



water & sanitation

Department:
Water and Sanitation
REPUBLIC OF SOUTH AFRICA

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Tel: (012) 336-7500 Fax: (012) 323-4472 / (012) 326-2715.

LICENCE IN TERMS OF CHAPTER 4 OF THE NATIONAL WATER ACT, 1998 (ACT NO. 36 OF 1998) (THE ACT)

I, **Trevor Balzer**, in my capacity as Acting Director-General in the Department of Water and Sanitation and acting under authority of the powers delegated to me by the Minister of Human Settlements, Water and Sanitation, hereby authorises the following water uses in respect of this licence.

SIGNED: 

DATE:  8/12/2020

**LICENCE NO: /J33C/CEGI/10065
FILE NO: 27/2/2/J333/2/3**

1. **Licensee:** **Central Karoo District Municipality: Klaarstroom Wastewater Treatment Works Upgrade**

Postal Address: Private Bag X53
PRINCE ALBERT
6930

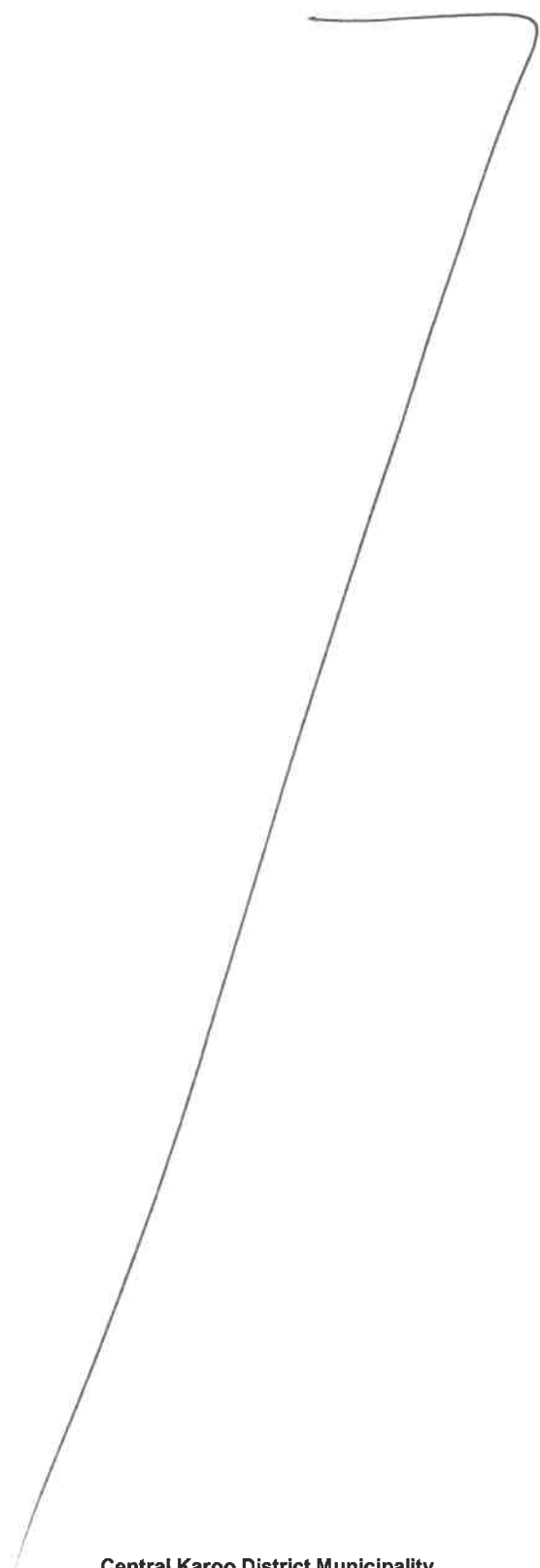
2. Water Uses

- | | | |
|-----|----------------------------|---|
| 2.1 | Section 21 (c) of the Act: | Impeding or diverting the flow of water in a watercourse. |
| 2.2 | Section 21 (i) of the Act: | Altering the bed, banks, course, or characteristics of a watercourse. |
| 2.3 | Section 21 (e) of the Act: | Engaging in a controlled activity: irrigation of sports field with treated wastewater from the Klaarstroom Oxidation Ponds. |
| 2.4 | Section 21 (g) of the Act: | Disposing of waste in a manner which may detrimentally impact on a water resource. |



3. Properties in respect of which this licence is issued

- 3.1 Portion 32 of Land Parcel 178 of the Major Region PRINCE ALBERT
- 3.2 Portion 34 of Land Parcel 178 of the Major Region PRINCE ALBERT



Handwritten signature or initials.

4. Registered owners of the Properties B10065

Table 1: Registered owners of the Properties

| Property Name | Property Owner | Title deeds number |
|--|----------------------------------|--------------------|
| Portion 32 of Land Parcel 178 of the Major Region PRINCE ALBERT, | Prince Albert Local Municipality | T7854/1956 |
| Portion 34 of Land Parcel 178 of the Major Region PRINCE ALBERT | | T32509/1970 |

5. Licence and Review Period

This licence is valid for a period of twenty years (20) years from the date of issuance and it may be reviewed at intervals of not more than five (5) years.

6. Definitions

Any terms, words and expressions as defined in the National Water Act, 1998 (Act 36 of 1998) shall bear the same meaning when used in this licence.

"The Chief Executive Officer" means the Head of Breede Gouritz Catchment Management Agency - Worcester.

"Extent of the watercourse" means the outer edge of the 1:100 year floodline or the delineated riparian habitat, whichever is the greatest.

"Regulated area of a wetland" is the use of water for section 21 c and i water uses within 500m radius from the boundary of any wetland.

A wetland means land which is transitional between terrestrial and aquatic systems where the water table is usually at or near the surface, or the land is periodically covered with shallow water, and which land in normal circumstances supports or would support vegetation typically adapted to life in saturated soil.

