



water & sanitation

Department:
Water and Sanitation
REPUBLIC OF SOUTH AFRICA

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

I, **Mr Moses Siphos Skosana** in my capacity as Acting Chief Director: Water Use Licence Management (CD: WULM) in the Department of Water and Sanitation and acting under the powers delegated to me by the Minister of Water and Sanitation, hereby authorises the following water use in respect of this licence.

Serial Number : 5625708068562074381

Acting Chief Director: Water Use License Management (CD: WULM)

Date: Jan 27 2023 9:00AM

LICENCE NO: 01/E21D/AB/9699
FILE NO: 27/2/1/E421/1/1

1. Licensee: **Harmony Trust**

Postal Address: PO Box 415
Ceres
6835

2. Water Uses

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| 2.1 | Section 21 (a) of the Act: | Taking of water from a water resource, subject to the conditions set out in Appendices I and II. |
| 2.2 | Section 21 (b) of the Act: | Storing water, subject to the conditions set out in appendices I and III. |
| 2.3 | Section 21 (c) of the Act: | Impeding or diverting the flow of water in a watercourse, subject to the conditions set out in appendices I and IV. |
| 2.4 | Section 21 (i) of the Act: | Altering the bed, banks, course or characteristics of a watercourse, subject to the conditions set out in appendices I and IV. |

3. Property in respect of which this licence is issued

3.1 Property on which the licence is issued is shown in Table 1 below.

Table 1: Property on which the licence is issued and registered owner

Property Description	Title Deed Number	SG Code	Owners Detail
Remainder of Houdenbek 415, Ceres RD	T86941/1995	C01900000000041500000	MHB Trust

4. Licence and Review Period

- 4.1 This licence is valid for a period of ten (10) years from the date of issuance and it may be reviewed at intervals of not more than two (2) years.
- 4.2 The Licensee must, if needed, apply for early renewal of this licence in terms of the National Water Act, 1998 (Act 36 of 1998 as amended) within one (1) year before its expiry date.

5. Definitions

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

“The Provincial Head” means the Head of Western Cape Provincial Operations.

“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 in terms of sections 21 (c) and (i) 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 as amended).

6. Description of activity

This licence authorises the applicant, Harmony Trust, for the construction of the Toeka Dam and Harmony Dam with maximum storage capacities of 2 000 000 m³ (two million cubic metres) and 250 000 m³ (two hundred and fifty thousand cubic metres) respectively. This licence further authorises the applicant, Harmony Trust, for the taking of 715 000 m³ (seven hundred and fifteen thousand cubic metres) per year and 250 000 m³ (two hundred and fifty thousand cubic metres) per year of surface water from the Houdenbek River and an unnamed tributary of the Houdenbek River respectively for storage in the Toeka Dam and Harmony Dam

respectively on the Remainder of Houdenbek 415, Ceres RD for the purpose of irrigation. The activity is in quaternary catchment E21D which falls within the Olifants-Doorn Water Management Area, Western Cape.

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 as amended).
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 Provincial Head 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 Provincial Head 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 Provincial Head 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 Provincial Head 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.

14. Licensee must ensure that they comply with their commitments in the Section 27(1)(b) motivation dated October 2018 submitted to the Department as part of this water use licence application.
15. The Licensee must ensure that section 27(1)(b) evidence of compliance, as stipulated in Condition 14 of Appendix I, are recorded and made available during Water Use Licence auditing and monitoring.
16. The B-BBEE certificate for the Harmony Trust must be submitted to the Department before construction commences.
17. The certified copy of the “nine (9) year eleven (11) months lease agreement” as per the application must be submitted to the Department for acceptance before within thirty (30) days of issuance of this Licence.

APPENDIX II

Section 21(a) of the Act: Taking water from a water resource

1. This licence authorises the applicant, Harmony Trust, to abstract a maximum volume of 715 000 m³/a water from the Houdenbek River and 250 000 m³/a from an unnamed tributary of the Houdenbek River for use on the Remainder of Houdenbek 415 for irrigation as detailed in Table 2.

