Basic Assessment for the proposed development of aquaculture cage culture fish farm in Albasini Dam, Thulamela Local Municipality in the Vhembe District Municipality, Limpopo.

DRAFT
BASIC ASSESSMENT REPORT

Prepared for:
Makwaria Holdings (Pty) Ltd

Prepared by:
CSIR

CSIR Reference Number:
CSIR/02100/EMS/IR/2018/16287/A

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BASIC ASSESSMENT REPORT

For the proposed development of aquaculture cage culture fish farm in Albasini Dam, Thulamela Local Municipality in the Vhembe District Municipality, Limpopo.

DRAFT BASIC ASSESSMENT REPORT FOR COMMENT

July 2018

Prepared for:
Makwaria Holdings (Pty) Ltd

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Makwaria Holdings
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Prepared by:
CSIR
11 Jan Cilliers Street, Stellenbosch, 7600, South Africa

Authors:
Karabo Mashabela, Paul Lochner and Minnelise Levendal

REPORT DETAILS

Title:	Basic Assessment Report for the proposed development of cage culture fish farm in Albasini Dam, Thulamela Local Municipality in the Vhembe District Municipality, Limpopo.
Purpose of this report:	This Basic Assessment (BA) Report forms part of a series of reports and information sources that are being provided during the BA Process for the the development of a cage farm in Albasini Dam. The purpose of this BA Report is to: • Present the proposed project and the need for the project; • Describe the affected environment at a sufficient level of detail to facilitate informed decision-making; • Provide an overview of the BA Process being followed, including public consultation; • Assess the predicted positive and negative impacts of the project on the environment; • Provide recommendations to avoid or mitigate negative impacts and to enhance the positive benefits of the project; • Provide an Environmental Management Programme (EMPr) for the proposed project. This BA Report is being made available to all Interested and Affected Parties (I&APs) and stakeholders for a 30-day review period. All comments submitted during the review of the BA Report will be incorporated into the finalised BA Report as applicable and where necessary. This finalised BA Report will then be submitted to the Limpopo Department of Economic Development, Environment & Tourism for decision-making.
Prepared for:	Makwaria Holdings (Pty) Ltd, contact person: Mr. Nkashi Richman Mphahlele
Prepared by:	CSIR P O Box 320, Stellenbosch, 7599 Tel: +27 21 888 2408 Fax: +27 21 888 2473
Authors (EAPs):	Karabo Mashabela, Paul Lochner and Minnelise Levendal
CSIR Report Number:	CSIR Reference Number: CSIR/02100/EMS/IR/2018/16287/A
Date:	July 2018
To be cited as:	CSIR, 2018. Basic Assessment Report for the proposed development of cage culture fish farm in Albasini Dam, Thulamela Local Municipality in the Vhembe District Municipality, Limpopo. CSIR Reference Number: CSIR/02100/EMS/IR/2018/16287/A

OPPORTUNITY FOR REVIEW

The Draft Basic Assessment Report and Draft Environmental Management Programme (EMPr) were made available to all Interested and Affected Parties (I&APs) and stakeholders for a 30-day review period extending from **30 July 2018 to 30 August 2018.** All comments received during the review of the Draft Basic Assessment Report will be incorporated into the Final Basic Assessment Report and EMPr which will be submitted to the Limpopo Department of Economic Development, Environment & Tourism (LEDET) for decision-making.

All comments on the Draft Basic Assessment Report and Draft EMPr are to be submitted to the CSIR by **30 August 2018** at the details provided below.

EAP – Karabo Mashabela (Cand. Sci. Nat)

Council for Scientific and Industrial Research (CSIR)

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EXECUTIVE SUMMARY

The Council for Scientific and Industrial Research (CSIR), Environmental Management Services, has been appointed as the Environmental Assessment Practitioners (EAPs) to assist Makwaria Holdings (Pty) Ltd by conducting a Basic Assessment (BA) for their proposed aquaculture facility. This appointment is through the Special Needs and Skills Development Programme (SNSD) of the National Department of Environmental Affairs (DEA). The SNSD programme provides pro bono environmental assessments for people who are classified as special needs clients/applicants specifically Small, Medium to Micro Enterprises (SMMEs), community trusts, individuals and some government programmes who cannot afford to undertake the required BA or EIA process.

Makwaria holdings (Pty) Ltd is proposing to establish a cage farming aquaculture facility in Albasini dam. The projects aim to produce up to 200 tons of Mozambique tilapia and includes cages on the dam covering an area of approximately 2 ha and a land-based component covering approximately 1.5 ha. The proposed aquaculture facility triggered the need for an Environmental Authorisation (EA) through a Basic Assessment (BA) Process. Furthermore, the property is an area that has organisms of Conservation Importance.

The BA follows the legislative process that is prescribed in the Environmental Impact Assessment (EIA) Regulations of 2014. This report constitutes the draft Basic Assessment (DBAR) that details the environmental issues and impacts associated with the development and enables Interested and Affected Parties (I&APs) to review the document and provide comments. It also provides background information of the proposed project, a motivation and details of the proposed project, and describes the public participation undertaken to date.

The objective of this report is to provide the I&APs, other stakeholders, commenting authorities and the competent authority (CA), with a thorough project description and BA process description. The outcome of the process is to engender productive comment or input, based on all information generated to date and presented herein.

In order to protect the environment and ensure that the development is undertaken in an environmentally responsible manner, there are a number of significant portions of environmental legislation that were taken into consideration during this study and are elaborated on in this report. The Limpopo Economic Development, Environment and Tourism (LEDET) is the competent authority for this BA process and the development needs to be authorised by this Department.

This draft DBAR provides an assessment of both the benefits and potential negative impacts anticipated as a result of the proposed construction and operations of the aquaculture facility. Having duly considered the project, in the opinion of the Environmental Assessment Practitioner (EAP), the project does not pose a detrimental impact on the receiving environment and its inhabitants. The impacts that have been highlighted through the impact assessment can be mitigated significantly with the use of an Environmental Management Programme (EMP). The applicant should be bound to stringent conditions to maintain compliance and responsible execution of the project.

The impacts identified and assessed by way of the specified impact assessment ratings, have been extensively outlined in this report. The DBAR will be made available for comment and amended post comments period to form the Final BAR. The Final BAR, together with a comprehensive issues trail and the final draft of the EMPr, and all the addenda as referred to, will be submitted to LEDET for decision making. The Final DBAR will thus be a culmination of scientific specialist study's findings, public contribution via formal comment, and the drawing of conclusions by the EAP as the environmental specialist.

GLOSSARY

BA	Basic Assessment
BAR	Basic Assessment Report
BEE	Black Economic Empowerment
BID	Background Information Document
CA	Competent Authority
cBAR	Consultation Basic Assessment Report
CI	Conservation Important
CSIR	Council for Scientific and Industrial Research
CV	Curriculum Vitae
DAFF	Department of Agriculture, Fisheries and Forestry
DEA	Department of Environmental Affairs
DWS	Department of Water and Sanitation
EA	Environmental Authorisation
EAP	Environmental Assessment Practitioner
ECO	Environmental Control Officer
EIA	Environmental Impact Assessment
EIS	Ecological Importance and Sensitivity
EMPr	Environmental Management Programme
EMS	Environmental Management Services
EO	Environmental Officer
GA	General Authorisation
GIS	Geographic Information System
GNR	Government Notice Number
I&AP	Interested and Affected Party
IDP	Integrated Development Plan
IEM	Integrated Environmental Management
IU	Implementation Unit
LEDET	Limpopo Department of Economic Development, Environment and Tourism
MAR	Mean Annual Run-off
NBA	National Biodiversity Assessment
NBSAP	National Biodiversity Strategy and Action Plans
NEMA	National Environmental Management Act (Act No 107 of 1998)
NEM:AQA	National Environmental Management Air Quality Act (Act No 39 of 2004)
NEM:BA	National Environmental Management Biodiversity Act (Act No 10 of 2004)
NEM:PAA	National Environmental Management Protected Areas Act (Act No 57 of 2003)
NEM:WA	National Environmental Management: Waste Act (Act No. 59 of 2008)
NFA	National Forests Act (Act No. 84 of 1998)
NGO	Non-Governmental Organisation
NHRA	National Heritage Resources Act (Act No 25 of 1999)
NSS	Natural Scientific Services

NWA	National Water Act (Act No. 36 of 1998)
OHSA	Occupational Health and Safety Act (Act No 85 of 1993)
PES	Present Ecological State
PPE	Personnel Protective Equipment
PPP	Public Participation Process
SACNASP	South African Council of Natural Science Professionals
SAHRA	South African Heritage Resource Agency
SANRAL	South African National Roads Agency Limited
SEA	Strategic Environmental Assessment
SMME	Small, Medium to Micro Enterprise
SNSD	Special Needs and Skills Development Programme
WUL	Water Use License

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SECTION F: APPENDICES

Appendix A: Site plan(s)

Appendix B: Photographs

Appendix C: Facility illustration(s)

Appendix D: Specialist reports

Appendix E: Comments and responses report

Appendix F: Environmental Management Programme (EMPr)

Appendix G: Other information

TABLES

FIGURES

INTRODUCTION

Local Municipality in the Vhembe District Municipality, Limpopo. The property is located within farm portion 15 of land parcel 8 of the major region.

The Council for Scientific and Industrial Research (CSIR), through their Environmental Management Services (EMS) group, has been appointed as the Environmental Assessment Practitioners (EAPs) for the proposed development and are conducting a Basic Assessment (BA). This appointment is through the Special Needs and Skills Development (SNSD) Programme of the national Department of Environmental Affairs (DEA). The SNSD Programme provides pro bono environmental assessments services for people who are classified as being special needs clients/applicants, specifically Small, Medium to Micro Enterprises(SMMEs), community trusts and that cannot afford the services required to apply for an Environmental Authorisation.

The need for a BA arises for the proposed development as it triggers listed activities in terms of the Environmental Impact Assessment (EIA) Regulations, Government Regulations (GNR) 327 and 324 of April 2017 promulgated under the National Environmental Management Act (NEMA) (Act no 107 of 1998).

Makwaria holdings has seen an opportunity in the fish farming industry in Limpopo, as there has been increasing demand, which allows Makwaria fisheries to realistically gain a substantial portion of the domestic market. Moreover, Makwaria fisheries will provide employment to local people within Makhado area and aims to further increase the working environment and develop young people into becoming entrepreneurs within the community through facilitating training of unskilled youth in fish farming.

LIMPOPO
PROVINCIAL GOVERNMENT
REPUBLIC OF SOUTH AFRICA

DEPARTMENT OF
ECONOMIC DEVELOPMENT, ENVIRONMENT & TOURISM

BASIC ASSESSMENT REPORT - EIA REGULATIONS, 2014

Basic Assessment report in terms of the Environmental Impact Assessment Regulations, 2014, promulgated in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended.

File Reference Number:	

	(For official use only)
NEAS Reference Number:	
Date Received:	
Due date for acknowledgement:	
Due date for acceptance:	
Due date for decision	

Kindly note that:

1. The report must be compiled by an independent Environmental Assessment Practitioner.
2. The report must be typed within the spaces provided in the form. The size of the spaces provided is not necessarily indicative of the amount of information to be provided. The report is in the form of a table that can extend itself as each space is filled with typing.
3. Where applicable **tick** the boxes that are applicable in the report.
4. The use of "not applicable" in the report must be done with circumspection because if it is used in respect of material information that is required by the Department of Economic Development, Environment and Tourism as the competent authority (Department) for assessing the application, it may result in the rejection of the application as provided for in the regulations.
5. An incomplete report may be returned to the applicant for revision.
6. Unless protected by law, all information in the report will become public information on receipt by the department. Any interested and affected party should be provided with the information contained in this report on request, during any stage of the application process.
7. The Act means the National Environmental Management Act (No. 107 of 1998) as amended.

8. Regulations refer to Environmental Impact Assessment (EIA) Regulations of 2014.

9. The Department may require that for specified types of activities in defined situations only parts of this report need to be completed. No faxed or e-mailed reports will be accepted.

10. This application form must be handed in at the offices of the Department of Economic Development, Environment and Tourism:-

Postal Address:	**Physical Address:**
Central Administration Office	Central Administration Office
Environmental Impact Management	Environmental Affairs Building
P. O. Box 55464	Cnr Suid and Dorp Streets
POLOKWANE	**POLOKWANE**
0700	0699

Queries should be directed to the Central Administration Office: Environmental Impact Management:

For attention: Mr E. V. Maluleke

Tel: (015) 290 7138/ (015) 290 7167

Fax: (015) 295 5015

Email: malulekeev@ledet.gov.za

View the Department's website at http://www.ledet.gov.za/ for the latest version of the documents.

Basic Assessment for the proposed development of aquaculture cage culture fish farm in Albasini Dam, Thulamela Local Municipality in the Vhembe District Municipality, Limpopo.

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CONTENTS

SECTION A: ACTIVITY INFORMATION

Has a specialist been consulted to assist with the completion of this section?

YES	

If YES, please complete the form entitled "Details of specialist and declaration of interest" or appointment of a specialist for each specialist thus appointed:

Prepared by: Scientific Aquatic Services

Report author: M. Meintjies and K. Dyamond

Report Reviewer: S. van Staden (Pr. Sci. Nat)

Report reference: SAS 218062

Date: May 2018

Any specialist reports must be contained in **Appendix D**.

A.1 ACTIVITY DESCRIPTION

Describe the activity, which is being applied for, in detail[1]:

Basic Assessment Report for the proposed development of cage-based fish farming on Albasini dam, Thulamela Local Municipality in the Vhembe District Municipality, Limpopo Province.

Project Description and Development

The decline in wild fish populations as a result of over-harvest and water pollution, together with increased demand for protein, has promoted the need for fish farming that uses different production systems. For freshwater fish farming, these production systems typically include cage culture.

Makwaria Holdings (Pty) Ltd is a start-up company proposing to establish a medium sized cage culture aquaculture facility that will produce up to 200 tons per annum of Mozambique tilapia, *Oreochromis mossambicus* species native to the area in cages in the Albasini Dam. The dam is located 8km north-east of Elim, in a rural area near Louis Trichardt in the Limpopo Province, with the site coordinates being 23°10'66.55"S, 30°11'10.36"E (Figures 1 and 2). Albasini Dam is an artificial impoundment within the Luvuvhu River, but it is still considered an ecologically functional feature as it forms part of a natural watercourse (LEDET, 2016). The Albasini Dam was built in 1952 and the wall was subsequently raised to 34 metres by means of spillway gates in 1971. It was built to supply the Levubu Irrigation Scheme with water. The dam is currently used for grazing and irrigation by the surrounding farmers. The Albasini dam is surrounded by communal land and resorts namely; Beja Hengel Paradys (Beja Fishing Paradise), ShiLuvari Lakeside Lodge and Bhuba Lodge.

The Mozambique tilapia, *Oreochromis mossambicus*, commonly known as Blue Kurper is native to southern Africa and is a popular fish species for aquaculture. It naturally occurs in coastal regions and the lower reaches of rivers in southern Africa, from the Zambezi River delta to Bushman River in the Eastern Cape.

[1] Please note that this description should not be a verbatim repetition of the listed activity as contained in the relevant Government Notice, but should be a brief description of activities to be undertaken as per the project description.

Cage culture typically involves floating structures made of steel, wood and plastic which are developed into the floating, flexible, plastic circle design cages most commonly used globally. Finfish cage culture types include nearshore gravity net cages or pens, and open water floating, submersible and/or semi-submersible cages.

The proposed project will comprises five fish cages located in the dam, together with 1.5 ha of land for the onshore facilities related to the fish farm (for the workers unit, storage and fish harvesting) The dam has a capacity of 25 200 m^3. The current surface area is 3.498km^2 with the dam wall of 34 m in height. The proposed dam depth varies from 2m to 20m, based on the geotechnical survey conducted by GEOLAND Surveys/Opmetings on the 6 March 2018.

Fish cages are proposed to be placed at points A to E in the dam with the water depth varying from 20m to 18.5 m (refer to Table 1 and Figure 1). For the purpose of this study points A to E have been selected as the suitable points on the dam to place cages, whereas points F and G (refer to Table 2) are not suitable because of lower depth which may results in high salinization and a reduction in carrying capacity. The proposed facility has applied for a Water Use Licence Application with the Department of Water and Sanitation in terms of the section 40 of the National Water Act, 1998 (Act 36 of 1998) as the facility will culture fish in cages in the Albasini dam (the WULA and the Albasini dam lease application has been submitted by CSIR on behalf of the applicant).

A cage culture will be applied for the proposed project. A cage culture system is used in aquaculture to culture aquatic organisms. Pure Mozambique tilapia, *Oreochromis mossambicus* fingerlings will be purchased at nearby hatcheries in Louis Trichardt and put into the cages at varied densities for grow out. The fish will be fed artificial floating pellets manually by boat that will be kept on site at the land based facility. The depth of the cages is five (5) metres. They will be anchored by means of mooring systems and plough anchors see figure below. The nets of the cages are 12 metres deep, which leaves a depth of at least ten (10) metres between the bottom of the nets and the bottom of the dam. Once the fish are ready for harvest the cages will be harvested and primary processing done on-site. Primary processing consists of handling and transportation of fish to the processing facility in Louis Trichardt. Thereafter, fish will be transported off-site for further preparation until market ready. The primary process facility will be accessed from road D4 and R578 to Louis Trichardt.

An example of a typical fish cage farming design is shown below:

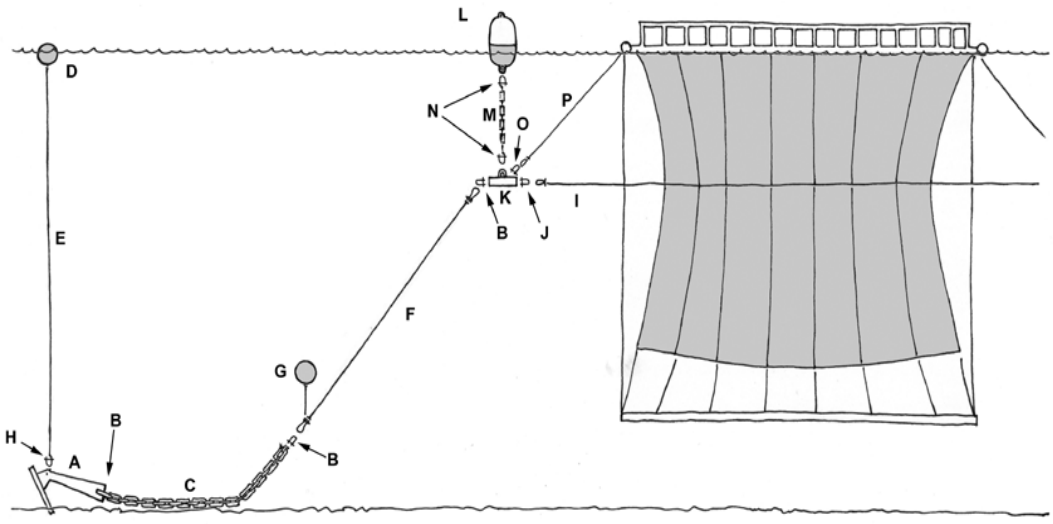


Figure 1: Schematic drawing of components constituting the mooring line and grid system in a single buoy mooring system FAO,2015

Albasini Dam – depth and carrying capacity

The results of the water depth survey conducted by GEOLAND Surveys/Opmetings on the 6 March 2018 for the survey points A to E and five the proposed cage farming sites on the Albasini Dam are provided in Table 1 and shown in Figure 3. These sites were selected as they all have water depth of at least 18.5 m. The survey also included points F to J that are provided in Table 2, and are not included as cage farming sites, as the water depth was too shallow.

Table 1: Albasini Dam survey points and location of five sites for cage farming

Points	System : WG 31°		Coordinates		Heights@ (m)height at the bottom of dam	Water depth(m)
	Y	X	Latitude (S)	Longitude (E)		
A	89960.230	2556735.869	23:06:27.7365 S	30:07:18.6881 E	732.251	18.5m
B	90457.358	2556736.720	23:06:27.6667 S	30:07:01.2198 E	731.903	18.9m
C	91496.560	2556586.142	23:06:22.5669 S	30:06:24.7368 E	730.856	20.0m
D	92196.926	2556310.209	23:06:13.4585 S	30:06:00.1875 E	731.382	19.5m
E	93211.640	2556268.512	23:06:11.8988 S	30:05:24.5429 E	731.670	19.2m

Table 2: Survey points on Albasini Dam not considered for proposed cage farming

Points	System : WG 31°		Coordinates		Heights@ (m)height at the bottom of dam	Depth(m)
	Y	X	Latitude (S)	Longitude (E)		
F	93733.498	2556145.309	23:06:07.7884 S	30:05:06.2337 E	748.051	2.88m
G	91676.610	2556821.598	23:06:30.1841 S	30:06:18.3596 E	739.999	10.84m
H	91686.745	2556886.660	23:06:32.2968 S	30:06:17.9894 E	741.683	9.20m
I	91659.631	2557067.725	23:06:38.1874 S	30:06:18.9032 E	745.111	5.75m
J	91657.196	2557119.822	23:06:39.8811 S	30:06:18.9775 E	746.099	3.76m

The carrying capacity of a biological species in an environment is the maximum population size of the species that the environment can sustain indefinitely, given the food, habitat, water, and other necessities available in the environment. The Albasini Dam carrying capacity was calculated by the CSIR based on input from the Western Cape Dept of Environmental Affairs & Development Planning (DEADP) and the Aquaculture Advisory Services of the national Department of Agriculture Forest and Fisheries (DAFF). The Albasini dam has a carrying capacity of 646 tons at 0,5 exchange rate but for the purpose of this Basic Assessment. Makwaria Holdings will carry out a production of 200 tons in the dam.