The characteristics of a watercourse/s mean the flow regime, water quality, habitat (including the physical structure of the watercourse/s and associated vegetation) and biota found within the extent of the watercourse/s. The Resource Quality characteristics as defined in the National Water Act, 1998 (Act 36 of 1998).

7. Description of activity

The applicant, Central Karoo District Municipality on behalf of Prince Albert Local Municipality, applied for Section 21 (c, e, g, i) water use licence in terms of Section 40 of the National Water Act, 1998 (Act 36 of 1998) on 26 August 2019. This application is for the proposed upgrade of the exiting Klaarstroom Oxidation Ponds on Remainder of



Portion 32 of Farm Klaarstroom 178, Prince Albert, Western Cape to increase the capacity and improve the quality of the final effluent.

The proposed facilities will divert an intermittent natural drainage line by means of berms to reroute potential flow around the Oxidation Ponds. It is further proposed that the final effluent be used for irrigation of the sport fields in Klaarstroom village. It is proposed to construct a pipeline from the Oxidation Ponds which will terminate in a new galvanized reservoir at the sports field on Remainder of Portion 34 of Farm Klaarstroom 178, Prince Albert, Western Cape.

From the residential area, the wastewater is collected at a central pump station in the village and then pumped through rising main over 800m to the wastewater treatment plant.

The existing system has a design capacity of 50m³ per day. It is proposed that the current capacity of the Klaarstroom Oxidation Ponds be upgraded to a new capacity of 61m³ per day (11m³/ day expansion) for dry weather and the Peak Wet Weather flow was calculated to be 127m³/day (1.47 l/s).

It is proposed that the existing plant be converted to a system comprising an inlet works, dual anaerobic ponds, dual aerobic ponds, refurbished facultative pond, a horizontal flow reedbed and final effluent storage pond which will be connected to the new galvanized reservoir at the sports field through pipeline. The proposed irrigation reservoir will have a storage volume of 121m³ and will have dimensions of 10m diameter x 1.55m. A sludge pond will also be constructed to be used when desludging takes place.

The activity will take place in quaternary catchment J33C which falls within Breede-Gouritz Water Management Area.



