      | U20J-04391        | uMnsunduze      | C         |
|                            |                      | U20J-04401        | uMnsunduze      | D         |
|                            |                      | U20J-04452        | Mpushini        | B         |
|                            |                      | U20J-04459        | uMnsunduze      | C         |
|                            |                      | U20J-04461        | Slang Spruit    | C/D       |
|                            |                      | U20J-04488        | Mshwati         | B         |
| U2-5                       | III                  | U20K-04181        | Mqeku           | C         |
|                            |                      | U20K-04296        | Tholeni         | B/C       |
|                            |                      | U20K-04411        | Mqeku           | B         |
|                            |                      | Mg_I_EWR 5        | uMngeni         | D         |
| U2-6                       | III                  | U20M-04625        |                 | D         |
|                            |                      | U20M-04639        | Palmiet         | D         |
|                            |                      | U20M-04642        | Palmiet         | D         |
|                            |                      | U20M-04649        | Mbongokazi      | C         |
|                            |                      | U20M-04653        | Palmiet         | C/D       |
|                            |                      | U20M-04659        | Palmiet         | C         |
|                            |                      | U20M-04682        |                 | C/D       |
| U3: uMDLOTI AND uTHONGATHI |                      |                   |                 |           |
| U3-1                       | III                  | U30A-04228        | uMdloti         | B         |
|                            |                      | U30A-04360        | uMdloti         | D         |
|                            |                      | U30A-04363        | Mwangala        | B         |
| U3-2                       | II                   | U30B-04465        | Black Mhlashini | B/C       |
| U3-3                       | II                   | U30C-04227        | uThongathi      | B/C       |
|                            |                      | U30C-04272        | Mona            | B         |
| U4: MVOTI                  |                      |                   |                 |           |
| U4-1                       | II                   | U40A-03869        | Mvoti           | B         |
|                            |                      | U40B-03708        | Intinda         | C         |
|                            |                      | U40B-03740        | Mvozana         | C         |
|                            |                      | Mv_I_EWR_1        | Heinespruit     | C         |
|                            |                      | U40B-03832        | Mvozana         | C/D       |
|                            |                      | U40B-03896        | Mvoti           | C         |
|                            |                      | U40C-03982        | Khamanzi        | B         |
|                            |                      | U40D-03867        | Mvoti           | B         |
| U4-2                       | I                    | U40D-03908        | Mtize           | B         |
|                            |                      | U40D-03957        | Mvoti           | B         |
|                            |                      | U40E-03967        | Mvoti           | B/C       |
|                            |                      | U40E-03985        | Mvoti           | B         |
|                            |                      | U40E-04079        | Faye            | B         |
|                            |                      | U40E-04082        | Sikoto          | B         |
|                            |                      | U40E-04137        | Sikoto          | B         |
|                            |                      | U40F-03690        | Potspruit       | C         |
|                            |                      | U40F-03694        | Hlimbitwa       | C         |

| IUA                     | Water Resource Class | Biophysical Nodes | River name   | Target EC |
|-------------------------|----------------------|-------------------|--------------|-----------|
|                         |                      | U40F-03730        | Cubhu        | C         |
|                         |                      | U40F-03769        | Hlimbitwa    | C         |
|                         |                      | U40F-03790        | Nseleni      | B/C       |
|                         |                      | U40F-03806        | Hlimbitwa    | B         |
|                         |                      | U40G-03843        | Hlimbitwa    | B         |
| U4-3                    | II                   | Mv_I_EWR_2        | Mvoti        | C         |
|                         |                      | U40H-04091        | Pambela      | B         |
|                         |                      | U40H-04117        | Nsuze        | B         |
|                         |                      | U40H-04133        | Nsuze        | B         |
| U6: UMLAZI              |                      |                   |              |           |
| U6-1                    | III                  | U60A-04533        | uMlazi       | C         |
|                         |                      | U60B-04614        | Mkuzane      | C/D       |
|                         |                      | U60C-04555        | uMlazi       | C/D       |
|                         |                      | U60C-04556        | Sterkspruit  | D         |
|                         |                      | U60C-04613        | Wekeweke     | C         |
| U6-2                    | III                  | U60D-04661        | uMlazi       | C/D       |
| U6-3                    | I                    | U60E-04714        | Mbokodweni   | B         |
|                         |                      | U60E-04792        | Mbokodweni   | C         |
|                         |                      | U60E-04795        | Bivane       | B         |
| U7: LOVU                |                      |                   |              |           |
| U7-1                    | III                  | U70A-04599        | Serpentine   | C         |
|                         |                      | U70A-04609        | Lovu         | B/C       |
|                         |                      | U70A-04618        |              | C         |
|                         |                      | U70A-04685        | Lovu         | C         |
|                         |                      | U70B-04655        | Lovu         | C/D       |
|                         |                      | U70C-04710        | Mgwahumbe    | C         |
|                         |                      | U70C-04724        |              | C         |
|                         |                      | U70C-04732        |              | C         |
|                         |                      | Lo_R_EWR1         | Lovu         | B/C       |
|                         |                      | U70D-04800        | Nungwane     | B/C       |
| U8: MTWALUME AND MZUMBE |                      |                   |              |           |
| U8-1                    | I                    | U80B-05145        | Mzumbe_Est   | B         |
|                         |                      | U80B-05161        | Mhlabatshane | B         |
|                         |                      | U80C-05231        | Mzumbe       | B         |
|                         |                      | U80C-05329        | Kwa-Malukaka | B         |
| U8-2                    | II                   | U80E-05028        | Mtwalume     | C         |
|                         |                      | U80E-05212        | Quha         | B         |
|                         |                      | U80F-05258        | Mtwalume     | B         |
|                         |                      | U80F-05301        | uMngeni      | B         |
| SOUTHERN CLUSTERS 1     |                      |                   |              |           |
| Southern Cluster 1      | I                    | T40F-05666        | Mbizana      | B         |
|                         |                      | T40G-05616        | Vungu        | B         |
|                         |                      | Estuary           | Mtamvuma     | A/B       |
|                         |                      | Estuary           | Zolwane      | B         |
|                         |                      | Estuary           | Sandhlunlu   | C         |
|                         |                      | Estuary           | Kuboyoyi     | B         |
|                         |                      | Estuary           | Tongazi      | B/C       |
|                         |                      | Estuary           | Kandanhlovu  | B         |

| IUA                 | Water Resource Class | Biophysical Nodes | River name    | Target EC |
|---------------------|----------------------|-------------------|---------------|-----------|
|                     |                      | Estuary           | Mpenjati      | B         |
|                     |                      | Estuary           | Umhlangankulu | C         |
|                     |                      | Estuary           | Kaba          | C         |
|                     |                      | Estuary           | Mbizana       | B         |
|                     |                      | Estuary           | Mvuthsini     | B/C       |
|                     |                      | Estuary           | Bilanhlo      | C         |
|                     |                      | Estuary           | Umvazana      | C         |
|                     |                      | Estuary           | Kongweni      | EF        |
|                     |                      | Estuary           | Vungu         | B         |
|                     |                      | Estuary           | Mhlangeni     | C         |
|                     |                      | Estuary           | Zotsha        | B         |
|                     |                      | Estuary           | Boboyi        | B/C       |
|                     |                      | Estuary           | Mbango        | EF        |
|                     |                      | Estuary           | Umzimkulu     | B         |
| SOUTHERN CLUSTERS 2 |                      |                   |               |           |
| Southern Cluster 2  | II                   | U80G-05097        | Fafa          | B         |
|                     |                      | U80H-05109        | Mzinto        | C         |
|                     |                      | U80H-05120        | Mzimayi       | C         |
|                     |                      | U80H-05186        | Mkhumbane     | C         |
|                     |                      | U80H-05202        | Sezela        | C         |
|                     |                      | U80H-05229        | Mdesingane    | C         |
|                     |                      | U80J-04979        | Mpambanyoni   | B         |
|                     |                      | U80J-05043        | Ndonyane      | B/C       |
|                     |                      | U80K-04952        | Mpambanyoni   | C         |
|                     |                      | Estuary           | Mtentwini     | C         |
|                     |                      | Estuary           | Mhlangamkulo  | C         |
|                     |                      | Estuary           | Domba         | D         |
|                     |                      | Estuary           | Koshwani      | C         |
|                     |                      | Estuary           | Inhshambili   | C         |
|                     |                      | Estuary           | Mzumbe        | C/D       |
|                     |                      | Estuary           | Mhlabatshane  | B         |
|                     |                      | Estuary           | Mhlungwa      | C         |
|                     |                      | Estuary           | Mfazazana     | C         |
|                     |                      | Estuary           | KwaMakoz      | B         |
|                     |                      | Estuary           | Mnamfu        | C         |
|                     |                      | Estuary           | Mtwalume      | C         |
|                     |                      | Estuary           | Mvuzi         | C         |
|                     |                      | Estuary           | Fafa          | C         |
|                     |                      | Estuary           | Mdesingane    | D         |
|                     |                      | Estuary           | Sezela        | C         |
|                     |                      | Estuary           | Mkumbane      | C         |
|                     |                      | Estuary           | Mzinto        | C/D       |
|                     |                      | Estuary           | Nkomba        | C         |
|                     |                      | Estuary           | Mzimayi       | C/D       |
|                     |                      | Estuary           | Mpambanyoni   | C         |
| CENTRAL CLUSTER     |                      |                   |               |           |
| Central Cluster     | III                  | U80L-05020        | aMahlongwa    | B/C       |
|                     |                      | U70E-04942        | Umsimbazi     | C         |

| IUA              | Water Resource Class | Biophysical Nodes | River name              | Target EC |
|------------------|----------------------|-------------------|-------------------------|-----------|
|                  |                      | U70E-04974        | uMgababa                | C         |
|                  |                      | U70F-04845        | aManzimtoti             | C         |
|                  |                      | U70F-04893        | Little amanzimtoti      | C         |
|                  |                      | Estuary           | aMahlongwa              | B         |
|                  |                      | Estuary           | Mahlangwana             | B         |
|                  |                      | Estuary           | uMkhomazi               | B/C       |
|                  |                      | Estuary           | Ngane                   | C         |
|                  |                      | Estuary           | Umgababa                | B/C       |
|                  |                      | Estuary           | Msimbazi                | B         |
|                  |                      | Estuary           | Lovu                    | B/C       |
|                  |                      | Estuary           | Little aMmanzimtoti     | EF        |
|                  |                      | Estuary           | aManzimtoti             | D         |
|                  |                      | Estuary           | Mmbokotwini             | EF        |
|                  |                      | Estuary           | Sipingo                 | EF        |
|                  |                      | Estuary           | Durban Bay              | EF        |
|                  |                      | Estuary           | Durban Bay Shallow Zone | D         |
|                  |                      | Estuary           | uMngeni                 | D         |
|                  |                      | Estuary           | Mhlanga                 | B         |
| NORTHERN CLUSTER |                      |                   |                         |           |
| Northern Cluster | III                  | U30E-04207        | Mhlali                  | C         |
|                  |                      | U50A-04018        | Zinkwazi                | B/C       |
|                  |                      | U50A-04021        | Nonoti                  | B/C       |
|                  |                      | U50A-04141        | Mdlotane                | B/C       |
|                  |                      | Estuary           | Mhlali                  | D         |
|                  |                      | Estuary           | Bobstream               | B/C       |
|                  |                      | Estuary           | Seteni                  | B/C       |
|                  |                      | Estuary           | Mvoti                   | C/D       |
|                  |                      | Estuary           | Mdlotane                | A/B       |
|                  |                      | Estuary           | Nonoti                  | C         |
|                  |                      | Estuary           | Zinkwazi                | B         |

## 2. RESOURCE QUALITY OBJECTIVES

Resource Quality Objectives for each Resource Unit (RU) are presented in Tables 2 to 7 below. All RQOs are applicable from the date signed off, unless otherwise specified by the Minister.

Table 2 provides an indication of the hydrological RQOs for rivers expressed in terms of flow at the ecological water requirement (EWR) sites. These summarised statistics are representative of the required flow regime in the river where the variability is dependent on the seasonal and temporal pattern of natural flow conditions. The mean monthly flows represent low flow requirements for all the months.

**Table 2 RIVERS: Summary of key hydrological RQOs**

| RU                       | Biophysical node     | River     | Target EC | nMAR <sup>1</sup> (MCM) | Low flows (%nMAR) <sup>2</sup> | Total flows (%nMAR) | Months | RQO <sup>3</sup>    |       |
|--------------------------|----------------------|-----------|-----------|-------------------------|--------------------------------|---------------------|--------|---------------------|-------|
|                          |                      |           |           |                         |                                |                     |        | (m <sup>3</sup> /s) |       |
|                          |                      |           |           |                         |                                |                     |        | 90%                 | 60%   |
| MTAMVUNA (T4): IUA T4-1  |                      |           |           |                         |                                |                     |        |                     |       |
| MRU MT B                 | T40E-05601 Mt_R_EWR1 | Mtamvuna  | C         | 233.15                  | 19.1                           | 32.1                | Oct    | 0.50                | 0.69  |
|                          |                      |           |           |                         |                                |                     | Nov    | 0.79                | 0.96  |
|                          |                      |           |           |                         |                                |                     | Dec    | 0.87                | 1.27  |
|                          |                      |           |           |                         |                                |                     | Jan    | 0.95                | 1.53  |
|                          |                      |           |           |                         |                                |                     | Feb    | 1.16                | 1.61  |
|                          |                      |           |           |                         |                                |                     | Mar    | 1.53                | 1.76  |
|                          |                      |           |           |                         |                                |                     | Apr    | 1.32                | 1.72  |
|                          |                      |           |           |                         |                                |                     | May    | 1.11                | 1.27  |
|                          |                      |           |           |                         |                                |                     | Jun    | 0.59                | 0.84  |
|                          |                      |           |           |                         |                                |                     | Jul    | 0.43                | 0.61  |
|                          |                      |           |           |                         |                                |                     | Aug    | 0.44                | 0.55  |
|                          |                      |           |           |                         |                                |                     | Sep    | 0.33                | 0.52  |
| uMKHOMAZI (U1): IUA U1-2 |                      |           |           |                         |                                |                     |        |                     |       |
| MRU uMKHOMAZI B.3        | U10E-04380 Mk_I_EWR1 | uMkhomazi | C         | 683.17                  | 25.1                           | 35                  | Oct    | 1.37                | 2.31  |
|                          |                      |           |           |                         |                                |                     | Nov    | 2.01                | 3.38  |
|                          |                      |           |           |                         |                                |                     | Dec    | 2.73                | 5.22  |
|                          |                      |           |           |                         |                                |                     | Jan    | 4.16                | 7.16  |
|                          |                      |           |           |                         |                                |                     | Feb    | 5.09                | 8.60  |
|                          |                      |           |           |                         |                                |                     | Mar    | 6.90                | 9.31  |
|                          |                      |           |           |                         |                                |                     | Apr    | 5.08                | 7.59  |
|                          |                      |           |           |                         |                                |                     | May    | 3.23                | 5.13  |
|                          |                      |           |           |                         |                                |                     | Jun    | 1.82                | 3.06  |
|                          |                      |           |           |                         |                                |                     | Jul    | 1.23                | 2.28  |
|                          |                      |           |           |                         |                                |                     | Aug    | 1.07                | 1.91  |
|                          |                      |           |           |                         |                                |                     | Sep    | 1.01                | 1.77  |
| uMKHOMAZI (U1): IUA U1-3 |                      |           |           |                         |                                |                     |        |                     |       |
| MRU uMKHOMAZI C          | U10J-04679 Mk_I_EWR2 | uMkhomazi | B         | 890.91                  | 24.8                           | 35.4                | Oct    | 1.97                | 3.27  |
|                          |                      |           |           |                         |                                |                     | Nov    | 2.85                | 4.58  |
|                          |                      |           |           |                         |                                |                     | Dec    | 3.54                | 6.67  |
|                          |                      |           |           |                         |                                |                     | Jan    | 5.12                | 8.94  |
|                          |                      |           |           |                         |                                |                     | Feb    | 5.99                | 10.48 |
|                          |                      |           |           |                         |                                |                     | Mar    | 8.86                | 12.03 |
|                          |                      |           |           |                         |                                |                     | Apr    | 6.50                | 9.55  |
|                          |                      |           |           |                         |                                |                     | May    | 4.27                | 7.04  |
|                          |                      |           |           |                         |                                |                     | Jun    | 2.67                | 4.38  |
|                          |                      |           |           |                         |                                |                     | Jul    | 1.65                | 3.29  |
|                          |                      |           |           |                         |                                |                     | Aug    | 1.52                | 2.57  |
|                          |                      |           |           |                         |                                |                     | Sep    | 1.55                | 2.87  |
| uMKHOMAZI (U1): IUA U1-4 |                      |           |           |                         |                                |                     |        |                     |       |
| MRU uMKHOMAZI D          | U10M-04746 Mk_I_EWR3 | uMkhomazi | C         | 1068.6                  | 21.2                           | 31.1                | Oct    | 2.25                | 3.32  |
|                          |                      |           |           |                         |                                |                     | Nov    | 3.20                | 4.59  |
|                          |                      |           |           |                         |                                |                     | Dec    | 3.91                | 6.95  |
|                          |                      |           |           |                         |                                |                     | Jan    | 5.56                | 9.05  |
|                          |                      |           |           |                         |                                |                     | Feb    | 6.61                | 10.95 |
|                          |                      |           |           |                         |                                |                     | Mar    | 7.80                | 11.42 |
|                          |                      |           |           |                         |                                |                     | Apr    | 6.65                | 10.07 |
|                          |                      |           |           |                         |                                |                     | May    | 4.74                | 7.24  |
|                          |                      |           |           |                         |                                |                     | Jun    | 3.01                | 4.50  |
|                          |                      |           |           |                         |                                |                     | Jul    | 1.66                | 3.39  |
|                          |                      |           |           |                         |                                |                     | Aug    | 1.42                | 2.67  |
|                          |                      |           |           |                         |                                |                     | Sep    | 1.65                | 3.04  |
| uMNGENI (U2): IUA U2-1   |                      |           |           |                         |                                |                     |        |                     |       |
| MRU uMnA                 | U20A-04253 Mg_R_EWR1 | uMngeni   | C/D       | 79.22                   | 10.1                           | 21.7                | Oct    | 0.05                | 0.11  |
|                          |                      |           |           |                         |                                |                     | Nov    | 0.13                | 0.15  |

| RU                     | Biophysical node        | River        | Target EC | nMAR <sup>1</sup> (MCM) | Low flows (%nMAR) <sup>2</sup> | Total flows (%nMAR) | Mont hs | RQO <sup>3</sup> |      |
|------------------------|-------------------------|--------------|-----------|-------------------------|--------------------------------|---------------------|---------|------------------|------|
|                        |                         |              |           |                         |                                |                     |         | (m³/s)           |      |
|                        |                         |              |           |                         |                                |                     |         | 90%              | 60%  |
|                        |                         |              |           |                         |                                |                     | Dec     | 0.13             | 0.19 |
|                        |                         |              |           |                         |                                |                     | Jan     | 0.19             | 0.23 |
|                        |                         |              |           |                         |                                |                     | Feb     | 0.23             | 0.33 |
|                        |                         |              |           |                         |                                |                     | Mar     | 0.27             | 0.31 |
|                        |                         |              |           |                         |                                |                     | Apr     | 0.26             | 0.31 |
|                        |                         |              |           |                         |                                |                     | May     | 0.21             | 0.23 |
|                        |                         |              |           |                         |                                |                     | Jun     | 0.14             | 0.16 |
|                        |                         |              |           |                         |                                |                     | Jul     | 0.04             | 0.12 |
|                        |                         |              |           |                         |                                |                     | Aug     | 0.02             | 0.11 |
|                        |                         |              |           |                         |                                |                     | Sep     | 0.02             | 0.10 |
| uMNGENI (U2): IUA U2-2 |                         |              |           |                         |                                |                     |         |                  |      |
| M KAR C                | U20E-04170<br>Mg_R_EWR3 | Karkloof     | B         | 70.11                   | 27.3                           | 43.5                | Oct     | 0.04             | 0.26 |
|                        |                         |              |           |                         |                                |                     | Nov     | 0.07             | 0.32 |
|                        |                         |              |           |                         |                                |                     | Dec     | 0.10             | 0.43 |
|                        |                         |              |           |                         |                                |                     | Jan     | 0.11             | 0.60 |
|                        |                         |              |           |                         |                                |                     | Feb     | 0.20             | 0.76 |
|                        |                         |              |           |                         |                                |                     | Mar     | 0.33             | 0.90 |
|                        |                         |              |           |                         |                                |                     | Apr     | 0.25             | 0.83 |
|                        |                         |              |           |                         |                                |                     | May     | 0.19             | 0.73 |
|                        |                         |              |           |                         |                                |                     | Jun     | 0.12             | 0.52 |
|                        |                         |              |           |                         |                                |                     | Jul     | 0.06             | 0.34 |
|                        |                         |              |           |                         |                                |                     | Aug     | 0.05             | 0.28 |
|                        |                         |              |           |                         |                                |                     | Sep     | 0.03             | 0.24 |
| MRU uMnB               | U20E-04243<br>Mg_I_EWR2 | uMngeni      | C         | 228.19                  | 14.7                           | 20                  | Oct     | 0.52             | 0.82 |
|                        |                         |              |           |                         |                                |                     | Nov     | 0.61             | 0.88 |
|                        |                         |              |           |                         |                                |                     | Dec     | 0.66             | 1.03 |
|                        |                         |              |           |                         |                                |                     | Jan     | 0.56             | 1.06 |
|                        |                         |              |           |                         |                                |                     | Feb     | 0.45             | 0.99 |
|                        |                         |              |           |                         |                                |                     | Mar     | 0.96             | 1.64 |
|                        |                         |              |           |                         |                                |                     | Apr     | 0.84             | 1.39 |
|                        |                         |              |           |                         |                                |                     | May     | 0.58             | 1.02 |
|                        |                         |              |           |                         |                                |                     | Jun     | 0.54             | 0.88 |
|                        |                         |              |           |                         |                                |                     | Jul     | 0.51             | 0.85 |
|                        |                         |              |           |                         |                                |                     | Aug     | 0.41             | 0.83 |
|                        |                         |              |           |                         |                                |                     | Sep     | 0.46             | 0.81 |
| uMNGENI (U2): IUA U2-5 |                         |              |           |                         |                                |                     |         |                  |      |
| MRU uMnD               | U20L-04435<br>Mg_I_EWR5 | uMngeni      | D         | 583.66                  | 22.9                           | 25.8                | Oct     | 1.12             | 1.83 |
|                        |                         |              |           |                         |                                |                     | Nov     | 1.33             | 2.53 |
|                        |                         |              |           |                         |                                |                     | Dec     | 1.45             | 2.83 |
|                        |                         |              |           |                         |                                |                     | Jan     | 1.59             | 3.02 |
|                        |                         |              |           |                         |                                |                     | Feb     | 1.86             | 2.76 |
|                        |                         |              |           |                         |                                |                     | Mar     | 2.49             | 3.94 |
|                        |                         |              |           |                         |                                |                     | Apr     | 2.13             | 3.18 |
|                        |                         |              |           |                         |                                |                     | May     | 1.77             | 3.01 |
|                        |                         |              |           |                         |                                |                     | Jun     | 1.48             | 2.79 |
|                        |                         |              |           |                         |                                |                     | Jul     | 1.27             | 2.52 |
|                        |                         |              |           |                         |                                |                     | Aug     | 1.08             | 2.25 |
|                        |                         |              |           |                         |                                |                     | Sep     | 1.01             | 2.22 |
| MVOTI (U4): IUA U4-1   |                         |              |           |                         |                                |                     |         |                  |      |
| MRU HEYNS A            | U40B-03770<br>Mv_I_EWR1 | Heinesspruit | C         | 17.36                   | 18.2                           | 27.9                | Oct     | 0.03             | 0.04 |
|                        |                         |              |           |                         |                                |                     | Nov     | 0.04             | 0.04 |
|                        |                         |              |           |                         |                                |                     | Dec     | 0.04             | 0.06 |
|                        |                         |              |           |                         |                                |                     | Jan     | 0.05             | 0.07 |
|                        |                         |              |           |                         |                                |                     | Feb     | 0.07             | 0.09 |
|                        |                         |              |           |                         |                                |                     | Mar     | 0.08             | 0.12 |
|                        |                         |              |           |                         |                                |                     | Apr     | 0.08             | 0.11 |
| May                    | 0.08                    | 0.10         |           |                         |                                |                     |         |                  |      |