Water Source Results

According to the specialist study by Scientific Aquatic Services (SAS), 2018 for this Basic Assessment, the general water quality of the Albasini Dam was found to be fair during the current assessment. Electrical conductivity (EC) was within the ideal range limit (30 mS/m) recommended by the DWA 2011 Resource Water Quality Objectives (RWQO) of South Africa at both sites Dam Point 1 and Dam Point 2 (refer to Figure 2 below), and dissolved oxygen (DO) saturation exceeded 80% and hence complied with recommended natural conditions. The depth of the dam and the unstable nature of the emergent vegetation at the dam's edge restricted electrofishing and cast-netting to a large degree during the specialist study. In addition, fish tend to remain deeper at lower temperatures in dam environments, thus increasing the difficulty with which to reach them employing the fish sampling methods mentioned. However, the results from the Fish Response Assessment Index (FRAI) assessment at both sites indicated a Category D, as *Enteromius unitaeniatus*, *Pseudocrenilabrus philander*, *Coptodon rendalii* and *Oreochromis mossambicus* were observed and reported by local anglers during the current field assessment in April 2018.

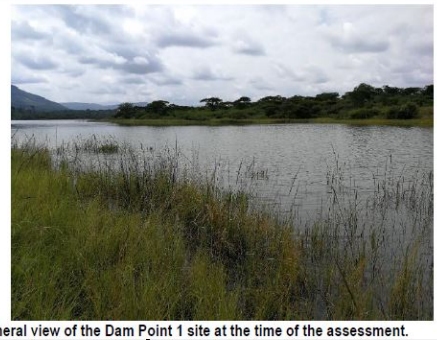
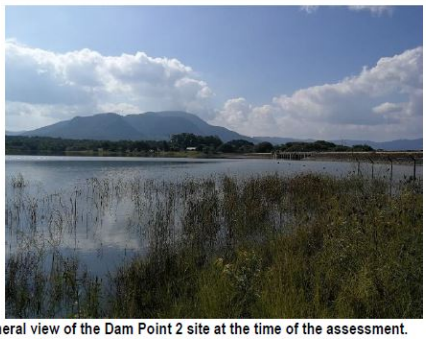
<table>
<tr><th colspan="4">Site Dam Point 1</th><th colspan="4">Site Dam Point 2</th></tr>
<tr><td colspan="4"> 
Figure 13: General view of the Dam Point 1 site at the time of the assessment.</td><td colspan="4"> 
Figure 14: General view of the Dam Point 2 site at the time of the assessment.</td></tr>
<tr><td colspan="2">Algal proliferation</td><td colspan="2">None observed</td><td colspan="2">Algal proliferation</td><td colspan="2">None observed</td></tr>
<tr><td colspan="2">Depth profiles</td><td colspan="2">Deep (average depth > 2 m)</td><td colspan="2">Depth profiles</td><td colspan="2">Deep (average depth > 2 m)</td></tr>
<tr><td colspan="2">Flow condition</td><td colspan="2">Still</td><td colspan="2">Flow condition</td><td colspan="2">Still</td></tr>
<tr><td colspan="2">Riparian zone characteristics</td><td colspan="2">Good vegetation cover (mixture of grass and shrubs)</td><td colspan="2">Riparian zone characteristics</td><td colspan="2">Good vegetation cover (mixture of grass and shrubs)</td></tr>
<tr><td colspan="2">Water clarity and odour</td><td colspan="2">Silty and relatively turbid, but no odours evident.</td><td colspan="2">Water clarity and odour</td><td colspan="2">Relatively turbid, but no odours evident.</td></tr>
<tr><td colspan="2">In situ physico-chemical water quality</td><td colspan="2">Habitat Integrity</td><td colspan="2">In situ physico-chemical water quality</td><td colspan="2">Habitat Integrity</td></tr>
<tr><td>pH
EC (mS/m)
DO (mg/L)
DO (% sat)
Temp (°C)</td><td>6.39
18.0
6.53
86.0
24.9</td><td colspan="2">Index of Habitat Integrity (IHI)
Instream IHI %: 60.1 (Category C/D)
Riparian IHI %: 69.7 (Category C)</td><td>pH
EC (mS/m)
DO (mg/L)
DO (% sat)
Temp (°C)</td><td>6.28
17.2
6.61
87.6
25.3</td><td colspan="2">Index of Habitat Integrity (IHI)
Instream IHI %: 60.1 (Category C/D)
Riparian IHI %: 69.7 (Category C)</td></tr>
<tr><td colspan="2">Aquatic macro-invertebrate community integrity</td><td colspan="2">Fish Community Assessment Index</td><td colspan="2">Aquatic macro-invertebrate community integrity</td><td colspan="2">Fish Community Assessment Index</td></tr>
<tr><td colspan="2">Invertebrate community assessment
Number of Taxa: 13
Average Score Per Taxa (ASPT): 4.15
Dominant Taxa: Atyidae, Baetidae and Corixidae</td><td colspan="2">FRAI Score: 55.3 (Category D)
Enteromius unitaeniatus, Pseudocrenilabrus philander, Coptodon rendalii and Oreochromis mossambicus were observed and reported by local anglers at the time of the assessment.</td><td colspan="2">Invertebrate community assessment
Number of Taxa: 9
Average Score Per Taxa (ASPT): 3.44
Dominant Taxa: Atyidae, Baetidae and Corixidae</td><td colspan="2">FRAI Score: 52.0 (Category D)
Pseudocrenilabrus philander, Coptodon rendalii and Oreochromis mossambicus were observed and reported by local anglers at the time of the assessment.</td></tr>
<tr><td colspan="4">SITE ECOSTATUS CATEGORY
Instream IHI: Ecological Category C/D
Riparian IHI: Ecological Category C
FRAI: Ecological Category D</td><td colspan="2">Impacts
Flow variability, inundation.</td><td colspan="2">Key Drivers of System Change
Flow variability and inundation.</td></tr>
</table>

Figure 2: Results of the aquatic biomonitoring assessment at both sites, Dam Point 1 and Dam Point 2.

Terrestrial Habitat Units

During the site assessment by SAS it was evident that the site for the proposed primary processing facility is used for cattle grazing, which has resulted in severe bush encroachment and as such a thickening of the tree layer, with grass limited to areas where clearance has previously taken place, such as the clearance for historic gravel roads, or maintenance of the overhead powerline. The site for the proposed primary processing facility is therefore no longer considered to be representative of the Tzaneen Sour Bushveld vegetation type, and classified as Secondary Bushveld. The tree *Sclerocarya birrea* subsp. *caffra* (Marula), protected under the National Forest Act (NFA) of 1998 (amended 2011), were observed on the western boundary of the proposed primary processing plant.

Table 3: Listed activities identified

Based on the project description and overview of the affected environment, the following listed activities are identified as requiring Environmental Authorisation:

Relevant notice and Activity No(s):	Activity No (s) (in terms of the relevant notice)	Description of each listed activity as per the Government Notice:
GN. R 324, 7 April 2017	Activity 12 (a)(ii)	The clearance of an area of 300 square metres or more of indigenous vegetation, except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan. (a) In Limpopo (ii) Within any critically endangered or endangered ecosystem listed in terms of section 52 of the NEMBA or prior to the publication of such list, within an area that has been
GN. R 327, 7 April 2017	Activity 7	The development and related operation of facilities, infrastructure or structures for aquaculture of sea-based cage culture of finfish, crustaceans, reptiles, amphibians, molluscs, echinoderms and aquatic plants, where the facility, infrastructure or structures will have a production output exceeding 50 000 kg per annum (wet weight).
GN. R 327, 7 April 2017	Activity 27	The clearance of an area of 1 hectares or more, but less than 20 hectares of indigenous vegetation, except where such clearance of indigenous vegetation is required for— (i) the undertaking of a linear activity; or (ii) maintenance purposes undertaken in accordance with a maintenance management plan.

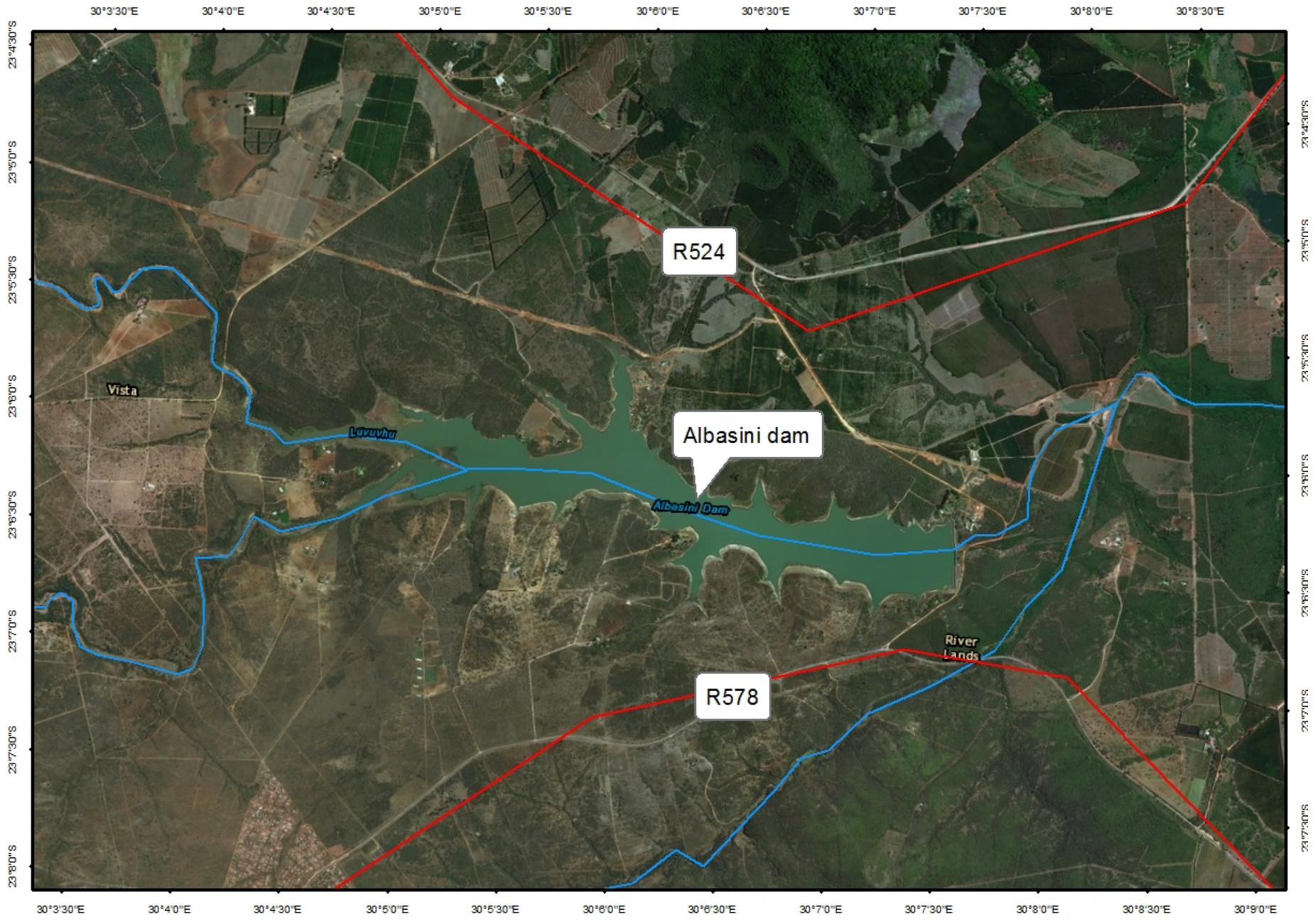


Figure 3: Makwaria fisheries locality map

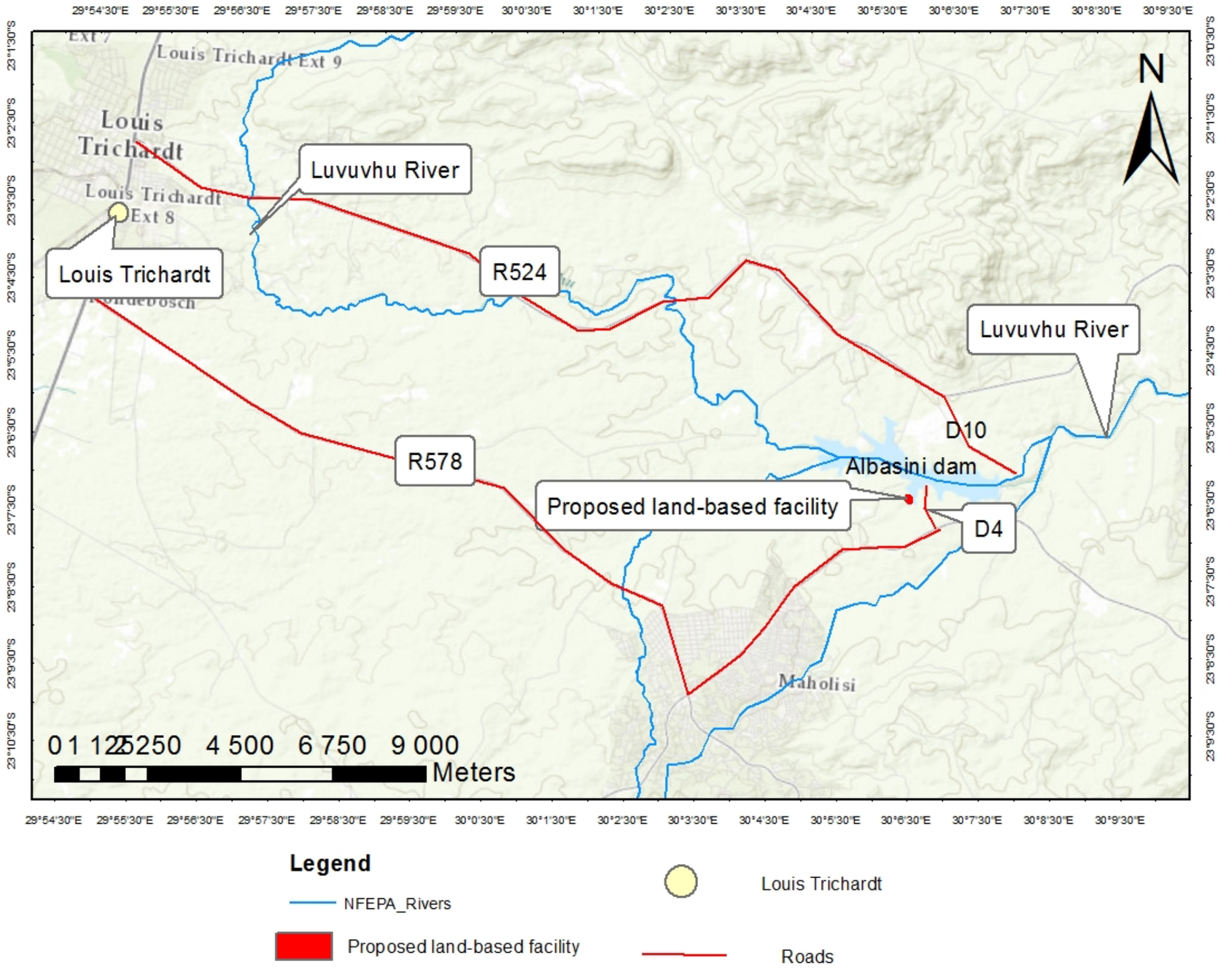


Figure 4: Proposed site for land-based facilities on the Albasini Dam showing access roads

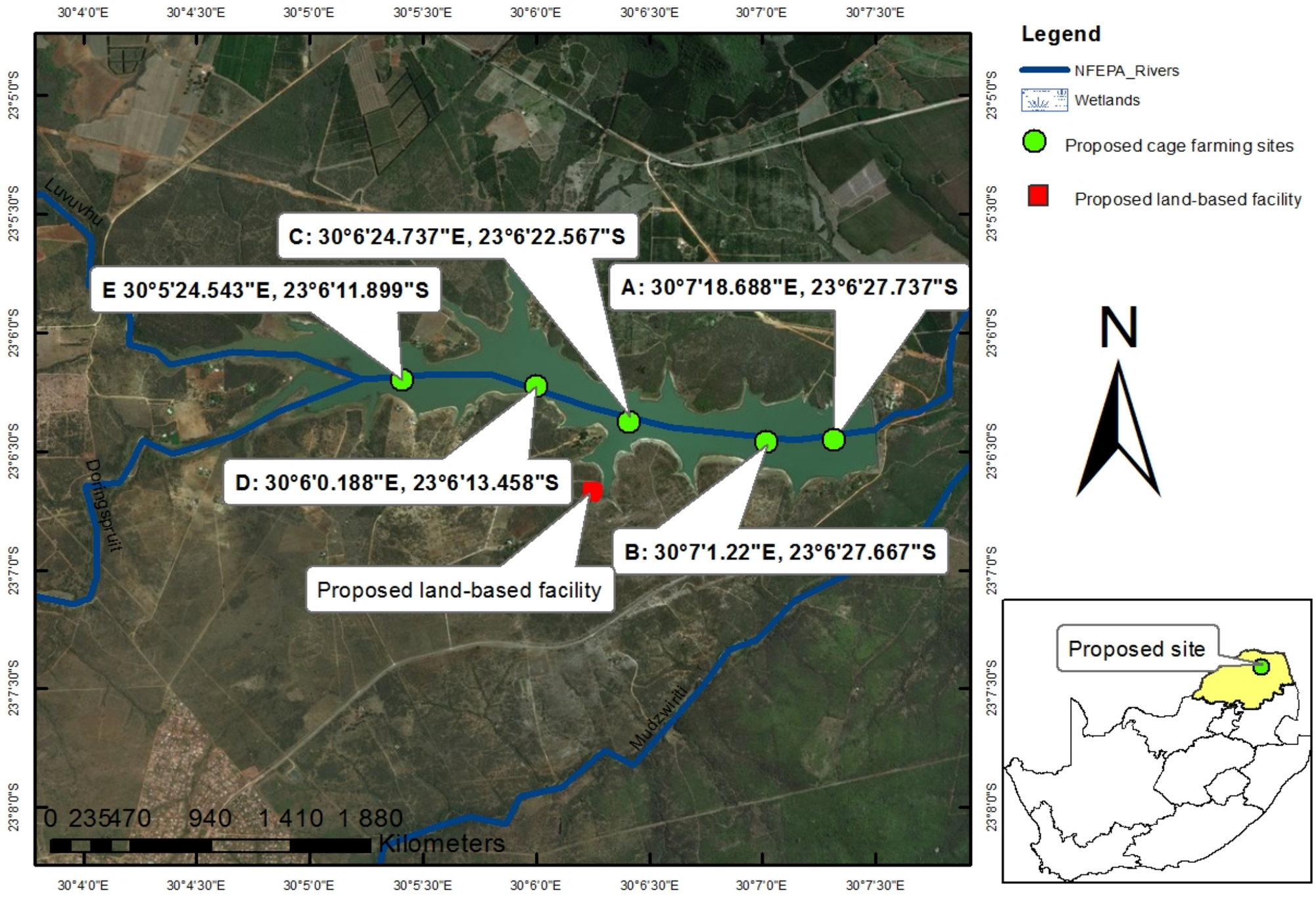


Figure 5: Survey points for water depth in the Albasini Dam and five suitable sites for cage farming

Details of Environmental Assessment Practitioner and Expertise to Conduct Basic Assessment

The Council for Scientific Industrial Research (CSIR) has been appointed to provide the independent Environmental Assessment Practitioners (EAPs) under the Special Needs & Skills Development Programme to assist by Makwaria Holdings (Pty) Ltd to undertake the necessary environmental studies for this proposed project. The EAPs that have prepared this basic Assessment report are Karabo Mashabela and Paul Lochner. They are employed by CSIR, with the Environmental Management Services (EMS) group of the CSIR.

The CSIR is amongst the largest multi-disciplinary research and development organisation in Africa, which undertakes applied research and development for promoting sustainability across the continent. The organisation also provides consulting services to government, private sector, international agencies and non-governmental organisations. It is one of the leading organisations in South Africa contributing to the development and implementation of environmental assessments, ecosystem management methodologies and sustainability science. The vision of the Environmental Management Services group is to assist in ensuring the sustainability of projects or plans in terms of environmental and social criteria, by providing a range of environmental services that extend across the project and planning life cycles.

The CSIR's approach builds on its experience from conducting renewable energy, industrial and port related BAs and EIAs through-out Southern Africa. We have in-depth experience in conducting BAs, EIAs and preparing EMPs in accordance with South African and international requirements. Through our involvement in BAs and EIAs undertaken in South Africa, we have extensive experience in meeting the requirements of the EIA Regulations and accompanying guidelines. We were actively engaged in commenting on the EIA Regulations under the National Environmental Management Act (NEMA) and are therefore familiar with the changes to the EIA process as it should now be conducted.

Description of the Baseline Environment

Scientific Aquatic Services (SAS) was appointed to conduct a freshwater resource, aquatic and terrestrial ecological assessment as part of the Water Use Licencing (WUL) and Environmental Impact Assessment (EIA) process for the proposed Makwaria Fisheries Mozambique Tilapia (*Oreochromis mossambicus*) aquaculture and primary processing facility on Albasini Dam, near Louis Trichard, Limpopo Province.