APPENDIX I

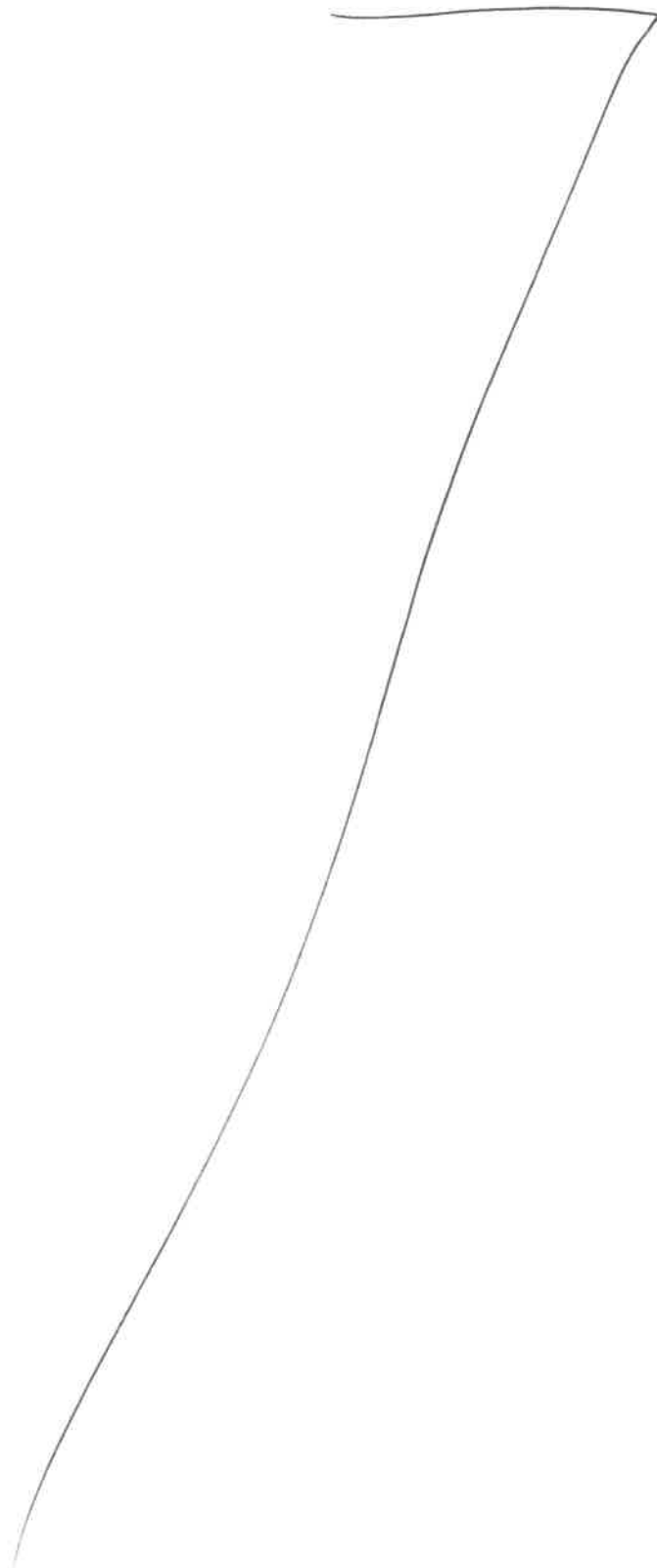
General Conditions for the Licence

1. This licence is subject to all applicable provisions of the National Water Act, 1998 (Act 36 of 1998).
2. The responsibility for complying with the provisions of the licence is vested in the Licensee and not any other person or body.
3. The Licensee must immediately inform the Chief Executive Officer of any change of name, address, premises and/or legal status.
4. If the property in respect of which this licence is issued is subdivided or consolidated, the Licensee must provide full details of all changes in respect of the properties to the Chief Executive Officer within 60 days of the said change taking place.
5. If a Water User Association is established in the area to manage the resource, membership of the Licensee to the Association is compulsory. Rules, regulations and water management stipulation of such association must be adhered to.
6. The Licensee shall be responsible for any water use charges and/or levies imposed by a Responsible Authority.
7. While effect must be given to the Reserve as determined in terms of the Act, where a lower confidence determination of the Reserve has been used in issuance of this licence, the licence conditions may be amended should a higher confidence reserve be conducted.
8. The licence shall not be construed as exempting the Licensee from compliance with the provisions of any other applicable Act, Ordinance, Regulation or By-law.
9. The licence and amendment of this licence are also subject to all the applicable procedural requirements and other provisions of the Act, as amended from time to time.
10. The Licensee shall conduct an annual internal audit on compliance with the conditions of this licence. A report on the audit shall be submitted to the Chief Executive Officer within one month of the finalization of the audit.
11. The Licensee shall appoint an independent external auditor to conduct an annual audit on compliance with the conditions of this licence. Both these audits may be subjected to external audit.
12. Any incident that causes or may cause water pollution must be reported to The Chief Executive Officer or a designated representative within 24 hours.
13. The Department accepts no liability for any damage, loss or inconvenience, of whatever nature, suffered as a result of / amongst other things.

13.1 Shortage of water;



- 13.2 Inundation of flood;
- 13.3 Any *force majeure* event;
- 13.4 Siltation of the river or dam basin; and
- 13.5 Required Reserve releases.



APPENDIX II

Section 21(c) of the Act: Impeding or diverting the flow of water in a watercourse

and

Section 21(i) of the Act: Altering the bed, banks, course or characteristic of a watercourse

1. GENERAL

- 1.1 This licence authorises the licensee for Section 21(c) and (i) water use activities for the construction of Klaarstroom Wastewater Treatment Works as set out in Table 2 within quaternary catchment J33C and in the water use licence application reports submitted to the Department (refer condition 1.2):

Table 2: Water Use Activities

| Activity | Purpose / Description | Properties | Demission/ Capacity | Co-ordinates |
|----------|--|---|--|-------------------------------------|
| S21(c) | Construction of stormwater diversion berms around the Oxidation ponds | Portion 32 of Land Parcel 178 of the Major Region PRINCE ALBERT | H = 1m L = 140 Material = Earth/soil | Lat : -33.321638 Lon : 22.529089 |
| S21(c) | Digging of trench to direct drainage line stormwater flow away from the upgraded Klaarstroom Oxidation ponds | | Depth=0.3m Width = 1.5m | Lat : -33.322104 Lon : 22.528746 |
| S21(i) | Construction of stormwater diversion berms around the Oxidation ponds | | Altering bed & banks | Lat : -33.321889 Lon : 22.529004 |

- 1.2. The Licensee must carry out and complete all the activities listed under condition 1.1 according to the following:

1.2.1 Reports submitted to the Department or the Chief Executive Officer, specifically:

1.2.1.1 Technical Report for the upgrade of the Klaarstroom Oxidation Pond wastewater treatment system (Revision 2) by BVi Consulting Engineers dated September 2018

1.2.1.2 Preliminary design report (layout plan) by BVi Consulting Engineers dated 09 September 2019

1.2.1.3 Final Basic Assessment Report by EnviroAfrica cc dated October 2019



- 1.2.1.4 Fresh Water Report for expansion of the Klaarstroom Wastewater Treatment Works 30 July 2019
- 1.2.1.5 Environmental Management Programme by EnviroAfrica cc dated October 2019
- 1.3 Conditions of this licence; and
- 1.4 Any other written direction issued by the Chief Executive Officer in relation to this licence.
- 1.5 No activity must take place within the 1:100 year flood line or the delineated riparian habitat, whichever is the greatest, or within 500 m radius from the boundary of any wetland unless authorised by this licence.
- 1.6 The conditions of the authorisation must be brought to the attention of all persons (employees, sub-consultants, contractors etc.) associated with the undertaking of these activities and the Licensee must take such measures that are necessary to bind such persons to the conditions of this licence.
- 1.7 A copy of the water use licence and reports set out under condition 1.2 of this Appendix must be on site at all times.
- 1.8 A suitably qualified person(s), appointed by the Licensee, and approved in writing by the Chief Executive Officer, must be responsible for ensuring that the activities are undertaken in compliance with the specifications as set out in reports submitted to the Department or the Chief Executive Officer and the conditions of this licence.
- 1.9 Buffers of 30m must be implemented between the wetland and the irrigation area and the pasture area.

2. FURTHER STUDIES AND INFORMATION REQUIREMENTS

- 2.1 For water use activities in Table 2:
 - 2.1.1 No fundamental alterations of the site design plan(s) and drawings are allowed, unless a modification is requested and granted by the Chief Executive Officer in writing; and
 - 2.1.2 No site activities must occur beyond the proposed site location of the erosion and sedimentation controls and marked limits of disturbance.
- 2.2 If the Licensee is not the end user/beneficiary of the water use related infrastructure and will not be responsible for long term maintenance and management of the infrastructure, the Licensee must provide a programme for hand over to the successor-in-title including a brief management/maintenance plan and the agreement for infrastructure along with allocation of responsibilities, within three (3) months of the date of issuance of this licence.
- 2.3 An Environmental Management Plan (EMP) and rehabilitation plan for the decommissioning of any of the water use activities listed in Table 2 must be



submitted five (5) years before commencing with closure to the Chief Executive Officer for a written approval.