| RU                   | Biophysical node        | River | Target EC | nMAR <sup>1</sup> (MCM) | Low flows (%nMAR) <sup>2</sup> | Total flows (%nMAR) | Mont hs | RQO <sup>3</sup> |      |
|----------------------|-------------------------|-------|-----------|-------------------------|--------------------------------|---------------------|---------|------------------|------|
|                      |                         |       |           |                         |                                |                     |         | (m³/s)           |      |
|                      |                         |       |           |                         |                                |                     |         | 90%              | 60%  |
|                      |                         |       |           |                         |                                |                     | Jun     | 0.06             | 0.08 |
|                      |                         |       |           |                         |                                |                     | Jul     | 0.05             | 0.05 |
|                      |                         |       |           |                         |                                |                     | Aug     | 0.04             | 0.04 |
|                      |                         |       |           |                         |                                |                     | Sep     | 0.03             | 0.04 |
| MVOTI (U4): IUA U4-3 |                         |       |           |                         |                                |                     |         |                  |      |
| MRU<br>MVOTI C       | U40H-04064<br>Mv_I_EWR2 | Mvoti | C         | 273.96                  | 17.6                           | 24.7                | Oct     | 0.31             | 0.64 |
|                      |                         |       |           |                         |                                |                     | Nov     | 0.39             | 0.84 |
|                      |                         |       |           |                         |                                |                     | Dec     | 0.49             | 1.03 |
|                      |                         |       |           |                         |                                |                     | Jan     | 0.64             | 1.34 |
|                      |                         |       |           |                         |                                |                     | Feb     | 0.83             | 1.65 |
|                      |                         |       |           |                         |                                |                     | Mar     | 1.01             | 2.03 |
|                      |                         |       |           |                         |                                |                     | Apr     | 0.90             | 1.89 |
|                      |                         |       |           |                         |                                |                     | May     | 0.87             | 1.56 |
|                      |                         |       |           |                         |                                |                     | Jun     | 0.59             | 1.02 |
|                      |                         |       |           |                         |                                |                     | Jul     | 0.36             | 0.69 |
|                      |                         |       |           |                         |                                |                     | Aug     | 0.29             | 0.58 |
| Sep                  | 0.27                    | 0.55  |           |                         |                                |                     |         |                  |      |
| LOVU (U7): IUA U7-12 |                         |       |           |                         |                                |                     |         |                  |      |
| MRU<br>LOVU D        | U40H-04064<br>Lo_R_EWR1 | Lovu  | B/C       | 87.76                   | 22.8                           | 37.9                | Oct     | 0.18             | 0.22 |
|                      |                         |       |           |                         |                                |                     | Nov     | 0.21             | 0.29 |
|                      |                         |       |           |                         |                                |                     | Dec     | 0.24             | 0.35 |
|                      |                         |       |           |                         |                                |                     | Jan     | 0.30             | 0.45 |
|                      |                         |       |           |                         |                                |                     | Feb     | 0.36             | 0.53 |
|                      |                         |       |           |                         |                                |                     | Mar     | 0.40             | 0.67 |
|                      |                         |       |           |                         |                                |                     | Apr     | 0.36             | 0.64 |
|                      |                         |       |           |                         |                                |                     | May     | 0.33             | 0.58 |
|                      |                         |       |           |                         |                                |                     | Jun     | 0.26             | 0.41 |
|                      |                         |       |           |                         |                                |                     | Jul     | 0.19             | 0.29 |
|                      |                         |       |           |                         |                                |                     | Aug     | 0.16             | 0.23 |
| Sep                  | 0.14                    | 0.19  |           |                         |                                |                     |         |                  |      |

1 nMAR is the natural Mean Annual Runoff in million cubic meters per annum.

2 % nMAR is flow required at the nodes expressed as a percentage of the natural Mean Annual Runoff, Low flows and Total flows.

3 Percentage points on the monthly low flow frequency distribution continuum at the nodes, expressed as the percentage of the months (90% and 60%) that the flow should equal or exceed the indicated minimum values. Note that the detailed flow RQOs are provided in the technical document.

Habitat and biota RQOs are provided as Ecological Categories. There are generic narrative and numerical RQOs associated with the Ecological Categories and Table 3 describes these for each Ecological Category relevant for rivers. Table 4 provides the habitat and biota RQOs for each IUA for HIGH priority Resource Units in rivers.

Table 5 provides the water quality RQOs for each IUA for HIGH priority Resource Units represented by EWR sites. Note that water quality includes both the target EC and the user targets as narrative RQOs.

Table 3 Generic numerical and narrative RQOs associated with RIVER Ecological Categories

| Ecological Category | Generic narrative RQO                   | Instream and riparian habitat narrative RQO                                                                                                                                                                                                                                                    | Fish, macroinvertebrate and riparian vegetation narrative RQO | Numerical RQO              |
|---------------------|-----------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------|----------------------------|
| A                   | Unmodified, near natural.               | Very similar to natural reference conditions                                                                                                                                                                                                                                                   | Assemblage attributes as specified                            | $\geq A$ ( $\geq 92\%$ )   |
| A/B                 |                                         |                                                                                                                                                                                                                                                                                                |                                                               | $\geq A/B$ ( $\geq 88\%$ ) |
| B                   | Largely natural with few modifications. | Largely natural with few modifications. The flow regime has been only slightly modified and pollution is limited to sediment. A small change in natural habitats may have taken place. However, the ecosystem functions are essentially unchanged.                                             | Assemblage attributes as specified                            | $\geq B$ ( $\geq 82\%$ )   |
| B/C                 |                                         |                                                                                                                                                                                                                                                                                                |                                                               | $\geq B/C$ ( $\geq 78\%$ ) |
| C                   | Moderately modified.                    | Moderately modified. Loss and change of natural habitat and biota have occurred, but the basic ecosystem functions are still predominantly unchanged.                                                                                                                                          | Assemblage attributes as specified                            | $\geq C$ ( $\geq 62\%$ )   |
| C/D                 |                                         |                                                                                                                                                                                                                                                                                                |                                                               | $\geq C/D$ ( $\geq 58\%$ ) |
| D                   | Largely modified.                       | Largely modified. A large loss of natural habitat, biota and basic ecosystem functions has occurred.                                                                                                                                                                                           | Assemblage attributes as specified                            | $\geq D$ ( $\geq 42\%$ )   |
| D/E                 |                                         |                                                                                                                                                                                                                                                                                                |                                                               | $\geq D/E$ ( $\geq 38\%$ ) |
| E                   | Seriously modified.                     | Seriously modified. The loss of natural habitat, biota and basic ecosystem functions is extensive.                                                                                                                                                                                             | Assemblage attributes as specified                            | 20-39%                     |
| F                   | Critically / Extremely modified.        | Critically / Extremely modified. Modifications have reached a critical level and the system has been modified completely with an almost complete loss of natural habitat and biota. In the worst instances the basic ecosystem functions have been destroyed and the changes are irreversible. | Assemblage attributes as specified                            | 0-19%                      |

**Table 4 RIVERS: RQOs for habitat integrity, riparian vegetation, macro-invertebrates and fish in HIGH priority RUs**

| IUA      | Resource unit     | Biophysical node | River       | Instream Habitat Integrity | Riparian Habitat Integrity | Fish | Macro-invertebrates | Riparian vegetation |
|----------|-------------------|------------------|-------------|----------------------------|----------------------------|------|---------------------|---------------------|
| IUA T4-1 | MRU MT B          | MT_R_EWR1        | Mtamvuna    | B/C                        | C                          | B/C  | B                   | C/D                 |
| IUA U1-2 | MRU uMkhomazi B.3 | Mk_I_EWR1        | uMkhomazi   | B                          | C                          | B    | B/C                 | C                   |
| IUA U1-3 | MRU uMkhomazi C   | Mk_I_EWR2        | uMkhomazi   | B                          | B/C                        | B    | B                   | B                   |
| IUA U1-4 | MRU uMkhomazi D   | Mk_I_EWR3        | uMkhomazi   | C                          | C                          | B    | B                   | D                   |
| IUA U2-1 | MRU uMnA          | Mg_R_EWR1        | uMngeni     | C                          | C                          | D    | C                   | C/D                 |
| IUA U2-2 | MRU Kar C         | Mg_R_EWR3        | Karkloof    | C                          | B                          | B/C  | B                   | B                   |
| IUA U2-2 | MRU uMn B         | Mg_I_EWR2        | uMngeni     | D                          | C                          | D    | C                   | C                   |
| IUA U2-5 | MRU uMnD          | Mg_I_EWR5        | uMngeni     | D                          | D                          | D    | C/D                 | D                   |
| IUA U4-1 | MRU Heyns A       | Mv_I_EWR1        | Heinespruit | C                          | C                          | C    | C                   | B/C                 |
| IUA U4-3 | MRU Mvopi C       | Mv_I_EWR2        | Mvoti       | C                          | C                          | B/C  | B/C                 | C/D                 |
| IUA U7-1 | MRU Lovu D        | Lo_R_EWR1        | Lovu        | B/C                        | B/C                        | B/C  | B/C                 | B/C                 |

**Table 5 RQOs for RIVERS for water quality (ecological and user) in HIGH priority RUs**

| IUA                                   | RU                                                                            | Target EC            | Sub-Component (Indicator)                                        | Narrative RQO                                                                                                                                 | Numerical RQO                                                                                                                                                                                                |
|---------------------------------------|-------------------------------------------------------------------------------|----------------------|------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| IUA T4-1: Mfamvuna                    | RU EWR MT_R_EWR1 (T40E-05601, T40C-05520, T40D-05537, T40D-05584, T40D-05707) | <b>A/B</b><br>(>88%) | Turbidity/clarity or TSS levels                                  | Acceptable: A moderate change from present with temporary high sediment loads and turbidity during runoff event (aquatic ecosystems: driver). | None available                                                                                                                                                                                               |
| IUA U1-2: Middle uMkhomazi            | RU MK_I_EWR 1 downstream (U10F-04528 downstream)                              | <b>A/B</b><br>(>88%) | Turbidity/clarity or TSS levels                                  | Acceptable: A moderate change from present with temporary high sediment loads and turbidity during runoff event (aquatic ecosystems: driver). | None available                                                                                                                                                                                               |
| IUA U1-3: uMkhomazi Gorge             | RU MK_I_EWR 2 (U10J-04679, U10H-04638, U10H-04675)                            | <b>A/B</b><br>(>88%) | Nutrients (orthophosphate)<br>Electrical Conductivity (salts)    | Acceptable<br>Ideal                                                                                                                           | 50th percentile of the data must be less than 0.015 mg/L PO <sub>4</sub> -P (aquatic ecosystems: driver).<br>95th percentile of the data must be less than or equal to 30 mS/m (aquatic ecosystems: driver). |
| IUA U1-4: Lower uMkhomazi             | RU MK_I_EWR 3 (U10M-04746, U10J-04807, U10J-04799, U10J-04833, U10K-04838)    | <b>A/B</b><br>(>88%) | Nutrients (phosphate)<br>Electrical Conductivity (salts)         | Acceptable<br>Acceptable                                                                                                                      | 50th percentile of the data must be less than 0.015 mg/L PO <sub>4</sub> -P (aquatic ecosystems: driver).<br>95th percentile of the data must be less than or equal to 55 mS/m (aquatic ecosystems: driver). |
| IUA U2-1: uMngeni upstream Midmar Dam | RU Mg_R_EWR 1 (U20A-04253, U20C-04275)                                        | <b>B</b><br>(>82%)   | Nutrients (orthophosphate)<br>Faecal coliforms and <i>E.coli</i> | Acceptable<br>Recreation (full or partial contact)                                                                                            | 50th percentile of the data must be less than 0.015 mg/L PO <sub>4</sub> -P (aquatic ecosystems: driver).<br>Meet targets for recreational / other use*.                                                     |

| IUA                                                                    | RU                                           | Target EC            | Sub-Component (Indicator)                 | Narrative RQO                        | Numerical RQO                                                                                                                |
|------------------------------------------------------------------------|----------------------------------------------|----------------------|-------------------------------------------|--------------------------------------|------------------------------------------------------------------------------------------------------------------------------|
| IUA U2-2:<br>uMngeni,<br>Midmar to<br>Albert Falls                     | RU Mg_I_EWR 2<br>(U20E-04243,<br>U20E-04221) | <b>C/D</b><br>(>58%) | Nutrients<br>(orthophosphate)             | Tolerable                            | 50th percentile of the data must be less than 0.075 mg/L PO <sub>4</sub> -P (aquatic ecosystems: driver).                    |
|                                                                        |                                              |                      | Nutrients (Total Inorganic Nitrogen; TIN) | Acceptable                           | 50th percentile of the data must be less than 0.85 mg/L TIN-N (aquatic ecosystems: driver).                                  |
|                                                                        |                                              |                      | Electrical Conductivity (salts)           | Ideal                                | 95th percentile of the data must be less than or equal to 30 mS/m (aquatic ecosystems: driver).                              |
|                                                                        |                                              |                      | Faecal coliforms and <i>E. coli</i>       | Recreation (full or partial contact) | Meet targets for recreational / other use*.                                                                                  |
|                                                                        |                                              |                      | Toxics (ammonia, aluminium, lead)         | Tolerable                            | 95th percentile of the data must be within the D category in DWAF (2008).                                                    |
|                                                                        |                                              |                      | Other toxics                              | Ideal                                | 95th percentile of the data must be within ideal limits or A categories (DWAF, 2008) or the TWQR for toxics in DWAF (1996a). |
|                                                                        |                                              |                      | Nutrients (orthophosphate)                | Acceptable                           | 50th percentile of the data must be less than 0.015 mg/L PO <sub>4</sub> -P (aquatic ecosystems: driver).                    |
|                                                                        |                                              |                      | Nutrients (orthophosphate and TIN)        | Tolerable                            | 50th percentile of the data must be less than 0.075 mg/L PO <sub>4</sub> -P and 4.0 mg/L TIN-N (aquatic ecosystems: driver). |
| IUA U2-5:<br>uMngeni downstream<br>uMnsunduze confluence to Inanda Dam | RU Mg_I_EWR 5 (U20L-04435, U20M-04396)       | <b>C/D</b><br>(>58%) | Electrical Conductivity (salts)           | Acceptable                           | 95th percentile of the data must be less than or equal to 55 mS/m (aquatic ecosystems: driver).                              |
|                                                                        |                                              |                      | Faecal coliforms and <i>E. coli</i>       | Recreation (full or partial contact) | Meet targets for recreational / other use*.                                                                                  |

| IUA                      | RU                                       | Target EC            | Sub-Component (Indicator)           | Narrative RQO                                                                                                                                 | Numerical RQO                                                                                                                |
|--------------------------|------------------------------------------|----------------------|-------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|
| IUA U4-1 and U4-2: Mvoti | RU MV_I_EWR 1 (U40B-03770: Heinesspruit) | <b>C</b><br>(>62%)   | Nutrients (orthophosphate and TIN)  | Tolerable                                                                                                                                     | 50th percentile of the data must be less than 0.125 mg/L PO <sub>4</sub> -P and 2.5 mg/L TIN-N (aquatic ecosystems: driver). |
|                          |                                          |                      | Electrical Conductivity (salts)     | Ideal                                                                                                                                         | 95th percentile of the data must be less than or equal to 30 mS/m (aquatic ecosystems: driver).                              |
|                          |                                          |                      | Toxics (ammonia)                    | Tolerable                                                                                                                                     | 95th percentile of the data must be within the D category in DWAF (2008).                                                    |
|                          |                                          |                      | Other toxics                        | Ideal                                                                                                                                         | 95th percentile of the data must be within ideal limits or A categories (DWAF, 2008) or the TWQR for toxics in DWAF (1996a). |
|                          |                                          |                      | Faecal coliforms and <i>E. coli</i> | Recreation (full or partial contact)                                                                                                          | Meet targets for recreational / other use*.                                                                                  |
| IUA U4-3: Lower Mvoti    | RU MV_I_EWR 2 (U40H-04064)               | <b>C</b><br>(>62%)   | Nutrients (orthophosphate)          | Tolerable                                                                                                                                     | 50th percentile of the data must be less than 0.125 mg/L PO <sub>4</sub> -P (aquatic ecosystems: driver).                    |
| IUA U7-1: Lovu           | RU LO_R_EWR 1 (U70C-04859)               | <b>B/C</b><br>(>78%) | Turbidity/clarity or TSS levels     | Acceptable: A moderate change from present with temporary high sediment loads and turbidity during runoff event (aquatic ecosystems: driver). | None available                                                                                                               |

TWQR = Target Water Quality Range (DWAF, 1996a).

DWAF (1996a): South African Water Quality Guidelines: Volume 7: Aquatic Ecosystems.

DWAF (2008): Methods for determining the water quality component of the Ecological Reserve for rivers.

\* Note that all river faecal coliform and *E. coli* targets for full and partial contact are presented in terms of SA NMMP guidelines and health risks in terms of counts/100 mL, as follows:

|              |                       |                 |
|--------------|-----------------------|-----------------|
| Low<br>< 600 | Medium<br>600 - 2 000 | High<br>> 2 000 |
|--------------|-----------------------|-----------------|

Guidelines are provided in the absence of data or knowledge of recreational activities in the area.

Table 6 provides an indication of the Ecological Categories and associated RQOs of Estuaries for water quality, geomorphology, vegetation, invertebrates, fish and birds, respectively to achieve the target Ecological Category listed in Table 1. The configurations of target EC, as well as quantification of RQOs are based on best available information at the time of gazettement.