The aquatic ecological assessment concluded that the general water quality of the Albasini Dam was found to be fair during the current assessment. Electrical conductivity (EC) was within the ideal range limit (30 mS/m) recommended by the DWA 2011 Resource Water Quality Objectives (RWQO) of South Africa at both sites Dam Point 1 and Dam Point 2, and dissolved oxygen (DO) saturation exceeded 80% and hence complied with recommended natural conditions. According to SAS, terrestrial ecology associated with the proposed primary processing facility, it is clear that a single habitat unit is associated with the proposed primary processing facility, namely the Secondary Bushveld Habitat Unit. This habitat was associated with severe bush encroachment by *Dichrostachys cinerea subsp. africana (Sickle bush),* and the alien invasive species Lantana camara (Common Lantana), as a result of overgrazing by domestic livestock such as cattle

Socio Economy

According to StatsSA, the total population of Makhado is estimated at 495 261 and is growing at about 1.4% per year. The area composes 54% female and 46% male. The local population has a youthful age structure and this young population will grow rapidly in future, which implies high growth rate in the labour force. At present the local economy is unable to provide sufficient employment opportunities to meet the needs of the economically active populations. A youthful population structure also implies a relatively higher dependency ratio. The Makhado IDP (2016/17) currently estimates that only 46% of the population is currently economically active. This figure can be attributed to the high percentage of the population being under the age of 15, which makes the economically inactive.

The majority of the population lives in the rural areas. The rural areas are the most underdeveloped. The largest percentage of the rural population between the ages of 15 – 65 years comprises women. This can be attributed to the migration of men for employment opportunities elsewhere.

The Key developmental challenges faced by Makhado are that of lack of employment opportunities, because of a population growth rate that exceeds the economic growth rate. The prevalence of illegal immigration and the lack of economic activities and investment opportunities in the area to aid the issue of employment creation.

Planning and land-use context

According to the Vhembhe Final IDP plan,2018 The district has focused on creation of jobs and poverty alleviation programmes, although there are negatively confronted by the lack of business management skills, lack of market research, lack of scare skills, food insecurity, transfer of indigenous skills and lack of information about opportunities.

Vhembe district's land is primarily used for grazing. Cultivated Land is concentrated in Southwestern and Eastern boarders of the Vhembe District. There is also a small area of cultivated land in the North-eastern part of the Vhembe District along the border with Zimbabwe. Stock theft, High feeds cost, diseases, lack of day old chick supply, lack of proper marketing channels and use of poor quality rams/buck are the major challenges for small stock farming in the district. Large stock farming however is mostly endangered by stock theft, drought, lack of water supply in the camps, shortage of grazing camps and vandalisms of fences. Nonetheless, there are 42 grazing camps with the total area of 9362 hectors in the District. The commodity is organized into a cooperative and there are 18 fish projects in the District. This type of farming is devastated by lack of funding to establish earth dams and water scarcity Figure 6 below.

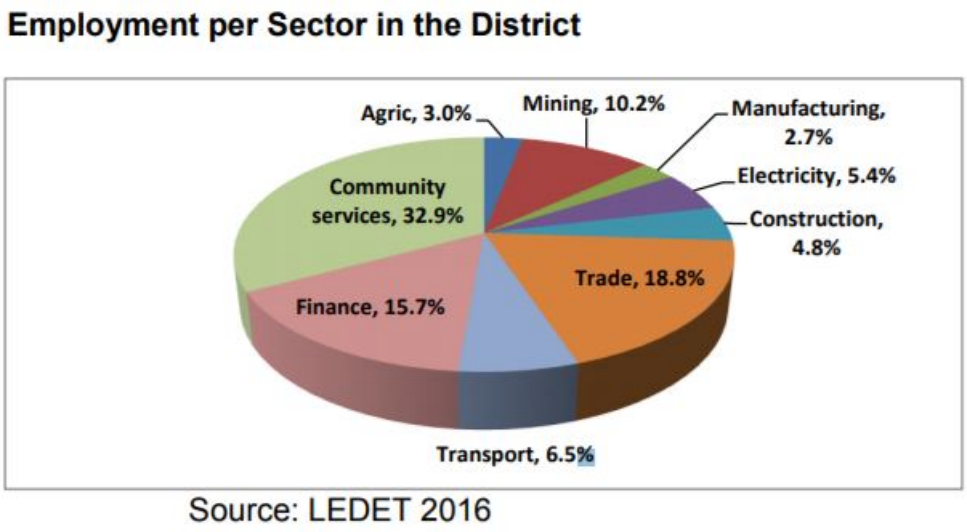


Figure 6: Employment per sector in the district

Alasini dam supplies water to the Makhado area and farmers within the area with water. It was built in 1952 to supply water for the Levubu Irrigation Scheme. The Dam was named after Joao Albasini, the Portuguese Vice-Consul in the early 1800s, who helped the Tsonga to defeat the Venda.

Public Review of the Draft Consultation BAR

The Draft BAR (DBAR) will be made available for authority and public review for a total of 30 days.
The report will be made available at the following public locations within the study area, which are all readily accessible to I&APs:

- Vhembe Public Library
- Electronically on the CSIR Website: https://www.csir.co.za/environmental-impact-assessment.

Final Consultation BAR

The final stage in the BA process entails the capturing of responses and comments from I&APs on the DBAR in order to refine the BAR, and ensure that all issues of significance are addressed.

The Final BAR (i.e. FBAR) is the product of all comments and studies, before being submitted to LEDET review and decision-making.

EAPs Recommendations

The Department is respectfully requested to evaluate this Basic Assessment report as part of an application that has been logged in terms of section 24(1) of the National Environmental Management Act (Act 107 of 1998), in respect of the activities in regulation R982 of 04 December 2014.

Concluding statements from EAPs

Provided that the specified mitigation measures are applied effectively, it is proposes that the project receives Environmental Authorisation in terms on the EIA Regulations promulgated under the NEMA.

A.2 FEASIBLE AND REASONABLE ALTERNATIVES

"alternatives", in relation to a proposed activity, means different means of meeting the general purpose and requirements of the activity, which may include alternatives to—

(a) the property on which or location where it is proposed to undertake the activity;
(b) the type of activity to be undertaken;
(c) the design or layout of the activity;
(d) the technology to be used in the activity;
(e) the operational aspects of the activity; and
(f) the option of not implementing the activity.

Describe alternatives that are considered in this application. Alternatives should include a consideration of all possible means by which the purpose and need of the proposed activity could be accomplished in the specific instance taking account of the interest of the applicant in the activity. The no-go alternative must in all cases be included in the assessment phase as the baseline against which the impacts of the other alternatives are assessed. The determination of whether site or activity (including different processes etc.) or both is appropriate needs to be informed by the specific circumstances of the activity and its environment. After receipt of this report the Department may also request the applicant to assess additional alternatives that could possibly accomplish the purpose and need of the proposed activity if it is clear that realistic alternatives have not been considered to a reasonable extent.

Paragraphs 3 – 13 below should be completed for each alternative

Property Alternative	Alternative properties or locations for the proposed activity have not been identified, due to the fact that the proposed development, the owner was able to acquire this land parcel, and it would not be economically feasible for the business to find and or purchase new property. The proposed project consists of two land parcels the water component and the

	land based component. The land based is 1.5h and the water based we are still waiting for DWS to confirm the allocated size. No alternatives were considered for this development as the owner is a special needs applicant. According to the LEDET Biodiversity sections only Mozambique tilapia is allowed not Nile tilapia hence the proposed project choose to farm with the Mozambique tilapia.
Activity Alternative	There is no site alternative for the proposed project
Design or Layout Alternative	The proposed design and layout of the activity is more of a biosecurity measure, allows for more effective management of fish production as it lessens the risk of the fish catching diseases if the activity is in a more prone or exposed location.
Technology to be used	The technology that will be employed on the farm cage culture.

A.3 ACTIVITY POSITION

Indicate the position of the activity using the latitude and longitude of the centre point of the site for each alternative site. The co-ordinates should be in degrees, minutes and seconds. The projection that must be used in all cases is the Hartebeeshoek 94 WGS84 spheroid in a national or local projection.

List alternative sites, if applicable.

	Latitude (S):			**Longitude (E):**		
Alternative:						
Alternative S1[2] (preferred or only site alternative)	23˚	6'	24.737 "	30˚	7'	18.688 "
Alternative S2 (if any)						
Alternative S3 (if any)						

In the case of linear activities:

Alternative:	**Latitude (S):**			**Longitude (E):**		
Alternative S1 (preferred or only route alternative)						
• Starting point of the activity						
• Middle/Additional point of the activity						
• End point of the activity						
Alternative S2 (if any)						
• Starting point of the activity						
• Middle/Additional point of the activity						
• End point of the activity						
Alternative S3 (if any)						
• Starting point of the activity						
• Middle/Additional point of the activity						
• End point of the activity						

For route alternatives that are longer than 500m, please provide an addendum with co-ordinates taken every 250 meters along the route for each alternative alignment.

[2] "Alternative S.." refer to site alternatives.

A.4 PHYSICAL SIZE OF THE ACTIVITY

Indicate the physical size of the preferred activity/technology as well as alternative activities/technologies (footprints):

Alternative:	**Size of the activity:**
Alternative A1[3] (preferred activity alternative)	Land based facility 1.5ha Fish cages on the dam 2ha
Alternative A2 (if any)	
Alternative A3 (if any)	
or, for linear activities:	**Length of the activity:**
Alternative:	
Alternative A1 (preferred activity alternative)	1.5ha
Alternative A2 (if any)	
Alternative A3 (if any)	

Indicate the size of the alternative sites or servitudes (within which the above footprints will occur):

Alternative:	**Size of the site/servitude:**
Alternative A1 (preferred activity alternative)	1.5ha
Alternative A2 (if any)	
Alternative A3 (if any)	

A.5 SITE ACCESS

Does ready access to the site exist?	YES
If NO, what is the distance over which a new access road will be built	
Describe the type of access road planned:	

The Makwaria Holdings project is accessed by a gravel servitude road between Elim and Vawani/Levubu (Road D4) that leads to the land-based primary processing facility. This gravel road connects to the R578 road that runs to Maholosi village to Louis Trichardt along the N1 road.

Include the position of the access road on the site plan and required map, as well as an indication of the road in relation to the site.

[3] "Alternative A.." refer to activity, process, technology or other alternatives.

A.6 SITE OR ROUTE PLAN

A detailed site or route plan(s) must be prepared for each alternative site or alternative activity. It must be attached as **Appendix A** to this document.

The site or route plans must indicate the following:

6.1 the scale of the plan which must be at least a scale of 1:500;

6.2 the property boundaries and numbers of all the properties within 50 metres of the site;

6.3 the current land use as well as the land use zoning of each of the properties adjoining the site or sites;

6.4 the exact position of each element of the application as well as any other structures on the site;

6.5 the position of services, including electricity supply cables (indicate above or underground), water supply pipelines, boreholes, street lights, sewage pipelines, storm water infrastructure and telecommunication infrastructure;

6.6 all trees and shrubs taller than 1. metres;

6.7 walls and fencing including details of the height and construction material;

6.8 servitudes indicating the purpose of the servitude;

6.9 sensitive environmental elements within 100 metres of the site or sites including (but not limited thereto):

- rivers;
- the 1:100 year flood line (where available or where it is required by Department of Water Affairs);
- ridges;
- cultural and historical features;
- areas with indigenous vegetation (even if it is degraded or invested with alien species);

6.10 for gentle slopes the 1 metre contour intervals must be indicated on the plan and whenever the slope of the site exceeds 1:10, the 500mm contours must be indicated on the plan; and

6.11 the positions from where photographs of the site were taken.

A.7 SITE PHOTOGRAPHS

Colour photographs from the centre of the site must be taken in at least the eight major compass directions with a description of each photograph. Photographs must be attached under **Appendix B** to this form**.** It must be supplemented with additional photographs of relevant features on the site, if applicable.

A.8 FACILITY ILLUSTRATION

A detailed illustration of the activity must be provided at a scale of 1:200 as **Appendix C** for activities that include structures. The illustrations must be to scale and must represent a realistic image of the planned activity. The illustration must give a representative view of the activity.

A.9 ACTIVITY MOTIVATION

A.9.1 Socio-economic value of the activity

What is the expected capital value of the activity on completion?	R 30 000 000	
What is the expected yearly income that will be generated by or as a result of the activity?	R 40 000 000	
Will the activity contribute to service infrastructure?	YES	NO
Is the activity a public amenity?		NO
How many new employment opportunities will be created in the development phase of the activity?	30	
What is the expected value of the employment opportunities during the development phase?	R 200 000	
What percentage of this will accrue to previously disadvantaged individuals?	90%	
How many permanent new employment opportunities will be created during the operational phase of the activity?	40	
What is the expected current value of the employment opportunities during the first 10 years?	R 30 000 000	
What percentage of this will accrue to previously disadvantaged individuals?	90%	

A.9.2 Need and desirability of the activity

Motivate and explain the need and desirability of the activity (including demand for the activity):

NEED:			
i.	Was the relevant municipality involved in the application?		NO
ii.	Does the proposed land use fall within the municipal Integrated Development Plan?	YES	
iii.	If the answer to questions 1 and / or 2 was NO, please provide further motivation / explanation:		
	Makwaria is a private business venture, and all activities are the responsibility of the applicant.		

DESIRABILITY:			
i.	Does the proposed land use / development fit the surrounding area?	YES	
ii.	Does the proposed land use / development conform to the relevant structure plans, Spatial development Framework, Land Use Management Scheme, and planning visions for the area?	YES	
iii.	Will the benefits of the proposed land use / development outweigh the negative impacts of it?	YES	
iv.	If the answer to any of the questions 1-3 was NO, please provide further motivation / explanation:		
v.	Will the proposed land use / development impact on the sense of place?		NO
vi.	Will the proposed land use / development set a precedent?		NO
vii.	Will any person's rights be affected by the proposed land use / development?		NO
viii.	Will the proposed land use / development compromise the "urban edge"?		NO
ix.	If the answer to any of the question 5-8 was YES, please provide further motivation / explanation.		

BENEFITS:			
i.	Will the land use / development have any benefits for society in general?	YES	
ii.	There is a large demand for fish in South Africa. This facility will assist in reducing the fish demand, providing a food source rich in protein and creating jobs for the nearby community.		

iii.	Will the land use / development have any benefits for the local communities where it will be located?	YES	
iv.	There is a lack of employment opportunities within the Makhado district and this fish farming facility will be an opportunity for employment for locals. The majority of the population lives in the rural areas. The rural areas are the most underdeveloped. The largest percentage of the rural population between the ages of 15 – 65 years comprises women. This can be attributed to the migration of mean for employment opportunities elsewhere. The key developmental challenges faced by Makhado are that of lack of employment opportunities, because of a population growth rate that exceeds the economic growth rate. The prevalence of illegal immigration; and the lack of economic activities and investment opportunities in the area to aid the issue of employment creation (IDP, 2017).		

A.10 APPLICABLE LEGISLATION, POLICIES AND/OR GUIDELINES

List all legislation, policies and/or guidelines of any sphere of government that are applicable to the application as contemplated in the EIA regulations, if applicable:

Title of legislation, policy or guideline: Administering authority: Date:

Title of legislation, policy or guideline:	Administering authority:	Promulgation Date:
National Environmental Management Act (NEMA), 1998 (Act No. 107 of 1998 as amended).	National & Provincial	27 November 1998
NEMA Environmental Impact Assessment Regulations GNR 982 of 4 December 2014	National & Provincial	4 December 2014
National Water Act 36 of 1998	National & Provincial	26 August 1998
National Environmental Management Biodiversity Act 10 of 2004	National & Provincial	2004
National Heritage Resources Act 25 of 1999	National & Provincial	1999
National Development Plan	National	2012
Vhembe District Municipality IDP and SDF	Vhembe District Municipality	2015/16
Makhado Local Municipality IDP	Makhado Local Municipality	2016/17
Description of compliance with the relevant legislation, policy or guideline:		

Legislation, policy of guideline	Description of compliance
National Environmental Management Act (NEMA), 1998 (Act No. 107 of 1998 as amended).	An application for Environmental Authorisation for the proposed development is submitted in terms of GNR 982 of NEMA EIA Regulations, 4 December 2014, promulgated under NEMA.
GNR 327 of NEMA EIA Regulations, 7 April 2017	To promote integrated environmental management, contents of this BAR adhere to the requirements of the EIA Regulations. **Appendix H** includes the Environmental Management Programme that the project will adhere to if authorisation

Legislation, policy of guideline	Description of compliance
	is received. **Appendix E** refers to the Public participation followed thus far in undertaking this assessment.
National Water Act, 1998 (Act 36 of 1998)	Water Use Licence Application (WULA)
National Development Plan	The South African Government through the Presidency has published a National Development Plan. The Plan aims to eliminate poverty and reduce inequality by 2030. The Plan has the target of developing people's capabilities to improve their lives through education and skills development, health care, better access to public transport, jobs, social protection, rising income, housing and basic services, and safety. It proposes to implement the following strategies to address the above goals: 1. Creating jobs and improving livelihoods; 2. Transition to a low-carbon economy; 3. Transforming urban and rural spaces; 4. Improving education and training; 5. Providing quality health care; 6. Fighting corruption and enhancing accountability; 7. Transforming society and uniting the nation.
National Heritage Resources Act, 1999 (Act 25 of 1999)	An application for Heritage Resources review was submitted to SAHRA in terms of the National Heritage Resources Act, 1999 (Act No. 25 of 1999) as amended.
National Environmental Management: Biodiversity Act 10 of 2004	The National Environmental Management Biodiversity Act, 2004 (Act No. 10 of 2004) as amended (NEMBA) including all the pertinent legislation published in terms of this act was considered in undertaking this Basic Assessment process. This included the determination and assessment of the fauna and flora prevailing in the proposed project and the handling thereof in terms of NEMBA.

No.	**Alternative type**, either alternative: site on property, properties, activity, design, technology, energy, operational or other(provide details of "other")	Description
1	Property Alternative	Alternative properties or locations for the proposed activity have not been identified, due to the fact that the proposed development. The owner was able to acquire this land parcel, and it would not be economically feasible for the business to find and or purchase new property.
2	Activity Alternative	There is no site alternative for the proposed project
3	Design or Layout Alternative	The proposed design and layout of the activity is more of a biosecurity measure, allows for more effective management of fish production as it lessens the risk of the fish catching diseases if the activity is in a more prone or exposed location.
4	Technology to be used	The technology that will be employed on the farm is recirculating aquaculture systems (RAS).

A.11 Waste, effluent, emission and noise management

A.11.1 Solid waste management

Will the activity produce solid construction waste during the construction/initiation phase?	YES
If yes, what estimated quantity will be produced per month?	$10m^3$

How will the construction solid waste be disposed of (describe)?

Anticipated construction solid waste to be produced includes building rubble, packaging material, overburden material and general litter from construction staff. It is recommended that construction waste/rubble will be collected and stored temporarily in designated containers for the different waste types, and thereafter disposed of at the nearest appropriate licensed waste disposal site.

Where will the construction solid waste be disposed of (describe)?

Waste will be disposed of at an appropriate license landfill site, possibly the Makhado Municipality land fill site.

Will the activity produce solid waste during its operational phase?	YES
If yes, what estimated quantity will be produced per month?	Fish waste = $60m^3$ Other waste = $1.4m3m^3$

How will the solid waste be disposed of (describe)?

Solid waste generated during the operational phase will be stored in suitable bins and transported to the nearest licensed disposal site. Medical waste such as needles will be disposed of through existing medical waste streams in the area.

Where will the solid waste be disposed if it does not feed into a municipal waste stream (describe)?

All waste generated, except for fish waste (which is to be used as fertilizer for agriculture), will always be disposed of at a registered disposal site.

If the solid waste (construction or operational phases) will not be disposed of in a registered landfill site or be taken up in a municipal waste stream, then the applicant should consult with the department to determine whether it is necessary to change to an application for scoping and EIA.

Can any part of the solid waste be classified as hazardous in terms of the relevant legislation?	NO
If yes, inform the department and request a change to an application for scoping and EIA.	

Is the activity that is being applied for a solid waste handling or treatment facility?	NO

If yes, then the applicant should consult with the Department to determine whether it is necessary to change to an application for scoping and EIA.

A.11.2 Liquid effluent

Will the activity produce effluent, other than normal sewage, that will be disposed of in a municipal sewage system?	NO

If yes, what estimated quantity will be produced per month?	
Will the activity produce any effluent that will be treated and/or disposed of on site?	NO

If yes, the applicant should consult with the Department to determine whether it is necessary to change to an application for scoping and EIA.

Will the activity produce effluent that will be treated and/or disposed of at another facility?	NO

If yes, provide the particulars of the facility:

Facility name:	
Contact person:	
Postal address:	
Postal code:	
Telephone:	
E-mail:	

Describe the measures that will be taken to ensure the optimal reuse or recycling of waste water, if any:

The proposed facility will not produce any waste water. The harvested fish will be transported to the processing facility in Louis Trichardt.

A.11.3 Emissions into the atmosphere

Will the activity release emissions into the atmosphere?	YES
If yes, is it controlled by any legislation of any sphere of government?	NO

If yes, the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

If no, describe the emissions in terms of type and concentration:

Emissions from the proposed fish facility will include dust from vehicles using the gravel access road; this will however be minimal as the proposed development will not result in a significant increase of traffic. Dust will also be as a result of preparing the land and/or due to construction. Emissions will also include odour from the fishery waste and may cause a nuisance to the receptors.

A.11.4 Generation of noise

Will the activity generate noise?	YES
If yes, is it controlled by any legislation of any sphere of government?	NO

If yes, the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

If no, describe the noise in terms of type and level:

The noise generated by the fish facility does not require an Air Emissions License as per NEM:AQA (Act No 39 of 2004). The relevant impact for the noise generated has been assessed in the Impact Assessment Section (Section D).

A.12 WATER USE

Please indicate the source(s) of water that will be used for the activity by ticking the appropriate box(es)

	river, stream, dam or lake	

If water is to be extracted from groundwater, river, stream, dam, lake or any other natural feature, please indicate

the volume that will be extracted per month:	N/A

Does the activity require a water use permit from the Department of Water Affairs? YES
If yes, please submit the necessary application to the Department of Water Affairs and attach proof thereof to this application if it has been submitted.