- 2.4 A Storm Water Management Plan must be updated and drawn up on A1 paper and submitted to the Chief Executive Officer for written approval within 6 months of licence being issued. Clean water dirty water must be separated.
- 2.5 Storm Water management plan should be designed in a way that aims to ensure that post-development run-off does not exceed pre-development values in:
 - 2.5.1 Peak discharge for any given storm,
 - 2.5.2 Total volume of run-off for any given storm,
 - 2.5.3 Frequency of run-off volumes,
 - 2.5.4 Pollutant and debris concentrations reaching watercourses,
 - 2.5.5 Demonstrate minimal soil and vegetation clearance practices,
 - 2.5.6 Demonstrate an effective re-vegetation campaign for bare areas,
 - 2.5.7 Velocity of outgoing storm water shall not exceed the velocities of incoming water to reduce erosion impacts, and
 - 2.5.8 Increase in run-off due to a higher water table resulting from tree clearing practices.

3. PROTECTIVE MEASURES

3.1 Storm Water Management

- 3.1.1 Storm water management practices must be constructed, operated and maintained in a sustainable manner throughout the project and for the water use activities set out in condition 1.1 and must include but are not limited to the following:
 - 3.1.1.1 Increased runoff due to vegetation clearance (promoting limiting vegetation clearance at all times) and/or soil compaction must be managed, and steps must be taken to ensure that storm water does not lead to bank instability and excessive levels of silt entering the watercourse(s);
 - 3.1.1.2 Storm water must be diverted from construction works, access roads, linear infrastructure and reptile ponds and must be managed in such a manner as to disperse runoff and to prevent the concentration of storm water flow; and
 - 3.1.1.3 The velocity of storm water discharges must be attenuated and the banks of the watercourses protected;

3.2 Structures and Materials

- 3.2.1 Necessary erosion prevention measures must be employed to ensure the sustainability of all structures.
- 3.2.2 The height, width and length of structures must be limited to the minimum dimension necessary to accomplish the intended function.



- 3.2.3 Structures must not be damaged by floods exceeding the magnitude of floods occurring on average once in every 100 years.
- 3.2.4 Structures must be non-erosive, structurally stable and must not induce any flooding or safety hazard.
- 3.2.5 Structures must be inspected regularly for accumulation of debris, blockage, erosion of abutments and overflow areas - debris must be removed and damages must be repaired and reinforced immediately.
- 3.2.6 Any access roads, bridges, pathways or other linear crossings should be:
 - 3.2.6.1 Non-erosive, structurally stable and should not induce any flooding or safety hazard;
 - 3.2.6.2 Any damage is repaired immediately to prevent further damage;
 - 3.2.6.3 Non-polluting with respect to silt and litter that can be deposited into a watercourse;
 - 3.2.6.4 Watercourse crossings to facilitate the movement of aquatic and non-aquatic organisms and fauna;
 - 3.2.6.6 Crossing surfaces must be tarred, paved or concreted along the extent of the watercourse and extent at least 100m beyond the extent of the watercourse to minimise impacts on the characteristics of the watercourse;
 - 3.2.6.7 Where any road is within the 100m buffer zone of the watercourse, this portion of the road shall be concreted, paved or tarred; and
 - 3.2.6.8 Not consist of any polluting material.
- 3.2.7 Landscape maintenance plan must be submitted for approval by Provincial Head within 6 months of licence being issued.

3.3 Flow

- 3.3.1 The Licensee must determine flood lines (1:50 and 1:100 year) to ensure risks are adequately managed. Flood lines must be clearly indicated on the site plan(s) and drawings along with all wetland boundaries.
- 3.3.2 The activities must be conducted in a manner that does not negatively affect catchment yield, hydrology and hydraulics. The Licensee must ensure that the overall magnitude and frequency of flow in the watercourse(s) does not decrease, other than for natural evaporative losses and authorised attenuation volumes.
- 3.3.3 Appropriate design and mitigation measures must be developed to minimise impacts on the natural flow regime of the watercourse i.e. through placement of structures/supports and to minimise turbulent flow in the watercourse.
- 3.3.4 Structures must be designed in a way to prevent the damming of stream/river water and not impact on the flow of the water, during the construction and operational phases of all developments.
- 3.3.5 The development may not impede natural drainage lines.



- 3.3.6 The diversion structures may not restrict river flows by reducing the overall river width or obstructing river flow.
- 3.3.7 The characteristics of streambeds are likely to be altered locally. In particular the rock and rubble created during the construction process is likely to have sharp edges, and not smooth surfaces that are typically associated with river rocks and pebbles. All rock and rubble must be removed from the watercourse once construction has been completed. Any rock placed in the watercourse to enhance the dissolved oxygen content of the water must adhere to the same criteria, namely only smooth rock surfaces to be placed within the watercourse.

3.4 Riparian and Instream Habitat (Vegetation and Morphology)

- 3.4.1 Activities must start up-stream and proceed into a down-stream direction, so that the recovery processes can start immediately, without further disturbance from upstream works.
- 3.4.2 Operation and storage of equipment must not take place within the 1:100 year flood line or delineated riparian habitat, whichever is the greatest unless authorised in this license.
- 3.4.3 Activities must not occur in sensitive riffle habitats.
- 3.4.4 Indigenous riparian vegetation, including dead trees, outside the limits of disturbance indicated in the site plans must not be removed from the area.
- 3.4.5 Alien and invader vegetation must not be allowed to further colonise the area, and all new alien vegetation recruitment must be sustainably eradicated or controlled according to a respective management plan as formally approved by the Chief Executive Officer in writing within 6 months after the issuance date of this licence.
- 3.4.6 Existing vegetation composition must be maintained or improved by maintaining the natural variability in flow fluctuations. Rehabilitated areas shall have vegetation basal cover of at least 15% at all times.
- 3.4.7 Recruitment and maintaining of a range of size classes of dominant riparian species in perennial channels must be stimulated.
- 3.4.8 Encroachment of additional exotic species and terrestrial species in riparian zones must be discouraged.
- 3.4.9 Accumulation of woody debris on terraces by periodic flooding must be discouraged.
- 3.4.10 Existing flood terraces and deposition of sediments on these terraces to ensure optimum growth, spread and recruitment of these species must be maintained.
- 3.4.11 All reasonable steps must be taken to minimise noise and mechanical vibrations in the vicinity of the watercourse. Noise levels (noise resulting from the activities listed in Table 2 and associated activities) to be below 35dB from 18:00 – 06:00 daily.