**Table 6 HIGH PRIORITY ESTUARIES: RQOs for hydrology, hydrodynamics, water quality, sediment dynamics, microalgae, macrophytes, invertebrates, fish and birds for HIGH priority Estuaries**

| Component                | Target EC  | RQOs                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|--------------------------|------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>uMKHOMAZI ESTUARY</b> |            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Hydrology                | <b>C/D</b> | <ul style="list-style-type: none"> <li>• Maintain the target EC (&gt;57%).</li> <li>• Monthly river inflow &gt; 1.0 m<sup>3</sup>/s</li> <li>• Monthly river inflow &gt; 2.0 m<sup>3</sup>/s persists for longer than three months in a row.</li> <li>• Monthly river inflow &gt; 5.0 m<sup>3</sup>/s for more than 30% of the time.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Hydrodynamics            | <b>A</b>   | <ul style="list-style-type: none"> <li>• Maintain the target EC (&gt;93%).</li> <li>• Mouth closure occurs less than 2 - 3 weeks in a year.</li> <li>• Mouth closure occurs for less than two years out of ten.</li> <li>• Mouth closure do not occur between September and April.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|                          |            | <p>Maintain the target EC (&gt;63%). RQOs for water quality in <b>river inflow</b> to protect estuarine ecosystem quality:</p> <ul style="list-style-type: none"> <li>• pH: 7.5 - 8.5.</li> <li>• DO &gt; 6 mg/L.</li> <li>• Turbidity (low flow &lt; 5m<sup>3</sup>/s): &lt; 15 NTU.</li> <li>• Turbidity (low flow &gt; 5m<sup>3</sup>/s): Naturally turbid.</li> <li>• Dissolved nutrients (low flow &lt; 5m<sup>3</sup>/s): NO<sub>x</sub>-N &lt; 150 µg/L; NH<sub>3</sub>-N &lt; 20 µg/L; PO<sub>4</sub>-P &lt; 10 µg/L.</li> <li>• Dissolved nutrients (high flow &gt; 5m<sup>3</sup>/s): NO<sub>x</sub>-N &lt; 200 µg/L; NH<sub>3</sub>-N &lt; 20 µg/L; PO<sub>4</sub>-P &lt; 20 µg/L.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|                          |            | <p>Minimum requirement for recreational use (DEA, 2012):</p> <ul style="list-style-type: none"> <li>• <i>Enterococci</i>: Ninety percentile (90%ile) over a 12 month running period ≤ 185 counts per 100 ml.</li> <li>• <i>E. coli</i>: Ninety percentile (90%ile) over a 12 month running period ≤ 500 counts per 100 ml.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Water quality            | <b>C</b>   | <p>RQOs for water quality in <b>estuary</b> to protect estuarine ecosystem quality::</p> <ul style="list-style-type: none"> <li>• Salinity: 0 in the upper reaches; &gt; 20 middle reaches during the low flow season; freshwater dominated for 70% of the time.</li> <li>• Turbidity (low flow &lt; 5m<sup>3</sup>/s): Average &lt; 10 NTU in any sampling survey.</li> <li>• pH: Average 7.0 - 8.5 in any sampling survey.</li> <li>• Dissolved oxygen: Average &gt; 6 mg/L in any sampling survey.</li> <li>• Dissolved nutrients (low flow &lt; 5m<sup>3</sup>/s): Average NO<sub>x</sub>-N &lt; 150 µg/L, NH<sub>3</sub>-N &lt; 20 µg/L and PO<sub>4</sub>-P &lt; 10 µg/L in any sampling survey.</li> <li>• Dissolved nutrients (high flow &gt; 5m<sup>3</sup>/s): Average NO<sub>x</sub>-N &lt; 300 µg/L, NH<sub>3</sub>-N &lt; 20 µg/L and PO<sub>4</sub>-P &lt; 20 µg/L in any sampling survey.</li> <li>• Total metal concentrations in water not to exceed target values as per SA Water Quality Guidelines for coastal marine waters (DWAF, 1995).</li> <li>• Total metal concentration in sediment not to exceed target values as per WIO Region guidelines (UNEP/Nairobi Convention</li> </ul> |

| Component            | Target EC  | RQOs                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|----------------------|------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                      |            | Secretariat and CSIR, 2009).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Sediment dynamics    | <b>B</b>   | Maintain the target EC (>78%)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Microalgae           | <b>B</b>   | Maintain the target EC (>78%).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Macrophytes          | <b>D</b>   | Maintain the target EC (>43%).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Invertebrates        | <b>B</b>   | Maintain the target EC (>78%).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Fish                 | <b>D</b>   | Maintain the target EC (>43%).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Birds                | <b>C</b>   | Maintain the target EC (>63%).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>MVOTI ESTUARY</b> |            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Hydrology            | <b>C/D</b> | <p>Maintain the target EC (&gt;57%).</p> <ul style="list-style-type: none"> <li>Monthly river inflow &gt; 1.0 m<sup>3</sup>/s.</li> <li>Monthly river inflow &gt; 2.0 m<sup>3</sup>/s persists for longer than three months in a row.</li> <li>Monthly river inflow &gt; 2.0 m<sup>3</sup>/s for more than 50% of the time.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Hydrodynamics        | <b>A</b>   | <p>Maintain the target EC (&gt;93%).</p> <ul style="list-style-type: none"> <li>Mouth closure occurs less than two - three weeks in a year.</li> <li>Mouth closure occurs for less than two years out of ten.</li> <li>Mouth closure do not occurs between November and June.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Water quality        |            | <p>Maintain the target EC (&gt;57%). RQOs for river inflow to protect estuarine ecosystem quality:</p> <ul style="list-style-type: none"> <li>pH: 7.0 - 8.5.</li> <li>DO &gt; 4 mg/L.</li> <li>Turbidity (low flow): &lt;15 NTU.</li> <li>Dissolved nutrients: NO<sub>x</sub>-N &lt; 400 µg/L; NH<sub>3</sub>-N &lt; 30 µg/L; PO<sub>4</sub>-P &lt; 25 µg/L.</li> </ul> <p>RQOs for water quality in <b>estuary</b> to protect estuarine ecosystem quality:</p> <ul style="list-style-type: none"> <li>Salinity: Average salinity in waters upstream of 1 km from mouth &lt;20 PSU ; Average salinity throughout estuary &lt;1 PSU for at least 50% of time</li> <li>Turbidity (low flow): Average &lt;10 NTU in any sampling survey.</li> <li>pH: Average 7.0 - 8.5 in any sampling survey.</li> <li>Dissolved oxygen: Average &gt; 4 mg/L in any sampling survey.</li> <li>Dissolved nutrients: Average NO<sub>x</sub>-N &lt; 400 µg/L, NH<sub>3</sub>-N &lt; 30 µg/L and PO<sub>4</sub>-P &lt; 25 µg/L in any sampling survey.</li> <li>Total metal concentrations in water not to exceed target values as per SA Water Quality Guidelines for coastal marine waters (DWAF, 1995).</li> <li>Total metal concentration in sediment not to exceed target values as per WIO Region guidelines (UNEP/Nairobi Convention Secretariat and CSIR, 2009).</li> </ul> |
|                      | <b>C/D</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|                      |            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Sediment dynamics    | <b>B/C</b> | Maintain the target EC (>72%).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Microalgae           | <b>B</b>   | Maintain the target EC (>78%).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |

| Component     | Target EC | RQOs                           |
|---------------|-----------|--------------------------------|
| Macrophytes   | D         | Maintain the target EC (>43%). |
| Invertebrates | E         | Maintain the target EC (>23%). |
| Fish          | D         | Maintain the target EC (>43%). |
| Birds         | E         | Maintain the target EC (>23%). |

Table 7 provides RQOs for rivers where water quality issues are a priority. Most rivers and variables are currently included in a monitoring programme and RQOs are immediately applicable. Recommendations to include additional variables or systems will be made in the relevant reports for the study.

**Table 7 RIVERS: Summary of key WATER QUALITY RQOs in HIGH WQ priority RUs of study area**

| IUA                       | RU                                                            | Sub-Component (Indicator)          | Narrative RQO                        | Numerical RQO                                                                                             |
|---------------------------|---------------------------------------------------------------|------------------------------------|--------------------------------------|-----------------------------------------------------------------------------------------------------------|
| IUA<br>T4-SC:<br>Mlamvuna | RU SC1: T40G-05616                                            | Nutrients (orthophosphate)         | Tolerable                            | 50th percentile of the data must be less than 0.125 mg/L PO <sub>4</sub> -P (aquatic ecosystems: driver). |
|                           |                                                               | Electrical Conductivity (salts)    | Acceptable                           | 95th percentile of the data must be less than or equal to 55 mS/m (aquatic ecosystems: driver).           |
|                           |                                                               | Faecal coliforms and <i>E.coli</i> | Recreation (full or partial contact) | Meet targets for recreational / other use*.                                                               |
| IUA<br>T5-2:<br>Umzimkulu | MRU MzA: MzEWR2i,<br>T51C-04760                               | Nutrients (phosphate)              | Acceptable                           | 50th percentile of the data must be less than 0.025 mg/L PO <sub>4</sub> -P (aquatic ecosystems: driver). |
|                           |                                                               | Electrical Conductivity (salts)    | Ideal                                | 95th percentile of the data must be less than or equal to 30 mS/m (aquatic ecosystems: driver).           |
|                           | MRU MzB: MzEWR3i,<br>T52C-04960,<br>T52D-04948,<br>T52D-05137 | Nutrients (orthophosphate)         | Acceptable                           | 50th percentile of the data must be less than 0.025 mg/L PO <sub>4</sub> -P (aquatic ecosystems: driver). |
|                           |                                                               | Electrical Conductivity (salts)    | Ideal                                | 95th percentile of the data must be less than or equal to 30 mS/m (aquatic ecosystems: driver).           |

| IUA                     | RU                                                                             | Sub-Component                      | Narrative RQO                                                                                                                                 | Numerical RQO                                                                                                                     |
|-------------------------|--------------------------------------------------------------------------------|------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|
| IUA U2-3:<br>uMngeni    | RU uMn7: U20F-04131,<br>U20F-04204,<br>U20F-04224,<br>U20G-04194<br>U20G-04215 | Nutrients<br>(orthophosphate)      | Acceptable                                                                                                                                    | 50th percentile of the data must be less than 0.025 mg/L PO <sub>4</sub> -P (aquatic ecosystems: driver).                         |
|                         |                                                                                | Faecal coliforms and <i>E.coli</i> | Recreation (full or partial contact)                                                                                                          | Meet targets for recreational / other use*.                                                                                       |
|                         |                                                                                | Turbidity/clarity or TSS levels    | Acceptable: A moderate change from present with temporary high sediment loads and turbidity during runoff event (aquatic ecosystems: driver). | None available                                                                                                                    |
|                         | MRU uMnC:<br>U20G-04240,<br>U20G-04259,<br>U20G-04385                          | Nutrients<br>(orthophosphate)      | Tolerable                                                                                                                                     | 50th percentile of the data must be less than 0.075 mg/L PO <sub>4</sub> -P (aquatic ecosystems: driver).                         |
|                         |                                                                                | Turbidity/clarity or TSS levels    | Acceptable: A moderate change from present with temporary high sediment loads and turbidity during runoff event (aquatic ecosystems: driver). | None available                                                                                                                    |
|                         |                                                                                | Faecal coliforms and <i>E.coli</i> | Recreation (full or partial contact)                                                                                                          | Meet targets for recreational / other use*.                                                                                       |
| IUA U2-4:<br>uMnsunduze | RU uMn8: U20J-04461,<br>U20J-04488                                             | Toxics (ammonia, iron, manganese)  | Ideal or A categories                                                                                                                         | 95th percentile of the data must be within the TWQR for toxics (DWAF, 1996a) or the upper limit of the A category in DWAF (2008). |
|                         |                                                                                | Turbidity/clarity or TSS levels    | Acceptable: A moderate change from present with temporary high sediment loads and turbidity during runoff event (aquatic ecosystems: driver). | None available                                                                                                                    |
|                         |                                                                                | Faecal coliforms and <i>E.coli</i> | Recreation (full or partial contact)                                                                                                          | Meet targets for recreational / other use*.                                                                                       |
|                         | MRU Duze D: U20J-04459                                                         | Turbidity/clarity or TSS levels    | Acceptable: A moderate change from present with temporary high sediment loads and turbidity during runoff event (aquatic ecosystems: driver). | None available                                                                                                                    |
|                         |                                                                                | Faecal coliforms and <i>E.coli</i> | Recreation (full or partial contact)                                                                                                          | Meet targets for recreational / other use*.                                                                                       |

| IUA                         | RU                                                                                                             | Sub-Component                      | Narrative RQO                                                                                                                                 | Numerical RQO                                                                                             |
|-----------------------------|----------------------------------------------------------------------------------------------------------------|------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|
| IUA U2-6:<br>uMngeni        | RU uMn10: U20M-04625,<br>U20M-04639,<br>U20M-04642,<br>U20M-04649,<br>U20M-04653,<br>U20M-04659,<br>U20M-04682 | Nutrients<br>(orthophosphate)      | Tolerable                                                                                                                                     | 50th percentile of the data must be less than 0.075 mg/L PO <sub>4</sub> -P (aquatic ecosystems: driver). |
|                             |                                                                                                                | Faecal coliforms and <i>E.coli</i> | Recreation (full or partial contact)                                                                                                          | Meet targets for recreational / other use*.                                                               |
|                             |                                                                                                                | Toxics (ammonia)                   | Tolerable                                                                                                                                     | 95th percentile of the data must be within the D category in DWAF (2008).                                 |
| IUA U3-1:<br>uMloti         | RU U3.1: U30A-04228,<br>U30A-04363,<br>U30A-04360                                                              | Nutrients<br>(orthophosphate)      | Acceptable                                                                                                                                    | 50th percentile of the data must be less than 0.025 mg/L PO <sub>4</sub> -P (aquatic ecosystems: driver). |
|                             |                                                                                                                | Turbidity/clarity or TSS levels    | Acceptable: A moderate change from present with temporary high sediment loads and turbidity during runoff event (aquatic ecosystems: driver). | None available                                                                                            |
|                             |                                                                                                                | Faecal coliforms and <i>E.coli</i> | Recreation (full or partial contact)                                                                                                          | Meet targets for recreational / other use*.                                                               |
| IUA U4-1 and<br>U4-2: Mvoti | RU Mv1: U40B-03708,<br>U40B-03740,<br>U40B-03832                                                               | Nutrients<br>(orthophosphate)      | Acceptable                                                                                                                                    | 50th percentile of the data must be less than 0.025 mg/L PO <sub>4</sub> -P (aquatic ecosystems: driver). |
|                             |                                                                                                                | Electrical Conductivity (salts)    | Ideal                                                                                                                                         | 95th percentile of the data must be less than or equal to 30 mS/m (aquatic ecosystems: driver).           |
|                             |                                                                                                                | Nutrients<br>(orthophosphate)      | Tolerable                                                                                                                                     | 50th percentile of the data must be less than 0.075 mg/L PO <sub>4</sub> -P (aquatic ecosystems: driver). |
| IUA U6-1:<br>Upper uMlazi   | RU U6.1: U60A-04533,<br>U60B-04614,<br>U60C-04555                                                              | Electrical Conductivity (salts)    | Tolerable                                                                                                                                     | 95th percentile of the data must be less than or equal to 85 mS/m (aquatic ecosystems: driver).           |
|                             |                                                                                                                | Turbidity/clarity or TSS levels    | Acceptable: A moderate change from present with temporary high sediment loads and turbidity during runoff event (aquatic ecosystems: driver). | None available                                                                                            |
|                             |                                                                                                                | Toxics (ammonia)                   | Tolerable                                                                                                                                     | 95th percentile of the data must be within the D category in DWAF (2008).                                 |
|                             |                                                                                                                | Faecal coliforms and <i>E.coli</i> | Recreation (full or partial contact)                                                                                                          | Meet targets for recreational / other use*.                                                               |
|                             |                                                                                                                |                                    |                                                                                                                                               |                                                                                                           |

| IUA                    | RU                  | Sub-Component                       | Narrative RQO                                                                                                                                 | Numerical RQO                                                                                             |
|------------------------|---------------------|-------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|
| IUA U6-1: Upper uMlazi | RU U6.2: U60C-04556 | Nutrients (orthophosphate)          | Tolerable                                                                                                                                     | 50th percentile of the data must be less than 0.075 mg/L PO <sub>4</sub> -P (aquatic ecosystems: driver). |
|                        |                     | Electrical Conductivity (salts)     | Tolerable                                                                                                                                     | 95th percentile of the data must be less than or equal to 85 mS/m (aquatic ecosystems: driver).           |
|                        |                     | Turbidity/clarity or TSS levels     | Acceptable: A moderate change from present with temporary high sediment loads and turbidity during runoff event (aquatic ecosystems: driver). | None available                                                                                            |
|                        |                     | Toxics (ammonia)                    | Tolerable                                                                                                                                     | 95th percentile of the data must be within the D category in DWAF (2008).                                 |
|                        |                     | Faecal coliforms and <i>E. coli</i> | Recreation (full or partial contact)                                                                                                          | Meet targets for recreational / other use*.                                                               |
| IUA U6-3: Mbokodweni   | RU U6.6: U60E-04792 | Electrical Conductivity (salts)     | Appropriate limits for industrial use                                                                                                         | Numerical limits can be found in DWAF (1996b) (industrial use: driver).                                   |
|                        |                     | Toxics                              | Appropriate limits for industrial use                                                                                                         | Numerical limits can be found in DWAF (1996b) (industrial use: driver).                                   |
|                        |                     | Faecal coliforms and <i>E. coli</i> | Recreation (full or partial contact)                                                                                                          | Meet targets for recreational / other use*.                                                               |

TWQR = Target Water Quality Range (DWAF, 1996a).

DWAF (1996a): South African Water Quality Guidelines: Volume 7: Aquatic Ecosystems.

DWAF (1996b): South African Water Quality Guidelines: Volume 3: Industrial Use.

DWAF (2008): Methods for determining the water quality component of the Ecological Reserve for rivers.

\* Note that all river faecal coliform and *E. coli* targets for full and partial contact are presented in terms of SA NMMP guidelines and health risks in terms of counts/100 mL, as follows:

|              |                       |                 |
|--------------|-----------------------|-----------------|
| Low<br>< 600 | Medium<br>600 - 2 000 | High<br>> 2 000 |
|--------------|-----------------------|-----------------|

Guidelines are provided in the absence of data or knowledge of recreational activities in the area.