The proposed facility requires a Water use licence in terms of section 40 of the National Water Act, 1998 (Act 36 of 1998) as the facility will culture fish in cages on the Ablasini dam. The water use and the Dam lease application were lodged with the Department of Water and Sanitation (DWS) by CSIR on behalf of the applicant still awaiting the response from the department regarding the applications.

A.13 ENERGY EFFICIENCY

Describe the design measures, if any, that have been taken to ensure that the activity is energy efficient:

Electricity will be provided to the property by Eskom via Makhado Municipality's distribution grid. There is Eskom Electricity on site for the Shiluvari Lake Lodge. Energy saving mechanisms such as use of energy efficient light bulbs, will be applied.

Describe how alternative energy sources have been taken into account or been built into the design of the activity, if any:

No alternative energy sources are required as part of the design.

SECTION B: SITE/AREA/PROPERTY DESCRIPTION

Important notes:

1. For linear activities (pipelines, etc) as well as activities that cover very large sites, it may be necessary to complete this section for each part of the site that has a significantly different environment. In such cases please complete copies of Section C and indicate the area, which is covered by each copy No. on the Site Plan.

Section C Copy No. (e.g. A): [redacted]

2. Paragraphs 1 - 6 below must be completed for each alternative.

3. Has a specialist been consulted to assist with the completion of this section? YES [redacted]

If YES, please complete the form entitled "Details of specialist and declaration of interest" for each specialist thus appointed:

Prepared by: Scientific Aquatic Services CC

Report author: M. Meintjies and K. Dyamond

Report reviewer: S. van Staden (Pr. Sci. Nat)

Report reference: SAS 218062

Date: May 2018

All specialist reports must be contained in **Appendix D.**

Property description/physical address:	Albasini Dam, Elim, Louis Trichardt, 920

(Farm name, portion etc.) Where a large number of properties are involved (e.g. linear activities), please attach a full list to this application.

[redacted]

In instances where there is more than one town or district involved, please attach a list of towns or districts to this application.

Current land-use zoning:	Agricultural

In instances where there is more than one current land-use zoning, please attach a list of current land use zonings that also indicate which portions each use pertains to , to this application.

Is a change of land-use or a consent use application required?	[redacted] NO
Must a building plan be submitted to the local authority?	NO

Locality map:

An A3 locality map must be attached to the back of this document, as **Appendix A**. The scale of the locality map must be relevant to the size of the development (at least 1:50 000. For linear activities of more than 25 kilometres, a smaller scale e.g. 1:250 000 can be used. The scale must be indicated on the map.) The map must indicate the following:

- an indication of the project site position as well as the positions of the alternative sites, if any;
- road access from all major roads in the area;
- road names or numbers of all major roads as well as the roads that provide access to the site(s);
- all roads within a 1km radius of the site or alternative sites; and
- a north arrow;
- a legend; and
- locality GPS co-ordinates (Indicate the position of the activity using the latitude and longitude of the centre point of the site for each alternative site. The co-ordinates should be in degrees, minutes and seconds. The projection that must be used in all cases is the WGS84 spheroid in a national or local projection)

B.1 GRADIENT OF THE SITE

Indicate the general gradient of the site.

Alternative S1:

The water surface for the cage location is flat.

The slope of the land-based site for the primary processing facility (1.5 ha) is between 1:20 and 1;50 gradient.

Flat	1:50 – 1:20	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5

Alternative S2 (if any):

Alternative S3 (if any):

B.2 LOCATION IN LANDSCAPE

Indicate the landform(s) that best describes the site:

2.1 Ridgeline		2.6 Plain	
2.2 Plateau		2.7 Undulating plain / low hills	X
2.3 Side slope of hill/mountain		2.8 Dune	
2.4 Closed valley		2.9 Seafront	
2.5 Open valley			

B.3 GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE

Is the site(s) located on any of the following (tick the appropriate boxes)?

	Alternative S1:	Alternative S2 (if any):	Alternative S3 (if any):
Shallow water table (less than 1.5m deep)	NO		
Dolomite, sinkhole or doline areas	NO		
Seasonally wet soils (often close to water bodies)	NO		
Unstable rocky slopes or steep slopes with loose soil	NO		
Dispersive soils (soils that dissolve in water)	NO		
Soils with high clay content (clay fraction more than 40%)	NO		
Any other unstable soil or geological feature	NO		
An area sensitive to erosion	YES		

If you are unsure about any of the above or if you are concerned that any of the above aspects may be an issue of concern in the application, an appropriate specialist should be appointed to assist in the completion of this section. (Information in respect of the above will often be available as part of the project information or at the planning sections of local authorities. Where it exists, the 1:50 000 scale Regional Geotechnical Maps prepared by the Council for Geo Science may also be consulted).

B.4 GROUNDCOVER

Indicate the types of groundcover present on the site:
The location of all identified rare or endangered species or other elements should be accurately indicated on the site plan(s).

	Natural veld with scattered aliens[E]	Natural veld with heavy alien infestation[E]	
	Cultivated land		Building or other structure

If any of the boxes marked with an "[E] "is ticked, please consult an appropriate specialist to assist in the completion of this section if the environmental assessment practitioner doesn't have the necessary expertise.

Note: The specialist study by Scientific Aquatic Services (Appendix D) included the groundcover aspects listed above.

B.5 LAND USE CHARACTER OF SURROUNDING AREA

Indicate land uses and/or prominent features that does currently occur within a 500m radius of the site and give description of how this influences the application or may be impacted upon by the application:

5.1 Natural area		5.22 School	
5.2 Low density residential		5.23 Tertiary education facility	
5.3 Medium density residential		5.24 Church	
5.4 High density residential		5.25 Old age home	
5.5 Medium industrial [AN]		5.26 Museum	
5.6 Office/consulting room		5.27 Historical building	
5.7 Military or police base/station/compound		5.28 Protected Area	
5.8 Spoil heap or slimes dam [A]		5.29 Sewage treatment plant [A]	
5.9 Light industrial		5.30 Train station or shunting yard [N]	
5.10 Heavy industrial [AN]		5.31 Railway line [N]	
5.11 Power station		5.32 Major road (4 lanes or more)	
5.12 Sport facilities		5.33 Airport [N]	
5.13 Golf course		5.34 Harbour	
5.14 Polo fields		5.35 Quarry, sand or borrow pit	
5.15 Filling station [H]		5.36 Hospital/medical centre	
5.16 Landfill or waste treatment site		5.37 River, stream or wetland	
5.17 Plantation	x	5.38 Nature conservation area	
5.18 Agriculture	x	5.39 Mountain, koppie or ridge	
5.19 Archaeological site		5.40 Graveyard	
5.20 Quarry, sand or borrow pit		5.41 River, stream or wetland	
5.21 Dam or Reservoir	x	5.42 Other land uses (describe)	

If any of the boxes marked with an "[N] "are ticked, how will this impact / be impacted upon by the proposed activity?

If any of the boxes marked with an "[An]" are ticked, how will this impact / be impacted upon by the proposed activity?

If YES, specify and explain:	
If NO, specify:	

If any of the boxes marked with an "[H]" are ticked, how will this impact / be impacted upon by the proposed activity.

If YES, specify and explain:	
If NO, specify:	

B.6 CULTURAL/HISTORICAL FEATURES

Are there any signs of culturally or historically significant elements, as defined in section 2 of the National Heritage Resources Act, 1999, (Act No. 25 of 1999), including Archaeological or palaeontological sites, on or close (within 20m) to the site?	NO
If YES, explain:	
If uncertain, conduct a specialist investigation by a recognised specialist in the field to establish whether there is such a feature(s) present on or close to the site.	

Briefly explain the findings of the specialist:	No archaeological sites or material of significance was recorded during the survey. According to the SAHRIS Paleontological Sensitivity map the area is of insignificant paleontological sensitivity. No further mitigation prior to construction is recommended in terms of Section 35 for the proposed development to proceed. In terms of the built environment of the area (Section 34), no standing structures older than 60 years occur within the study area. In terms of Section 36 of the Act no burial sites were recorded. If any graves are located in future they should ideally be preserved in-situ or alternatively relocated according to existing legislation. No public monuments are located within or close to the study area. The proposed application is in line with the general agricultural land use of the area and will therefore not impact further on significant cultural landscapes or view scapes. During the public participation process conducted for the project no heritage concerns was raised.
Will any building or structure older than 60 years be affected in any way?	NO
Is it necessary to apply for a permit in terms of the National Heritage Resources Act, 1999 (Act 25 of 1999)?	NO

If yes, please submit or, make sure that the applicant or a specialist submits the necessary application to SAHRA or the relevant provincial heritage agency and attach proof thereof to this application if such application has been made.

SECTION C: PUBLIC PARTICIPATION

C.1 ADVERTISEMENT

The person conducting a public participation process must take into account any guidelines applicable to public participation as contemplated in section 24J of the Act and must give notice to all potential interested and affected parties of the application which is subjected to public participation by—

(a) fixing a notice board (of a size at least 60cm by 42cm; and must display the required information in lettering and in a format as may be determined by the department) at a place conspicuous to the public at the boundary or on the fence of—
  (i) the site where the activity to which the application relates is or is to be undertaken; and
  (ii) any alternative site mentioned in the application;
(b) giving written notice to—
  (i) the owner or person in control of that land if the applicant is not the owner or person in control of the land;
  (ii) the occupiers of the site where the activity is or is to be undertaken or to any alternative site where the activity is to be undertaken;
  (iii) owners and occupiers of land adjacent to the site where the activity is or is to be undertaken or to any alternative site where the activity is to be undertaken;
  (iv) the municipal councillor of the ward in which the site or alternative site is situated and any organisation of ratepayers that represent the community in the area;
  (v) the municipality which has jurisdiction in the area;
  (vi) any organ of state having jurisdiction in respect of any aspect of the activity; and
  (vii) any other party as required by the department;
(c) placing an advertisement in—
  (i) one local newspaper; or
  (ii) any official *Gazette* that is published specifically for the purpose of providing public notice of applications or other submissions made in terms of these Regulations;
(d) placing an advertisement in at least one provincial newspaper or national newspaper, if the activity has or may have an impact that extends beyond the boundaries of the local municipality in which it is or will be undertaken: Provided that this paragraph need not be complied with if an advertisement has been placed in an official *Gazette* referred to in subregulation 54(c)(ii); and
(e) using reasonable alternative methods, as agreed to by the department, in those instances where a person is desiring of but unable to participate in the process due to—
  (i) illiteracy;
  (ii) disability; or
  (iii) any other disadvantage.

C.2 CONTENT OF ADVERTISEMENTS AND NOTICES

A notice board, advertisement or notices must:

(a) indicate the details of the application which is subjected to public participation; and
(b) state—
  (i) that the application has been submitted to the department in terms of these Regulations, as the case may be;

(ii) whether basic assessment or scoping procedures are being applied to the application, in the case of an application for environmental authorisation;
(iii) the nature and location of the activity to which the application relates;
(iv) where further information on the application or activity can be obtained; and
(v) the manner in which and the person to whom representations in respect of the application may be made.

C.3 PLACEMENT OF ADVERTISEMENTS AND NOTICES

Where the proposed activity may have impacts that extend beyond the municipal area where it is located, a notice must be placed in at least one provincial newspaper or national newspaper, indicating that an application will be submitted to the department in terms of these regulations, the nature and location of the activity, where further information on the proposed activity can be obtained and the manner in which representations in respect of the application can be made, unless a notice has been placed in any *Gazette* that is published specifically for the purpose of providing notice to the public of applications made in terms of these Regulations.

Advertisements and notices must make provision for all alternatives.

C.4 DETERMINATION OF APPROPRIATE MEASURES

The practitioner must ensure that the public participation is adequate and must determine whether a public meeting or any other additional measure is appropriate or not based on the particular nature of each case. Special attention should be given to the involvement of local community structures such as Ward Committees, ratepayers associations and traditional authorities where appropriate. Please note that public concerns that emerge at a later stage that should have been addressed may cause the department to withdraw any authorisation it may have issued if it becomes apparent that the public participation process was inadequate.

C.5 COMMENTS AND RESPONSE REPORT

The practitioner must record all comments and respond to each comment of the public before the application is submitted. The comments and responses must be captured in a comments and response report as prescribed in these Regulations and be attached to this application. The comments and response report must be attached under **Appendix E.**

C.6 AUTHORITY PARTICIPATION

Please note that a complete list of all organs of state and or any other applicable authority with their contact details must be appended to the basic assessment report or scoping report, whichever is applicable.

Authorities are key interested and affected parties in each application and no decision on any application will be made before the relevant local authority is provided with the opportunity to give input.

Name of Authority informed:	Comments received (Yes or No)
LEDET	No
DOA	No
DCGHSTA	No
Vhembe District Municipality	No
Makhado Local Municipality	No
DEA	No

DRDLR	No
SANParks	No
DAFF	No
SAHRA	No
SANRAL	No

C.7 CONSULTATION WITH OTHER STAKEHOLDERS

Note that, for linear activities, or where deviation from the public participation requirements may be appropriate, the person conducting the public participation process may deviate from the requirements of that subregulation to the extent and in the manner as may be agreed to by the department.

Proof of any such agreement must be provided, where applicable.

Has any comment been received from stakeholders? **YES** **NO**

If "YES", briefly describe the feedback below (also attach copies of any correspondence to and from the stakeholders to this application):

The Draft BAR is hereby released for public participation for 30 days review.

SECTION D: IMPACT ASSESSMENT

The assessment of impacts must adhere to the minimum requirements in the EIA Regulations, 2014, and should take applicable official guidelines into account. The issues raised by interested and affected parties should also be addressed in the assessment of impacts.

D.1 ISSUES RAISED BY INTERESTED AND AFFECTED PARTIES

List the main issues raised by interested and affected parties.

Issues raised by Interested and Affected Parties following the release of the Draft Basic Assessment Report will be attached in Appendix E of the Final report.

Response from the practitioner to the issues raised by the interested and affected parties (A full response must be given in the Comments and Response Report that must be attached to this report as Annexure E):

The erosion potential for the site has been addressed in the EMPr attached. According to this report, the potential is of low significance when mitigation and management actions are implemented. A full response to this comment is also provided in the Comments and Responses Report included

D.2 IMPACTS THAT MAY RESULT FROM THE PLANNING AND DESIGN, CONSTRUCTION, OPERATIONAL, DECOMMISSIONING AND CLOSURE PHASES AS WELL AS PROPOSED MANAGEMENT OF IDENTIFIED IMPACTS AND PROPOSED MITIGATION MEASURES

List the potential direct, indirect and cumulative property/activity/design/technology/operational alternative related impacts (as appropriate) that are likely to occur as a result of the planning and design phase, construction phase, operational phase, decommissioning and closure phase, including impacts relating to the choice of site/activity/technology alternatives as well as the mitigation measures that may eliminate or reduce the potential impacts listed.

APPROACH TO THE BASIC ASSESSMENT

1) METHODOLOGY OF IMPACT ASSESSMENT

According to the DEA IEM Series guideline on "Impact Significance" (2002), there are a number of quantitative and qualitative methods that can be used to identify the significance of impacts resulting from a development. The process of determining impact significance should ideally involve a process of determining the acceptability of a predicted impact to society. Making this process explicit and open to public comment and input would be an improvement of the EIA/BA process. The CSIR's approach to determining significance is generally as follows:

- Use of expert opinion by the specialists ("professional judgement"), based on their experience, a site visit and analysis, and use of existing guidelines and strategic planning documents and conservation mapping (e.g. SANBI biodiversity databases);
- Review of specialist assessment by all stakeholders including authorities such as nature conservation officials, as part of the report review process (i.e. if a nature conservation official disagreed with the significance rating, then we could negotiate the rating); and

- Our approach is more a qualitative approach - we do not have a formal matrix calculation of significance as is sometimes done.

2) SPECIALIST CRITERIA FOR IMPACT ASSESSMENT

The following methodology has been provided by the CSIR to the specialist who conducted the **Assessment of Potential Impacts**

The assessment of impact significance is based on the following conventions:

Nature of Impact - this reviews the type of effect that a proposed activity will have on the environment and should include "what will be affected and how?"

Spatial Extent - this should indicate whether the impact will be:
- Site specific;
- Local (<2 km from site);
- Regional (within 30 km of site); or
- National.

Duration - The timeframe during which (lifetime of) the impact will be experienced:
- Temporary (less than 1 year);
- Short term (1 to 6 years);
- Moderate term (6 to 15 years);
- Long term (the impact will cease after the operational life of the activity); or
- Permanent (mitigation will not occur in such a way or in such a time span that the impact can be considered transient).

Intensity - it should be established whether the impact is destructive or innocuous and should be described as either:
- High (severe alteration of natural systems, patterns or processes such that they temporarily or permanently cease);
- Moderate (notable alteration of natural systems, patterns or processes; where the environment continues to function but in a modified manner); or
- Low (negligible or no alteration of natural systems, patterns or processes); can be easily avoided by implementing appropriate mitigation measures, and will not have an influence on decision-making.

Probability - this considers the likelihood of the impact occurring and should be described as:
- Improbable (little or no chance of occurring);
- Probable (<50% chance of occurring);
- Highly probable (50 – 90% chance of occurring); or
- Definite (>90% chance of occurring).

Reversibility - this considers the degree to which the adverse environmental impacts are reversible or irreversible. For example, an impact will be described as low should the impact have little chance of being rectified to correct environmental impacts. On the other hand, an impact such as the nuisance factor caused by noise impacts from wind turbines can be considered to be highly reversible at the end of the project lifespan. The assessment of the reversibility of potential impacts is based on the following terms:
- High - impacts on the environment at the end of the operational life cycle are highly reversible;
- Moderate - impacts on the environment at the end of the operational life cycle are reasonably reversible;
- Low - impacts on the environment at the end of the operational life cycle are slightly reversible; or
- Non-reversible - impacts on the environment at the end of the operational life cycle are not reversible and are consequently permanent.

Irreplaceability - this reviews the extent to which an environmental resource is replaceable or irreplaceable. For example, if the proposed project will be undertaken on land that is already transformed and degraded, this

will yield a low irreplaceability score. The assessment of the degree to which the impact causes irreplaceable loss of resources is based on the following terms:

- High irreplaceability of resources (this is the least favourable assessment for the environment);
- Moderate irreplaceability of resources;
- Low irreplaceability of resources; or
- Resources are replaceable (this is the most favourable assessment for the environment).

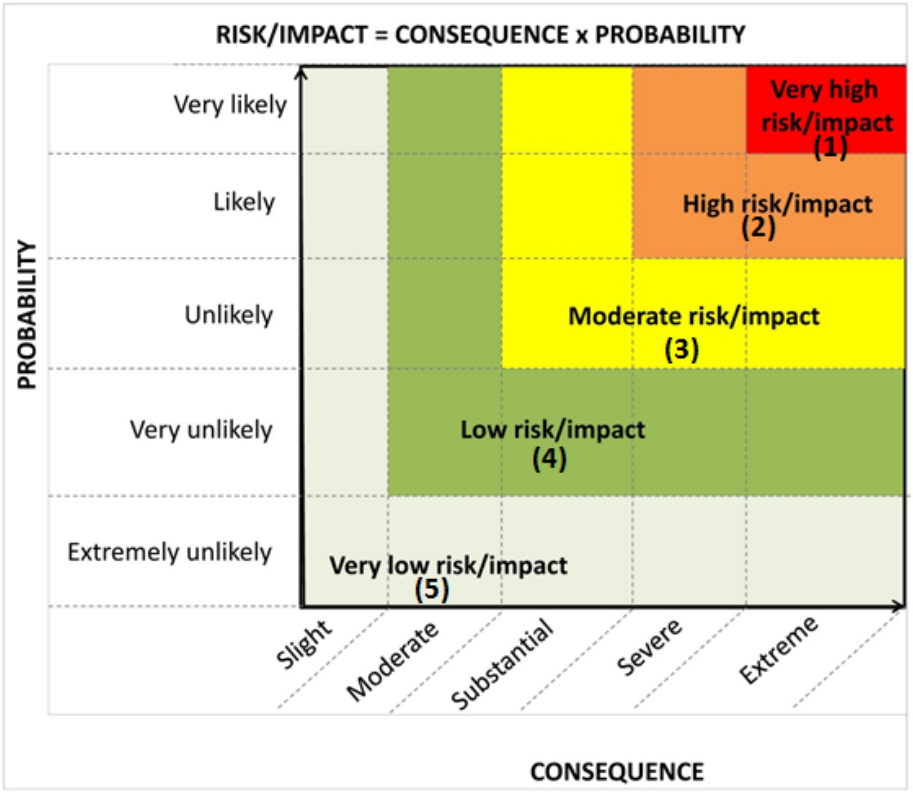


Figure 2-1: Guide to assessing risk/impact significance as a result of consequence and probability.

The status of the impacts and degree of confidence with respect to the assessment of the significance is stated as follows:

Status of the impact: A description as to whether the impact will be:
- Positive (environment overall benefits from impact);
- Negative (environment overall adversely affected); or
- Neutral (environment overall not affected).

Degree of confidence in predictions: The degree of confidence in the predictions, based on the availability of information and specialist knowledge. This should be assessed as:
- High;
- Moderate; or
- Low.

Based on the above considerations, the specialist provides an overall evaluation of the significance of the potential impact, which should be described as follows:
- **Low to very low:** the impact may result in minor alterations of the environment and can be reduced or avoided by implementing the appropriate mitigation measures, and will only have an influence on the decision-making if not mitigated;

- **Moderate:** the impact will result in moderate alteration of the environment and can be reduced or avoided by implementing the appropriate mitigation measures, and will only have an influence on the decision-making if not mitigated; or
- **High:** Where it could have a "no-go" implication for the project unless mitigation or re-design is practically achievable.

Furthermore, the following must be considered:

- Impacts should be described both before and after the proposed mitigation and management measures have been implemented.
- All impacts should be evaluated for the construction, operation and decommissioning phases of the project, where relevant.
- The impact evaluation should take into consideration the cumulative effects associated with this and other facilities which are either developed or in the process of being developed in the region, if relevant.