- 3.4.12 Necessary erosion prevention mechanisms must be employed to ensure the sustainability of all structures and activities and to prevent instream sedimentation.
- 3.4.13 Soils that have become compacted through the water use activities must be loosened to an appropriate depth to allow seed germination.
- 3.4.14 Slope/bank stabilisation measures must be implemented with a 1:3 ratio or flatter and vegetated with indigenous vegetation immediately after the shaping.
- 3.4.15 Stockpiling of removed soil and sand must be stored outside of the 1:100 flood line or delineated riparian habitat, whichever is the greatest, to prevent being washed into the river and must be covered to prevent wind and rain erosion.
- 3.4.16 The indiscriminate use of machinery within the instream and riparian habitat will lead to compaction of soils and vegetation and must therefore be strictly controlled.
- 3.4.17 The overall macro-channel structures and mosaic of cobbles and gravels must be maintained by ensuring a balance (equilibrium) between sediment deposition and sediment conveyance maintained. A natural flooding and sedimentation regime must thus be ensured as far as reasonably possible.
- 3.4.18 As much indigenous vegetation growth as possible should be promoted within the proposed development area to protect soil and to reduce the percentage of the surface area which is paved/hardened/compacted.
- 3.4.19 Run-off from paved/hardened/compacted surfaces should be slowed down by the strategic placement of berms.
- 3.4.20 The Licensee shall protect the banks of the watercourse against instability and erosion and ensure a healthy and sufficient bank side vegetation cover. A specific management program addressing this concern shall be developed by a professional, qualified, independent, and registered ecologist and aquatic specialist and submitted to the Chief Executive Officer for written approval within three (3) months after the issuance of this licence.
- 3.4.21 Plant Species Plan must be drawn up in conjunction with a landscape architect or botanist and approved by Chief Executive Officer and implemented within 6 months of licence being issued.

3.5 Biota

- 3.5.1 All reasonable steps must be taken not to disturb the breeding, nesting and/or feeding habitats and natural movement patterns of aquatic biota.
- 3.5.2 The current level of diversity of biotopes and communities of animals, plants and microorganisms must be maintained.



4 REHABILITATION AND MANAGEMENT

- 4.1 The Licensee must embark on a systematic long-term rehabilitation programme to restore the watercourse to environmentally acceptable and sustainable conditions, which must include, but not be limited to the rehabilitation of disturbed and degraded riparian areas to restore and upgrade the riparian habitat integrity to sustain a bio-diverse riparian ecosystem.
- 4.2 All disturbed areas must be re-vegetated with an indigenous seed mix in consultation with an indigenous plant expert, ensuring that during rehabilitation only indigenous shrubs, trees and grasses are used in restoring the biodiversity.
- 4.3 An active campaign for controlling invasive species must be implemented within disturbed zones to ensure that it does not become a conduit for the propagation and spread of invasive exotic plants.
- 4.4 Rehabilitation must be concurrent with construction.
- 4.5 Topsoil must be stripped and redistributed.
- 4.6 Compacted and disturbed areas must be shaped to natural forms and to follow the original contour. In general cut and fill slopes and other disturbed areas must not exceed 1:3 (v:h) ratio, it must be protected, vegetated, ripped, and scarified parallel with the contour.
- 4.7 The Chief Executive Officer must sign a release form indicating that rehabilitation was done satisfactory according to specifications as per this license.
- 4.8 A photographic record must be kept as follows and submitted with reports as set out in section 5:
 - 4.8.1 Dated photographs of all the sites to be impacted before construction commences;
 - 4.8.2 Dated photographs of all the sites during construction on a monthly basis; and
 - 4.8.3 Dated photographs of all the sites after completion of construction, seasonally.
- 4.9 Rehabilitation structures must be inspected regularly for the accumulation of debris, blockages instabilities and erosion with concomitant remedial and maintenance actions.
- 4.10 Rehabilitation Plan must be updated and drawn on a drawing for approval by provincial Head within 6 months of licence being issued.
- 4.11 Experienced environmental rehabilitation personnel as well as the correct equipment for environmental rehabilitation must be available.



5 MONITORING AND REPORTING

- 5.1 A comprehensive and appropriate environmental assessment and monitoring programme (including bio-monitoring and eco-toxicology) to determine the impact, change, deterioration and improvement of the aquatic system associated with the activities listed under condition 1.1 and other existing activities as well as compliance to these water use licence conditions must be developed and submitted to the Chief Executive Officer for a written approval before commencement and must subsequently be implemented
- 5.2 A qualified and responsible scientist must be retained by the Licensee who must give effect to the various licence conditions and to ensure compliance thereof pertaining to all activities impeding and/or diverting flow of watercourses as well as alterations to watercourses on the property as set out in condition 1.1.
- 5.3 The Licensee shall conduct an internal and external audit as per condition 11 and 12 of Appendix 1 and the audit report must include:
- 5.3.1 Reporting in respect of the monitoring programme referred to in condition 5.1 of Appendix IV and all other reporting and compliance conditions outlined in this licence;
- 5.3.2 A record of implementation of all mitigation measures including a record of corrective actions; and
- 5.3.3 Compensation measures for damage where mitigation measures have failed to adequately protect the in-stream and riparian habitat or any other characteristic of the watercourses.
- 5.4 The Licensee must apply in writing to the Chief Executive Officer for alternative reporting arrangements for which written approval must be provided.
- 5.5 A comprehensive ground water and surface water monitoring and remediation plan must be provided within 6 months of licence being issued. Such plan must detail how the possible pollution effects from the dirty water impoundment facilities that do not have a barriers system that complies with the requirements of the current Regulations will be remediated and how future pollution from the same facilities will be prevented, in accordance with the requirements of section 19 of the National Water Act (1998).