Table 2: Water use activities

Activity	Purpose / Description	Properties	Volume	Co-ordinates
Taking of surface water from the Houdenbek River to store in the proposed Toeka Dam	Irrigation	Remainder of Houdenbek 415, Ceres RD	715 000 m ³ /a	Lat.: -32.98234 Lon.: 19.44336
Taking of surface water from an unnamed tributary of the Houdenbek River to store in the proposed Harmony Dam	Irrigation	Remainder of Houdenbek 415, Ceres RD	250 000 m ³ /a	Lat.: -32.99172 Lon.: 19.44106

2. This Licence does not include any Existing Lawful Use of water.
3. The quantity of water authorised to be taken in terms of this licence may not be exceeded.
4. This licence does not imply any guarantee that the said quantities and qualities of water will be available at present or at any time in the future.
5. The above-mentioned volume may be reduced when the licence is reviewed.
6. The Licensee shall continually investigate new and emerging technologies and put into practice water efficient devices in an endeavour to conserve water.
7. The Licensee shall install appropriate water measuring devices to measure the amount of water abstracted within six months of the licence being issued. The Licensee shall ensure that all measuring devices are properly maintained and in good working order and must be easily accessible. This shall include a programme of checking, calibration, and/ or renewal of measuring devices. All water taken from the resource shall be measured, recorded and reported as follows:
 - 7.1 The daily quantity of water taken must be metered or gauged and the total recorded on a weekly basis;
 - 7.2 The Licensee shall keep record of all water taken and a copy of the records shall be forwarded to the Provincial Head on or before 25 January and 25 July of each year.

8. No water taken may be used for purposes other than intended in this licence, without written approval by the Minister or his/her delegated nominee.
9. The following list of special conditions is applicable to this licence:
- 9.1 The abstraction point from the Houdenbek River must be constructed with a side-overflow into a collecting sump from where water will be transferred to the Toeka Dam. The side-overflow should be designed to allow for calibration every 5 (five) years by a suitably qualified person at the applicant's cost.
 - 9.2 A catchment-wide water management plan must be compiled with appropriate measurement and monitoring systems in place with the objective of flushing the Houdenbek and Riet Rivers and meeting the EWR.
 - 9.3 During the operational phase of the Toeka Dam, the 25% Instream Flow Requirement (IFR) to meet the EWR and existing water users' needs should be implemented as proposed in the Preliminary Design Report: Toeka Dam by Sarel Bester Consulting Engineers dated February 2018.
 - 9.4 A continuous measuring mechanism must be installed in the Houdenbek River and abstraction of water for storage in the Toeka Dam must only take place when the water level in the Houdenbek River is higher than a pre-determined level corresponding to the discharge in the Houdenbek River to satisfy the IFR. Once the level drops lower than this level, abstraction must cease.
 - 9.5 To satisfy the IFR as stated in Condition 9.4 of this Appendix, abstraction from the Houdenbek River to fill the Toeka Dam may only commence once the following flow is achieved in the Houdenbek River for each month at the point of abstraction:

Table 3: IFR requirements: Houdenbek River

	Monthly Simulated Natural River Flow												
Month	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Distribution (%)	11.0	5.5	2.3	1.0	0.8	0.6	1.6	5.3	13.9	18.2	22.1	17.9	100
Net MAR* for E21D (Mm ^{3**})	5.01	2.49	1.03	0.45	0.34	0.25	0.71	2.39	6.31	8.28	10.04	8.10	45.40
25% IFR (l/s ^{***})	467	240	96	42	35	24	68	223	609	773	937	782	4 284
25% IFR (Mm ³)	1.3	0.6	0.3	0.1	0.1	0.1	0.2	0.6	1.6	2.1	2.5	2.0	11.4

*Mean Annual Runoff

** million cubic metres

***litres per second

- 9.6 Abstraction from the Houdenbek River to fill the Toeka Dam must comply with the following abstraction schedule:

Table 4: Abstraction schedule: Toeka Dam

Maximum abstraction rate: 1 000 m³/hour		
Phase 1	Phase 2	Phase 3

The first 1 000 000 m ³ (restricted to 715 000 m ³ per year) can be pumped from Houdenbek-Bo Dam when water becomes available in the dam and once existing water users' needs and the EWR are met as defined in the special conditions of the Licence.	Following Phase 1, and once the Houdenbek-Bo Dam has reaches 50% capacity, an additional volume of 500 000 m ³ can be pumped once existing water users' needs and the EWR are met as defined in the special conditions of the Licence.	Subsequent to Phase 1 and 2, and once Houdenbek-Bo Dam has reaches 75% capacity, the balance of 500 000 m ³ can be pumped once existing water users' needs and the EWR are met as defined in the special conditions of the Licence.
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- 9.7 An annual audit of the implementation of the IFR must be undertaken and records must be kept of the volumes of water abstracted and utilised within the property, as well as the environmental flow releases.
- 9.8 Water abstracted from the Houdenbek River must be measured and recorded weekly.
- 9.9 Abstraction of water from the Houdenbek River must only take place during periods of peak flow/flooding in the river. No abstraction must take place during periods of base flow.
- 9.10 Any claimed Existing Lawful Use (ELU) of water is subjected to the final findings of the Verification and Validation V&V) of water use. As the outcome of the V&V is subjected to an Appeal process; in the event that there is an appeal against the final Confirmed / Declared finding of ELU and the new assessment has a new finding, the volume associated may be adjusted accordingly and can reduce the volume for storage.

APPENDIX III

Section 21 (b) of the Act: Storing of water

1. Storing of water

- 1.1 The Licensee is authorised to store a maximum quantity of 2 000 000 m³ and 250 000 m³ of irrigation water in the Toeka Dam and Harmony Dam respectively as specified in Table 5 below:

Table 5: Water use activities

Property	C01900000000041500000, Remainder of Houdenbek 415, Ceres RD		
Storage dam	Storage Capacity (m³)	Purpose	Geographic position
Toeka Dam	2 000 000	Irrigation	Lat.: -32.99173 Lon.: 19.44107
Harmony Dam	250 000	Irrigation	Lat.: -32 59 48.21 Lon.: 19 27 47.66
Source of water to be stored			Volume (m³)
Houdenbek River (Toeka Dam)			2 000 000
Unnamed tributary of the Houdenbek River (Harmony Dam)			250 000

- 1.2 The Licensee must comply to / with any applicable Dam Safety Regulations.

2. Monitoring Requirements

- 2.1 To compile a water balance to manage the use of water optimally the Licensee shall monitor the quantity of water transferred into and from each of the dams set out in Condition 1.1 of Appendix III on a daily basis and submit this to the Provincial Head bi-annually.
- 2.2 The Licensee shall provide information on the method of the flow measurement within one year from the date of issuance the licence.
- 2.3 All flow gauging devices shall be maintained in a sound state of repair.
- 2.4 All flow gauging devices shall be calibrated by a competent person, at intervals not exceeding one year.
- 2.5 The installation of flow meters shall comply with the specifications of the manufacturer with regard to distance from obstructions in the pipeline upstream and downstream of the meter to ensure accurate measurements.

- 2.6 Records confirming proof of the calibration must be kept and made available to the Provincial Head upon request.

3. Dam Safety Requirements:

- 3.1 The Licensee must comply with the provisions of the Regulations regarding the safety of dams in terms of section 123 (1) of the Act published under Government Notice R138 of 24 February 2012, read with Chapter 12 of the Act.
- 3.2 The construction, operation and maintenance of all dam facilities classified as dams with a safety risk, must be carried out under supervision of an Approved Professional Person (APP), registered under the Engineering Professional of South Africa Act, 1990 (Act 114 of 1990).
- 3.3 The Licensee, through the APP, shall provide Design Reports with all relevant information to the Dam Safety Office to obtain licences to construct, completion reports to obtain licences to impound and Dam Safety Evaluation reports at the required intervals all in adherence to the Regulations regarding the safety of dams in terms of section 123(1) of the Act published under Government Notice R138 of 24 February 2012, read with Chapter 12 of the Act.

4. Construction of dams

- 4.1 The construction of the Toeka Dam and Harmony Dam may not commence unless the required licences to construct have been issued by the Dam Safety Office of the Department of Water and Sanitation.
- 4.2 The Government reserves the right to construct storage works at any time in any stream and to store all surplus water reaching the dam and to control the allocation of such water.