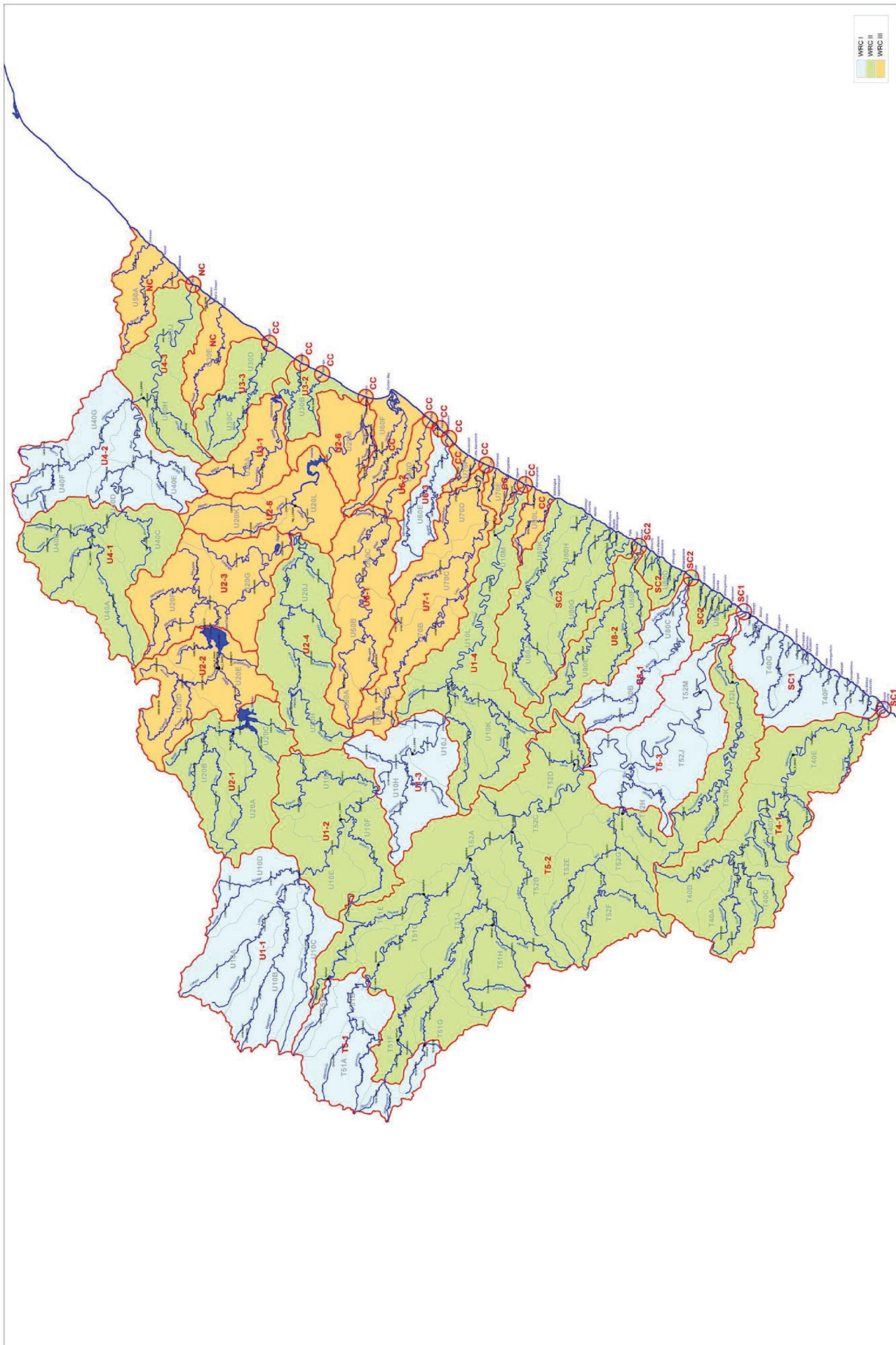


Figure 1 Water Resource Classes for IUAs of the Mvoti to Umzimkulu WMA

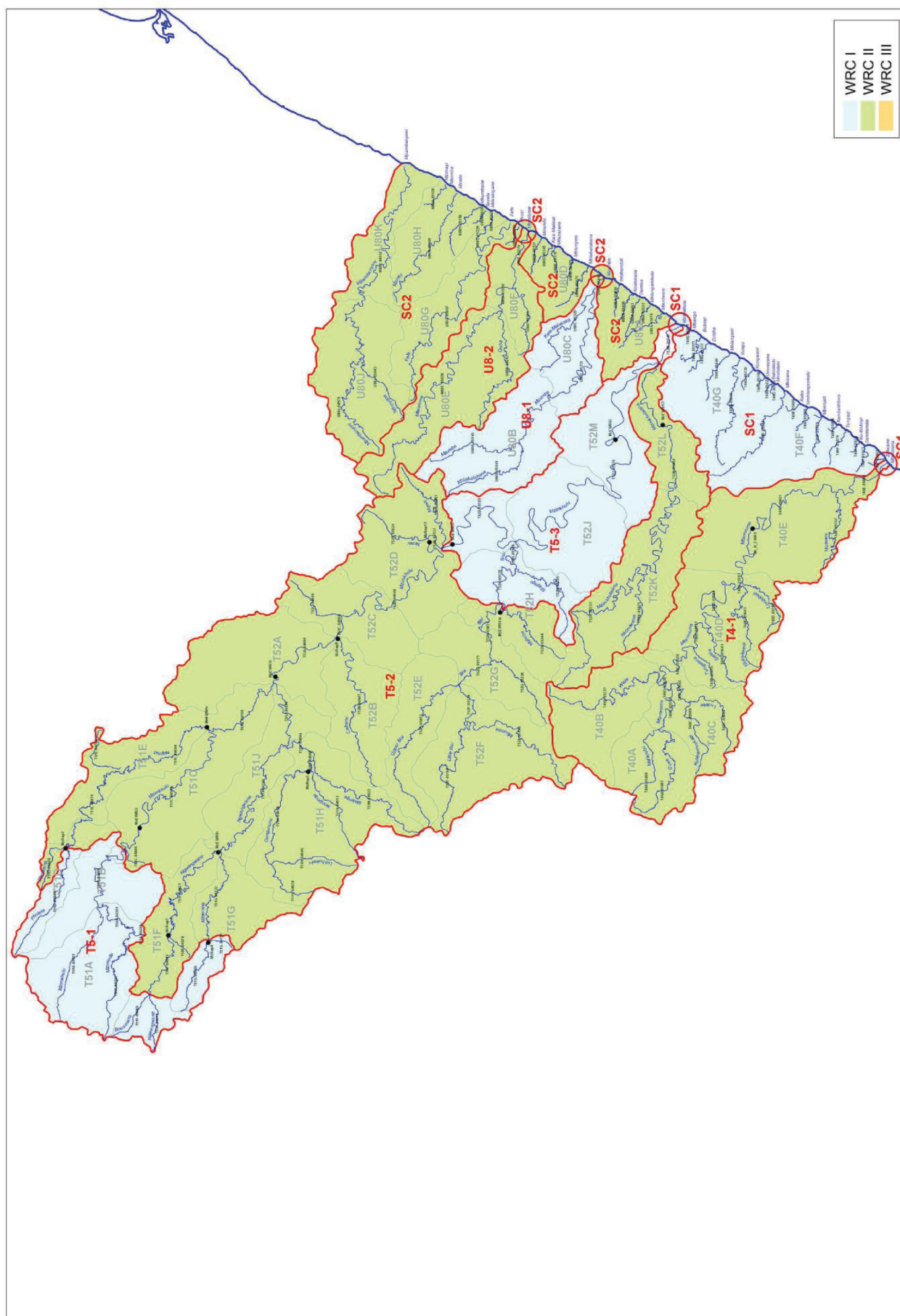


Figure 2 Water Resource Classes for IUAs of secondary Catchments T4, T5 and U8.

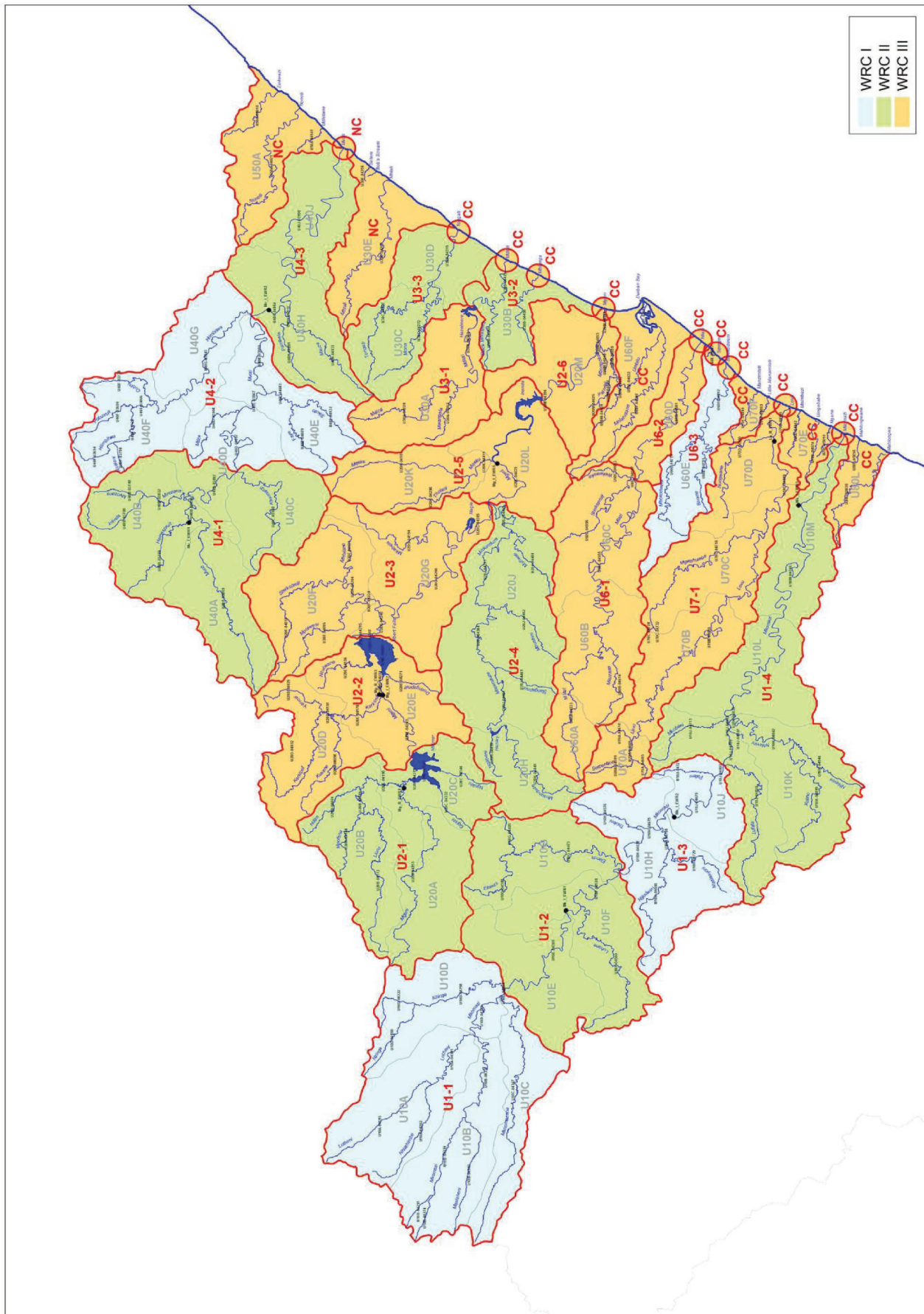


Figure 3 Water Resource Classes for IUAs of secondary Catchments U1 to U7.

UMTHETHO WEZAMANZI KAZWELONKE, 1998  
(UMTHETHO NOMBOLO 36 KA-1998)

**IZIGABA ZEMITHOMBO YAMANZI KANYE NEZINJONGO ZEZINGA LEMITHOMBO YEZIZIBA  
ZOMVOTI KUYA KUMZIMKULU**

Mina, Sfiso Mkhize, esikhundleni sami njengoMqondisi-Jikelele oyibamba kuMnyango Wezamanzi Nokuthuthwa Kwendle, futhi ngokugunyazwe ngokufanele ngokwesigaba 13 (1) nombolo 63 (1) (a) soMthetho Wezamanzi Kazwelonke, 1998 (uMthetho Nombolo 36 ka-1998, ngalokhu ngishicilela, isaziso sezigaba zemithombo yamanzi kanye nezinjongo zekhwalthi yemithombo yeziziba zoMvoti ukuya eMzimkulu.

Umqondisi: Ukuhlukaniswa Kwemithombo Yamanzi

Ukunakwa: UNkk Lebogang Matlala

Umnyango Wezamanzi Nokuthuthwa Kwendle

Isakhiwo seNdinaye 5046

178 Umgwaqo u-*Francis Baard*

*I-Private Bag* x 313

*Pretoria*

0001

*E-mail:* matlalal@dws.gov.za

*i-Facsimile:* 012 336 6712



UMnu SIFISO MKHIZE

UMQONDISI-JIKELELE OYIBAMBA KUMNYANGO WEZAMANZI NOKUTHUTHWA KWENDLE

USUKU: 08/11/2017

**UHLELO****INCAZELO YOMTHOMBO WAMANZI**

Izigaba kanye nezinjongo zekhwalthi yemithombo zenzelwe wonke umuntu noma ingxenye yayo yonke imithombo yamanzi ebalulekile ngaphakathi kweziziba zoMvoti ukuya eMzimkulu njengoba kuchazwe ngezansi:

Iziziba: UMvoti ukuya eMzimkulu

Izindawo zokugeleza kwamanzi: Izindawo ezigeleza amanzi eziphakeme i-T40 (Mtamvuna) ne-T52 (Umzimkulu)

Umfula (imi): Imifula emikhulu ihlanganisa uMvoti, uMngeni, uMkhomazi, uMzimkulu kanye nezimiso zomfula uMtamvuna

**A. IZIGABA ZEMITHOMBO YAMANZI NJENGOBA KUDINGEKA NGOKWESIGABA 13 (1) (A) SOMTHETHO WAMANZI KAZWELONKE, 1998**

- i. Isifinyezo sezigaba zemithombo yamanzi ngamayunithi okuhlaziya adidiyelwe (IUA) (Umdwebo 1-3) kanye nezigaba zemvelo (EC) nge-*biophysical node* zibekwe kuThebula 1.
- ii. Ama-IUA ahlukaniwa ngokwezinga lawo lokusetshenziswa okuvumelekile nokuvikelwa njengendlela Yesigaba I: ekhombisa ukuvikelwa okuphezulu kwemvelo nokusetshenziswa okuncane: Isigaba II sibonisa ukuvikelwa okulinganisiwe nokusetshenziswa okulinganiselwe; kanye neSigaba III esikhombisa ukuvikelwa okuncane okungapheli nokusetshenziswa okuphezulu.
- iii. Ithebula 1 lihlinzeka i-IUA, izigaba zayo zokusebenza kwamanzi kanye nezigaba zayo zemithombo yamanzi nokucushwa kwesiziba sayo. Ukucushwa kwesiziba kuqukethe ama-*biophysical node* amaningi amele ukufinyelela komfula noma amayunithi emithombo (ama-RU). Impokophelo ye-EC ye-RM ngayinye iyahlinzekwa kwi-IUA.

**B. IZINJONGO ZEZINGA LOMTHOMBO ZEMITHOMBO YAMANZI NJENGOBA KUDINGEKA NGOKWESIGABA 13(1)(b) SOMTHETHO WAMANZI KAZWELONKE, 1998**

- i. Izinjongo zekhwalthi yemithombo (i-RQO) zichazwa kwiyunithi ngayinye yezinsiza ezibekwe phambili (RU) yazo yonke i-IUA ngokwenani lamanzi, indawo yokuhlala nezinto eziphilayo zendawo, kanye nekhwalithi yamanzi.
- ii. Ithebula 2 kuya kuThebula 4 lihlinzeka ngama-RQO e-RU ngayinye emelwe yi-*biophysical node*.
- iii. Ithebula 5 limele i-RQO yekhwalthi yamanzi e-IUA ngayinye yamaYunithi Emithombo asemqoka KAKHULU amelwe yizindawo ze-EWR
- iv. Ithebula 6 limele ama-EC kanye nama-RQO ahlobene nezizalo zemifula yekhwalthi yamanzi, i-geomorphology, izimila, izilwane ezingenamgogodla, izinhlanzi kanye nezinyoni, ngokulandela ukufezekisa injongo eyi-EC ebalulwe kuThebula 1.
- v. Ithebula 7 limele ama-RQO ekhwalthi yamanzi ekhwalthi yamanzi e-RU ngayinye ESEMQOKA KAKHULU. Ama-RQO azosebenza kusukela ngosuku okusayinwe ngalo njengoba kunqunywe ngokweSigaba 13 (1) soMthetho waManzi kaZwelonke, 1998, Ngaphandle uma kuchazwe nguNgqongqoshe ngenye indlela.

# 1. IZIGABA ZEMITHOMBO YAMANZI KANYE NOKUCUSHWA KWEZIZIBA

Ithebula 1: Isifinyezo Sezigaba Zemithombo Yamanzi kanye Nezigaba Zezinto Eziphilayo

| IUA           | Isigaba Somthombo Wamanzi | Ama-Biophysical Node | Igama lomfula  | Injongo EC |
|---------------|---------------------------|----------------------|----------------|------------|
| T4: UMTAMVUNA |                           |                      |                |            |
| T4-1          | II                        | T40A-05450           | uMafadobo      | B          |
|               |                           | T40A-05487           | iGoxe          | B          |
|               |                           | T40B-05337           | iWeza          | C          |
|               |                           | T40C-05510           | uMtamvuna      | B          |
|               |                           | T40C-05520           | uMtamvuna      | C          |
|               |                           | T40C-05530           | uMtamvuna      | B          |
|               |                           | T40C-05566           | iLudeke        | B          |
|               |                           | T40C-05589           | iKuNtlamvukazi | B          |
|               |                           | T40C-05600           | iLudeke        | B          |
|               |                           | T40D-05537           | uMtamvuna      | C          |
|               |                           | T40D-05584           | uMtamvuna      | C          |
|               |                           | T40D-05615           | uTungwana      | B          |
|               |                           | T40D-05643           | iGwala         | B          |
|               |                           | T40D-05683           | iNtelekweni    | B/C        |
|               |                           | T40D-05707           | uMtamvuna      | C          |
|               |                           | T40D-05719           | iLondobezi     | B          |
|               |                           | Mt_R_EWR1            | uMtamvuna      | C          |
|               |                           | T40E-05767           | iHlolweni      | B          |
| T5: UMZIMKULU |                           |                      |                |            |
| T5-1          | I                         | T51A-04431           | uMzimkhulu     | B          |
|               |                           | T51A-04522           | uMzimude       | B          |
|               |                           | T51A-04608           |                | B          |
|               |                           | T51A-04551           | uMzimude       | B          |
|               |                           | T51B-04421           | uMzimkhulu     | B          |
|               |                           | T51D-04404           | iPholela       | B          |
|               |                           | T51F-04566           | iBoesmans      | A          |
|               |                           | T51F-04674           |                | C          |
|               |                           | T51G-04669           | iNdawana       | B          |
|               |                           | T51G-04722           | iNdawana       | C          |
| T5-2          | II                        | T51C-04606           |                | C          |
|               |                           | MzEWR2i              | uMzimkhulu     | B          |
|               |                           | T51D-04460           | iPholelana     | D/E        |
|               |                           | T51E-04536           |                | C          |
|               |                           | MzEWR9r              | iPholela       | B/C        |
|               |                           | T51F-04611           | iNgwangwane    | A          |
|               |                           | MzEWR8r              | iNgwangwane    | C          |
|               |                           | T51G-04751           |                | B          |
|               | T51H-04828                | iGungununu           | A/B            |            |

| IUA            | Isigaba<br>Somthombo<br>Wamanzi | Ama- <i>Biophysical</i><br>Node | Igama lomfula        | Injongo EC |
|----------------|---------------------------------|---------------------------------|----------------------|------------|
|                |                                 | T51H-04846                      | iLubhukwini          | A          |
|                |                                 | T51H-04913                      | iNonginqa            | B/C        |
|                |                                 | T51H-04923                      | uMalenge             | B          |
|                |                                 | T51H-04808                      | iGungununu           | B          |
|                |                                 | T51H-04884                      | iGungununu           | B/C        |
|                |                                 | T51H-04908                      | iGungununu           | B/C        |
|                |                                 | MzEWR3i                         | uMzimkhulu           | B          |
|                |                                 | T52B-04947                      | iCabane              | B          |
|                |                                 | T52C-04880                      |                      | C          |
|                |                                 | T52C-04960                      | uMzimkhulu           | B          |
|                |                                 | T52D-05024                      | iNcalu               | B          |
|                |                                 | T52D-05061                      | uMgodi               | B          |
|                |                                 | T52D-04948                      | uMzimkhulu           | B          |
|                |                                 | T52D-05137                      | uMzimkhulu           | B          |
|                |                                 | T52E-05053                      | <i>i-Upper</i> Bisi  | B          |
|                |                                 | T52F-05104                      | <i>i-Little</i> Bisi | C          |
|                |                                 | T52F-05190                      | uMbumba              | B/C        |
|                |                                 | T52F-05139                      | <i>i-Little</i> Bisi | B          |
|                |                                 | T52G-05226                      | uMbumbane            | B/C        |
|                |                                 | T52G-05171                      | iBisi                | B          |
|                |                                 | T52H-05244                      | uMahobe              | B/C        |
|                |                                 | T52H-05178                      | iBisi                | B          |
|                |                                 | T52K-05475                      | iNkondwana           | B/C        |
|                |                                 | MzEWR17i                        | uMzimkhulwana        | B          |
| T5-3           | I                               | T52H-05295                      | iMagogo              | B          |
|                |                                 | MzEWR14r                        | iBisi                | B/C        |
|                |                                 | T52H-05189                      | iBisi                | B          |
|                |                                 | MzEWR6i                         | uMzimkhulu           | A/B        |
| YU1: UMKHOMAZI |                                 |                                 |                      |            |
| U1-1           | I                               | U10A-04115                      | iLotheni             | A/B        |
|                |                                 | U10A-04202                      | iNhlatimbe           | B          |
|                |                                 | U10A-04301                      | iLotheni             | B          |
|                |                                 | U10B-04239                      | uMkhomazi            | B          |
|                |                                 | U10B-04251                      | uMkhomazi            | A          |
|                |                                 | U10B-04274                      | iNhlangeni           | A          |
|                |                                 | U10B-04337                      | uMkhomazi            | B          |
|                |                                 | U10B-04343                      | uMqatsheni           | B          |
|                |                                 | U10C-04347                      | uMkhomazana          | B          |
|                |                                 | U10D-04199                      | iNzinga              | A          |
|                |                                 | U10D-04222                      | <i>i-Rooidraai</i>   | B          |
|                |                                 | U10D-04298                      | iNzinga              | B          |
|                |                                 | U10D-04349                      | uMkhomazi            | B          |

| IUA          | Isigaba<br>Somthombo<br>Wamanzi | Ama-Biophysical<br>Node | Igama lomfula   | Injongo EC |
|--------------|---------------------------------|-------------------------|-----------------|------------|
|              |                                 | U10D-04434              | uMkhomazi       | B          |
| U1-2         | II                              | U10E-04380              | uMkhomazi       | C          |
|              |                                 | U10F-04528              | uMkhomazi       | C          |
|              |                                 | Mk_I_EWR1               | uMkhomazi       | C          |
|              |                                 | U10G-04388              | i-Elands        | B          |
|              |                                 | U10G-04405              |                 | C          |
|              |                                 | U10G-04473              | i-Elands        | B          |
|              |                                 | U1-3                    | I               | U10H-04576 |
| U10H-04666   | iNgudwini                       |                         |                 | B          |
| U10H-04708   | iNgudwini                       |                         |                 | B          |
| U10H-04729   | uMzalanyoni                     |                         |                 | C          |
| Mk_I_EWR2    | uMkhomazi                       |                         |                 | B          |
| U10J-04721   | i-Pateni                        |                         |                 | B          |
| U1-4         | II                              | U10J-04713              | uMkobeni        | B          |
|              |                                 | U10J-04820              | iLufafa         | B          |
|              |                                 | U10J-04837              |                 | A/B        |
|              |                                 | U10K-04842              | iNhlabini       | B          |
|              |                                 | U10K-04899              | iXobho          | C/D        |
|              |                                 | U10K-04946              | iNhlabini       | B/C        |
|              |                                 | Mk_I_EWR3               | uMkhomazi       | C          |
| YU2: UMNGENI |                                 |                         |                 |            |
| U2-1         | II                              | Mg_R_EWR1               | uMngeni         | C/D        |
|              |                                 | U20B-04074              | iNdiza          | B          |
|              |                                 | U20B-04144              | uMpofana        | C          |
|              |                                 | U20B-04173              | i-Lions         | B          |
|              |                                 | U20B-04185              | i-Lions         | B/C        |
|              |                                 | U20C-04190              | i-Lions         | B          |
|              |                                 | U20C-04332              | iGqishi         | B          |
|              |                                 | U20C-04340              | iNguklu         | C          |
| U2-2         | III                             | U20D-04029              | i-Yarrow        | B          |
|              |                                 | U20D-04032              | i-Karkloof      | C          |
|              |                                 | U20D-04098              | iKusane         | D          |
|              |                                 | U20D-04151              | i-Karkloof      | B          |
|              |                                 | U20E-04136              | iNculwane       | C          |
|              |                                 | Mg_R_EWR3               | i-Karkloof      | B          |
|              |                                 | U20E-04221              | uMngeni         | B/C        |
|              |                                 | Mg_I_EWR 2              | uMngeni         | C          |
|              |                                 | U20E-04271              | i-Doring Spruit | B/C        |
|              |                                 | U20F-04011              | i-Sterkspruit   | C/D        |
| U2-3         | III                             | U20F-04095              | iMpolweni       | C/D        |
|              |                                 | U20F-04131              | uMhlalane       | C/D        |
|              |                                 | U20F-04204              | i-Sterkspruit   | B/C        |