6 OTHER WATER USERS

- 6.1 The Licensee must attempt to prevent adverse effect on other water users. All complaints must be investigated by a suitable qualified person and if investigations prove that the Licensee has impaired the rights of other water users, the Licensee must initiate suitable compensative measures.

7. POLLUTION PREVENTION, INCIDENTS AND MALFUNCTIONS

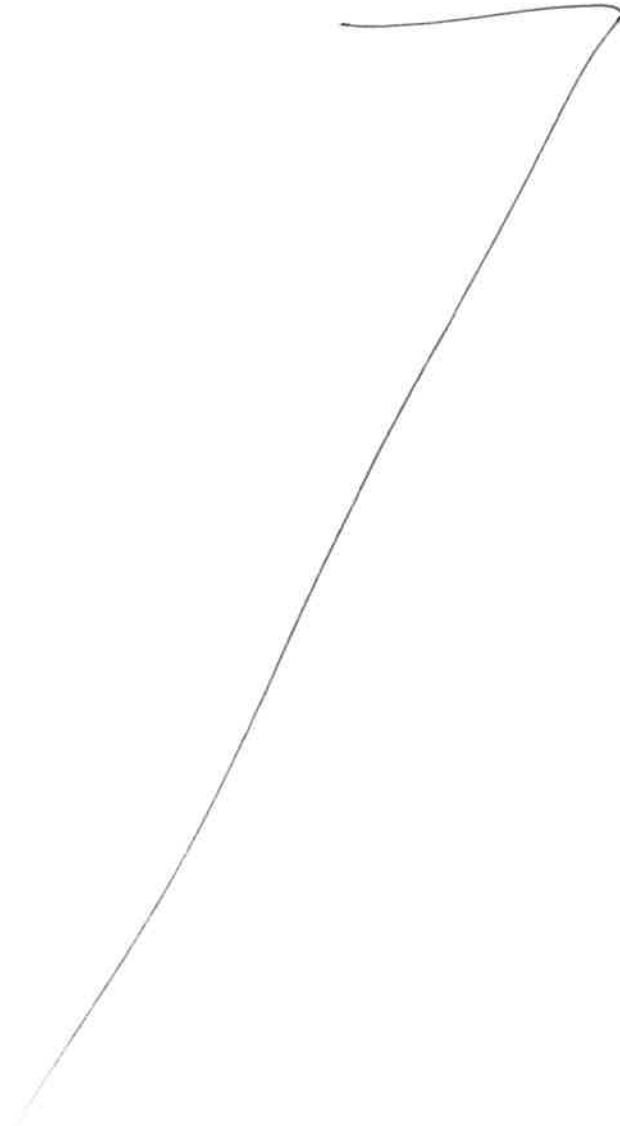
- 7.1 If surface and/or groundwater pollution has occurred or may possibly occur, the Licensee must conduct, and/or appoint specialists to conduct necessary investigations and implement additional monitoring, pollution prevention and remediation measures to the satisfaction of the Chief Executive Officer.



- 7.2 The Licensee shall keep all records relating to the compliance or non-compliance with the conditions of this licence in good order. Such records shall be made available to the Chief Executive Officer within 14 (fourteen) days of receipt of a written request by the Department for such records.
- 7.3 The Licensee shall keep an incident report and complaints register, which must be made available to any external auditors and the Department.

8 BUDGETARY PROVISIONS

- 8.1 The water user must ensure that there is a budget sufficient to complete and maintain the water use and for successful implementation of the rehabilitation programme as set out in this licence.
- 8.2 The Department may at any stage of the process request proof of budgetary provisions for rehabilitation and closure of project.



APPENDIX III

Section 21 (e) of the Act: Engaging in a controlled activity; irrigation of any land with waste or water containing waste

1. QUANTITY OF WATER CONTAINING WASTE FOR IRRIGATION

- 1.1 This licence authorises the licensee to continue with the proposed activities related to irrigation of sports filed with treated wastewater as detailed in Table 3.

Table 3: Water use activities

| Activity | Purpose / Description | Properties | Demission/ Capacity | Volume | Co-ordinates |
|-----------------------|--|---|------------------------------------|--------------------------|-----------------------------------|
| Section 21 (e) | | | | | |
| S 21(e) | Irrigation of sports field with treated effluent | Portion 34 of Land Parcel 178 of the Major Region PRINCE ALBERT | 5 of lawn/grass in the spots field | 22 000 m ³ /a | Lat: -33.324883 Lon: 22.528295 |

- 1.2 The quantity of wastewater authorised to be irrigated in terms of this licence must not be exceeded.

2. CROP TYPE AND AREA IRRIGATED

- 2.1 This licence authorises to irrigate a total surface area of five hectares (5 ha) of grass in the sports field.

3. QUALITY OF WATER TO BE IRRIGATED.

The quality of the wastewater to irrigate with must not exceed the standard quality detailed in Table 4.

Table 4: Quality of waste water to irrigate

| Parameter | Limits |
|-------------------------------|------------|
| pH | 5.5-9.5 pH |
| Electrical Conductivity | 150 mS/m |
| Suspended solids | 200 mg/l |
| Chemical oxygen demand (COD) | 75 mg/l |
| Orthophosphates (as Ortho-P) | 10 mg/l |
| Nitrate (as N) | 40 mg/l |
| Ammonia (as N) | 6 mg/l |
| E.coli (counts/100ml) | 1 000 mg/l |

4. MONITORING

4.1 Quantity

- 4.1.1 The quantity of water containing waste irrigated must be metered and recorded daily.
- 4.1.2 Monitoring for the quantity of the water containing waste for irrigation must be done at the point where the effluent is piped into the irrigation dam.
- 4.1.3 Water quantity measuring, recording and integrating devices must be maintained in a sound state of repair and calibrated by a competent person at intervals of not less than two years. Calibration certificates must be available for inspection by the Chief Executive Officer or his/her representative upon request.