5. The following list of special conditions is applicable to this licence:

- 5.1 Harmony Trust is the owner of Remainder of Winkelhaak 224 and MHB Trust is the owner of Remainder of Houdenbek 415, and both parties must enter into servitude agreement regarding the operation of the dam.
- 5.2 The storage volume of the Toeka Dam is limited to 2 000 000 m³.
- 5.3 The storage volume of the Harmony Dam is limited to 250 000 m³.
- 5.4 Detail dam basin topographical surveys of both dams must be done to develop depth/capacity curves and submitted to DWS.
- 5.5 Dams must be fitted with calibrated depth gauges.
- 5.6 The 100 mm thick topsoil layer that is proposed on the downstream embankment must be selected from non-dispersive topsoil. Due to the downstream slope and the risk of dispersive materials, it is recommended to increase the thickness of this topsoil layer to 200 mm.
- 5.7 The strip drains must be connected and released to daylight via an inspection chamber where drainage can be monitored and measured.
- 5.8 Method statements for the construction of the Toeka Dam and Harmony Dam must be submitted to and approved by the Department before construction commences.

- 5.9 Stormwater management plans for the construction of the Toeka Dam and Harmony Dam must be submitted to and approved by the Department before construction commences.
- 5.10 Both dams (Toeka dam and Harmony dam) must have an outlet works that allow for full storage to be released within thirty (30) days.
- 5.11 No water may be stored upon expiry of this Licence and all inflows, inclusive of natural run-off into these dams, should be released accordingly.

APPENDIX IV

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 The Licensee is authorised for Section 21 (c) and (i) water use activities for the construction of the Toeka Dam and Harmony Dam as set out in Table 6 within quaternary catchment E21D and in the water use licence application reports submitted to the Department (refer to condition 1.2):

Table 6: Water Use Activities

Activity	Purpose / Description	Properties	Demission/ Capacity	Co-ordinates
Section 21 (c)				
Infilling within the unnamed tributary of the Houdenbek River for the construction of the Toeka Dam	Irrigation	Remainder of Houdenbek 415, Ceres RD		Lat.: -32.99172 Lon.: 19.44106
Infilling within the unnamed tributary of the Houdenbek River for the construction of the Harmony Dam	Irrigation	Remainder of Houdenbek 415, Ceres RD		Lat.: -32 59 48.22 Lon.: 19 27 47.67
Section 21 (i)				
Infilling within the unnamed tributary of the Houdenbek River for the construction of the Toeka Dam	Irrigation	Remainder of Houdenbek 415, Ceres RD		Lat.: -32.99171 Lon.: 19.44105
Infilling within the unnamed tributary of the Houdenbek River for the construction of the Harmony Dam	Irrigation	Remainder of Houdenbek 415, Ceres RD		Lat.: -32 59 48.20 Lon.: 19 27 47.65

- 1.2. The Licensee must carry out and complete all the activities listed under Condition 1.1 of this Appendix according to the following:
 - 1.2.1 Reports submitted to the Department or the Provincial Head, specifically:
 - 1.2.1.1 WULA Report by Sarel Bester Consulting Engineers dated October 2018.
 - 1.2.1.2 Preliminary Design Report: Toeka Dam by Sarel Bester Consulting Engineers dated February 2018.
 - 1.2.1.3 Preliminary Design Report: Harmony Dam by Sarel Bester Consulting Engineers dated February 2018.
 - 1.2.1.4 Freshwater Report by Watsan Africa dated May 2018.
 - 1.2.1.5 Draft Environmental Management Programme: Toeka Dam by EnviroAfrica dated October 2018.
 - 1.2.1.6 Draft Environmental Management Programme: Harmony Dam by EnviroAfrica
 - 1.2.2 Conditions of this licence; and
 - 1.2.3 Any other written direction issued by the Provincial Head in relation to this licence.
- 1.4 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.
- 1.5 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.
- 1.6 A copy of the water use licence and reports set out under condition 1.2 of this Appendix must always be on site.
- 1.7 A suitably qualified person(s), appointed by the Licensee, and approved in writing by the Provincial Head, 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 Provincial Head and the conditions of this licence.