Management Actions:

- Where negative impacts are identified, mitigatory measures will be identified to avoid or reduce negative impacts. Where no mitigatory measures are possible this will be stated.
- Where positive impacts are identified, augmentation measures will be identified to potentially enhance these.
- Quantifiable standards for measuring and monitoring mitigatory measures and enhancements will be set. This will include a programme for monitoring and reviewing the recommendations to ensure their ongoing effectiveness.

Monitoring:

Specialists should recommend monitoring requirements to assess the effectiveness of mitigation actions, indicating what actions are required, by whom, and the timing and frequency thereof.

Cumulative Impact:

Consideration is given to the extent of any accumulative impact that may occur due to the proposed development. Such impacts are evaluated with an assessment of similar developments already in the environment. Such impacts will be either positive or negative, and will be graded as being of negligible, low, Moderate or high impact.

Mitigation:

The objective of mitigation is to firstly avoid and minimise impacts where possible and where these cannot be completely avoided, to compensate for the negative impacts of the development on the receiving environment and to maximise re-vegetation and rehabilitation of disturbed areas. For each impact identified, appropriate mitigation measures to reduce or otherwise avoid the potentially negative impacts are suggested. All impacts are assessed without mitigation and with the mitigation measures as suggested.

Briefly describe and compare the potential impacts (as appropriate), significance rating of impacts, proposed mitigation and significance rating of impacts after mitigation that are likely to occur as a result of the construction phase for the various alternatives of the proposed development. This must include an assessment of the significance of all impacts.

Note from the CSIR: Feasible alternatives (i.e. location, activity and property alternatives) do not exist for the proposed project as this is the only land parcel that the owners were able to acquire, and it would not be economically feasible for the business to find and or purchase new property.

IMPACT ASSESSMENT

IMPACT ASSESSMENT SUMMARY TABLE FOR THE CONSTRUCTION PHASE

CONSTRUCTION PHASE												
Ecological Impact Assessment												
Activity	**Impact Summary**	**Status**	**Extent**	**Duration**	**Intensity**	**Reversibility**	**Irreplace-ability**	**Probability**	**Potential Mitigation Measures**	**Significance of Impact and Risk**		**Confidence Level**
										Without Mitigation/ Management	**With Mitigation/ Management (Residual Impact/ Risk)**	
Clearance of Vegetation for construction of the primary Processing Plant	Impact on terrestrial habitat and diversity	Negative	Local	Long term	Moderate	Low	Low	Definite	▪ Ensure vegetation clearing is limited to what is essential, and does not extend beyond the footprint area and access road; ▪ Vegetation should be disposed of at a registered waste facility and should not be burned on site.	Low	Very Low	Medium
	Loss of floral SCC	Negative	Local	Long term	Moderate	Moderate	Moderate	Highly probable	▪ All *S. birrea subsp*. caffra (Marula) individuals should be marked prior to construction, and a permit be obtained from DAFF should any individuals be removed during the construction phase. ▪ Care should be taken not to remove or damage any individuals of *S. birrea* subsp. *caffra* not situated within the development footprint	Moderate	Low	Medium
	Loss of faunal SCC	Negative	Local	Short term	Low	High	Low	Improbable	▪ Prevent hunting by construction personnel of any potential SCC that might utilise the area from time to time; ▪ Should any faunal SCC be observed within the proposed primary processing plant during the construction phase, all activities should be stopped, and a specialist should be consulted as to the best way forward.	Very Low	Very Low	Medium

WHY IS THERE ONE LESS COLUMN HERE??

Activity	Status	Extent	Duration	Intensity	Reversibility	Irreplace-ability	Probability	Potential Mitigation Measures	Significance of Impact and Risk		Confidence Level
									Without Mitigation/ Management	With Mitigation/ Management (Residual Impact/ Risk)	
Heritage impacts											
Destruction of palaeontological material	Negative	Site specific	Permanent	Moderate	Probable	Low	Low	▪ If any archaeological material, palaeontological material or human burials are uncovered during the course of development then work in the immediate area should be halted. The find would need to be reported to the heritage authorities and may require inspection by an appropriate specialist. Such heritage is the property of the state and may require excavation and curation in an approved institution.	Low	Very Low	High
Destruction of archaeological artefacts	Negative	Site specific	Permanent	Moderate-low	Definite	Very low	Low	▪ If any archaeological material, palaeontological material or human burials are uncovered during the course of development then work in the immediate area should be halted. The find would need to be reported to the heritage authorities and may require inspection by an appropriate specialist. Such heritage is the property of the state and may require excavation and curation in an approved institution.	Low	Very Low	High
Traffic, Noise and Visual impacts											
Traffic, congestion and potential for collisions	Negative	Site specific	Short term	Low	High reversibility	Low irreplaceability	Very low probability	▪ Ensure that roads are not closed during construction, which may restrict access for emergency services. ▪ The Contractor must ensure that all construction personnel are provided with adequate PPE for use where appropriate	Moderate	Low	High
Potential visual impacts as the result of construction activities	Negative	Site specific	Short term	Low	High reversibility	Low irreplaceability	Very low probability	▪ No specific mitigation measures are required other than standard construction site housekeeping and dust suppression. These are included below: ▪ The contractor(s) should maintain good housekeeping on site to avoid litter and minimise waste. ▪ Litter and rubble should be timeously removed from the construction site and disposed at a licenced waste disposal facility. ▪ The project developer should demarcate construction boundaries and minimise areas of surface disturbance. ▪ Appropriate plans should be in place to minimise fire hazards and dust generation. ▪ Night lighting of the construction site should be minimised within requirements of safety and efficiency.	Moderate	Low	High
Potential noise impact as the result of the use of construction equipment	Negative	Local	Long term	Low	High reversibility	Low irreplaceability	Very low probability	▪ Limit construction activities to day time hours.	Moderate	Low	High

Activity	Status	Extent	Duration	Intensity	Reversibility	Irreplace-ability	Probability	Potential Mitigation Measures	Significance of Impact and Risk		Confidence Level
Potential impact on the safety of construction workers and Health injuries to construction personnel as a result of construction work	Negative	Site specific	Short term	Low	High reversibility	Low irreplaceability	Very low probability	▪ Ensure that a skilled and competent Contractor is appointed during the construction phase. The Contractor must be evaluated during the tender/appointment process in terms of safety standards. ▪ The Contractor must ensure that all construction personnel are provided with adequate PPE for use where appropriate. ▪ The Contractor must undertake a Construction Phase Risk Assessment. ▪ A Construction Site Manager or Safety Supervisor should be appointed, in conjunction with the project manager, to monitor all safety aspects during the construction phase. This could be the same person that is assigned to co-ordinate the construction traffic.	Moderate	Low	High

IMPACT ASSESSMENT SUMMARY TABLE FOR THE OPERATION PHASE

OPERATIONS PHASE – LAND BASED PRIMARY PROCESSING FACILITY												
ECOLOGICAL IMPACT ASSESSMENT												
Activity	**Impact Summary**	**Status**	**Extent**	**Duration**	**Intensity**	**Reversibility**	**Irreplace-ability**	**Probability**	**Potential Mitigation Measures**	**Significance of Impact and Risk**		**Confidence Level**
										Without Mitigation/ Management	**With Mitigation/ Management (Residual Impact/ Risk)**	
Operation of the land-based primary processing facility, resulting in further spread of alien invasive species and bush encroachment	Impact on terrestrial habitat and diversity	Negative	Local	Permanent	Low	Low	Low	Probable	▪ No harvesting of plant material is to be allowed during the operation of the development; ▪ Ensure ongoing monitoring of alien vegetation and bush encroachment, through the removal of alien invasive floral species and bush thinning within the surrounding area, to prevent further spread of such species to surrounding areas resulting in a loss of floral SCC as well as terrestrial habitat and diversity	Low	Very Low	Medium
	Loss of floral SCC	Negative	Local	Permanent	Low	Moderate	Moderate	Probable		Low	Very Low	Medium
	Loss of faunal SCC	Negative	Local	Permanent	Low	High	Low	Improbable		Very Low	Very Low	Medium

and here……WHY IS THERE ONE LESS COLUMN HERE??

Impact assessment summary table for the Operational Phase

Activity	Impact Summary	Status	Extent	Duration	Intensity	Reversibility	Irreplaceability	Probability	Potential Mitigation Measures	Significance of Impact and Risk		Confidence Level
										Without Mitigation/ Management	With Mitigation/ Management (Residual Impact/ Risk)	
FRESHWATER IMPACT ASSESSMENT – DAM-BASED COMPONENT (FISH CAGES)												
Increase in nutrient load		Negative	Local	Long term	Moderate	Moderate	Moderate irreplace ability	Highly probable	▪ Regular monitoring of the water quality in the system. ▪ Do not exceed the assimilative capacity of the dam. ▪ Optimise the feeding of the fish so that there is no excess energy-rich material in the system. ▪ Regular pumping or circulation of water within the farming system.	Moderate	Low	Medium
Increase BOD		Negative	Local	Long term	Moderate	Moderate	Low irreplace-ability	Highly probable		Moderate	Low	Medium
Impact on established biota		Negative	Site	Long term	Slight	Moderate	Low irreplace-ability	Probable	▪ Ensure the cages do not have holes or gaps where fish can escape. ▪ Regular monitoring of the cages to ensure the integrity of the cages.	Low	Very Low	Medium
Modification of the dam characteristics by finfish farming		Negative	Site	Short term	Moderate	Moderate	Low irreplace-ability	Probable	▪ Select sites avoiding potentially sensitive and valuable habitats such as conservation areas ▪ Select suitably deep sites that allow cages to be suspended at least 5 m ▪ Implement buffers and a phased-in development of finfish farms. ▪ Ensure that finfish cages do not occupy more than 30% of the total area allocated for finfish farming at any one time, both within individual licence areas and overall within the portions of the identified for finfish culture. ▪ Manage stocking densities at levels to ensure that environment health is maintained, as determined by the environmental sampling and monitoring programme (see EMPr). ▪ Monitor and manage feeding regimes to minimise feed wastage and chemical usage. Use high digestibility, high energy and low phosphorus feeds, species and system-specific feeds	Low	Very Low	Medium

Activity	Impact Summary	Status	Extent	Duration	Intensity	Reversibility	Irreplaceability	Probability	Potential Mitigation Measures	Significance of Impact and Risk		Confidence Level
										Without Mitigation/ Management	With Mitigation/ Management (Residual Impact/ Risk)	
									and maximize food conversion ratios (and minimize waste). ▪ Rotate cages within a production area to allow recovery of benthos.			
Impact of introduced parasites		Negative	Site	Short term	Slight	Moderate	Low irreplace-ability	Probable	▪ Ensure that the fingerlings are in good health and do not show signs of disease. ▪ Monitor potential parasitic infections with regular fish health inspections. ▪ Control infections as soon as diagnosed.	Low	Very Low	Medium
Transmission of diseases to wild populations		Negative	Site	Short term	Slight	Moderate	Low irreplace-ability	Probable	▪ Ensure that a high level of biosecurity management and planning is in place to limit the introduction of pests and diseases and to be able to respond quickly and effectively should biosecurity risks be identified. ▪ If spat import cannot be avoided, only use spat from biosecure certified hatcheries and/or quarantine facilities. ▪ Ensure that veterinarian protocols to eliminate any pests, parasites and diseases are strictly	Low	Very Low	Medium
Modification of water column characteristics		Negative	Site	Short term	Slight	Moderate	Low irreplace-ability	Probable	▪ Select sites avoiding potentially sensitive and valuable habitats such as conservation areas ▪ Select sites favouring well-flushed, deep and productive areas ▪ Manage stocking densities at levels to ensure that environment health is maintained, as determined by the environmental sampling and monitoring programme (see EMPr) ▪ Undertake ongoing, detailed water quality monitoring; including baseline surveys at control and impact sites, and decrease the carrying capacity should the environmental quality indicator be exceeded outside of the accepted sacrificial footprint.	Low	Very Low	Medium

Alternative (preferred alternative)

Direct impacts:
Growing and Farming of *Oreochromis mossambicus*

Indirect impacts:
There are no indirect impacts during the construction phase for the No-go Option.
If the proposed project does not proceed, increased income and economic benefits associated with the expansion will not be realised.
- No new employment opportunities will be created.

Cumulative impacts:
There are no cumulative impacts during the site preparation e.g harvesting of cage farming

D.3 ENVIRONMENTAL IMPACT STATEMENT

Taking the assessment of potential impacts into account, please provide an environmental impact statement that summarises the impact that the proposed activity and its alternatives may have on the environment after the management and mitigation of impacts have been taken into account, with specific reference to types of impact, duration of impacts, likelihood of potential impacts actually occurring and the significance of impacts.

Alternative A (preferred alternative)

The proposed development is a aquaculture project that is deemed to have impacts on the environment. clearance of vegetation, dust emissions, visual and noise impacts are anticipated from the proposed development. Most of these impacts are medium to low in the current environment, and with the recommended mitigation measures the proposed development will have overall low impacts of the environment. There will be no impact on freshwater resources on the site.

The aquatic ecological assessment concluded that the general water quality of the Albasini Dam was found to be fair during the current assessment. Electrical conductivity (EC) was within the ideal range limit (30 mS/m) recommended by the DWA 2011 Resource Water Quality Objectives (RWQO) of South Africa at both sites Dam Point 1 and Dam Point 2, and dissolved oxygen (DO) saturation exceeded 80% and hence complied with recommended natural conditions.

The primary impact on the terrestrial ecology will arise from clearing of vegetation during the construction of the proposed primary processing plant, which will result in a loss of floral and faunal habitat, diversity, and SCC if not appropriately mitigated. However, it is the opinion of the EAP that the proposed project could move forward provided that all recommendations within the EMPr are adhered to.

No-go alternative (compulsory)

This option assumes that a conservative approach would ensure that the environment is not impacted upon anymore that is currently the case. It is important to state that this assessment is informed by the current conditions of the area. Should the Competent Authority decline the application, the 'No-Go' option will be followed and the status quo of the site will remain.

Alternative B

Alternative C

[redacted]

for more alternatives please continue as alternative D, E, etc.

SECTION E: RECOMMENDATION OF PRACTITIONER

Is the information contained in this report and the documentation attached hereto sufficient to make a decision in respect of the activity applied for (in the view of the environmental assessment practitioner)?	YES	[redacted]

If "NO", indicate the aspects that should be assessed further as part of a Scoping and EIA process before a decision can be made (list the aspects that require further assessment):

[redacted]

If "YES", please list any recommended conditions, including mitigation measures that should be considered for inclusion in any authorisation that may be granted by the department in respect of the application:

This BAR addresses a detailed analysis of the potential impacts associated with the proposed development project. The proposed development will have an impact of low significance, provided that the mitigation measures proposed in this report and the EMPr are effectively implemented. It is therefore recommended that the proposed project is approved, subject to the following conditions and mitigation measures:

- The EMPr of this proposed development must form part of the contractual agreement and be adhered to by both the contractors and the applicant.
- The applicant to ascertain that there is representation of the applicant on site, at all times of the project phases, ensuring compliance with the conditions of the EMPr and Environmental Authorisation thereof.
- A Water Use Licence must be obtained for the water usage associated with the development

It is the opinion of the EAPs that the proposed development will comply with current relevant legislation, and that with the implementation of the mitigation measures suggested in this BAR, there are no environmental impacts identified as highly detrimental to the environment.

Is an EMPr attached?	YES	[redacted]

The EMPr must be attached as **Appendix F**.

Basic Assessment for the proposed development of aquaculture cage culture fish farm in Albasini Dam, Thulamela Local Municipality in the Vhembe District Municipality, Limpopo.

SECTION F:

APPENDICES

CSIR

our future through science

SECTION F: APPENDICES

The following appendixes must be attached as appropriate:

Appendix A: Site plan(s)

Appendix B: Photographs

Appendix C: Facility illustration(s)

Appendix D: Specialist reports

Appendix E: Comments and responses report

Appendix F: Environmental Management Programme (EMPr)

Appendix G: Other information

SECTION G: DECLARATION BY THE ENVIRONMENTAL ASSESSMENT PRACTITIONER

I, ---------- declare that I

(a) act as the independent environmental practitioner in this application;

(b) do not have and will not have any financial interest in the undertaking of the activity, other than remuneration for work performed in terms of the Environmental Impact Assessment Regulations, 2014;

(c) do not have and will not have a vested interest in the proposed activity proceeding;

(d) have no, and will not engage in, conflicting interests in the undertaking of the activity;

(e) undertake to disclose, to the competent authority, any material information that has or may have the potential to influence the decision of the competent authority or the objectivity of any report, plan or document required in terms of the Environmental Impact Assessment Regulations, 2006;

(f) will ensure that information containing all relevant facts in respect of the application is distributed or made available to interested and affected parties and the public and that participation by interested and affected parties is facilitated in such a manner that all interested and affected parties will be provided with a reasonable opportunity to participate and to provide comments on documents that are produced to support the application;

(g) will ensure that the comments of all interested and affected parties are considered and recorded in reports that are submitted to the Department in respect of the application, provided that comments that are made by interested and affected parties in respect of a final report that will be submitted to the Department may be attached to the report without further amendment to the report;

(h) will keep a register of all interested and affected parties that participated in a public participation process; and

(i) will provide the Department with access to all information at my disposal regarding the application, whether such information is favourable to the applicant or not.

Signature of the Environmental Assessment Practitioner

CSIR Council for Scientific and Industrial Research (Environmental Management Services)