4.2 Quality

- 4.2.1 Monitoring points for quality must be at the outlet point of the irrigation dam where the wastewater will be abstracted for irrigation.
- 4.2.2 The date, time and monitoring point in respect of each sample taken must be recorded together with the results of the analysis.
- 4.2.3 Monitoring points must not be changed prior to notification to and written approval by the Chief Executive Officer.
- 4.2.4 The samples taken at outlet point of the irrigation dam shall be analysed for the variables at the following required frequencies:

Table 5: Monitoring variables and frequency

| Variable | Frequency |
|---------------------------------------|-----------|
| pH | Monthly |
| Electrical Conductivity (EC) (ms/m) | Monthly |
| Chemical oxygen demand (COD) (mg/l) | Monthly |
| Faecal Coliforms(as FCU)(count/100ml) | Monthly |
| Ammonia (as N) (mg/l) | Monthly |
| Nitrate (as N)(mg/l) | Monthly |
| Ortho-Phosphate (as P) (mg/l) | Monthly |
| Suspended solids (mg/l) | Monthly |

5. GENERAL IRRIGATION PRACTICES

- 5.1 Irrigation shall be practiced in accordance with the guidelines prescribed in the document titled "*Guide: Permissible Utilisation and Disposal of Treated Sewage Effluent*", issued by the former Department of Health under reference 11/2/5/3 and dated 30 May 1978, or in accordance with any relevant regulations promulgated under section 26 of the Act.



5.2. Irrigation with waste shall be practiced in a systematic manner and precautions shall be taken to prevent -

- 5.2.1 Water logging and pooling of waste in any location
- 5.2.2 Pollution of underground water or surface water due to seepage or otherwise
- 5.2.3 Fly breeding, public health hazard, odour or secondary pollution
- 5.2.4 Runoff from the irrigation area because of wet weather or any other conditions whatsoever and
- 5.2.5 The site of the irrigation area shall be adequately fenced to prevent the entry of animals and unauthorised persons.

5.3 Notices manufactured of durable weatherproof material prohibiting unauthorised entry and warning against the use of water containing waste for drinking and washing purposes shall be displayed at prominent places along the fence and at entrance gates. Such notices shall be worded in the official languages applicable in the area.

6. PIPELINES

6.1 Pipelines used for the conveyance of waste shall be painted in a conspicuous colour or manufactured of a coloured material distinctly different from the colour of the pipelines in which drinking water is flowing to avoid the possibility of any cross-connections of the different pipelines.

6.2 All stop-valves and taps on the pipelines conveying the effluent shall be of a type that can be opened and closed by means of a loose wrench. This wrench shall be in the safekeeping of a responsible member of the staff to prevent unauthorised use thereof.

6.3 Notices manufactured of a durable weatherproof material warning against the use of water containing waste for drinking and washing purposes shall be displayed at prominent places where the waste is being reused and at all taps. Such notices shall be worded in the official languages applicable in the area.

APPENDIX IV

Section 21(g) of the Act: Disposing of waste in a manner which may detrimentally impact on a water resource

1 QUANTITY OF WASTE TO BE DISPOSED

1.1 The Licensee is authorised to dispose wastewater into the oxidation ponds in terms of water use activities detailed in Table 6.

Table 6: Water use activities

| Activity | Purpose / Description | Properties | Demission/ Capacity | Volume of wastewater | Co-ordinates |
|-----------------------|--|---|----------------------|---------------------------------|--|
| Section 21 (g) | | | | | |
| 2 Anaerobic ponds | To treatment domestic wastewater with an oxidation ponds system | Portion 32 of Land Parcel 178 of the Major Region PRINCE ALBERT | 212 m ³ | 30 000 m ³ per annum | Lat : - 33.322319 Lon : 22.528810 |
| Facultative pond | | | 2 088 m ³ | | |
| 2 Aerobic ponds | | | 1 140 m ³ | | |
| Horizontal reeds bed | | | 7 20 m ³ | | |
| Final storage ponds | | | 1 200 m ³ | | |
| Sludge drying pond | To dry sludge before classified and disposed of at the suitable site | | 250 m ² | - | |

1.2 The quantity of waste/wastewater authorised to be disposed of in terms of this licence must not be exceeded.

2.2. Groundwater Monitoring

2.2.1 The Licensee shall conduct ground water monitoring on a bi-annual basis for the variables shown in Table 7 and the results must be submitted to the Chief Executive Officer.

Table 7: Monitoring Frequency

| Variables | Frequency |
|--------------------------------|-----------|
| Electrical Conductivity (mS/m) | Bi-annual |
| Sodium (mg/l) | Bi-annual |
| Magnesium (mg/l) | Bi-annual |
| Calcium (mg/l) | Bi-annual |
| Chloride (mg/l) | Bi-annual |
| Sulphate (mg/l) | Bi-annual |

| | |
|-------------------------------|-----------|
| Nitrate (mg/l) | Bi-annual |
| Fluoride (mg/l) | Bi-annual |
| pH | Bi-annual |
| Ecoli | Bi-annual |
| Ortho-Phosphate (as P) (mg/l) | Bi-annual |
| Ammonia (as N) (mg/l) | Bi-annual |

2.2.2 Monitoring network must be set up as an early warning system to detect any polluted seepage that might occur from the wastewater system.

2.2.3 If ground water pollution has occurred or may possibly occur, the Licensee must conduct necessary investigations and implement additional monitoring and rehabilitation measures which must be to the satisfaction of the Chief Executive Officer.

3.3 Bio-Monitoring

3.3.1 The Licensee must develop and submit to the Chief Executive Officer within six (6) months of issuance of the Licence a bio-monitoring programme that will include the compilation of an initial database from which the scope and frequency of future bio-monitoring can be developed. This initial assessment must lead to the establishment of a reliable site-specific long-term bio-monitoring programme. This programme must be able to qualify and quantify the impact on biological systems in the water environment in the area directly affected by activities as well as downstream from these activities.