| IUA                            | Isigaba Somthombo Wamanzi | Ama-Biophysical Node | Igama lomfula     | Injongo EC |
|--------------------------------|---------------------------|----------------------|-------------------|------------|
|                                |                           | U20F-04224           | iMpolweni         | B/C        |
|                                |                           | U20G-04194           | uMkabela          | C/D        |
|                                |                           | U20G-04215           | i-Cramond Stream  | B/C        |
|                                |                           | U20G-04240           | uMngeni           | B/C        |
|                                |                           | U20G-04259           | uMngeni           | B/C        |
|                                |                           | U20G-04385US         | uMngeni           | B/C        |
| U2-4                           | II                        | U20H-04410           | iNqabeni          | C          |
|                                |                           | U20H-04449           | uMnsunduze        | C          |
|                                |                           | Mg_R_EWR4            | uMnsunduze        | D          |
|                                |                           | U20J-04391           | uMnsunduze        | C          |
|                                |                           | U20J-04401           | uMnsunduze        | D          |
|                                |                           | U20J-04452           | iMpushini         | B          |
|                                |                           | U20J-04459           | uMnsunduze        | C          |
|                                |                           | U20J-04461           | i-Slang Spruit    | C/D        |
|                                |                           | U20J-04488           | uMshwati          | B          |
| U2-5                           | III                       | U20K-04181           | uMqeku            | C          |
|                                |                           | U20K-04296           | iTholeni          | B/C        |
|                                |                           | U20K-04411           | uMqeku            | B          |
|                                |                           | Mg_I_EWR 5           | uMngeni           | D          |
| U2-6                           | III                       | U20M-04625           |                   | D          |
|                                |                           | U20M-04639           | i-Palmiet         | D          |
|                                |                           | U20M-04642           | i-Palmiet         | D          |
|                                |                           | U20M-04649           | iMbongokazi       | C          |
|                                |                           | U20M-04653           | i-Palmiet         | C/D        |
|                                |                           | U20M-04659           | i-Palmiet         | C          |
|                                |                           | U20M-04682           |                   | C/D        |
| YU3: UMDLOTI KANYE NOTHONGATHI |                           |                      |                   |            |
| U3-1                           | III                       | U30A-04228           | uMdloti           | B          |
|                                |                           | U30A-04360           | uMdloti           | D          |
|                                |                           | U30A-04363           | uMwangala         | B          |
| U3-2                           | II                        | U30B-04465           | i-Black Mhlashini | B/C        |
| U3-3                           | II                        | U30C-04227           | uThongathi        | B/C        |
|                                |                           | U30C-04272           | i-Mona            | B          |
| YU4: UMVOTI                    |                           |                      |                   |            |
| U4-1                           | II                        | U40A-03869           | uMvoti            | B          |
|                                |                           | U40B-03708           | i-Intinda         | C          |
|                                |                           | U40B-03740           | uMvozana          | C          |
|                                |                           | Mv_I_EWR_1           | i-Heinespruit     | C          |
|                                |                           | U40B-03832           | uMvozana          | C/D        |
|                                |                           | U40B-03896           | uMvoti            | C          |
|                                |                           | U40C-03982           | iKhamanzi         | B          |
|                                |                           | U40D-03867           | uMvoti            | B          |

| IUA                           | Isigaba Somthombo Wamanzi | Ama-Biophysical Node | Igama lomfula | Injongo EC |
|-------------------------------|---------------------------|----------------------|---------------|------------|
| U4-2                          | I                         | U40D-03908           | uMtize        | B          |
|                               |                           | U40D-03957           | uMvoti        | B          |
|                               |                           | U40E-03967           | uMvoti        | B/C        |
|                               |                           | U40E-03985           | uMvoti        | B          |
|                               |                           | U40E-04079           | i-Faye        | B          |
|                               |                           | U40E-04082           | iSikoto       | B          |
|                               |                           | U40E-04137           | iSikoto       | B          |
|                               |                           | U40F-03690           | i-Potspruit   | C          |
|                               |                           | U40F-03694           | i-Hlimbitwa   | C          |
|                               |                           | U40F-03730           | iCubhu        | C          |
|                               |                           | U40F-03769           | iHlimbitwa    | C          |
|                               |                           | U40F-03790           | iNseleni      | B/C        |
|                               |                           | U40F-03806           | iHlimbitwa    | B          |
|                               |                           | U40G-03843           | iHlimbitwa    | B          |
| U4-3                          | II                        | Mv_I_EWR_2           | uMvoti        | C          |
|                               |                           | U40H-04091           | iPambela      | B          |
|                               |                           | U40H-04117           | iNsuze        | B          |
|                               |                           | U40H-04133           | iNsuze        | B          |
| YU6: UMLAZI                   |                           |                      |               |            |
| U6-1                          | III                       | U60A-04533           | uMlazi        | C          |
|                               |                           | U60B-04614           | Mkuzane       | C/D        |
|                               |                           | U60C-04555           | uMlazi        | C/D        |
|                               |                           | U60C-04556           | i-Sterkspruit | D          |
|                               |                           | U60C-04613           | iWekeweke     | C          |
| U6-2                          | III                       | U60D-04661           | uMlazi        | C/D        |
| U6-3                          | I                         | U60E-04714           | iMbokodweni   | B          |
|                               |                           | U60E-04792           | iMbokodweni   | C          |
|                               |                           | U60E-04795           | iBivane       | B          |
| YU7: ILOVU                    |                           |                      |               |            |
| U7-1                          | III                       | U70A-04599           | i-Serpentine  | C          |
|                               |                           | U70A-04609           | iLovu         | B/C        |
|                               |                           | U70A-04618           |               | C          |
|                               |                           | U70A-04685           | iLovu         | C          |
|                               |                           | U70B-04655           | iLovu         | C/D        |
|                               |                           | U70C-04710           | uMgwahumbe    | C          |
|                               |                           | U70C-04724           |               | C          |
|                               |                           | U70C-04732           |               | C          |
|                               |                           | Lo_R_EWR1            | iLovu         | B/C        |
|                               |                           | U70D-04800           | iNungwane     | B/C        |
| YU8: UMTWALUME KANYE NOMZUMBE |                           |                      |               |            |
| U8-1                          | I                         | U80B-05145           | uMzumbe_Est   | B          |
|                               |                           | U80B-05161           | uMhlabatshane | B          |

| IUA                    | Isigaba<br>Somthombo<br>Wamanzi | Ama-Biophysical<br>Node | Igama lomfula | Injongo EC |
|------------------------|---------------------------------|-------------------------|---------------|------------|
| U8-2                   | II                              | U80C-05231              | uMzumbe       | B          |
|                        |                                 | U80C-05329              | Kwa-Malukaka  | B          |
|                        |                                 | U80E-05028              | uMtwalume     | C          |
|                        |                                 | U80E-05212              | iQuha         | B          |
|                        |                                 | U80F-05258              | uMtwalume     | B          |
|                        |                                 | U80F-05301              | uMngeni       | B          |
| AMAQOQO ASENINGIZIMU 1 |                                 |                         |               |            |
| Southern Cluster 1     | I                               | T40F-05666              | iMbizana      | B          |
|                        |                                 | T40G-05616              | iVungu        | B          |
|                        |                                 | Isizalo                 | uMtamvuma     | A/B        |
|                        |                                 | Isizalo                 | iZolwane      | B          |
|                        |                                 | Isizalo                 | i-Sandhlunlu  | C          |
|                        |                                 | Isizalo                 | iKuboyoyi     | B          |
|                        |                                 | Isizalo                 | iTongazi      | B/C        |
|                        |                                 | Isizalo                 | iKandanhlovu  | B          |
|                        |                                 | Isizalo                 | uMpenjati     | B          |
|                        |                                 | Isizalo                 | Umhlangankulu | C          |
|                        |                                 | Isizalo                 | iKaba         | C          |
|                        |                                 | Isizalo                 | uMbizana      | B          |
|                        |                                 | Isizalo                 | uMvuthsini    | B/C        |
|                        |                                 | Isizalo                 | iBilanhlo     | C          |
|                        |                                 | Isizalo                 | Umvazana      | C          |
|                        |                                 | Isizalo                 | iKongweni     | EF         |
|                        |                                 | Isizalo                 | iVungu        | B          |
|                        |                                 | Isizalo                 | uMhlangeni    | C          |
|                        |                                 | Isizalo                 | iZotsha       | B          |
|                        |                                 | Isizalo                 | iBoboyi       | B/C        |
|                        |                                 | Isizalo                 | uMbango       | EF         |
|                        |                                 | Isizalo                 | Umzimkulu     | B          |
| AMAQOQO ASENINGIZIMU 2 |                                 |                         |               |            |
| Southern Cluster 2     | II                              | U80G-05097              | iFafa         | B          |
|                        |                                 | U80H-05109              | uMzinto       | C          |
|                        |                                 | U80H-05120              | uMzimayi      | C          |
|                        |                                 | U80H-05186              | uMkhumbane    | C          |
|                        |                                 | U80H-05202              | iSezela       | C          |
|                        |                                 | U80H-05229              | uMdesingane   | C          |
|                        |                                 | U80J-04979              | uMpambanyoni  | B          |
|                        |                                 | U80J-05043              | iNdonyane     | B/C        |
|                        |                                 | U80K-04952              | uMpambanyoni  | C          |
|                        |                                 | Isizalo                 | uMtentwini    | C          |
|                        |                                 | Isizalo                 | uMhlangamkulo | C          |
|                        |                                 | Isizalo                 | iDomba        | D          |

| IUA               | Isigaba Somthombo Wamanzi | Ama-Biophysical Node | Igama lomfula             | Injongo EC |
|-------------------|---------------------------|----------------------|---------------------------|------------|
|                   |                           | Isizalo              | iKoshwani                 | C          |
|                   |                           | Isizalo              | i-Inhshambili             | C          |
|                   |                           | Isizalo              | uMzumbe                   | C/D        |
|                   |                           | Isizalo              | uMhlabatshane             | B          |
|                   |                           | Isizalo              | uMhlungwa                 | C          |
|                   |                           | Isizalo              | uMfazazana                | C          |
|                   |                           | Isizalo              | iKwaMakazi                | B          |
|                   |                           | Isizalo              | uMnamfu                   | C          |
|                   |                           | Isizalo              | uMtwalume                 | C          |
|                   |                           | Isizalo              | uMvuzi                    | C          |
|                   |                           | Isizalo              | iFafa                     | C          |
|                   |                           | Isizalo              | uMdesingane               | D          |
|                   |                           | Isizalo              | iSezela                   | C          |
|                   |                           | Isizalo              | uMkumbane                 | C          |
|                   |                           | Isizalo              | uMzinto                   | C/D        |
|                   |                           | Isizalo              | iNkomba                   | C          |
|                   |                           | Isizalo              | uMzimayi                  | C/D        |
|                   |                           | Isizalo              | uMpambanyoni              | C          |
| IQOQO ELIPHAKATHI |                           |                      |                           |            |
| Central Cluster   | III                       | U80L-05020           | aMahlongwa                | B/C        |
|                   |                           | U70E-04942           | Umsimbazi                 | C          |
|                   |                           | U70E-04974           | uMgababa                  | C          |
|                   |                           | U70F-04845           | aManzimtoti               | C          |
|                   |                           | U70F-04893           | i-Little amanzimtoti      | C          |
|                   |                           | Isizalo              | aMahlongwa                | B          |
|                   |                           | Isizalo              | uMahlangwana              | B          |
|                   |                           | Isizalo              | uMkhomazi                 | B/C        |
|                   |                           | Isizalo              | iNgane                    | C          |
|                   |                           | Isizalo              | Umgababa                  | B/C        |
|                   |                           | Isizalo              | uMsimbazi                 | B          |
|                   |                           | Isizalo              | iLovu                     | B/C        |
|                   |                           | Isizalo              | i-Little aMmanzimtoti     | EF         |
|                   |                           | Isizalo              | aManzimtoti               | D          |
|                   |                           | Isizalo              | uMmbokotwini              | EF         |
|                   |                           | Isizalo              | iSipingo                  | EF         |
|                   |                           | Isizalo              | i-Durban Bay              | EF         |
|                   |                           | Isizalo              | i-Durban Bay Shallow Zone | D          |
|                   |                           | Isizalo              | uMngeni                   | D          |
|                   |                           | Isizalo              | uMhlanga                  | B          |
| IQOQO LENYAKATHO  |                           |                      |                           |            |
| Northern Cluster  | III                       | U30E-04207           | uMhlali                   | C          |
|                   |                           | U50A-04018           | iZinkwazi                 | B/C        |

| IUA | Isigaba Somthombo Wamanzi | Ama-Biophysical Node | Igama lomfula | Injongo EC |
|-----|---------------------------|----------------------|---------------|------------|
|     |                           | U50A-04021           | iNonoti       | B/C        |
|     |                           | U50A-04141           | uMdlotane     | B/C        |
|     |                           | Isizalo              | uMhlali       | D          |
|     |                           | Isizalo              | iBobstream    | B/C        |
|     |                           | Isizalo              | iSeteni       | B/C        |
|     |                           | Isizalo              | uMvoti        | C/D        |
|     |                           | Isizalo              | uMdlotane     | A/B        |
|     |                           | Isizalo              | iNonoti       | C          |
|     |                           | Isizalo              | iZinkwazi     | B          |

## IZINJONGO ZEKHWALITHI YEMITHOMBO

Izinjongo Zekhwalthi Yemithombo zeYunithi Yomthombo ngayinye (RU) zibekwe kumaThebula 2 kuya ku-7 ngezansi. WOonke ama-RQO ayasebenza kusukela ngosuku okusayinwe ngalo njengoba ngaphandle uma kuchazwe nguNgqongqoshe ngenye indlela.

Ithebula 2 linikeza inkomba yama-RQO amanzi emifula echazwe ngokugobhoza okusezingosini zokudingeka kwamanzi emvelo (EWR). Lezi zibalo ezifingqiwe zimelela uhlelo lokugeleza oludingekayo emfuleni lapho ukuhlukahluka kuncike ezimeni zezinkathi zonyaka kanye nezindlela zesikhashana zokugeleza kwemvelo. Ukugeleza okuyinkathazo kwezinyanga zonke kumele ukudingeka kokugeleza okuncane kwezinyanga zonke.

### Ithebula 2 IMIFULA: Isifinyezo sama-RQO amanzi ayinhloko

| i-RU                      | i-Biophysical node | Umfula    | Injongo EC | i-nMAR <sup>1</sup> (MCM) | Ukugeleza okuncane (%nMAR) <sup>2</sup> | Ukugeleza okuphelele (%nMAR) | Izinyanga | i-RQO <sup>3</sup>  |      |
|---------------------------|--------------------|-----------|------------|---------------------------|-----------------------------------------|------------------------------|-----------|---------------------|------|
|                           |                    |           |            |                           |                                         |                              |           | (m <sup>3</sup> /s) |      |
|                           |                    |           |            |                           |                                         |                              |           | 90%                 | 60%  |
| UMTAMVUNA (T4): IUA T4-1  |                    |           |            |                           |                                         |                              |           |                     |      |
| i-MRU                     | T40E-05601         | UMtamvuna | C          | 233.15                    | 19.1                                    | 32.1                         | Mfumf     | 0.50                | 0.69 |
| i-MT B                    | Mt_R_EWR1          |           |            |                           |                                         |                              | Lwez      | 0.79                | 0.96 |
|                           |                    |           |            |                           |                                         |                              | Zib       | 0.87                | 1.27 |
|                           |                    |           |            |                           |                                         |                              | Masing    | 0.95                | 1.53 |
|                           |                    |           |            |                           |                                         |                              | Nhlol     | 1.16                | 1.61 |
|                           |                    |           |            |                           |                                         |                              | Ndasa     | 1.53                | 1.76 |
|                           |                    |           |            |                           |                                         |                              | Mbasa     | 1.32                | 1.72 |
|                           |                    |           |            |                           |                                         |                              | Nhlaba    | 1.11                | 1.27 |
|                           |                    |           |            |                           |                                         |                              | Nhlang    | 0.59                | 0.84 |
|                           |                    |           |            |                           |                                         |                              | Ntul      | 0.43                | 0.61 |
|                           |                    |           |            |                           |                                         |                              | Ncwaba    | 0.44                | 0.55 |
|                           |                    |           |            |                           |                                         | Mandu                        | 0.33      | 0.52                |      |
| UMKHOMAZI (YU1): IUA U1-2 |                    |           |            |                           |                                         |                              |           |                     |      |
| i-MRU                     | U10E-04380         | uMkhomazi | C          | 683.17                    | 25.1                                    | 35                           | Mfumfu    | 1.37                | 2.31 |
| uMKHOMAZI B.3             | Mk_I_EWR1          |           |            |                           |                                         |                              | Lwezi     | 2.01                | 3.38 |
|                           |                    |           |            |                           |                                         |                              | Zibandl   | 2.73                | 5.22 |
|                           |                    |           |            |                           |                                         |                              | Masing    | 4.16                | 7.16 |

| i-RU                      | i-Biophysical node | Umfula     | Injong o EC | i-nMAR <sup>1</sup> (MCM) | Ukugeleza okuncane (%nMAR) <sup>2</sup> | Ukugeleza okuphelele (%nMAR) | Izinyanga | i-RQO <sup>3</sup>  |       |
|---------------------------|--------------------|------------|-------------|---------------------------|-----------------------------------------|------------------------------|-----------|---------------------|-------|
|                           |                    |            |             |                           |                                         |                              |           | (m <sup>3</sup> /s) |       |
|                           |                    |            |             |                           |                                         |                              |           | 90%                 | 60%   |
|                           |                    |            |             |                           |                                         |                              | Nhlol     | 5.09                | 8.60  |
|                           |                    |            |             |                           |                                         |                              | Ndasa     | 6.90                | 9.31  |
|                           |                    |            |             |                           |                                         |                              | Mbasa     | 5.08                | 7.59  |
|                           |                    |            |             |                           |                                         |                              | Nhlaba    | 3.23                | 5.13  |
|                           |                    |            |             |                           |                                         |                              | Nhlang    | 1.82                | 3.06  |
|                           |                    |            |             |                           |                                         |                              | Ntul      | 1.23                | 2.28  |
|                           |                    |            |             |                           |                                         |                              | Ncwaba    | 1.07                | 1.91  |
|                           |                    |            |             |                           |                                         |                              | Mandu     | 1.01                | 1.77  |
| UMKHOMAZI (YU1): IUA U1-3 |                    |            |             |                           |                                         |                              |           |                     |       |
| i-MRU                     | U10J-04679         | uMkhoma zi | B           | 890.91                    | 24.8                                    | 35.4                         | Mfumfu    | 1.97                | 3.27  |
| uMKHOMAZI C               | Mk_I_EWR2          |            |             |                           |                                         |                              | Lwezi     | 2.85                | 4.58  |
|                           |                    |            |             |                           |                                         |                              | Zibandl   | 3.54                | 6.67  |
|                           |                    |            |             |                           |                                         |                              | Masing    | 5.12                | 8.94  |
|                           |                    |            |             |                           |                                         |                              | Nhlol     | 5.99                | 10.48 |
|                           |                    |            |             |                           |                                         |                              | Ndasa     | 8.86                | 12.03 |
|                           |                    |            |             |                           |                                         |                              | Mbasa     | 6.50                | 9.55  |
|                           |                    |            |             |                           |                                         |                              | Nhlaba    | 4.27                | 7.04  |
|                           |                    |            |             |                           |                                         |                              | Nhlang    | 2.67                | 4.38  |
|                           |                    |            |             |                           |                                         |                              | Ntul      | 1.65                | 3.29  |
|                           |                    |            |             |                           |                                         |                              | Ncwaba    | 1.52                | 2.57  |
|                           |                    |            |             |                           |                                         |                              | Mand      | 1.55                | 2.87  |
| UMKHOMAZI (U1): IUA U1-4  |                    |            |             |                           |                                         |                              |           |                     |       |
| i-MRU                     | U10M-04746         | uMkhoma zi | C           | 1068.6                    | 21.2                                    | 31.1                         | Mfumfu    | 2.25                | 3.32  |
| uMKHOMAZI D               | Mk_I_EWR3          |            |             |                           |                                         |                              | Lwezi     | 3.20                | 4.59  |
|                           |                    |            |             |                           |                                         |                              | Zibandl   | 3.91                | 6.95  |
|                           |                    |            |             |                           |                                         |                              | Masing    | 5.56                | 9.05  |
|                           |                    |            |             |                           |                                         |                              | Nhlol     | 6.61                | 10.95 |
|                           |                    |            |             |                           |                                         |                              | Ndasa     | 7.80                | 11.42 |
|                           |                    |            |             |                           |                                         |                              | Mbasa     | 6.65                | 10.07 |
|                           |                    |            |             |                           |                                         |                              | Nhlaba    | 4.74                | 7.24  |
|                           |                    |            |             |                           |                                         |                              | Nhlang    | 3.01                | 4.50  |
|                           |                    |            |             |                           |                                         |                              | Ntul      | 1.66                | 3.39  |
|                           |                    |            |             |                           |                                         |                              | Ncwaba    | 1.42                | 2.67  |
|                           |                    |            |             |                           |                                         |                              | Mand      | 1.65                | 3.04  |
| UMNGENI (YU2): IUA U2-1   |                    |            |             |                           |                                         |                              |           |                     |       |
| i-MRU uMnA                | U20A-04253         | uMngeni    | C/D         | 79.22                     | 10.1                                    | 21.7                         | Mfumfu    | 0.05                | 0.11  |
|                           | Mg_R_EWR1          |            |             |                           |                                         |                              | Lwezi     | 0.13                | 0.15  |
|                           |                    |            |             |                           |                                         |                              | Zibandl   | 0.13                | 0.19  |
|                           |                    |            |             |                           |                                         |                              | Masing    | 0.19                | 0.23  |
|                           |                    |            |             |                           |                                         |                              | Nhlol     | 0.23                | 0.33  |
|                           |                    |            |             |                           |                                         |                              | Ndasa     | 0.27                | 0.31  |
|                           |                    |            |             |                           |                                         |                              | Mbasa     | 0.26                | 0.31  |
|                           |                    |            |             |                           |                                         |                              | Nhlaba    | 0.21                | 0.23  |
|                           |                    |            |             |                           |                                         |                              | Nhlol     | 0.14                | 0.16  |
|                           |                    |            |             |                           |                                         |                              | Ntul      | 0.04                | 0.12  |
|                           |                    |            |             |                           |                                         |                              | Ncwaba    | 0.02                | 0.11  |
|                           |                    |            |             |                           |                                         |                              | Mand      | 0.02                | 0.10  |
| UMNGENI (YU2): IUA U2-2   |                    |            |             |                           |                                         |                              |           |                     |       |
| i-M KAR C                 | U20E-04170         | i-Karkloof | B           | 70.11                     | 27.3                                    | 43.5                         | Mfumfu    | 0.04                | 0.26  |
|                           | Mg_R_EWR3          |            |             |                           |                                         |                              | Lwezi     | 0.07                | 0.32  |
|                           |                    |            |             |                           |                                         |                              | Zibandl   | 0.10                | 0.43  |
|                           |                    |            |             |                           |                                         |                              | Masing    | 0.11                | 0.60  |
|                           |                    |            |             |                           |                                         |                              | Nhlol     | 0.20                | 0.76  |
|                           |                    |            |             |                           |                                         |                              | Ndasa     | 0.33                | 0.90  |
|                           |                    |            |             |                           |                                         |                              | Mbasa     | 0.25                | 0.83  |