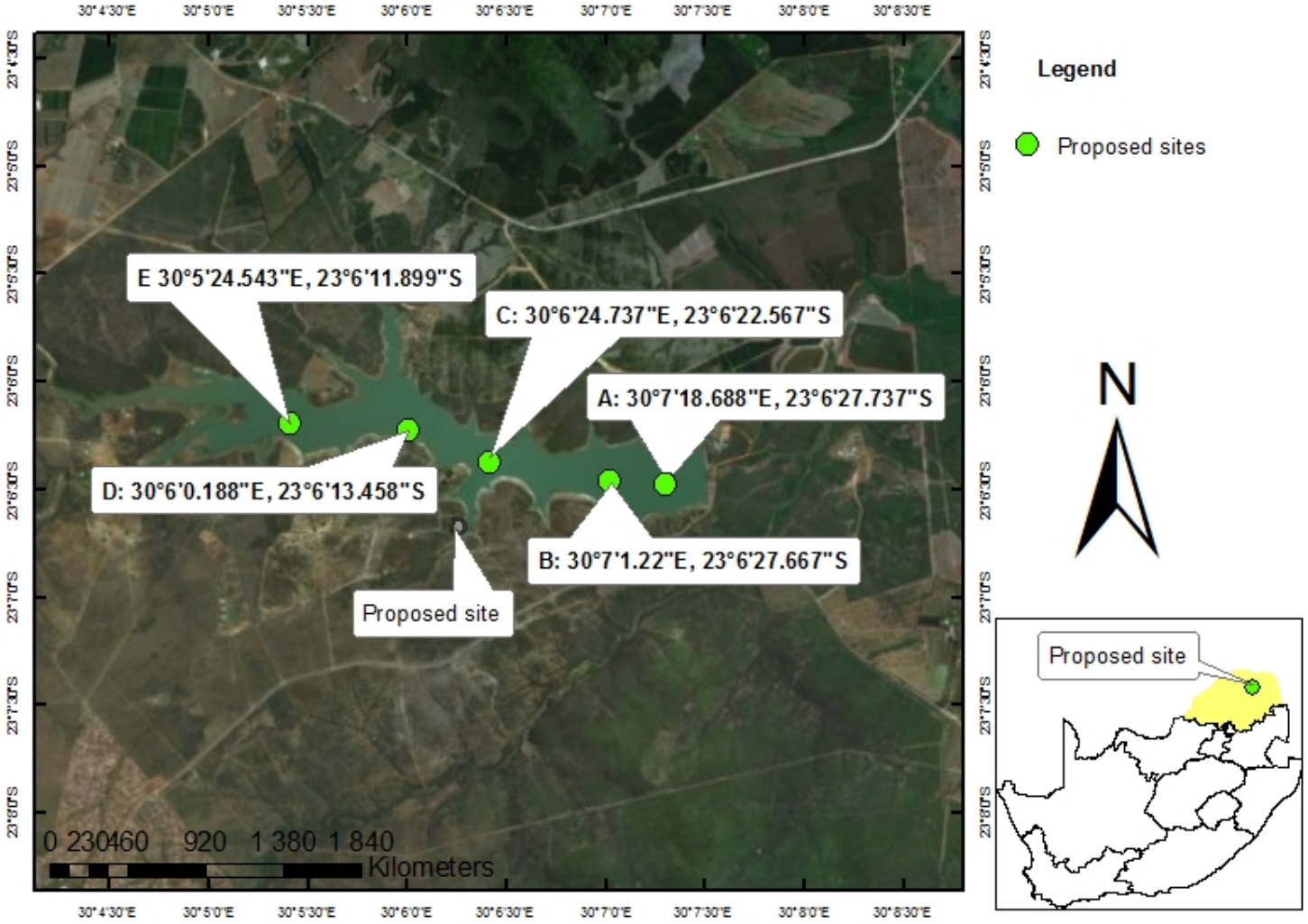
Name of company

Date

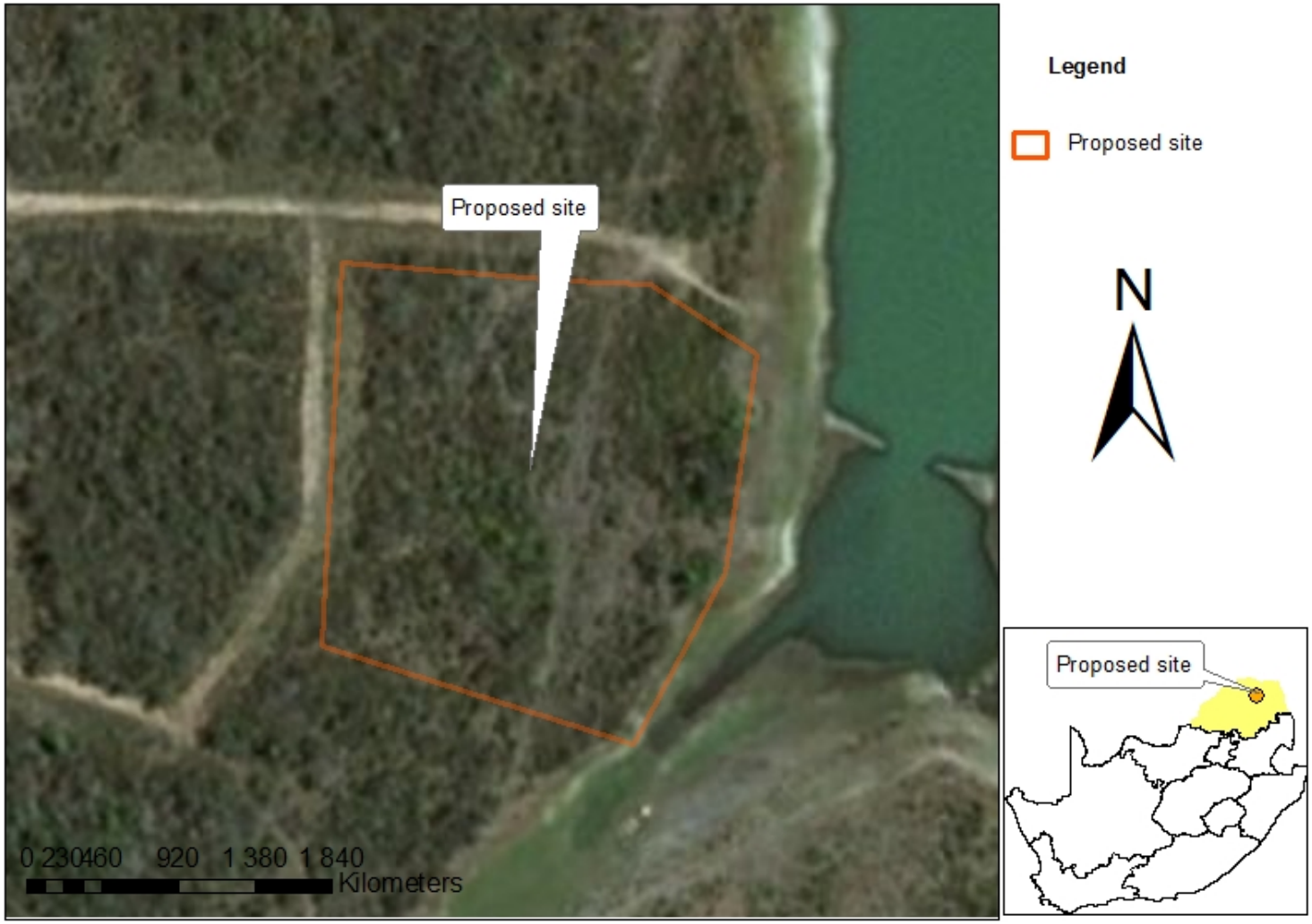
BASIC ASSESSMENT REPORT

Appendix A: Site Layout Plans

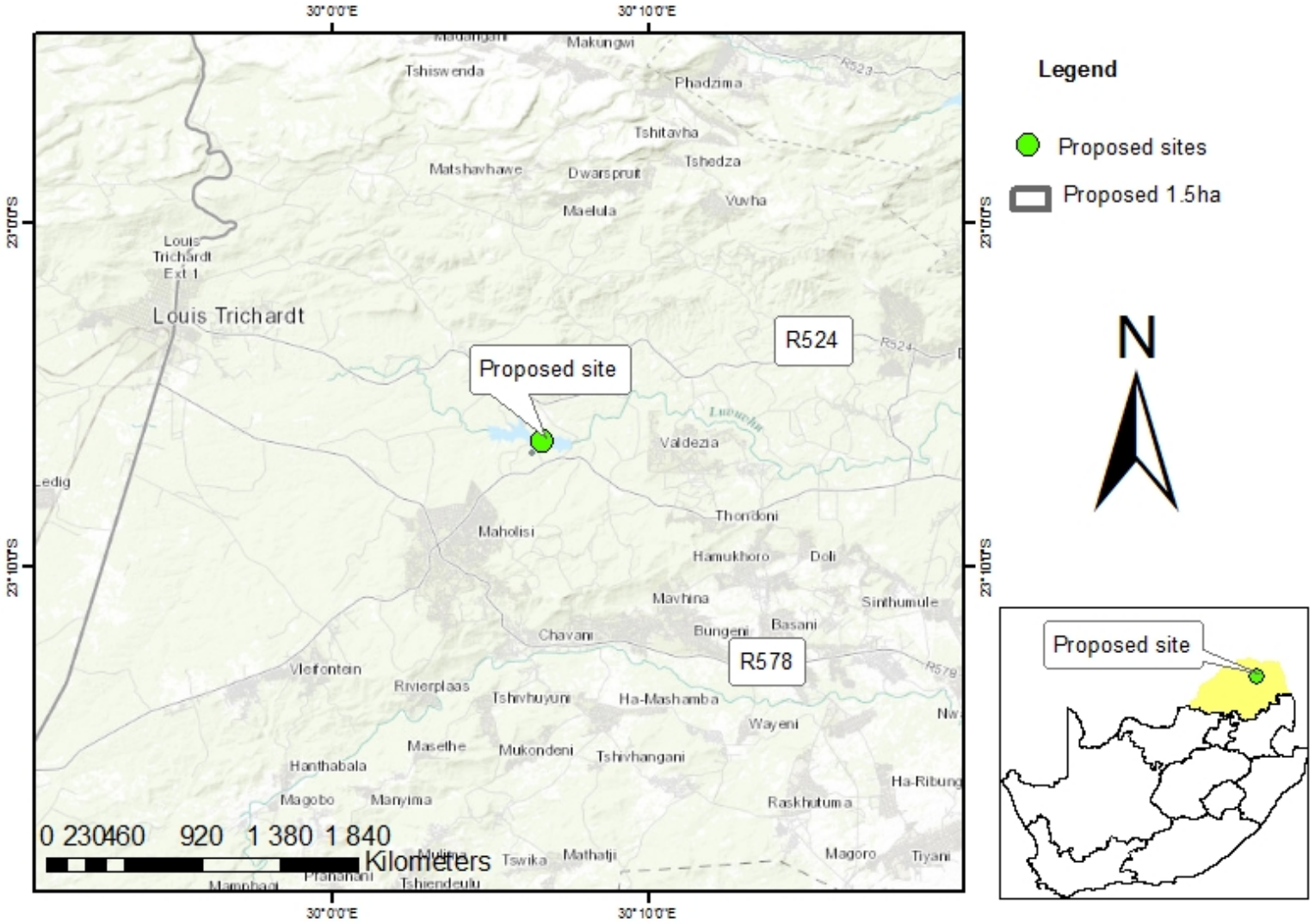
CONTENTS



Map 1: Makwaria Holding Locality Map.



Map 2: Makwaria Holding Locality Map



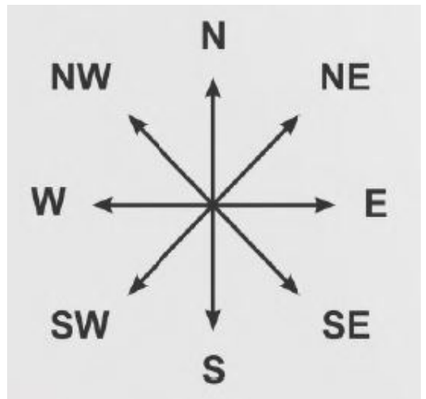
Map 3: Makwaria Holding Locality Map

BASIC ASSESSMENT REPORT

Appendix B: Photographs

CONTENTS

Site Photographs taken in the eight major compass directions

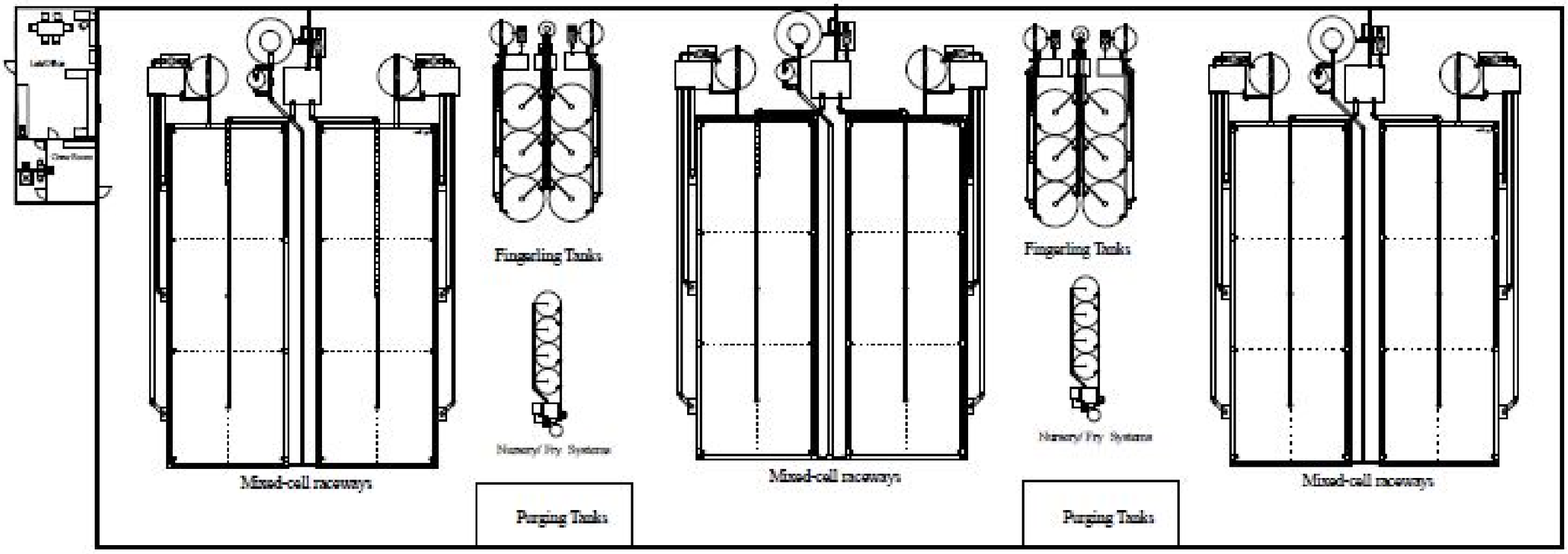


BASIC ASSESSMENT REPORT

Appendix C: Facility illustration(s)

CONTENTS

An illustration of the structure for the proposed aquaculture facility



BASIC ASSESSMENT REPORT

Appendix D:
Specialist Study

N/A

BASIC ASSESSMENT REPORT

Appendix E: Public participation information

CONTENTS

APPENDIX E1

Appendix E1: Proof of Site Notice

English, Sepedi and SeTswana Site notices placed at the entrance of the proposed expansion site

APPENDIX E1

English, Sepedi and SeTswana Site notices placed at the entrance of the proposed expansion site

APPENDIX E1

English, Sepedi and SeTswana Site notices placed at the entrance of the proposed expansion site

Contents of the Sepedi Site notice

Makwaria Fisheries
Projeke ya dihlaphi (Limpopo)

KITSISO YA TIRELO YA BASIC ASSESSMENT (BA)

Le itsisiwe gore, go ya ka melao ya Tlhatlhobo ya Tikologo (EIA), ka fa tlase ga molawana-tsamaiso 41(1) le molawana-tsamaiso 41(4), e e gatisitweng ka Gazeteng ya Mmuso ya nomoro 40772 wa 7 April, ya Molao wa Lekgotla la Taolo ya Tikologo, 1998 (Molao 107 wa 1998), gore **Makwaria Fisheries**, e batla go simolola kgwebo ya go rua dihlaphi kwa letamong Mozambique, *Oreochromis mossambicus* Tilapia aquaculture facility on Albasini Dam of Louis Trichardt Limpopo province, South Africa.

(CSIR Reference Number: CSIR/CAS/EMS/IR/2018/16199/A)

Lekgotla la Dipatlisiso tsa Saense le Indasteri (Council for Scientific & Industrial Research -CSIR), le le ikemetseng ka di tlhatlhobo tsa tikologo, le tlo laola tsaimaiso ya tlhatlhobo ya tikologo ya projekte. Projekte e tla kwadisiwa le the Limpopo Department of Economic Development, Environment and Tourism (LEDET). Tlhatlhobo ya tikologo e tlhokagala gonne e tsositse ditiro tse di latelang tsa Kitsiso ya Melao wa Mmuso(GNR) 327 le 324 ya 7 April 2017:

Kitsiso ya Mmuso	Nomoro ya Tiro
GNR 327, 7 April 2017	27
GNR 327, 7 April 2017	7
GN. R 324, 7 April 2017	12 (a) ii

Go fitlhela dikitsiso tse di amanang le projekte le tsamaiso ya tlhatlhobo ya tikologo, ikwadise jaaka mokgatlhegi le moamegi wa projekte. Ikopantshe le:

Project Manager
Ms. Karabo Mashabela
PO Box 320, Stellenbosch, 7599
Tel: 021 888 2482
Fax: 021 888 2693
Email: kmashabela1@csir.co.za

Setshwantsho 1: Mmepe o o bontshang lefelo la projeke

Contents of the SeTswana Site notice

Makwaria Fisheries
Projeke ya dihlaphi (Limpopo)

KITSISO YA TIRELO YA BASIC ASSESSMENT (BA)

Le itsisiwe gore, go ya ka melao ya Tlhatlhobo ya Tikologo (EIA), ka fa tlase ga molawana-tsamaiso 41(1) le molawana-tsamaiso 41(4), e e gatisitweng ka Gazeteng ya Mmuso ya nomoro 40772 wa 7 April, ya Molao wa Lekgotla la Taolo ya Tikologo, 1998 (Molao 107 wa 1998), gore **Makwaria Fisheries**, e batla go simolola kgwebo ya go rua dihlaphi kwa letamong Mozambique, *Oreochromis mossambicus* Tilapia aquaculture facility on Albasini Dam of Louis Trichardt Limpopo province, South Africa.

(CSIR Reference Number: CSIR/CAS/EMS/IR/2018/16199/A)

Lekgotla la Dipatlisiso tsa Saense le Indasteri (Council for Scientific & Industrial Research -CSIR), le le ikemetseng ka di tlhatlhobo tsa tikologo, le tlo laola tsaimaiso ya tlhatlhobo ya tikologo ya projekte. Projekte e tla kwadisiwa le the Limpopo Department of Economic Development, Environment and Tourism (LEDET). Tlhatlhobo ya tikologo e tlhokagala gonne e tsositse ditiro tse di latelang tsa Kitsiso ya Melao wa Mmuso(GNR) 327 le 324 ya 7 April 2017:

Kitsiso ya Mmuso	Nomoro ya Tiro
GNR 327, 7 April 2017	27
GNR 327, 7 April 2017	7
GN. R 324, 7 April 2017	12 (a) ii

Go fitlhela dikitsiso tse di amanang le projekte le tsamaiso ya tlhatlhobo ya tikologo, ikwadise jaaka mokgatlhegi le moamegi wa projekte. Ikopantshe le:

Project Manager
Ms. Karabo Mashabela
PO Box 320, Stellenbosch, 7599
Tel: 021 888 2482
Fax: 021 888 2693
Email: kmashabela1@csir.co.za

Setshwantsho 1: Mmepe o o bontshang lefelo la projeke

Appendix E2: Written notices issued as required in terms of the regulations N/A at this stage of the BA process

- *Letter sent to I&APs as part of Project Announcement*
- *Proof of email sent*
- *Postal list for mail sent: Project Announcement documents*

Appendix E3: Proof of newspaper advertisements

Comments from SAHRA: Dated 08 March 2018

Basic Assessment for the proposed Mozambique tilapia farm project Albasini Dam Elim, Louis Trichardt Limpopo Province

Our Ref: 12199

an agency of the Department of Arts and Culture

T: +27 21 462 4502 | F: +27 21 462 4509 | E: info@sahra.org.za
South African Heritage Resources Agency | 111 Harrington Street, Cape Town
P.O. Box 4637 | Cape Town | 8001
www.sahra.org.za

Enquiries: Nokukhanya Khumalo
Tel: 021 462 4502
Email: nkhumalo@sahra.org.za
CaseID: 12199

Date: Thursday March 08, 2018
Page No: 1

Response to NID (Notification of Intent to Develop)

In terms of Section 38(8) of the National Heritage Resources Act (Act 25 of 1999)

Attention: Makwaria Trading

Makwaria Trading is a small-scale start up fish farming enterprise located on Albasini Dam Elim, Louis Trichardt. There is nothing on site currently and they are proposing a less than 200 tons fish production. The proposed development will be a great socio-economic value to the fish industry in the area, to the consumer, the business, and to allow local employment opportunities, as well as contributing greatly to the farming industry of South Africa.

Makwarela Fisheries (Pty) Ltd is proposing to operate a Tilapia aquaculture facility using the Albasini Dam near Elim, in the Blouberg Local Municipality of Limpopo Province. CSIR is carrying out the Basic Assessment in support of an Environmental Authorisation. A Background Information Document (BID) has been submitted for commenting to SAHRA in terms of the National Environmental Management Act, 1998.

In terms of the National Heritage Resources Act, no 25 of 1999 (NHRA), heritage resources, including archaeological or palaeontological sites over 100 years old, graves older than 60 years, structures older than 60 years are generally protected. They may not be disturbed without a permit from the relevant heritage resources authority. In contexts of development applications, the developer must ensure that no heritage resources will be impacted by the proposed development, by lodging an application to SAHRA and submitting detailed development specifications as a notification of intent to develop. If the application is made in terms of s. 38 (8) of the NHRA then it is incumbent on the developer to ensure that a Heritage Impact Assessment (HIA) is undertaken, as s. 38(2)a does not apply. Such a study should follow the SAHRA 2007 impact assessment guidelines and section 38(3).

The BID does not contain a detailed description about the project, although most of the development will be in the Albasini Dam, all land construction activity areas must be assessed for any heritage resources. The proposed development area is in a highly sensitive heritage landscape, therefore SAHRA requires a Heritage Impact Assessment that is carried out by a suitably qualified archaeologist. As the development is located in palaeontological insignificant location, SAHRA exempts the development from undertaking an assessment on palaeontological resources.

SAHRA will provide further comments on the case once the above requested documents are submitted.

Basic Assessment for the proposed Mozambique tilapia farm project Albasini Dam Elim, Louis Trichardt Limpopo Province

Our Ref: 12199

an agency of the Department of Arts and Culture

T: +27 21 462 4502 | F: +27 21 462 4509 | E: nkhumalo@sahra.org.za
South African Heritage Resources Agency | 111 Harrington Street, Cape Town
P.O. Box 4637 | Cape Town | 8001
www.sahra.org.za

Enquiries: Nokukhanya Khumalo
Tel: 021 462 4502
Email: nkhumalo@sahra.org.za
CaseID: 12199

Date: Thursday March 08, 2018
Page No: 2

Should you have any further queries, please contact the designated official using the case number quoted above in the case header.

Yours faithfully

Nokukhanya Khumalo
Heritage Officer
South African Heritage Resources Agency

Phillip Hine
Acting Manager: Archaeology, Palaeontology and Meteorites Unit
South African Heritage Resources Agency

ADMIN:
Direct URL to case: http://www.sahra.org.za/node/488232

Comments from SAHRA: Dated 12 June 2018

Basic Assessment for the proposed Mozambique tilapia farm project Albasini Dam Elim, Louis Trichardt Limpopo Province

Our Ref: 12199

an agency of the Department of Arts and Culture
T: +27 21 462 4502 | F: +27 21 462 4509 | E: nkhumalo@sahra.org.za
South African Heritage Resources Agency | 111 Harrington Street, Cape Town
P.O. Box 4637 | Cape Town | 8001
www.sahra.org.za

Enquiries: Nokukhanya Khumalo
Tel: 021 462 4502
Email: nkhumalo@sahra.org.za
CaseID: 12199

Date: Tuesday June 12, 2018
Page No: 1

Final Comment

In terms of Section 38(8), 38(4) of the National Heritage Resources Act (Act 25 of 1999)

Attention: Makwaria Trading

Makwaria Trading is a small-scale start up fish farming enterprise located on Albasini Dam Elim, Louis Trichardt. There is nothing on site currently and they are proposing a less than 200 tons fish production. The proposed development will be a great socio-economic value to the fish industry in the area, to the consumer, the business, and to allow local employment opportunities, as well as contributing greatly to the farming industry of South Africa.

Makwarela Fisheries (Pty) Ltd is proposing to construct and operate a Tilapia aquaculture facility using the Albasini Dam near Elim, in the Blouberg Local Municipality of Limpopo Province. CSIR is carrying out the Basic Assessment process in support of an Environmental Authorisation. A Background Information Document (BID) has been submitted for commenting to SAHRA in terms of the National Environmental Management Act, 1998 (NEMA), as amended.

A Heritage Impact Assessment (HIA) by Heritage Contracts and Archaeological Consulting has been submitted to SAHRA, for commenting in terms of section 38 (8) of the National Heritage Resources Act, 25 of 1999 (NHRA). Heritage Contracts and Archaeological Consulting have been appointed by CSIR on behalf of Makwaria Trading (Pty) Ltd, to survey to proposed Albasini Dam Tilapia Farm Project. SAHRA had issued a Notification of Intent to Develop (NID) letter requesting that a HIA for the project is undertaken.