3.3.2 After any incident, SASS surveys must be conducted annually in autumn, spring and summer at a site upstream and downstream of the disturbance until the impacts of the incident are not noticeable anymore. An annual report on the SASS surveys must be submitted to The Chief Executive Officer.

4. STORMWATER

4.1 Storm water leaving the Licensee's premises shall in no way be contaminated by any substance, whether such substance is a solid, liquid, vapour or gas of a combination thereof which is produced, used, stored dumped or spilled on the premises.

4.2 Increased runoff due to vegetation clearance and soil compaction must be managed, and steps must be taken to ensure that storm water does not lead to bank instability and excessive levels of silt entering the streams.

4.3 The Licensee shall ensure that no stormwater will ingress into the wastewater system and that no wastewater ingress into the stormwater system.

4.4 Wastewater impoundments must be designed, constructed and managed to ensure that there is sufficient capacity to contain the 1:50 year flood event, with a minimum of 0.8 m freeboard. Freeboard will be defined as the difference between the water level and the crest of the overflow.

4.5 Wastewater systems must be properly maintained on a continuous basis.



- 4.6 Storm water shall be diverted from the impoundments and roads and shall be managed in such a manner as to disperse runoff and to prevent the concentration of the stormwater flow.
- 4.7 Cut-off drains shall be provided around the properties to prevent storm-water ingress into the surrounding of the works. These drains shall be designed to contain the maximum runoff, which could be expected over a period of 24 hours with a frequency of once in every 20 years.
- 4.8 The Licensee shall conduct regular inspections upstream to ensure that stormwater does not ingress into the wastewater system.

5. MALFUNCTIONS/ABNORMAL CONDITIONS

- 5.1 Accurate and up-to-date records must be kept of all system malfunctions resulting in non-compliance with the requirements of this licence. The records must be available for inspection by the Chief Executive Officer upon request.
- 5.2 The records shall be tabulated under the following headings with a full explanation of all the contributory circumstances:
 - 5.2.1 Operating errors
 - 5.2.2 Mechanical failures (including design, installation or maintenance)
 - 5.2.3 Environmental factors (e.g. floods)
 - 5.2.4 Loss of supply services (e.g. power failure)
 - 5.2.5 Other causes
- 5.3 The Licensee must, within 14 days, or a shorter period of time, as specified by the Chief Executive Officer, from the occurrence or detection of any incident referred above, submit an action plan, which must include a detailed time schedule, to the satisfaction of The Chief Executive Officer of measures taken to:
 - 5.3.1 Correct the impacts resulting from the incident.
 - 5.3.2 Prevent the incident from causing any further impacts; and
 - 5.3.3 Prevent a recurrence of a similar incident.
- 5.4 The Licensee must notify by the Chief Executive Officer within 24 hours of the occurrence or potential occurrence of any incident which has the potential to cause, or has caused water and environmental pollution, health risks or which is a contravention of the licence conditions

6. CONTINGENCY PLANS AND INCIDENT REPORTING

- 6.1 The Licensee must develop and implement an Emergency and Contingency Plan.
- 6.2 The Licensee must implement and promote an environmental call and reporting centre where the following can be reported:
 - 6.2.1 Illegal disposals of waste and/or littering;
 - 6.2.2 Broken, ruptured or leaking pipelines wasting potable water;



- 6.2.3 Open or leaking taps on the property of the Licensee;
 - 6.2.4 Open manholes;
 - 6.2.5 Leaking or broken sewerage lines and pipes;
 - 6.2.6 Overflowing manholes and pump stations;
 - 6.2.7 Possible offenders of any environmental regulations, by-laws and/or ordinances; and
 - 6.2.8 Any other aspect that might hamper the effective management of the water resources.
- 6.3 The Licensee must compile an environmental call and reporting centre protocol, that must be included in the Plan, and which will investigate every complaint within 24 hours of it being reported.
- 6.4 The Licensee must rectify all valid issues reported within 7 days of the issue being reported to the Licensee. All incidents shall be recorded in an incident register which will include reasons for non-rectification of issues raised.
- 6.5 Statistical summary of malfunctions and incidents shall be included in the Annual Report.

7. ACCESS CONTROL, FENCING AND NOTICES

- 7.1 The sites must be adequately fenced to prevent entry of animals and unauthorised persons.
- 7.2 Strict access procedures must be followed in order to gain access to property. Access must be limited to authorised employees of the Licensee and their Contractors only.
- 7.3 Notices manufactured of durable weatherproof material prohibiting unauthorised entry and warning against the use of water containing waste for drinking and washing purposes must be displayed at prominent places along all fences and at entrance gates. Such notices must be worded in the official languages applicable in the area.

8 SITE SPECIFIC CONDITIONS

- 8.1 The licensee shall not irrigate with blood water or put it on the pit/well.
- 8.2 Construction of the new WWTW should commence in dry season when the chances for flash floods are at its least and must be completed prior to the onset of thunderstorms.
- 8.3 A low earth embankment must be placed on the northern side of the proposed works to channel any stormwater around the proposed works.



- 8.4 The berms of the ponds should be high enough, wide enough and structurally sound to withstand the onslaught of a sudden flood and should comply with dam safety regulations.
- 8.5 The second drainage line from the east must be diverted using a trench along the toe-line of the eastern ponds to ensure that stormwater is diverted to the south of the works.
- 8.6 Some of the treated sewage effluent must be used for irrigation of the sports field in the township.
- 8.7 The direct pipeline route (Alternative A) is supported and must be implemented.
- 8.8 The fluids and sludge must be kept out of the drainage line and the river.
- 8.9 Ponds should not be allowed to fill up and overflow.
- 8.10 At least three monitoring boreholes need to be recommended for continuous management of water levels and quality. Two of the three boreholes need to monitor the shallow aquifer.
- 8.11 Spillages from hydrocarbon fuel deposits should be prevented or minimised with strict design, management, and monitoring measures.

[END OF LICENCE]

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