| i-RU                    | i-Biophysical node      | Umfula       | Injong o EC | i-nMAR <sup>1</sup> (MCM) | Ukugeleza okuncane (%nMAR) <sup>2</sup> | Ukugeleza okuphelele (%nMAR) | Izinyanga | i-RQO <sup>3</sup> |      |
|-------------------------|-------------------------|--------------|-------------|---------------------------|-----------------------------------------|------------------------------|-----------|--------------------|------|
|                         |                         |              |             |                           |                                         |                              |           | (m³/s)             |      |
|                         |                         |              |             |                           |                                         |                              |           | 90%                | 60%  |
|                         |                         |              |             |                           |                                         |                              | Nhlaba    | 0.19               | 0.73 |
|                         |                         |              |             |                           |                                         |                              | Nhlang    | 0.12               | 0.52 |
|                         |                         |              |             |                           |                                         |                              | Ntul      | 0.06               | 0.34 |
|                         |                         |              |             |                           |                                         |                              | Ncwaba    | 0.05               | 0.28 |
|                         |                         |              |             |                           |                                         |                              | Mand      | 0.03               | 0.24 |
| i-MRU uMnB              | U20E-04243<br>Mg_I_EWR2 | UMngeni      | C           | 228.19                    | 14.7                                    | 20                           | Mfumfu    | 0.52               | 0.82 |
|                         |                         |              |             |                           |                                         |                              | Lwezi     | 0.61               | 0.88 |
|                         |                         |              |             |                           |                                         |                              | Zibandl   | 0.66               | 1.03 |
|                         |                         |              |             |                           |                                         |                              | Masing    | 0.56               | 1.06 |
|                         |                         |              |             |                           |                                         |                              | Nhlol     | 0.45               | 0.99 |
|                         |                         |              |             |                           |                                         |                              | Ndasa     | 0.96               | 1.64 |
|                         |                         |              |             |                           |                                         |                              | Mbasa     | 0.84               | 1.39 |
|                         |                         |              |             |                           |                                         |                              | Nhlaba    | 0.58               | 1.02 |
|                         |                         |              |             |                           |                                         |                              | Nhlang    | 0.54               | 0.88 |
|                         |                         |              |             |                           |                                         |                              | Ntul      | 0.51               | 0.85 |
|                         |                         |              |             |                           |                                         |                              | Ncwaba    | 0.41               | 0.83 |
|                         |                         |              |             |                           |                                         |                              | Mand      | 0.46               | 0.81 |
| UMNGENI (YU2): IUA U2-5 |                         |              |             |                           |                                         |                              |           |                    |      |
| i-MRU uMnD              | U20L-04435<br>Mg_I_EWR5 | uMngeni      | D           | 583.66                    | 22.9                                    | 25.8                         | Mfumfu    | 1.12               | 1.83 |
|                         |                         |              |             |                           |                                         |                              | Lwezi     | 1.33               | 2.53 |
|                         |                         |              |             |                           |                                         |                              | Zibandl   | 1.45               | 2.83 |
|                         |                         |              |             |                           |                                         |                              | Masing    | 1.59               | 3.02 |
|                         |                         |              |             |                           |                                         |                              | Nhlol     | 1.86               | 2.76 |
|                         |                         |              |             |                           |                                         |                              | Ndasa     | 2.49               | 3.94 |
|                         |                         |              |             |                           |                                         |                              | Mbasa     | 2.13               | 3.18 |
|                         |                         |              |             |                           |                                         |                              | Nhlaba    | 1.77               | 3.01 |
|                         |                         |              |             |                           |                                         |                              | Nhlang    | 1.48               | 2.79 |
|                         |                         |              |             |                           |                                         |                              | Ntul      | 1.27               | 2.52 |
|                         |                         |              |             |                           |                                         |                              | Ncwaba    | 1.08               | 2.25 |
|                         |                         |              |             |                           |                                         |                              | Lwezi     | 1.01               | 2.22 |
| UMVOTI (YU4): IUA U4-1  |                         |              |             |                           |                                         |                              |           |                    |      |
| i-MRU<br>i-HEYNS A      | U40B-03770<br>Mv_I_EWR1 | Heinesspruit | C           | 17.36                     | 18.2                                    | 27.9                         | Mfumfu    | 0.03               | 0.04 |
|                         |                         |              |             |                           |                                         |                              | Lwezi     | 0.04               | 0.04 |
|                         |                         |              |             |                           |                                         |                              | Zibandl   | 0.04               | 0.06 |
|                         |                         |              |             |                           |                                         |                              | Masing    | 0.05               | 0.07 |
|                         |                         |              |             |                           |                                         |                              | Nhlol     | 0.07               | 0.09 |
|                         |                         |              |             |                           |                                         |                              | Ndasa     | 0.08               | 0.12 |
|                         |                         |              |             |                           |                                         |                              | Mbasa     | 0.08               | 0.11 |
|                         |                         |              |             |                           |                                         |                              | Nhlaba    | 0.08               | 0.10 |
|                         |                         |              |             |                           |                                         |                              | Nhlang    | 0.06               | 0.08 |
|                         |                         |              |             |                           |                                         |                              | Ntul      | 0.05               | 0.05 |
|                         |                         |              |             |                           |                                         |                              | Ncwaba    | 0.04               | 0.04 |
|                         |                         |              |             |                           |                                         |                              | Mand      | 0.03               | 0.04 |
| UMVOTI (YU4): IUA YU4-3 |                         |              |             |                           |                                         |                              |           |                    |      |
| i-MRU<br>uMVOTI C       | U40H-04064<br>Mv_I_EWR2 | Mvoti        | C           | 273.96                    | 17.6                                    | 24.7                         | Mfumfu    | 0.31               | 0.64 |
|                         |                         |              |             |                           |                                         |                              | Lwezi     | 0.39               | 0.84 |
|                         |                         |              |             |                           |                                         |                              | Zinandl   | 0.49               | 1.03 |
|                         |                         |              |             |                           |                                         |                              | Masing    | 0.64               | 1.34 |
|                         |                         |              |             |                           |                                         |                              | Nhlol     | 0.83               | 1.65 |
|                         |                         |              |             |                           |                                         |                              | Ndasa     | 1.01               | 2.03 |
|                         |                         |              |             |                           |                                         |                              | Mbasa     | 0.90               | 1.89 |
|                         |                         |              |             |                           |                                         |                              | Nhlaba    | 0.87               | 1.56 |
|                         |                         |              |             |                           |                                         |                              | Nhlang    | 0.59               | 1.02 |
|                         |                         |              |             |                           |                                         |                              | Ntul      | 0.36               | 0.69 |
|                         |                         |              |             |                           |                                         |                              | Ncwaba    | 0.29               | 0.58 |
|                         |                         |              |             |                           |                                         |                              | Mand      | 0.27               | 0.55 |

| i-RU                    | i-Biophysical node      | Umfula | Injong o EC | i-nMAR <sup>1</sup> (MCM) | Ukugeleza okuncane (%nMAR) <sup>2</sup> | Ukugeleza okuphelele (%nMAR) | Izinyanga | i-RQO <sup>3</sup>  |      |
|-------------------------|-------------------------|--------|-------------|---------------------------|-----------------------------------------|------------------------------|-----------|---------------------|------|
|                         |                         |        |             |                           |                                         |                              |           | (m <sup>3</sup> /s) |      |
|                         |                         |        |             |                           |                                         |                              |           | 90%                 | 60%  |
| ILOVU (YU7): IUA YU7-12 |                         |        |             |                           |                                         |                              |           |                     |      |
| i-MRU<br>i-OVU D        | U40H-04064<br>Lo_R_EWR1 | Lovu   | B/C         | 87.76                     | 22.8                                    | 37.9                         | Mfumfu    | 0.18                | 0.22 |
|                         |                         |        |             |                           |                                         |                              | Lwezi     | 0.21                | 0.29 |
|                         |                         |        |             |                           |                                         |                              | Zibandl   | 0.24                | 0.35 |
|                         |                         |        |             |                           |                                         |                              | Masing    | 0.30                | 0.45 |
|                         |                         |        |             |                           |                                         |                              | Nhlol     | 0.36                | 0.53 |
|                         |                         |        |             |                           |                                         |                              | Ndasa     | 0.40                | 0.67 |
|                         |                         |        |             |                           |                                         |                              | Mbasa     | 0.36                | 0.64 |
|                         |                         |        |             |                           |                                         |                              | Nhlaba    | 0.33                | 0.58 |
|                         |                         |        |             |                           |                                         |                              | Nhlang    | 0.26                | 0.41 |
|                         |                         |        |             |                           |                                         |                              | Ntul      | 0.19                | 0.29 |
|                         |                         |        |             |                           |                                         |                              | Ncwaba    | 0.16                | 0.23 |
|                         |                         |        |             |                           |                                         |                              | Mand      | 0.14                | 0.19 |

1 I-nMAR iyiSenzakalo semvelo Sokugeleza Sonyaka Wonke kuma-*cubic meters* onyakeni ngamunye.

2 i-% nMAR ingukugeleza okudingeka kuma-node aboniswe njengephesenti Lesenzakalo semvelo Sokugeleza Sonyaka Wonke, Ukugeleza okuncane Kanye nokugeleza okuphelele.

3 Amaphesenti akhomba ukuvama kokuqhubeka kokusakazeka kokugeleza okuncane kwanyanga zonke kuma-*node*, okuvezwe njengephesenti lezinyanga (90% no-60%) ukuthi ukugeleza kufanele kulingane noma kudlulele amanani amancane abonisiwe. Qaphela ukuthi ama-RQO aningiliziwe anikeziwe kumqulu wezobuchwepheshe.

Ama-RQO endawo kanye nezinto zendawo eziphilayo anikezwa Njengezigaba Zemvelo. Kukhona ama-RQO ofuzo alandisayo nawenani, ahambisana Nezigaba Zemvelo futhi iThebula 3 lichaza lezi zigaba ngasinye seZemvelo eziqondene nemifula. IThebula 4 linikeza ama-RQO endawo kanye nezinto zendawo eziphilayo ze-IUA ngayinye yamaYuniti Emithombo ebekelwe phambili KAKHULU emifuleni. Ithebula 5 linikeza ama-RQO ekhwalithi yamanzi e-IUA ngayinye yamaYuniti Emithombo ebekelwe phambili KAKHULU emelwe yizingosi ze-EWR.

### IThebula 3 Ama-RQO ofuzo alandisayo nawenani, ahambisana Nezigaba Zemvelo

| Isigaba Semvelo | i-RQO Yofuzo olulandisayo                | I-RQO egelezela Emfuleni kanye nendawo yosebe lomfula elandisayo                                                                                                                                                                                                        | i-RQO elandisayo yeNhlanzi, izilwane ezincane ezingenamgogodla kanye nezimila zosebe lomfula | i-RQO yenani  |
|-----------------|------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|---------------|
| A               | Ayishintshiwe, isondelelne nemvelo.      | Ifana kakhulu nezimo zemvelo zokubhekisela.                                                                                                                                                                                                                             | Izimfanelo zokuhlanganiswa njengoba kuchaziwe                                                | ≥ A (≥ 92%)   |
| A/B             |                                          |                                                                                                                                                                                                                                                                         |                                                                                              | ≥ A/B (≥ 88%) |
| B               | Iyimvelo kakhulu ngezinguquko ezimbalwa. | Iyimvelo kakhulu ngezinguquko ezimbalwa. Umbuso wokugeleza usushintshwe kancane, kuphela, futhi ukungcola sekulinganiselwe enzikeneni. Lungenzeka ushintsho oluncane ezindaweni zokuhlala zemvelo. Kodwa-ke imisebenzi yezinto eziphilayo ayishintshwa ngokubalulekile. | Izimfanelo zokuhlanganiswa njengoba kuchaziwe                                                | ≥ B (≥ 82%)   |

| Isigaba Semvelo | i-RQO Yofuzo olulandisayo    | I-RQO egelezela Emfuleni kanye nendawp yosebe lomfula elandisayo                                                                                                                                                                                                                                               | i-RQO elandisayo yeNhlanzi, izilwane ezincane ezingenamgogodla kanye nezimila zosebe lomfula | i-RQO yenani           |
|-----------------|------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|------------------------|
| B/C             |                              |                                                                                                                                                                                                                                                                                                                |                                                                                              | $\geq B/C (\geq 78\%)$ |
| C               | Ishintshwe ngokulinganisiwe. | Ishintshwe ngokulinganisiwe. Ukulahlekelwa nokuguqulwa kwemvelo yendawo yokuhlala kanye nezinto zendawo eziphilayo kwenzekile, kodwa imisebenzi eyisisekele yezinto eziphilayo namanje ayikashintshwa.                                                                                                         | Izimfanelo zokuhlanganiswa njengoba kuchaziwe                                                | $\geq C (\geq 62\%)$   |
| C/D             |                              |                                                                                                                                                                                                                                                                                                                |                                                                                              | $\geq C/D (\geq 58\%)$ |
| D               | Ishintshwe kakhulu.          | Ishintshwe kakhulu. Kwenzeke ukulahlekelwa okukhulu kwendawo yokuhlala yemvelo, izinto zendawo eziphilayo kanye nemisebenzi eyisisekelo yezinto eziphilayo.                                                                                                                                                    | Izimfanelo zokuhlanganiswa njengoba kuchaziwe                                                | $\geq D (\geq 42\%)$   |
| D/E             |                              |                                                                                                                                                                                                                                                                                                                |                                                                                              | $\geq D/E (\geq 38\%)$ |
| E               | Ishintshwe ngokujulile.      | Ishintshwe ngokujulile. Kuyakhula ukulahlekelwa kwendawo yokuhlala yemvelo, izinto zendawo eziphilayo kanye nemisebenzi eyisisekelo yezinto eziphilayo.<br><br>Kuyakhula ukulahlekelwa kwendawo yokuhlala yemvelo, izinto zendawo eziphilayo kanye nemisebenzi eyisisekelo yezinto eziphilayo.                 | Izimfanelo zokuhlanganiswa njengoba kuchaziwe                                                | 20-39%                 |
| F               | Ishintshwe Kabi/ Kakhulu     | Ishintshwe Kabi/ Kakhulu<br><br>Ukuguqulwa kufinyelele ezingeni elibucayi futhi uhlelo luguqulwe ngokugcwele cishe ngokulahlekelwa okuphelele kwendawo yokuhlala yemvelo kanye nezinto zendawo eziphilayo. Ezimeni ezimbi kakhulu, imisebenzi yemvelo eyisisekelo ibhujisiwe futhi izinguquko azinakuhleliswa. | Izimfanelo zokuhlanganiswa njengoba kuchaziwe                                                | 0-19%                  |

**I-Thebula 4 IMIFULA: ama-RQO obuqotho bendawo yokuhlala, izimila zosebe lomfula, izilwane ezingenamgogodla kanye nezinhlanzi ku-RU ebekelwe phambili**

| i-IUA    | IYunithi Yomthombo | i-Biophysical node | Umfula        | Ubuqotho Bendawo Egelezela emfuleni | Ubuqotho Bendawo Yosebe Lomfula | Inhlanzi | Macro-invertebrates | Riparian vegetation |
|----------|--------------------|--------------------|---------------|-------------------------------------|---------------------------------|----------|---------------------|---------------------|
| IUA T4-1 | MRU MT B           | MT_R_EWR1          | uMtamvuna     | B/C                                 | C                               | B/C      | B                   | C/D                 |
| IUA U1-2 | MRU uMkhomazi B.3  | Mk_I_EWR1          | uMkhomazi     | B                                   | C                               | B        | B/C                 | C                   |
| IUA U1-3 | MRU uMkhomazi C    | Mk_I_EWR2          | uMkhomazi     | B                                   | B/C                             | B        | B                   | B                   |
| IUA U1-4 | MRU uMkhomazi D    | Mk_I_EWR3          | uMkhomazi     | C                                   | C                               | B        | B                   | D                   |
| IUA U2-1 | MRU uMnA           | Mg_R_EWR1          | uMngeni       | C                                   | C                               | D        | C                   | C/D                 |
| IUA U2-2 | MRU iKar C         | Mg_R_EWR3          | i-Karkloof    | C                                   | B                               | B/C      | B                   | B                   |
| IUA U2-2 | MRU uMn B          | Mg_I_EWR2          | uMngeni       | D                                   | C                               | D        | C                   | C                   |
| IUA U2-5 | MRU uMnD           | Mg_I_EWR5          | uMngeni       | D                                   | D                               | D        | C/D                 | D                   |
| IUA U4-1 | MRU i-Heyns A      | Mv_I_EWR1          | i-Heinespruit | C                                   | C                               | C        | C                   | B/C                 |
| IUA U4-3 | MRU uMvopi C       | Mv_I_EWR2          | uMvoti        | C                                   | C                               | B/C      | B/C                 | C/D                 |
| IUA U7-1 | MRU iLovu D        | Lo_R_EWR1          | iLovu         | B/C                                 | B/C                             | B/C      | B/C                 | B/C                 |