2. FURTHER STUDIES AND INFORMATION REQUIREMENTS

- 2.1 For water use activities in Table 6 of this Appendix:
 - 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 Provincial Head 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 6 of this Appendix must be submitted five (5) years before commencing with closure to the Provincial Head for a written approval.
- 2.4 For all the activities listed in Table 6 of this Appendix, "as-built" plan(s) and engineering drawing(s) prepared by a registered professional engineer, must be submitted to the Provincial Head within three (3) months of the date of issuance of this licence. These plan(s) and drawing(s) must indicate the watercourse including wetland boundaries and layout and structure location(s) of all infrastructure impeding and/or diverting flow of the watercourse as well as alterations to the watercourse on the property.

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 of this Appendix 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 must:
- 3.2.6.1 Be non-erosive, structurally stable and should not induce any flooding or safety hazard;
 - 3.2.6.2 Be repaired immediately after sustaining damage to prevent further damage;
 - 3.2.6.3 Be non-polluting with respect to silt and litter that can be deposited into a watercourse;
 - 3.2.6.4 Be able to facilitate the movement of aquatic and non-aquatic organisms and fauna where such infrastructure cross watercourses;
 - 3.2.6.5 Not consist of any polluting material.

3.3 Water Quality

- 3.3.1 Activities, within the construction and maintenance phases, that lead to elevated levels of turbidity of any watercourse(s) must be prevented, reduced, or otherwise remediated. Activities must be scheduled to take place during the dry seasons when flows are lowest where reasonably possible. If this is not possible and if management measures have not been provided for in the reports submitted to the Provincial Head, the Licensee must submit such to the Provincial Head for a written approval before these activities commence. Natural in stream hydrology is to be used to determine which months constitute the low flow months.
- 3.3.2 The Licensee must ensure that the quality of the water to downstream water users does not decrease because of the of the water use activities listed under condition 1.1 of this Appendix.
- 3.3.3 Pollution of and disposal/spillage of any material into the watercourse must be prevented, reduced, or otherwise remediated through proper operation, maintenance and effective protective measures.
- 3.3.7 Vehicles and other machinery must be serviced well above the 1:100-year flood line or delineated riparian habitat, whichever is the greatest. Oils and other potential pollutants must be disposed of at an appropriate licenced site, with the necessary agreement from the owner of such a site.
- 3.3.8 Any hazardous substances must be handled according to the relevant legislation relating to transport, storage and use of the substance and all storage facilities must be equipped with large, clearly readable Material Safety Data Sheets (MSDS).
- 3.3.9 All reagent storage tanks and reaction units must be supplied with a bunded area built to cater for at least 110% of the capacity of the facility and provided with sumps and pumps to return the spilled material back into the system. The system must be maintained in a state of good repair and standby pumps must be provided.

3.4 Flow

- 3.4.1 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.
- 3.4.2 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.
- 3.4.3 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.
- 3.4.4 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.
- 3.4.5 The development may not impede natural drainage lines other than what has been authorised in this Licence

3.5 Riparian and Instream Habitat (Vegetation and Morphology)

- 3.5.1 Activities (including spill clean-up) 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.
- 3.5.2 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 licence.
- 3.5.3 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 Provincial Head in writing within one (1) month after the issuance date of this licence.
- 3.5.4 Existing vegetation composition must be maintained or improved by maintaining the natural variability in flow fluctuations. Rehabilitated areas must have vegetation basal cover of at least 60% at all times.
- 3.5.5 Recruitment and maintaining of a range of size classes of dominant riparian species in perennial channels must be stimulated.
- 3.5.6 Encroachment of additional exotic species and terrestrial species in riparian zones must be avoided.
- 3.5.7 Accumulation of woody debris on terraces by periodic flooding must be avoided.
- 3.5.8 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 6 of this Appendix and associated activities) to be below 35dB from 18:00 – 06:00 daily.