Van der Walt, J., Hutton, M., and Bester, L. April 2018. Heritage Impact Assessment for the proposed Mozambique Tilapia Farm Project, Albasini Dam, Elim, Louis Trichardt Limpopo Province.

The authors undertook a field survey of the proposed Albasini Aquaculture facility and did not identify any material or sites of heritage significance. The author recommends that the project goes ahead with the implementation of a chance finds procedure.

Final Comment

SAHRA Archaeology, Palaeontology and Meteorites (APM) Unit agrees with the recommendation provided within the HIA report. The following standard conditions apply and should be included in the EMPr:

Basic Assessment for the proposed Mozambique tilapia farm project Albasini Dam Elim, Louis Trichardt Limpopo Province

Our Ref: 12199

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Enquiries: Nokukhanya Khumalo
Tel: 021 462 4502
Email: nkhumalo@sahra.org.za
CaseID: 12199

Date: Tuesday June 12, 2018
Page No: 2

If there are any new heritages resources are discovered during construction and operation phases of the proposed development, then a professional archaeologist or palaeontologist, depending on the nature of the finds, must be contracted as soon as possible to inspect the findings at the expense of the developer.

If the newly discovered heritage resources prove to be of archaeological or palaeontological significance, a Phase 2 rescue operation may be required at the expense of the developer. Mitigation will only be carried out after the archaeologist or palaeontologist obtains a permit in terms of section 35 of the NHRA (Act 25 of 1999). You may contact SAHRA APM Unit for further details: (Nokukhanya Khumalo/Phillip Hine 021 202 8652).

If any unmarked human burials are uncovered and the archaeologist called in to inspect the finds and/or the police find them to be heritage graves then mitigation may be necessary and the SAHRA Burial Grounds and Graves (BGG) Unit must be contacted for processes to follow (Mimi Seetelo 012 320 8490).

This comment must be forwarded to the Competent authority and the record of decision by the competent authority must be uploaded to this case as well as the Final BAR and its appendices.

Should you have any further queries, please contact the designated official using the case number quoted above in the case header.

Yours faithfully

Nokukhanya Khumalo
Heritage Officer
South African Heritage Resources Agency

Phillip Hine

Basic Assessment for the proposed Mozambique tilapia farm project Albasini Dam Elim, Louis Trichardt Limpopo Province

Our Ref: 12199

an agency of the Department of Arts and Culture

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Enquiries: Nokukhanya Khumalo
Tel: 021 462 4502
Email: nkhumalo@sahra.org.za
CaseID: 12199

Date: Tuesday June 12, 2018
Page No: 3

Acting Manager: Archaeology, Palaeontology and Meteorites Unit
South African Heritage Resources Agency

ADMIN:
Direct URL to case: http://www.sahra.org.za/node/488232

Terms & Conditions:

1. This approval does not exonerate the applicant from obtaining local authority approval or any other necessary approval for proposed work.
2. If any heritage resources, including graves or human remains, are encountered they must be reported to SAHRA immediately.
3. SAHRA reserves the right to request additional information as required.

Appendix E5: Minutes of any public and/or stakeholder meetings – Not Applicable

Appendix E6: Comments and Responses Report

***Please note that the comments are taken in verbatim from the comments provided by Interested and Affected Parties**

Appendix E7: Comments from I&APs on Basic Assessment (BA) Report - N/A at this stage of the BA process

ISSUES RAISED	COMMENTATOR	DATE	RESPONSE
Makwaria Trading is a small-scale start up fish farming enterprise located on Albasini Dam Elim, Louis Trichardt. There is nothing on site currently and they are proposing a less than 200 tons fish production. The proposed development will be a great socio-economic value to the fish industry in the area, to the consumer, the business, and to allow local employment opportunities, as well as contributing greatly to the farming industry of South Africa. Makwarela Fisheries (Pty) Ltd is proposing to operate a Tilapia aquaculture facility using the Albasini Dam near Elim, in the Blouberg Local Municipality of Limpopo Province. CSIR is carrying out the Basic Assessment in support of an Environmental Authorisation. A Background Information Document (BID) has been submitted for commenting to SAHRA in terms of the National Environmental Management Act, 1998. In terms of the National Heritage Resources Act, no 25 of 1999 (NHRA), heritage resources, including archaeological or palaeontological sites over 100 years old, graves older than 60 years, structures older than 60 years are generally protected. They may not be disturbed without a permit from the relevant heritage	*Nokukhanya Khumalo* *Tel: 021 462 4502* *Email: nkhumalo@sahra.org.za*	Thursday March 08, 2018	Thank you for the comments. The CSIR has contracted HCAC - Heritage Consultants to conduct the Heritage Impact Assessment as requested by SAHRA.

ISSUES RAISED	COMMENTATOR	DATE	RESPONSE
resources authority. In contexts of development applications, the developer must ensure that no heritage resources will be impacted by the proposed development, by lodging an application to SAHRA and submitting detailed development specifications as a notification of intent to develop. If the application is made in terms of s. 38 (8) of the NHRA then it is incumbent on the developer to ensure that a Heritage Impact Assessment (HIA) is undertaken, as s. 38(2)a does not apply. Such a study should follow the SAHRA 2007 impact assessment guidelines and section 38(3). The BID does not contain a detailed description about the project, although most of the development will be in the Albasini Dam, all land construction activity areas must be assessed for any heritage resources. The proposed development area is in a highly sensitive heritage landscape, therefore SAHRA requires a Heritage Impact Assessment that is carried out by a suitably qualified archaeologist. As the development is located in palaeontological insignificant location, SAHRA exempts the development from undertaking an assessment on palaeontological resources. SAHRA will provide further comments on the case once the above requested documents are submitted. Should you have any further queries, please contact the designated official using the case number quoted above in the case header. Yours faithfully			
Final Comment **In terms of Section 38(8), 38(4) of the National Heritage Resources Act (Act 25 of 1999)**	*Nokukhanya Khumalo* *Tel: 021 462 4502* *Email: nkhumalo@sahra.org.za*	Tuesday June 12, 2018	Thank you for the comments The recommendations have been included in the EMPr and the both the Draft BAR and Final BAR will be uploaded on SAHRA.

ISSUES RAISED	COMMENTATOR	DATE	RESPONSE
Attention: Makwaria Trading **Makwaria Trading is a small-scale start up fish farming enterprise located on Albasini Dam Elim, Louis Trichardt. There is nothing on site currently and they are proposing a less than 200 tons fish production. The proposed development will be a great socio-economic value to the fish industry in the area, to the consumer, the business, and to allow local employment opportunities, as well as contributing greatly to the farming industry of South Africa.** Makwarela Fisheries (Pty) Ltd is proposing to construct and operate a Tilapia aquaculture facility using the Albasini Dam near Elim, in the Blouberg Local Municipality of Limpopo Province. CSIR is carrying out the Basic Assessment process in support of an Environmental Authorisation. A Background Information Document (BID) has been submitted for commenting to SAHRA in terms of the National Environmental Management Act, 1998 (NEMA), as amended. A Heritage Impact Assessment (HIA) by Heritage Contracts and Archaeological Consulting has been submitted to SAHRA, for commenting in terms of section 38 (8) of the National Heritage Resources Act, 25 of 1999 (NHRA). Heritage Contracts and Archaeological Consulting have been appointed by CSIR on behalf of Makwaria Trading (Pty) Ltd, to survey to proposed Albasini Dam Tilapia Farm Project. SAHRA had issued a Notification of Intent to Develop (NID) letter requesting that a HIA for the project is undertaken. *Van der Walt, J., Hutton, M., and Bester, L. April 2018. Heritage Impact Assessment for the proposed*			

ISSUES RAISED	COMMENTATOR	DATE	RESPONSE
Mozambique Tilapia Farm Project, Albasini Dam, Elim, Louis Trichardt Limpopo Province. The authors undertook a field survey of the proposed Albasini Aquaculture facility and did not identify any material or sites of heritage significance. The author recommends that the project goes ahead with the implementation of a chance finds procedure. **Final Comment** SAHRA Archaeology, Palaeontology and Meteorites (APM) Unit agrees with the recommendation provided within the HIA report. The following standard conditions apply and should be included in the EMPr: If there are any new heritages resources are discovered during construction and operation phases of the proposed development, then a professional archaeologist or palaeontologist, depending on the nature of the finds, must be contracted as soon as possible to inspect the findings at the expense of the developer. If the newly discovered heritage resources prove to be of archaeological or palaeontological significance, a Phase 2 rescue operation may be required at the expense of the developer. Mitigation will only be carried out after the archaeologist or palaeontologist obtains a permit in terms of section 35 of the NHRA (Act 25 of 1999). You may contact SAHRA APM Unit for further details: (Nokukhanya Khumalo/Phillip Hine 021 202 8652). If any unmarked human burials are uncovered and the archaeologist called in to inspect the finds and/or the police find them to be heritage graves then mitigation may be necessary and the SAHRA Burial Grounds and			

ISSUES RAISED	COMMENTATOR	DATE	RESPONSE
Graves (BGG) Unit must be contacted for processes to follow (Mimi Seetelo 012 320 8490). This comment must be forwarded to the Competent authority and the record of decision by the competent authority must be uploaded to this case as well as the Final BAR and its appendices. Should you have any further queries, please contact the designated official using the case number quoted above in the case header.			

Appendix E8: Copy of the register of I&APs

Company/organization	Name	Physical Address	Phone	Postal	Cell	Email	BID + letter 1 + comment form
NATIONAL							
Department of Environmental Affairs-National	Mmatlala Rabothata						email+post
Department of Environmental Affairs-National	Sibusisiwe Hlela						email
Department of Environmental Affairs-National	Takalani Nemarude						email
Department of Rural Development and Land Reform	Bonginkosi Zulu						email+post
Department of Agriculture, Forestry and Fisheries	Mashudu Marubini						email+post
Department of Agriculture, Forestry and Fisheries	Hettie Buys					HettieB@daff.gov.za	email+post
Department of Agriculture, Forestry and Fisheries (AgriLand and Liaison Officer)	Ms Thoko Buthelezi						email+post
National Department of Water Affairs	Ms Ndileka K mohapi						email + post
National Department of Water Affairs	Namisha Muthraparsad						email + post
PROVINCIAL							
Department of Agriculture and Rural Development	Steven Mukhola						email+post
Department of Agriculture and Rural Development	Karabo Mohatla						email+post
Department of Agriculture and Rural Development	Khalele Njoni						post
Department of Agriculture and Rural Development	Phuti Matlamela						email+post
Department of Health	Albert Marumo						email+post

Company/organization	Name	Physical Address	Phone	Postal	Cell	Email	BID + letter 1 + comment form
Department of Water and Sanitation	Ms M Musekene						email+post
Department of Water and Sanitation	Ms T Rakgotho						email+post
The Provincial Heritage Resources Authority Gauteng	Maphata Ramphele						email+post
The Provincial Heritage Resources Authority Gauteng	Tebogo Molokomme						email+post
LOCAL MUNICIPALITY							
Executive Mayor	Cllr. Bongani Baloyi						email+post
Strategic planning & economic development	Cllr. G Hlongwane						*gretah@sedibeng.gov.za* ; ellenm@sedibeng.gov.za
Municipal Manager	Mr Albert De Klerk						post
LED Officer	Mr Henry Human						email+post
WARD COUNCILLORS							
Ward 24 Tshwane Councillor	Amos Matome Mampheko						email+post
CLIENT & NEIGHBOURS							
Client	Thato Ngake						email
Neighbours	Naomi du Plessis Danie du Plessis		+27 (0)16 910 3507		08370 37250 07149 14302	*Naomi.DuPlessis@nwu.ac.za danie@molto.co.za*	
Neighbours	Sean Freeman	P O BOX 1421 Henley on Klip 1962	071 911 5159			sean@livingseeds.co.za	

Company/organization	Name	Physical Address	Phone	Postal	Cell	Email	BID + letter 1 + comment form
OTHER I&APs							
WESSA	Tumi Lehabe						email
EWT	Adam Pires						email+post
EWT	Dr Harriet Davies-Mostert						email+post
Council for Geoscience	Dr Stewart Foya						email+post
Birdlife	Simon Gear						email
South African National Parks (SANParks)	Dr. Howard Hendricks						email+post
South African National Roads Agency	Victoria Bota						email
South African National Roads Agency	Khathutshelo Ramavhoya						email
AgriLand	Anneliza Collett						post
Grasslands Society of South Africa	Feyni Du Toit						post

Basic Assessment for the proposed development of aquaculture cage culture fish farm in Albasini Dam, Thulamela Local Municipality in the Vhembe District Municipality, Limpopo.

Appendix F: Environmental Management Programme (EMPr)

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CONTENTS

1 INTRODUCTION

1.1 Purpose of the Environmental Management Programme

This Environmental Management Programme (EMPr) is prepared as part of the requirements of the Environmental Impact Assessment (EIA) Regulations (April 2017, as amended) promulgated under the National Environmental Management Act (NEMA) (Act 107 of 1998, as amended). The purpose of this Environmental Management Programme (EMPr) is to ensure "good environmental practice" by taking a holistic approach to the management and mitigation of environmental impacts during the construction, operation and decommissioning phase of the proposed Aquaculture facility. This EMPr therefore sets out the methods by which proper environmental controls are to be implemented by the cage culture management. The Draft EMPr is submitted to LEDET as part of the Application for Environmental Authorisation.

This EMPr is considered to be a "live" document that can be updated as new information becomes available during the construction and operational phases, if applicable, of the proposed development. The EMPr is based largely on the findings and recommendations of the BA process. Mitigation measures are carried over from the Basic Assessment Report into the EMPr, except where they are not applicable, and additional measures added where necessary.

The EMPr identifies the following:

Construction and Operation activities that will impact on the environment;
Specifications with which the aquaculture project's management shall comply in order to protect the environment from the identified impacts; and actions that shall be taken in the event of non-compliance.

This EMPr incorporates management plans for the design, construction, operation and decommissioning phases of the project, which consist of the following components:

- **Impact**: The potential positive or negative impact of the development that needs to be enhanced, mitigated or eliminated.
- **Objectives**: The objectives necessary in order to meet the goal; these take into account the findings of the specialist studies.
- **Mitigation/Management Actions**: The actions needed to achieve the objectives, taking into consideration factors such as responsibility, methods, frequency, resources required and prioritisation.
- **Monitoring**: The key monitoring actions required to check whether the objectives are being achieved, taking into consideration responsibility, frequency, methods and reporting.

This EMPr specifies the management actions necessary to ensure minimal environmental impacts, as well as procedures for monitoring these impacts associated with the proposed activity. In terms of legal

compliance, this EMPr is designed to satisfy Appendix 4 of Government Notice Regulation 326 of 7 April 2017, as presented in Table 1 below.

This EMPr also intended to ensure that the principles of Environmental Management specified in the National Environmental Management Act are promoted during the different phases of the proposed development of aquaculture facility.

Table 1. Compliance with Appendix 4 of Government Notice Regulation 326 of 7 April 2017 and Section 24N of the National Environmental Management Act 107 of 1998.

Requirements according to Appendix 4 of GNR 326 of 7 April 2017	Section
(1) An EMPr must comply with section 24N of the Act and include- a) details of - i. the EAP who prepared the EMPr; and ii. the expertise of that EAP to prepare an EMPr, including a curriculum vitae;	Section 1.3 Appendix I
b) a detailed description of the aspects of the activity that are covered by the EMPr as identified by the project description;	Section 3
c) a map at an appropriate scale which superimposes the proposed activity, its associated structures, and infrastructure on the environmental sensitivities of the preferred site, indicating any areas that any areas that should be avoided, including buffers;	Section 3, Figures 1 and 2
d) a description of the impact management objectives, including management statements, identifying the impacts and risks that need to be avoided, managed and mitigated as identified through the environmental impact assessment process for all phases of the development including-	Section 4
(i) planning and design;	Section 4
(ii) pre-construction activities;	Section 4
(iii) construction activities;	Section 4
(iv) rehabilitation of the environment after construction and where applicable post closure; and	Section 4
(v) where relevant, operation activities;	Section 4
e) a description and identification of impact management outcomes required for the aspects contemplated in paragraph (d);	Section 4
f) a description of proposed impact management actions, identifying the manner in which the impact management objectives and outcomes contemplated in paragraphs (d) and (e) will be achieved, and must, where applicable, include actions to – i) avoid, modify, remedy, control or stop any action, activity or process which causes pollution or environmental degradation;	Section 4
ii) comply with any prescribed environmental management standards or practices;	Section 4
iii) comply with any applicable provisions of the Act regarding closure, where applicable; and	N/A
iv) comply with any provisions of the Act regarding financial provisions for rehabilitation, where applicable;	N/A
g) the method of monitoring the implementation of the impact management actions contemplated in paragraph (f);	Section 4

Requirements according to Appendix 4 of GNR 326 of 7 April 2017	Section
h) frequency of monitoring the implementation of the impact management actions contemplated in paragraph (f);	Section 4
i) an indication of the persons who will be responsible for the implementation of the impact management actions;	Section 4
j) the time periods within which the impact management actions contemplated in paragraph (f) must be implemented;	Section 4
k) the mechanism for monitoring compliance with the impact management actions contemplated in paragraph (f);	Section 4
l) a program for reporting on compliance, taking into account the requirements as prescribed by the Regulations;	Section 4
m) an environmental awareness plan describing the manner in which- (i) the applicant intends to inform his or her employees of any environmental risk which may result from their work; and (ii) risks must be dealt with in order to avoid pollution or the degradation of the environment; and	Section 4
n) any specific information that may be required by the competent authority.	N/A

1.2 Environmental Assessment Practitioner

The Environmental Assessment Practitioners (EAPs) who prepared this EMPr are from the Environmental Management Services (EMS) group of the Council for Scientific and Industrial Research (CSIR). The CSIR is amongst the largest multi-disciplinary research and development organizations in Africa, which undertakes applied research and development for implementation across the continent, as well as providing consulting services to industry, government and international agencies. It is one of the leading organisations in South Africa contributing to the development and implementation of environmental assessment and management methodologies and sustainability science.

This EMPr is prepared by the following EAPs at CSIR:

2 ROLES AND RESPONSIBILITIES

For the purposes of this EMPr, the following roles and responsibilities have been identified:

- Farm Manager (acting on behalf of the project developer, Makwaria (Pty) Ltd);
- The Contractor(s); and Environmental Control Officer.

2.1 Farm Manager

The Farm Manager is designated as overall responsible on behalf of Makwaria (Pty) Ltd to oversee the construction, operational and decommissioning aspects of this tilapia aquaculture project and to make sure that the EMPr is implemented and the conditions of Environmental Authorisation are adhered to throughout the project lifecycle. He/she will also be responsible for rehabilitation of disturbed areas during construction. The Farm Manager will have a team supporting him/her in this role.

Note that in the *Initial Planning and Design phase* of the project, the Farm Manager may not have been appointed and therefore the EMPr makes direct mention of Makwaria (Pty) Ltd as being responsible for actions in this phase.

2.2 The Contractor(s)

The Contractors are the persons or companies appointed to undertake construction or decommissioning of this aquaculture project. The Contractor(s) will be responsible for the overall construction and decommissioning activities on site and compliance with all conditions of authorization as well as drafting the Method Statements that are required as part of the EMPr in order to protect environmental resources, minimise pollution and to rehabilitate disturbed areas and its implementation thereof.

2.3 Environmental Control Officer (ECO)

The Environmental Control Officer will be part of the project staff and will advise the Contractor on all environmental matters relating to the works, in terms of this EMPr. The Environmental Control Officer will also be responsible for monitoring construction activities on site to also ensure that all the recommendations of the EMPr are adhered to during construction phase. He/she will also be responsible for the implementation of the EMPr on site during the operations phase. The ECO can be an internal staff member of the Contractor assigned to the project. Given the phased development of this tilapia farming project, the ECO may simultaneously be overseeing the construction and operations phases of the project.

3 PROJECT DESCRIPTION

Makwaria fisheries (Pty) Ltd is proposing to establish a Aquaculture facility on Albasini dam. The property is located within farm portion 15 of land parcel 8 of the major region LT. The proposed project is also proposing 1.5ha of land for the on shore facilities related to the fish farm (for the workers unit, storage and fish harvesting) at the Albasini dam. The Albasini dam is located 8 km north-east of Elim outside the town of Louis Trichardt Limpopo province, South Africa. The dam has a capacity of 28200 m3. The current water level is 750.8m with the surface area of 3.498km2 and the dam wall of 34 mm in height. The proposed dam depth varies from 2m to 20m, based on the geotechnical survey conducted by GEOLAND surveys/ Opmetings on the 6 March 2018.