**I-Thebula 5 ama-RQO EMIFULA yekhwalthi yamanzi (yemvelo kanye neyomsebenzisi) kuma-RU ebekelwe phambili KAKHULU**

| i-IUA                                 | i-RU                                                                          | i-EC eyiNjongo | Isakhana (Inkomba)                    | i-RQO elandisayo                                                                                                                                                                                                | i-RQO yenani                                   |
|---------------------------------------|-------------------------------------------------------------------------------|----------------|---------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|
| IUA T4-1: uMtamvuna                   | RU EWR MT_R_EWR1 (T40E-05601, T40C-05520, T40D-05537, T40D-05584, T40D-05707) | A/B (>88%)     | Ukungcola/ukucaca noma amazinga e-TSS | Kuyamukeleka: Ukuguqulwa okulinganisiwe kusuka manje ngemithwalo emikhulu yenzika yesikhashana kanye nokugcola ngesikhathi sesenzakalo sokugeleza (izinto eziphila emanzini (izinto eziphila emanzini: umholi). | Akukho okutholakalayo                          |
| IUA U1-2: uMkhomazi ophakathi nendawo | RU MK_I_EWR 1 emfuleni (U10F-04528 emfuleni)                                  | A/B (>88%)     | Ukungcola/ukucaca noma amazinga e-TSS | Kuyamukeleka: Ukuguqulwa okulinganisiwe kusuka manje ngemithwalo emikhulu yenzika yesikhashana kanye nokugcola ngesikhathi sesenzakalo sokugeleza (izinto eziphila emanzini (izinto eziphila emanzini: umholi). | Akukho okutholakalayo                          |
| IUA U1-3: uMkhomazi Gorge             | RU MK_I_EWR 2 (U10J-04679,                                                    | A/B (>88%)     | Izakhi (i-orthophosphate)             | Kuyamukeleka                                                                                                                                                                                                    | I-percentile yama-50 yemininingwane kumele ibe |

|                                                                      |                                                                                           |                                |                                             |                                                           |                                                                                                                                                           |
|----------------------------------------------------------------------|-------------------------------------------------------------------------------------------|--------------------------------|---------------------------------------------|-----------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                      | U10H-04638,<br>U10H-04675)                                                                |                                |                                             |                                                           | ngaphansi kwa-<br>0.015 mg/L PO <sub>4</sub> -P<br>(izinto eziphila<br>emanzini: umholi).                                                                 |
|                                                                      |                                                                                           |                                | Ukuqhuba Kogesi<br>(usawoti)                | Kuhle                                                     | <i>l-percentile</i> yama-<br>95 yemininingwane<br>kumele ibe<br>ngaphansi noma<br>ilingane no-30 mS/m<br>(izinto eziphila<br>emanzini: umholi).           |
| IUA U1-4:<br>uMkhomazi<br>ongezansi                                  | RU MK_I_EWR<br>3 (U10M-04746,<br>U10J-04807,<br>U10J-04799,<br>U10J-04833,<br>U10K-04838) | <b>A/B</b><br><b>(&gt;88%)</b> | Izakhi (i-phosphate)                        | Kuyamukeleka                                              | <i>l-percentile</i> yama-<br>50 yemininingwane<br>kumele ibe<br>ngaphansi kwa-<br>0.015 mg/L PO <sub>4</sub> -P<br>(izinto eziphila<br>emanzini: umholi). |
|                                                                      |                                                                                           |                                | Ukuqhuba Kogesi<br>(usawoti)                | Kuyamukeleka                                              | <i>l-percentile</i> yama-95<br>yemininingwane<br>kumele ibe<br>ngaphansi noma<br>ilingane no-55 mS/m<br>(izinto eziphila<br>emanzini: umholi).            |
| i-IUA U2-1:<br>uMngeni<br>Idamu<br>elingenhla<br>nomfula<br>i-Midmar | RU Mg_R_EWR<br>1<br>(U20A-04253,<br>U20C-04275)                                           | <b>B</b><br><b>(&gt;82%)</b>   | Izakhi<br>(i-orthophosphate)                | Kuyamukeleka                                              | <i>l-percentile</i> yama-50<br>yemininingwane<br>kumele ibe<br>ngaphansi kwa-<br>0.015 mg/L PO <sub>4</sub> -P<br>(izinto eziphila<br>emanzini: umholi).  |
|                                                                      |                                                                                           |                                | Amagciwane endle<br>kanye ne- <i>E.coli</i> | Ukuzilibazisa<br>(Uxhumano olugcwele<br>noma oluyingxeny) | Hlangabezana<br>nezinhloso<br>zokuzilibazisa /<br>nezinye izinto<br>zokusebenza *.                                                                        |

| i-IUA                                     | i-RU                                                        | i-EC<br>eyiNjongo            | Isakhana<br>(Inkomba)                         | i-RQO<br>elandisayo                                       | i-RQO yenani                                                                                                                                                                         |
|-------------------------------------------|-------------------------------------------------------------|------------------------------|-----------------------------------------------|-----------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| i-IUA U4-<br>1 kanye<br>ne-U4-2:<br>Mvoti | i-RU MV_I_<br>EWR 1<br>(U40B-<br>03770: i-<br>Heinesspruit) | <b>C</b><br><b>(&gt;62%)</b> | Izakhi (i-<br>orthophosphate<br>kanye ne-TIN) | Kuyabekezeleleka                                          | <i>l-percentile</i> yama-50<br>yemininingwane kumele ibe<br>ngaphansi kuka-0.125 mg/L PO <sub>4</sub> -<br>P kanye no-2.5 mg/L TIN-N (izinto<br>eziphila emanzini: umholi).          |
|                                           |                                                             |                              | Ukuqhuba Kogesi<br>(usawoti)                  | Kuhle                                                     | <i>l-percentile</i> yama-95<br>yemininingwane kumele ibe<br>ngaphansi noma ilingane no-30<br>mS/m (izinto eziphila emanzini:<br>umholi).                                             |
|                                           |                                                             |                              | Okunobuthi (i-<br>ammonia)                    | Kuyabekezeleleka                                          | <i>l-percentile</i> yama-95<br>yemininingwane kumele ibe<br>phakathi kwesigaba D ku-DWAF<br>(2008).                                                                                  |
|                                           |                                                             |                              | Okunye okunobuthi                             | Kuhle                                                     | <i>l-percentile</i> yama-95<br>yemininingwane kumele ibe<br>phakathi kwezilinganiselo ezinhle<br>noma izigaba A (i-DWAF, 2008)<br>noma i-TWQR yezinto ezinobuthi<br>ku-DWAF (1996a). |
|                                           |                                                             |                              | Amagciwane endle<br>kanye ne- <i>E.coli</i>   | Ukuzilibazisa<br>(Uxhumano olugcwele noma<br>oluyingxeny) | Ihlangabezana nezinhloso<br>zokuzilibazisa / nezinye izinto<br>zokusebenza*.                                                                                                         |

**CONTINUES ON PAGE 258 - PART 3**



# Government Gazette Staatskoerant

REPUBLIC OF SOUTH AFRICA  
REPUBLIEK VAN SUID AFRIKA

Vol. 630

8 December 2017  
Desember

No. 41306

**PART 3 OF 3**

N.B. The Government Printing Works will not be held responsible for the quality of "Hard Copies" or "Electronic Files" submitted for publication purposes

ISSN 1682-5843



**AIDS HELPLINE: 0800-0123-22 Prevention is the cure**

|                                 |                                     |                          |                                       |                                                                                                                                                                                                                 |                                                                                                                                 |
|---------------------------------|-------------------------------------|--------------------------|---------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|
| i-IUA U4-3:<br>uMvoti ongezansi | i-RU MV_I_<br>EWR 2<br>(U40H-04064) | <b>C<br/>(&gt;62%)</b>   | Izakhi (i-orthophosphate)             | Kuyabekezeleleka                                                                                                                                                                                                | I-percentile yama-50 yemininingwane kumele ibe ngaphansi kuka-0.125 mg/L PO <sub>4</sub> -P (izinto eziphila emanzini: umholi). |
| i-IUA U7-1:<br>i-Lovu           | i-RU LO_R_<br>EWR 1<br>(U70C-04859) | <b>B/C<br/>(&gt;78%)</b> | Ukungcola/ukucaca noma amazinga e-TSS | Kuyamukeleka: Ukuguqulwa okulinganisiwe kusuka manje ngemithwalo emikhulu yenzika yesikhashana kanye nokugcola ngesikhathi sesenzakalo sokugeleza (izinto eziphila emanzini (izinto eziphila emanzini: umholi). | Akukho okutholakalayo                                                                                                           |

i-TWQR = Ikhwalithi Yamanzi Ehlukahlukene Ehlosiwe (i-DWAF, 1996a).

i-DWAF (1996a): Iziqondiso Zekhwalithi Yamanzi zeNingizimu Afrika: iVolumu 7: Izinto Eziphilayo Zasemanzini.

i-DWAF (2008): Izindlela zokunquma izimfanelo zezinga lamanzi Ezingolobane Zemvelo zemifula.

Qaphela ukuthi zonke izinjongo zokuxhumana ngokugcwele nangokwengxenywe zamagciwane endle kanye ne-*E. coli* zibekiwe ngokweziqondiso ze-SA NMMP kanye nezingozi zempilo ngokwezibalo / 100 mL, njengokulandelayo:

|            |               |             |
|------------|---------------|-------------|
| <b>Low</b> | <b>Medium</b> | <b>High</b> |
| < 600      | 600 - 2 000   | > 2 000     |

|        |          |         |
|--------|----------|---------|
| Phansi | Phakathi | Phezulu |
|--------|----------|---------|

Imihlahlandlela iyanikezwa mayingekho imininingwane noma ulwazi lwemisebenzi yokuzilibazisa endaweni.

Ithebula 6 linikeza imidwebo Yezigaba Zemvelo kanye nama-RQO ahlobene eziziba zemifula zekhwalithi yamanzi, i-*geomorphology*, izimila, izilwane ezingenamgogodla, izinhlanzi kanye nezinyoni, ngokulandela ukufezekisa inhloso Yesigaba Semvelo ebalulwe kuThebula 1. Izinhlelo zenhloso i-EC, kanye nokulinganiselwa kwama-RQO ziqondene nolwazi olutholakala kakhulu ngesikhathi sokushicilelwa.

**I-Thebula 6 IZIZALO ZEMIFULA EZIBEKELWE PHAMBILI KAKHULU: Ama-RQO e-hydrology, i-hydrodynamics, ikhwalithi yamanzi, ubudlelwane beziziba, i-microalgae, ama-macrophyte, izilwane ezingenamgogodla, izinhlanzi kanye nezinyoni ZEZIZALO ezibekelwe phambili KAKHULU**

| Isakhi                           | Inhloso i-EC | Ama-RQO                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|----------------------------------|--------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Isiziba somfula uMKHOMAZI</b> |              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| i-Hydrology                      | <b>C/D</b>   | <ul style="list-style-type: none"> <li>Ukugcina Inhloso i- EC (&gt;57%).</li> <li>Ukuthuthuleka komfula kwanyanga zonke &gt; 1.0 m<sup>3</sup>/s</li> <li>Ukuthuthuleka komfula kwanyanga zonke &gt; 2.0 m<sup>3</sup>/s kuphikelela isikhathi esingaphezu kwezinyanga ezintathu ngokulandelayo.</li> <li>Ukuthuthuleka komfula kwanyanga zonke &gt; 5.0 m<sup>3</sup>/s ngaphezu kuka-30% kwesikhathi.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| i-Hydrodynamics                  | <b>A</b>     | <ul style="list-style-type: none"> <li>Ukugcina Inhloso i-EC (&gt;93%).</li> <li>Ukuvalwa komlomo kwenzeka ngaphansi kwamasondo amabili kuya kwamathathu onyakeni.</li> <li>Ukuvalwa komlomo kwenzeka ngaphansi kweminyaka emibili kweyishumi.</li> <li>Ukuvalwa komlomo akubi khona phakathi kukaMandulo noMbaso.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Ikhwalithi Yamanzi               | <b>C</b>     | <p>Ukugcina inhloso i-EC (&gt;63%). Ama-RQO ekhwalithi yamanzi athuthuleka emifuleni ukuvikela ikhwalithi yemvelo yezizalo zemifula:</p> <p>pH: 7.5 - 8.5.</p> <ul style="list-style-type: none"> <li>DO &gt; 6 mg/L.</li> <li>Ukungcola (ukugeleza okuncane &lt; 5m<sup>3</sup>/s): &lt; 15 NTU.</li> <li>Ukungcola (ukugeleza okuncane &gt; 5m<sup>3</sup>/s): Kungcole ngokwemvelo.</li> <li>Izakhi ezincibilikile (ukugeleza okuncane &lt; 5m<sup>3</sup>/s): NO<sub>x</sub>-N &lt;150 µg/L; NH<sub>3</sub>-N &lt; 20 µg/L; PO<sub>4</sub>-P &lt; 10 µg/L.</li> <li>Izakhi ezincibilikile (ukugeleza okukhulu &gt; 5m<sup>3</sup>/s): NO<sub>x</sub>-N &lt;200 µg/L; NH<sub>3</sub>-N &lt; 20 µg/L; PO<sub>4</sub>-P &lt; 20 µg/L.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|                                  |              | <p>Imfuneko encane yokusetshenziswa kokuzilibazisa (DEA, 2012):</p> <ul style="list-style-type: none"> <li><i>i-Enterococci</i>: I-percentile yamashumi ayisishiyagalolunye (90%ile) ngaphezu kwesikhathi sezinyanga ezingu-12 ≤ izibalo ezingama-185 ngo-100 ml ngamunye.</li> <li><i>E. coli</i>: I-percentile yamashumi (90%ile) ngaphezu kwesikhathi sezinyanga ezingu-12 &lt; izibalo ezingama-500 ngo-100 ml ngamunye</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|                                  |              | <p>Ama-RQO ekhwalithi yamanzi <b>esizalweni</b> ukuvikela ikhwalithi yemvelo yezizalo zemifula:</p> <ul style="list-style-type: none"> <li>Izinga likasawoti: alukho (0) ekufinyeleleni okuphezulu; &gt; izifinyelelo ezingama-20 ngesikhathi senkathi yokugeleza okuncane; amanzi ahlanzekile abamaningi ngesikhathi esingama-70%.</li> <li>Ukungcola (ukugeleza okuncane &lt; 5m<sup>3</sup>/s): Isilinganiso &lt; 10 NTU kunoma yikuphi ukuhlolwa kwesampula.</li> <li>pH: Isilinganiso 7.0 - 8.5 kunoma yikuphi ukuhlolwa kwesampula.</li> <li>I-oxygen encibilikile: Isilinganiso &gt;6 mg/L kunoma yikuphi ukuhlolwa kwesampula.</li> <li>Izakhi ezincibilikile (ukugeleza okuncane &lt; 5m<sup>3</sup>/s): Average NO<sub>x</sub>-N &lt; 150 µg/L, NH<sub>3</sub>-N &lt; 20 µg/L and PO<sub>4</sub>-P &lt; 10 µg/L kunoma yikuphi ukuhlolwa kwesampula.</li> <li>Izakhi ezincibilikile (ukugeleza okukhulu &gt; 5m<sup>3</sup>/s): Isilinganiso NO<sub>x</sub>-N &lt; 300 µg/L, NH<sub>3</sub>-N &lt; 20 µg/L and PO<sub>4</sub>-P &lt; 20 µg/L kunoma yikuphi ukuhlolwa kwesampula.</li> <li>Ingqikithi yokufakwa kwezinsimbi emanzini okungadluli amanani okubhekiswe kuwo njengeZiqondiso Zekhwalithi Yamanzi zeNingizimu Afrika zamanzi olwandle olusogwini (i-DWAF, 1995).</li> <li>Ingqikithi yokufakwa kwensimbi esizibeni okungadluli amanani abhekisiwe njengeZiqondiso Zomkhandlu i-WIO (UNEP/i-Nairobi Convention Secretariat kanye ne-CSIR, 2009).</li> </ul> |
| Ubudlelwane bezinzika            | <b>B</b>     | Ukugcina inhloso i-EC (>78%)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| i-Microalgae                     | <b>B</b>     | Ukugcina inhloso i-EC (>78%).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| i-Macrophytes                    | <b>D</b>     | Ukugcina inhloso i-EC (>43%).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Izilwane ezingenamgogodla        | <b>B</b>     | Ukugcina inhloso i-EC (>78%).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Izinhlanzi                       | <b>D</b>     | Ukugcina inhloso i-EC (>43%).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |

| Isakhi                        | Inhloso i-EC | Ama-RQO                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-------------------------------|--------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Izinyoni                      | <b>C</b>     | Ukugcina inhloso i-EC (>63%).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>ISIZIBA SOMFULA UMWOTI</b> |              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| i-Hydrology                   | <b>C/D</b>   | <p>Ukugcina inhloso i-EC (&gt;57%).</p> <ul style="list-style-type: none"> <li>• Ukuthuthleka komfula kwanyanga zonke &gt; 1.0 m<sup>3</sup>/s.</li> <li>• Ukuthuthleka komfula kwanyanga zonke &gt; 2.0 m<sup>3</sup>/s kuphikelela isikhathi esingaphezu kwezinyanga ezintathu ngokulandelayo.</li> <li>• Ukuthuthleka komfula kwanyanga zonke &gt; 2.0 m<sup>3</sup>/s ngaphezu kwesikhathi sama-50%.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| i-Hydrodynamics               | <b>A</b>     | <p>Ukugcina inhloso i-EC (&gt;93%).</p> <ul style="list-style-type: none"> <li>• Ukuvaleka komlomo kwenzeka ngaphansi kwamaviki amabili kuya kwamathathu onyakeni.</li> <li>• Ukuvaleka komlomo kwenzeka ngaphansi kweminyaka emibili kweyishumi.</li> <li>• Ukuvaleka komlomo akwenzeki phakathi kukaLwezi noNhlanguvana.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Ikhwalithi Yamanzi            | <b>C/D</b>   | <p>Ukugcina inhloso i-EC (&gt;57%). Ama-RQO okuthuthleka komfula ukuvikela ikhwalithi yezizalo zemvelo:</p> <ul style="list-style-type: none"> <li>• pH: 7.0 - 8.5.</li> <li>• DO &gt; 4 mg/L.</li> <li>• Ukungcola (ukugeleza okuncane): &lt;15 NTU.</li> <li>• Izakhi ezincibilikile: NO<sub>x</sub>-N &lt; 400 µg/L; NH<sub>3</sub>-N &lt; 30 µg/L; PO<sub>4</sub>-P &lt; 25 µg/L.</li> </ul> <p>Ama-RQO ekhwalithi yamanzi <b>esizalweni</b> ukuvikela ikhwalithi yemvelo yezizalo zemifula::</p> <ul style="list-style-type: none"> <li>• Izinga likasawoti: Isilinganiso sezinga likasawoti emanzini angaphezulu nomfula ka-1 km ukusuka emlonyeni &lt;20 PSU ; Isilinganiso sezinga likasawoti esizalweni sonke &lt;1 PSU okungenani isikhathi esingama-50%.</li> <li>• Ukungcola (ukugeleza okuncane): Isilinganiso &lt;10 NTU kunoma yikuphi ukuhlolwa kwesampula.</li> <li>• pH: Isilinganiso 7.0 - 8.5 kunoma yikuphi ukuhlolwa kwesampula.</li> <li>• I-oxygen encibilikile: Isilinganiso &gt; 4 mg/L kunoma yikuphi ukuhlolwa kwesampula.</li> <li>• Izakhi ezincibilikile: Isilinganiso NO<sub>x</sub>-N &lt; 400 µg/L, NH<sub>3</sub>-N &lt; 30 µg/L and PO<sub>4</sub>-P &lt; 25 µg/L kunoma yikuphi ukuhlolwa kwesampula.</li> <li>• Ingqikithi yokufakwa kwezinsimbi emanzini okungadluli amanani okubhekiswe kuwo njengeZiqondiso Zekhwalithi Yamanzi zeNingizimu Afrika zamanzi olwandle olusogwini (i-DWAF, 1995).</li> </ul> <p>Ingqikithi yokufakwa kwensimbi esizibeni okungadluli amanani abhekisiwe njengeZiqondiso Zomkhandlu i-WIO (UNEP/i-Nairobi Convention Secretariat kanye ne-CSIR, 2009).</p> |
| Ubudlelwane bezinzika         | <b>B/C</b>   | Ukugcina inhloso i-EC (>72%).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| i-Microalgae                  | <b>B</b>     | Ukugcina inhloso i-EC (>78%).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| i-Macrophytes                 | <b>D</b>     | Ukugcina inhloso i-EC (>43%).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Izilwane ezingenamgogodla     | <b>E</b>     | Ukugcina inhloso i-EC (>23%).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Izinhlanzi                    | <b>D</b>     | Ukugcina inhloso i-EC (>43%).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Izinyoni                      | <b>E</b>     | Ukugcina inhloso i-EC (>23%).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |

Ithebula 7 liNIKEZA ama-RQO emifula lapho izinkinga zekhwalithi yamanzi ziza kuqala. Okwamanje, imifula eminingi kanye nezici ziyafakwa ohlelweni lokuqapha futhi ama-RQO asheshe asetshenziswe. Ukutusa ukufaka izici ezengeziwe noma izinhlelo kuzokwenziwa embikweni ofanele wocwaningo.