- 3.5.9 Necessary erosion prevention mechanisms must be employed to ensure the sustainability of all structures and activities and to prevent instream sedimentation.
- 3.5.10 Soils that have become compacted through the water use activities must be loosened to an appropriate depth to allow seed germination.
- 3.5.11 Slope/bank stabilisation measures must be implemented with a 1:3 ratio or flatter and vegetated with indigenous vegetation immediately after the shaping.
- 3.5.12 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.
- 3.5.13 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.
- 3.5.14 The Licensee shall protect the banks of the watercourse against instability and erosion and ensure a healthy and enough 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 Provincial Head for written approval within three (3) months after the issuance of this licence.
- 3.5.15 A Plant Species Plan must be drawn up in conjunction with a landscape architect or botanist and approved by Provincial Head and implemented within 6 months of licence being issued.

3.6 **Biota**

- 3.6.1 The Licensee must take all reasonable steps to allow movement of aquatic species, including migratory species. The Licensee shall appoint a professional, qualified, independent and registered ecologist and aquatic specialist to determine the impact of the dam on aquatic biota migration and submit a report for written approval to the Provincial Head within six (6) months after the issuance of the licence.
- 3.6.2 All reasonable steps must be taken not to disturb the breeding, nesting and/or feeding habitats and natural movement patterns of aquatic biota.
- 3.6.3 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 Provincial Head must sign a release form indicating that rehabilitation was done satisfactory according to specifications as per this licence.
- 4.8 A photographic record must be kept as follows and submitted with reports as set out in section 5 of this Appendix:
 - 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 A Rehabilitation Plan must be updated and drawn on a drawing for approval by Provincial Head within 3 (three) months of licence being issued.
- 4.10 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 of this Appendix and other existing activities as well as compliance to these water use licence conditions must be developed and submitted to the Provincial Head 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 of this Appendix.
- 5.4 The Licensee must conduct an internal and external audit as per Condition 11 and 12 of Appendix I and the audit report must include:

- 5.4.1 Reporting in respect of the monitoring programme referred to in condition 5.1 of this Appendix and all other reporting and compliance conditions outlined in this licence;
 - 5.4.2 A record of implementation of all mitigation measures including a record of corrective actions; and
 - 5.4.3 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.
- 5.5 The Licensee must apply in writing to the Provincial Head for alternative reporting arrangements for which written approval must be provided.

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 Provincial Head.
- 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 Provincial Head 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 Licensee must ensure that there is a budget sufficient to do repairs or emergency work on the dam if needs be.
- 8.3 The Department may at any stage of the process request proof of budgetary provisions for rehabilitation and closure of project.

9 SPECIAL CONDITIONS

- 9.1 The mitigation measures as provided in the Freshwater Report by Watsan Africa dated May 2018 must be included in the Environmental Authorisation and the Environmental Management Plan (EMP) for the project where relevant.

- 9.2 The disturbed areas within the river channels where the infrastructure will be constructed must be rehabilitated by re-shaping the channels to their shape prior to construction and re-vegetated with local indigenous vegetation where necessary in accordance with a Maintenance Management Plan (MMP).
- 9.3 The extent of disturbed areas must be kept as small as possible.
- 9.4 Access roads must be limited to only one per construction site.
- 9.5 As little as possible building material may be stockpiled on the building sites, with no more than is immediately required. Care must be taken that sand and other debris do not get washed into the drainage lines along with storm water.
- 9.6 Construction must take place during the dry season when the flood plain and drainage lines are dry.
- 9.7 The recommended buffer areas and riparian zones must be maintained as areas containing indigenous riparian vegetation and must not be developed or cultivated. All alien vegetation must be removed from these riparian or buffer zones and kept clear of alien vegetation. Long-term maintenance of the streams and riparian areas must be undertaken according to a MMP.
- 9.8 Any water quality impacts during the construction phase must be addressed through the Construction EMP for the project, and implemented by an on-site Environmental Control Officer (ECO).
- 9.9 Monitoring and implementation of the Environmental Water Requirement (EWR) recommendations for the Doring Rivers as indicated in the Preliminary Design Report: Toeka Dam by Sarel Bester Consulting Engineers dated February 2018 must be undertaken on an ongoing basis.
- 9.10 Upon expiry of this Licensee; - the Licensee, must submit applications for authorisation to the Relevant Responsible Authorities for the safe decommissioning of the dams (Toeka Dam and Harmony Dam).
- 9.1 The cost to safely decommission the dam, within two (2) years of expiry of this Licence, is for the Licensee.

[END OF LICENCE]