**IThebula 7 IMIFULA: Isifinyezo sama-RQO ayinhloko Ekhwalthi Yamanzi ku-WQ ebekelwe phezulu KAKHULU yendawo yocwaningo**

| i-IUA                | i-RU                                                 | Isakhana (Inkomba)                       | i-RQO elandisayo                                      | i-RQO yenani                                                                                                                   |
|----------------------|------------------------------------------------------|------------------------------------------|-------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|
| IUA T4-SC: UMtamvuna | RU SC1: T40G-05616                                   | Izakhi (i-orthophosphate)                | Kuyabekezeleleka                                      | I-percentile yama-50 yemininingwane kumele ibe ngaphansi kwa-0.015 mg/L PO <sub>4</sub> -P (izinto eziphila emanzini: umholi). |
|                      |                                                      | Ukuqhuba Kogesi (usawoti)                | Kuyamukeleka                                          | I-percentile yama-95 yemininingwane kumele ibe ngaphansi noma ilingane no-55 mS/m ((izinto eziphila emanzini: umholi).         |
|                      |                                                      | Amagciwane endle kanye ne- <i>E.coli</i> | Ukuzilibazisa (Uxhumano olugcwele noma oluyingxenywe) | Ilangabezane nezinhloso zokuzilibazisa / nezinye izinto zokusebenza*.                                                          |
| IUA T5-2: Umzimkulu  | MRU MzA: MzEWR2i, T51C-04760                         | Izakhi (i-phosphate)                     | Kuyamukeleka                                          | I-percentile yama-50 yemininingwane kumele ibe ngaphansi kwa-0.015 mg/L PO <sub>4</sub> -P (izinto eziphila emanzini: umholi). |
|                      |                                                      | Ukuqhuba Kogesi (usawoti)                | Kuhle                                                 | I-percentile yama-95 yemininingwane kumele ibe ngaphansi noma ilingane no-30 mS/m (izinto eziphila emanzini: umholi).          |
|                      | MRU MzB: MzEWR3i, T52C-04960, T52D-04948, T52D-05137 | Izakhi (i-orthophosphate)                | Kuyamukeleka                                          | I-percentile yama-50 yemininingwane kumele ibe ngaphansi kwa-0.025 mg/L PO <sub>4</sub> -P (izinto eziphila emanzini: umholi). |
|                      |                                                      | Ukuqhuba Kogesi (usawoti)                | Kuhle                                                 | I-percentile yama-95 yemininingwane kumele ibe ngaphansi noma ilingane no-30 mS/m (izinto eziphila emanzini: umholi).          |

| i-IUA             | i-RU                                                               | Isakhana                              | i-RQO elandisayo                                                                                                                                                                      | i-RQO yenani                                                                                                                   |
|-------------------|--------------------------------------------------------------------|---------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|
| IUA U2-3: uMngeni | RU uMn7: U20F-04131, U20F-04204, U20F-04224, U20G-04194 U20G-04215 | Izakhi (i-orthophosphate)             | Kuyamukeleka                                                                                                                                                                          | I-percentile yama-50 yemininingwane kumele ibe ngaphansi kwa-0.025 mg/L PO <sub>4</sub> -P (izinto eziphila emanzini: umholi). |
|                   |                                                                    | Amagciwane endle ne- <i>E.coli</i>    | Ukuzilibazisa (Uxhumano olugcwele noma oluyingxenywe)                                                                                                                                 | Ilangabezane nezinhloso zokuzilibazisa / nezinye izinto zokusebenza*.                                                          |
|                   |                                                                    | Ukungcola/ukucaca noma amazinga e-TSS | Kuyamukeleka: Ukuguqulwa okulinganisiwe kusuka manje ngemithwalo emikhulu yenzika yesikhashana kanye nokugcola ngesikhathi sesenzakalo sokugeleza (izinto eziphila emanzini: umholi). | Akukho okutholakalayo                                                                                                          |
|                   | MRU uMnC: U20G-04240, U20G-04259,                                  | Izakhi (i-orthophosphate)             | Kuyabekezeleleka                                                                                                                                                                      | I-percentile yama-50 yemininingwane kumele ibe ngaphansi kwa-0.075 mg/L                                                        |

|                      |                                 |                                            |                                                                                                                                                                                                                 |                                                                                                                                                               |
|----------------------|---------------------------------|--------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                      | U20G-04385                      |                                            |                                                                                                                                                                                                                 | PO4-P<br>(izinto eziphila emanzini: umholi).                                                                                                                  |
|                      |                                 | Ukungcola/ukucaca noma amazinga e-TSS      | Kuyamukeleka: Ukuguqulwa okulinganisiwe kusuka manje ngemithwalo emikhulu yenzika yesikhashana kanye nokugcola ngesikhathi sesenzakalo sokugeleza (izinto eziphila emanzini (izinto eziphila emanzini: umholi). | Akukho okutholakalayo                                                                                                                                         |
|                      |                                 | Amagciwane endle ne-E.coli                 | Ukuzilibazisa (Uxhumano olugcwele noma oluyingxeny)                                                                                                                                                             | Ihlangabezane nezinhloso zokuzilibazisa / nezinye izinto zokusebenza *.                                                                                       |
|                      |                                 | Okunobuth (i-ammonia, i-iron, i-manganese) | Kuhle noma izigaba A                                                                                                                                                                                            | I-percentile yama-95 yemininingwane kumele ibe phakathi kwe-TWQR yezinto ezinobuthi (DWAf, 1996a) noma kwezilinganiselo eziphakeme zesigaba A ku-DWAf (2008). |
| IUA U2-4: uMnsunduze | RU uMn8: U20J-04461, U20J-04488 | Ukungcola/ukucaca noma amazinga e-TSS      | Kuyamukeleka: Ukuguqulwa okulinganisiwe kusuka manje ngemithwalo emikhulu yenzika yesikhashana kanye nokugcola ngesikhathi sesenzakalo sokugeleza (izinto eziphila emanzini (izinto eziphila emanzini: umholi). | Akukho okutholakalayo                                                                                                                                         |
|                      |                                 | Amagciwane endle ne-E.coli                 | Ukuzilibazisa (Uxhumano olugcwele noma oluyingxeny)                                                                                                                                                             | Ihlangabezane nezinhloso zokuzilibazisa / nezinye izinto zokusebenza *.                                                                                       |
|                      | MRU Duzé D: U20J-04459          | Ukungcola/ukucaca noma amazinga e-TSS      | Kuyamukeleka: Ukuguqulwa okulinganisiwe kusuka manje ngemithwalo emikhulu yenzika yesikhashana kanye nokugcola ngesikhathi sesenzakalo sokugeleza (izinto eziphila emanzini (izinto eziphila emanzini: umholi). | Akukho okutholakalayo                                                                                                                                         |
|                      |                                 | Amagciwane endle ne-E.coli                 | Ukuzilibazisa (Uxhumano olugcwele noma oluyingxeny)                                                                                                                                                             | Ihlangabezane nezinhloso zokuzilibazisa / nezinye izinto zokusebenza *.                                                                                       |

| i-IUA                    | i-RU                                                                                                              | Isakhana                              | i-RQO elandisayo                                                                                                                                                                                                | i-RQO yenani                                                                                                                    |
|--------------------------|-------------------------------------------------------------------------------------------------------------------|---------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|
| IUA U2-6:<br>uMngeni     | RU uMn10:<br>U20M-04625,<br>U20M-04639,<br>U20M-04642,<br>U20M-04649,<br>U20M-04653,<br>U20M-04659,<br>U20M-04682 | Izakhi (i-orthophosphate)             | Kuyabekezeleleka                                                                                                                                                                                                | I-percentile yama-50 yemininingwane kumele ibe ngaphansi kwa-0.075 mg/L PO <sub>4</sub> -P (izinto eziphila emanzini: umholi).  |
|                          |                                                                                                                   | Amagciwane endle ne-E.coli            | Ukuzilibazisa (Uxhumano olugcwele noma oluyingxenywe)                                                                                                                                                           | Ilangabezane nezinhloso zokuzilibazisa / nezinye izinto zokusebenza *.                                                          |
|                          |                                                                                                                   | Okunobuthi (i-ammonia)                | Kuyabekezeleleka                                                                                                                                                                                                | I-percentile yama-95 yemininingwane kumele ibe phakathi kwesigaba D ku-DWAF (2008).                                             |
| IUA U3-1:<br>uMdloti     | RU U3.1:<br>U30A-04228,<br>U30A-04363,<br>U30A-04360                                                              | Izakhi (i-orthophosphate)             | Kuyamukeleka                                                                                                                                                                                                    | I-percentile yama-50 yemininingwane kumele ibe ngaphansi kwa-0.025 mg/L PO <sub>4</sub> -P (izinto eziphila emanzini: umholi).  |
|                          |                                                                                                                   | Ukungcola/ukucaca noma amazinga e-TSS | Kuyamukeleka: Ukuguqulwa okulinganisiwe kusuka manje ngemithwalo emikhulu yenzika yesikhashana kanye nokugcola ngesikhathi sesenzakalo sokugeleza (izinto eziphila emanzini (izinto eziphila emanzini: umholi). | Akukho okutholakalayo                                                                                                           |
|                          |                                                                                                                   | Amagciwane endle ne-E.coli            | Ukuzilibazisa (Uxhumano olugcwele noma oluyingxenywe)                                                                                                                                                           | Ilangabezane nezinhloso zokuzilibazisa / nezinye izinto zokusebenza *.                                                          |
| IUA U4-1 and U4-2: Mvoti | RU Mv1:<br>U40B-03708,<br>U40B-03740,<br>U40B-03832                                                               | Izakhi (i-orthophosphate)             | Kuyamukeleka                                                                                                                                                                                                    | I-percentile yama-50 yemininingwane kumele ibe ngaphansi kwa-0.025 mg/L PO <sub>4</sub> -P (izinto eziphila emanzini: umholi).  |
|                          |                                                                                                                   | Ukuqhuba Kogesi (usawoti)             | Kuhle                                                                                                                                                                                                           | I-percentile yama-95 yemininingwane kumele ibe ngaphansi noma ilingane no-30 mS/m (izinto eziphila emanzini: umholi).           |
| IUA U6-1: Upper uMlazi   | RU U6.1:<br>U60A-04533,<br>U60B-04614,                                                                            | Izakhi (i-orthophosphate)             | Kuyabekezeleleka                                                                                                                                                                                                | I-percentile yama-50 yemininingwane kumele ibe ngaphansi kuka-0.075 mg/L PO <sub>4</sub> -P (izinto eziphila emanzini: umholi). |

|            |                                       |                                                                                                                                                                                                                 |                                                                                                                       |
|------------|---------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|
| U60C-04555 | Ukuqhuba Kogesi (usawoti)             | Kuyabekezeleleka                                                                                                                                                                                                | I-percentile yama-95 yemininingwane kumele ibe ngaphansi noma ilingane no-85 mS/m (izinto eziphila emanzini: umholi). |
|            | Ukungcola/ukucaca noma amazinga e-TSS | Kuyamukeleka: Ukuguqulwa okulinganisiwe kusuka manje ngemithwalo emikhulu yenzika yesikhashana kanye nokugcola ngesikhathi sesenzakalo sokugeleza (izinto eziphila emanzini (izinto eziphila emanzini: umholi). | Akukho okutholakalayo                                                                                                 |
|            | Okunobuthi (i-ammonia)                | Kuyabekezeleleka                                                                                                                                                                                                | I-percentile yama-95 yemininingwane kumele ibe phakathi kwesigaba D ku-DWAF (2008).                                   |
|            | Amagciwane endle ne-E.coli            | Ukuzilibazisa (Uxhumano olugcwele noma oluyingxeny)                                                                                                                                                             | Ihlangabezane nezinhloso zokuzilibazisa / nezinye izinto zokusebenza *.                                               |

TWQR = = Ikhwalithi Yamanzi Ehlukahlukene Ehlosiwe (i-DWAF, 1996a).

DWAF (1996a): Iziqondiso Zekhwalthi Yamanzi zeNingizimu Afrika: iVolumu 7: Izinto Eziphilayo Zasemanzini.

DWAF (1996b): Iziqondiso Zekhwalthi Yamanzi zeNingizimu Afrika: iVolumu 3: Ukusetshenziswa kwemboni.

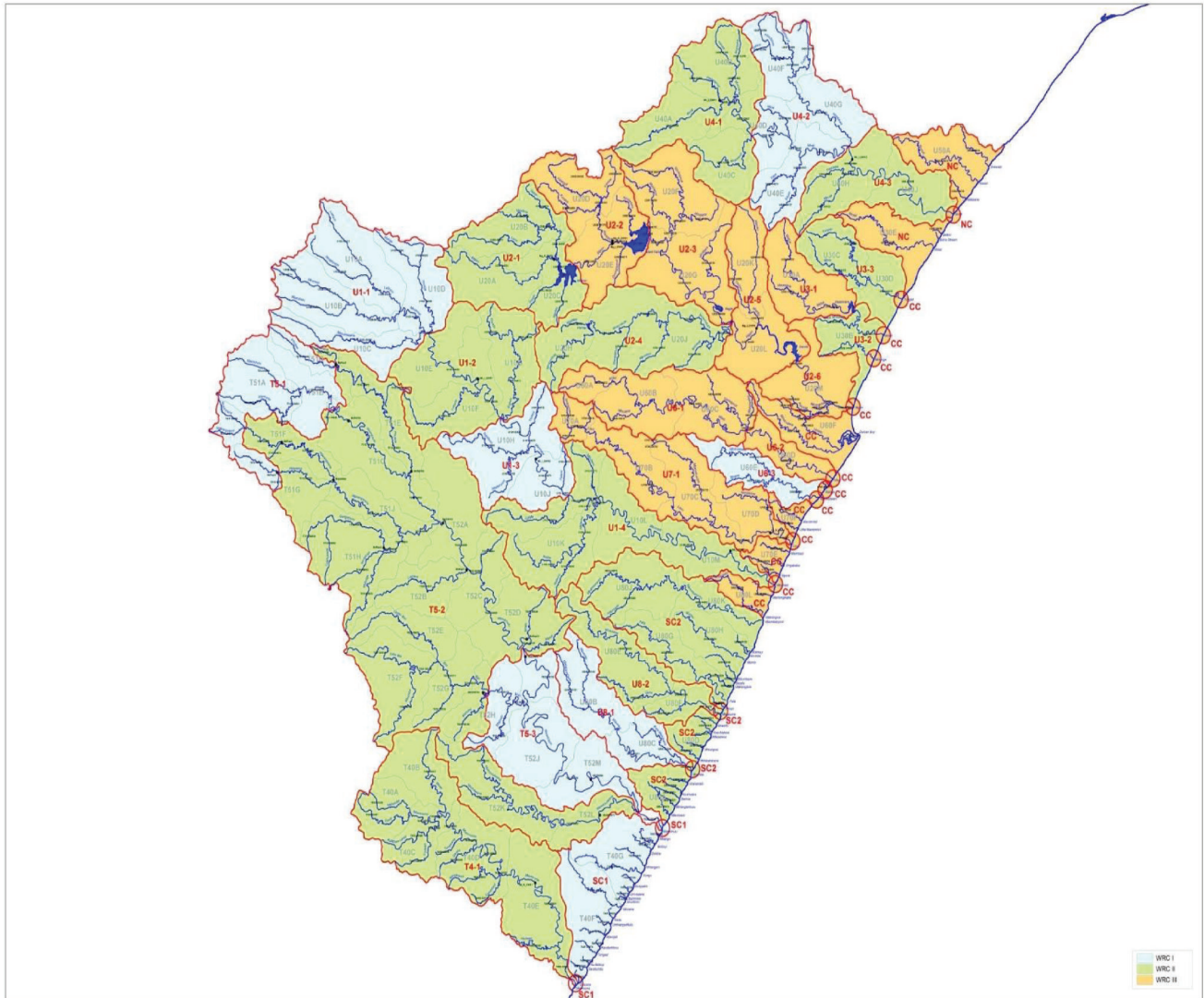
DWAF (2008): Izindlela zokunquma izimfanelo zezinga lamanzi Ezinqolobane Zemvelo zemifula.

Qaphela ukuthi zonke izinjongo zokuxhumana ngokugcwele nangokwengxeny zamagciwane endle kanye ne-E. coli zibekiwe ngokweziqondiso ze-SA NMMP kanye nezingozi zempilo ngokwezibalo / 100 mL, njengokulandelayo:

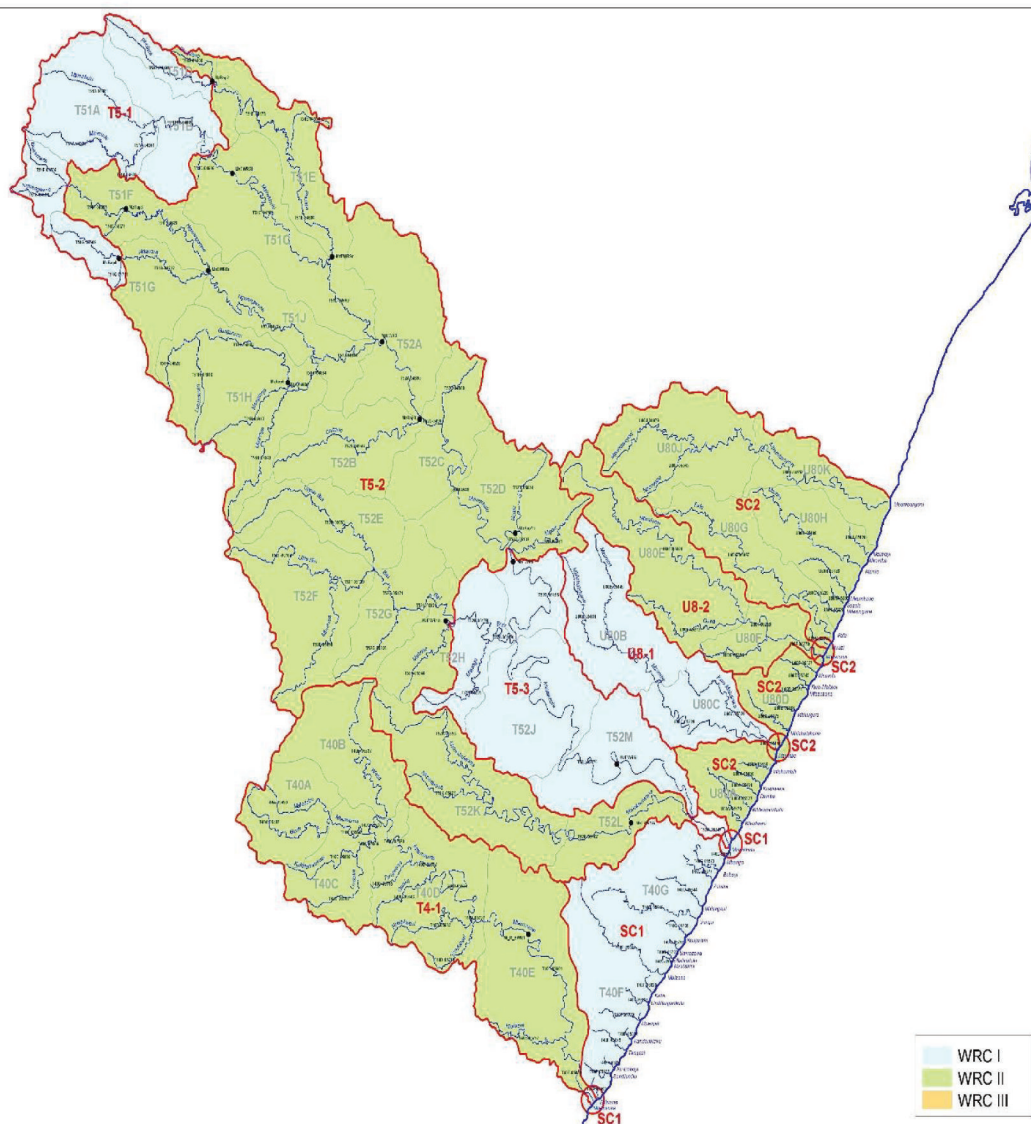
|       |             |         |
|-------|-------------|---------|
| Low   | Medium      | High    |
| < 600 | 600 - 2 000 | > 2 000 |

|        |          |         |
|--------|----------|---------|
| Phansi | Phakathi | Phezulu |
|--------|----------|---------|

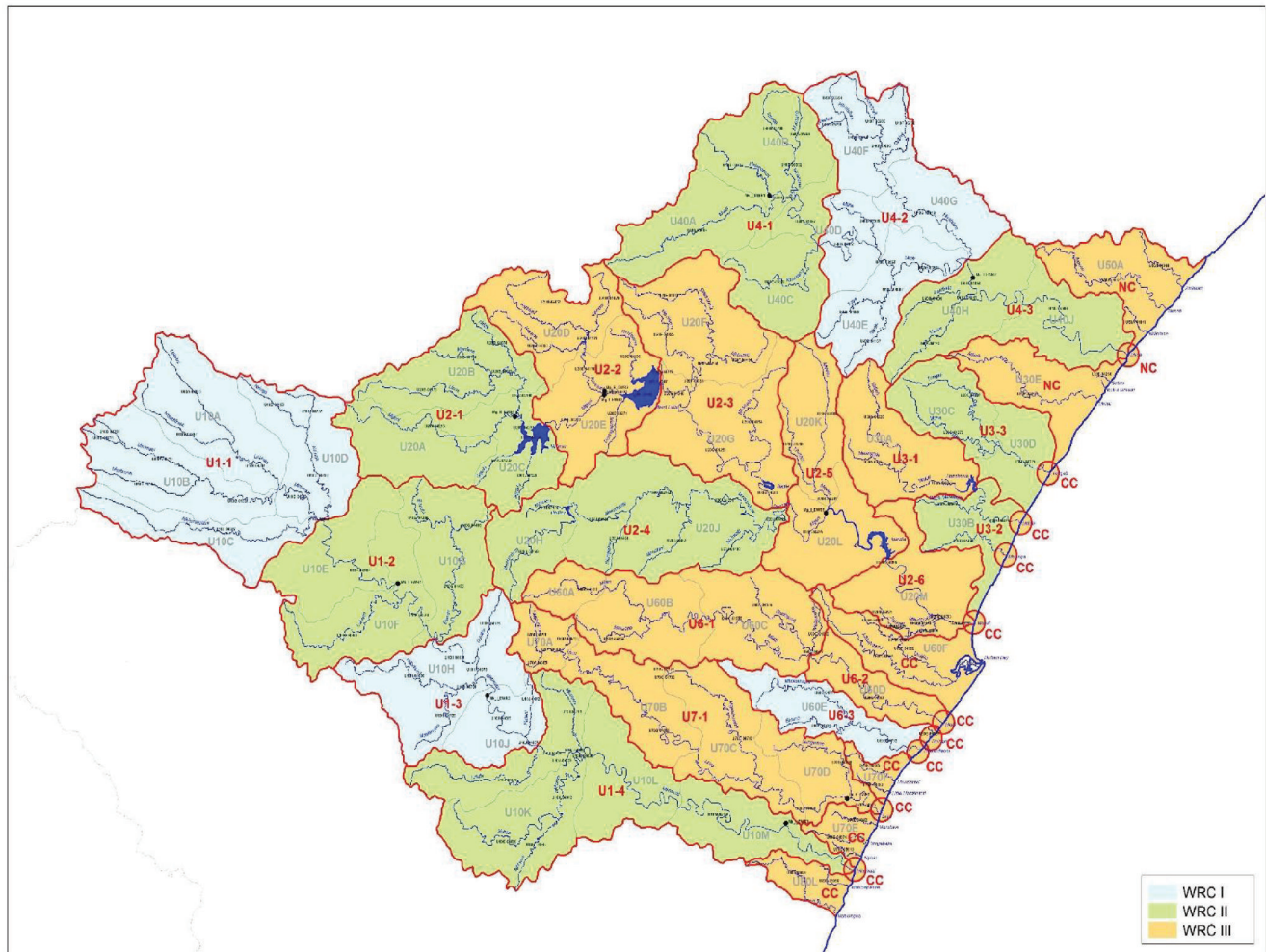
Imihlahlandlela iyanikezwa mayingekho imininingwane noma ulwazi lwemisebenzi yokuzilibazisa endaweni.



**Umdwebo 1 Izigaba Zemithombo Yamanzi yama-IUA oMvoti ukuya ku-Umzimkulu WMA**



**Umdwebo 2** Izigaba Zemithombo Yamanzi yama-IUA Eziziba eziphakeme i-T4, T5 kanye ne-U8.



**Umdwebo 3** Izigaba Zemithombo Yamanzi yama-IUA Eziziba eziphakeme ku-U1 ukuya ku-U7.