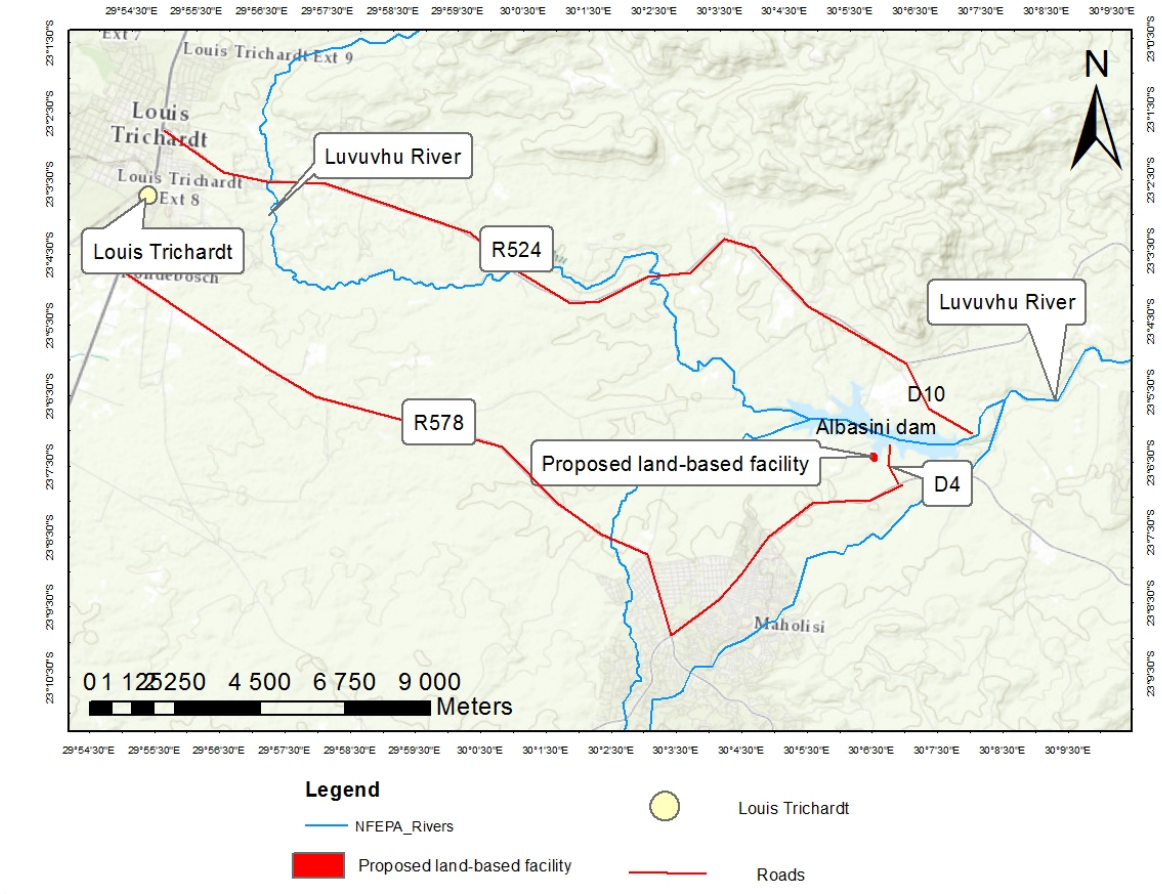

Figure 1: Regional locality of the proposed aquaculture facility

3.1 Technology choice and water management

Cage culture is a system that confines the fish or shellfish in a mesh enclosure. In cage culture fish utilise the existing water resources but encloses the fish in a cage which allows water to pass freely. Cage culture typically involves floating structures made of steel, wood and plastic which is developed into the floating, flexible, plastic circle design cages most commonly used globally (DAFF, 2012b). Finfish cage culture types include nearshore gravity net cages or pens, and open water floating, submersible and/or semi-submersible cages.

3.2 Proposed project components and layout

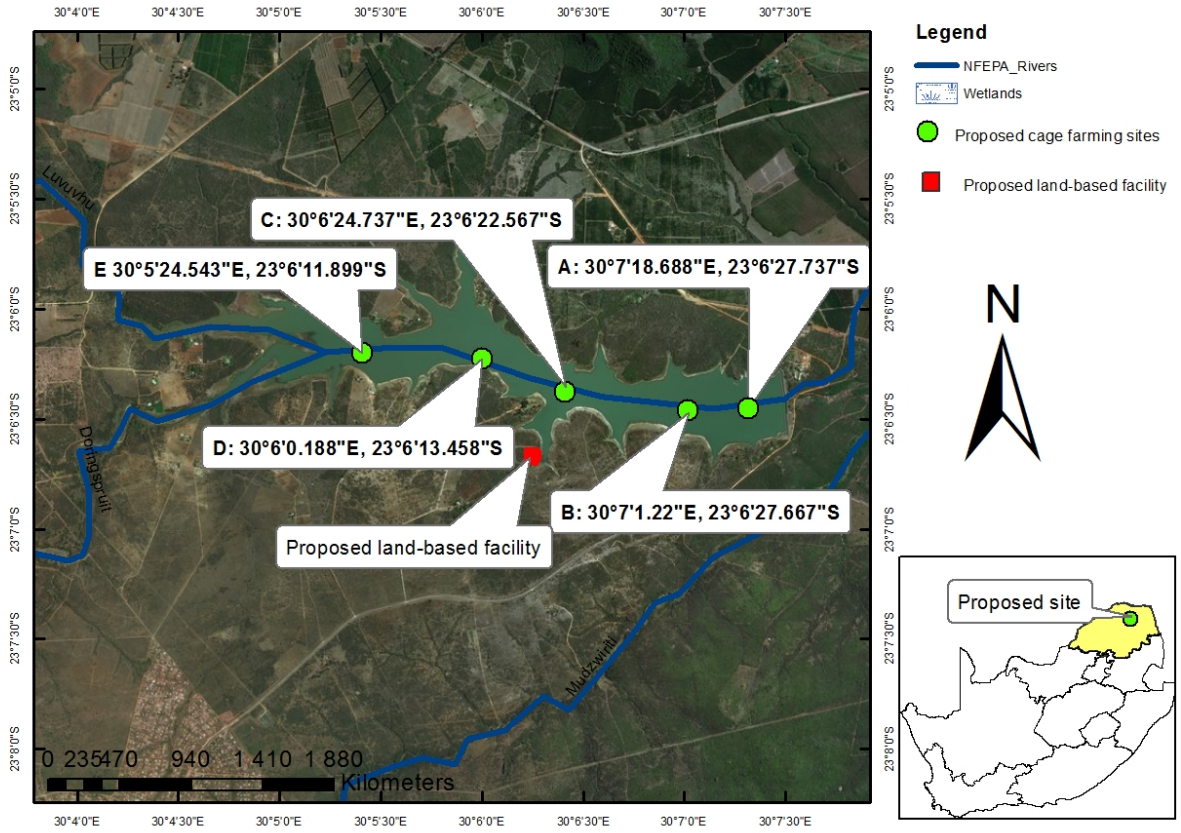

Figure 2: Layout plan for the proposed aquaculture facility

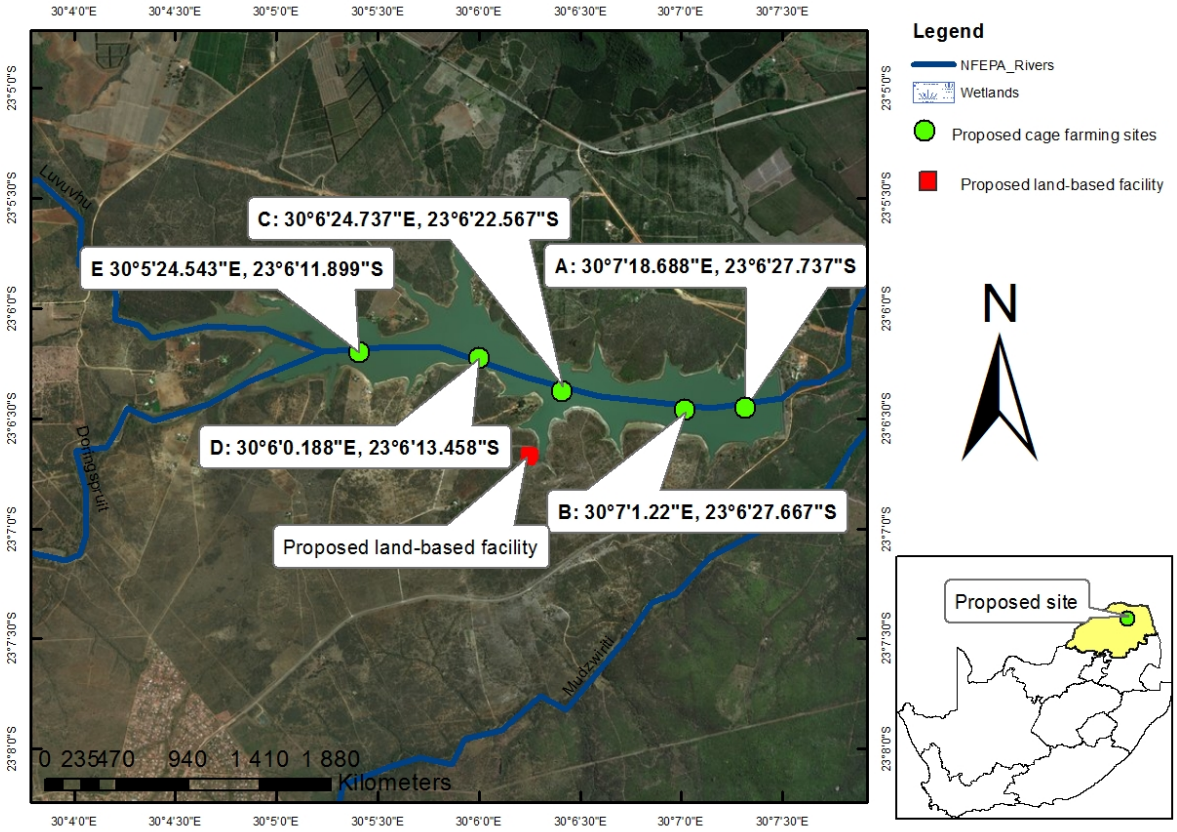

Figure 3: Layout plan for the proposed aquaculture facility

3.3 Identification of "no go" areas and avoidance of sensitive areas and buffers

There are no specific "no go" areas on the site that need to be avoided, based on environmental sensitivities or other factors. This was confirmed in the BA Report that included specialist studies on freshwater and aquatic ecological assessment and terrestrial ecological scan Scientific Aquatic Services CC and on heritage by Heritage Contracts and Archaeological Consulting CC. The sensitivity mapping in the BA Report also reviewed the SANBI BGIS database and the National Freshwater Ecosystem Priority Areas (NFEPA) database and confirmed that there are no sensitivities on site from these databases that need to be avoided.

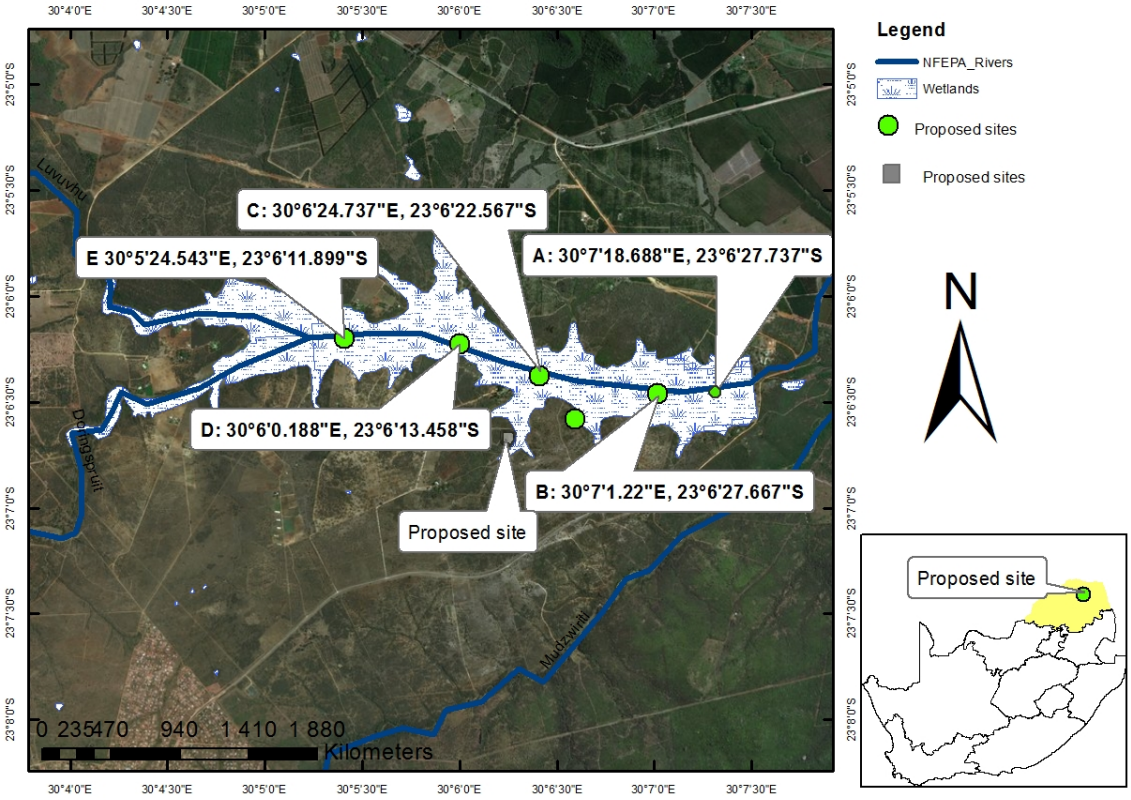

Figure 4: Layout of the proposed development with sensitivities

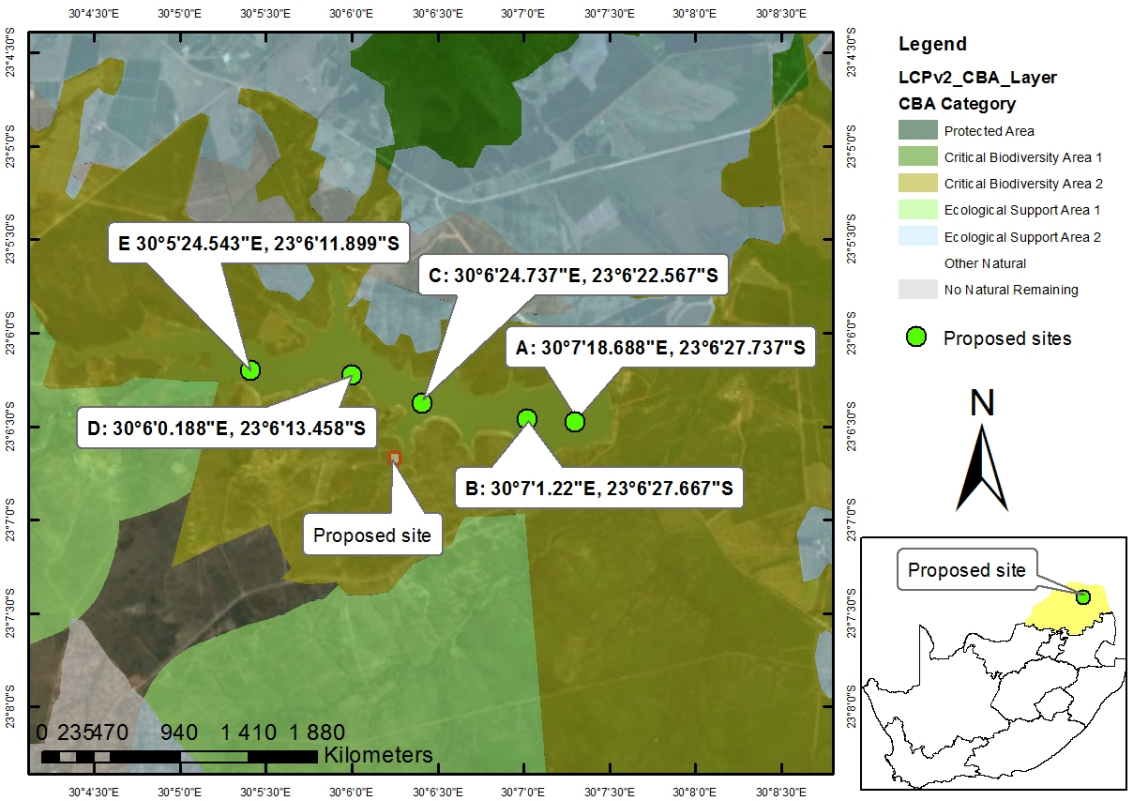

Figure 5: Layout of the proposed development with sensitivities

3.4 Technical operational management aspects of this project

Additional information on key technical operational management aspects is included in the EMPr. These are:

- Aquaculture day-to-day water quality management plan, with reference to the South African Water Quality Guidelines for Agricultural Use.
- Electrical conductivity (EC)/Total Dissolved Solids (TDS) concentrations should not be changed by > 15 % from the normal cycles of the water body under unimpacted conditions at any time of the year, and the amplitude and frequency of natural cycles in EC/TDS concentrations should not be changed;
- pH values should not be allowed to vary from the range of the background pH values for a specific site and time of day, by > 0.5 of a pH unit, or by > 5 %, and should be assessed by whichever estimate is the more conservative.
- Dissolved Oxygen (DO) concentration should be 80% to 120% of saturation. In addition, for the purposes of this report, any spatial or temporal change exceeding 15% will be considered significant.

Water quality is the most important aspect of the day-to-day management of the aquaculture facility and requires constant monitoring. Dissolved oxygen (DO) is one of the most important parameters in fish farming in cold water, where there is much more oxygen available for the fish to consume than in warm water. Thus farming fish in warm water, as for tilapia, requires even more intense oxygen monitoring and control than farming in cold water. Cages should be moved about 300ft at least once each growing season to protect sediment quality and also the cages should be designed to allow detection or observation of uneaten feed falling through the mesh and to prevent accumulation of this waste on the bottom of the waterbody

Cage culture operation Practices

- Cages should be designed to allow detection or observation of uneaten feed falling through the mesh and to prevent accumulation of this waste on the bottom of the waterbody.
- When cages are removed from the pond for cleaning onshore, the debris removed from cages is not allowed to discharge directly into State waters
- Dead fish should be removed promptly from cages and disposed by sanitary methods

4 ENVIRONMENTAL MANAGEMENT PROGRAMME, INCLUDING MANAGEMENT OBJECTIVES, MANAGEMENT OUTCOMES, MANAGEMENT ACTIONS AND MONITORING

The EMPr is provided for the following phases of the project: Pertaining to dam based and land based cage culture

- Design and planning phase
- Construction phase
- Operational phase
- Decommissioning phase.

4.1 Management objectives and actions for the Design and Planning Phase

No.	Impact management objectives and outcomes	Management actions	Methodology to achieve the management actions	Monitoring method & frequency	Responsibility
Land-based					
1.	Minimise the risk of introduction and/or proliferation of alien plant and animal species on site, with the planned rehabilitation focused on indigenous plant species.	▪ Prepare a site rehabilitation plan as part of the planning for the construction phase that includes establishment of indigenous vegetation.	▪ Include the need for a site rehabilitation plan using indigenous vegetation as part of the construction tender documents to contractors, to ensure this is part of the construction phase planning.	Check site rehabilitation plan is included as Contractual requirement	Makwaria (Pty) Ltd
2.	Contractors understand and plan for the Construction management actions, in order to meet the EMPr requirements.	▪ Project developer conveys the construction management requirements to the Contractors	▪ Ensure that Contractors incorporate the Construction management actions into their project proposals and contracts, such as the designation of areas for specific activities, good house-keeping requirements, waste recycling, pest management, etc.	Check contract documents with Contractors	Makwaria (Pty) Ltd
3.	ECO appointed to oversee Construction phase	▪ Appoint an ECO	▪ Advertise for and source a suitably qualified ECO, including preparation of a monthly site monitoring checklist to be used by the ECO.	Appointment of ECO to be finalised before start of Construction	Makwaria (Pty) Ltd
4.	Water quality monitoring plan (temperature, pH, dissolved oxygen, ammonia, nitrite at a minimum) with cages	▪ Appoint an ECO	▪ Ensure the water quality is in line with the South African water quality guidelines	Appointment of ECO to be finalised before start of Construction	Makwaria (Pty) Ltd

4.2 Management objectives and actions for the Construction Phase

No.	Impact management objectives and outcomes	Management actions	Methodology to achieve the management actions	Monitoring method & frequency	Responsibility
Land-based					
1.	Ensure the development footprint of the land-based boat station is limited to the allocated 1.5 hectares adjacent to the dam. This will limit impacts on any flora and fauna of conservation importance or of medicinal value.	▪ Demarcate construction area clearly and ensure that vehicle access is limited to this zone.	▪ Demarcate the site using hazard tape and clearly specify the access route for vehicles.	Start of construction	Farm Manager
2.	Construction activities should be limited to designated areas to reduce environmental risks.	▪ Designate areas on site for specified activities.	▪ Designate areas on site for specified activities, such as storage of topsoil, temporary storage and sorting of general waste, parking for vehicles, storage of construction materials, washing of vehicles, etc.	Start of construction	Farm Manager
3.	Good house-keeping applied on site during construction	▪ Good house-keeping actions are specified for all Contractors on site	▪ Good house-keeping actions are specified for all Contractors on site, such as keeping construction activities neat and tidy, vehicles and machinery to be properly serviced to reduce noise and atmospheric emissions, waste skips to be clearly labelled, contractors to wear adequate Personal	Monthly, using the site monitoring checklist	ECO

No.	Impact management objectives and outcomes	Management actions	Methodology to achieve the management actions	Monitoring method & frequency	Responsibility
			Protective Equipment (PPE), pest management, etc.		
4.	Avoid pollution of the surrounding environment as a result of the handling, temporary storage and disposal of general solid waste. (No hazardous waste storage has been identified as part of the construction phase).	▪ Reduce risk of soil and groundwater contamination as a result of incorrect storage, handling and disposal of general waste.	▪ General waste and hazardous waste should be stored temporarily on site in suitable (and correctly labelled) waste collection bins and skips (or similar). Waste collection bins and skips should be covered with suitable material, where appropriate. ▪ Should the on-site storage of general waste and hazardous waste exceed 100 m3 and 80 m3 respectively, then the National Norms and Standards for the Storage of Waste (published on 29 November 2013 under Government Notice 926) must be adhered to. ▪ Ensure that the construction site is kept clean at all times and that construction personnel are made aware of correct waste disposal methods. ▪ Ensure that sufficient general waste	Monthly, using the site monitoring checklist	ECO

No.	Impact management objectives and outcomes	Management actions	Methodology to achieve the management actions	Monitoring method & frequency	Responsibility
			disposal bins are provided for all construction personnel throughout the site. These bins must be emptied on a regular basis. ▪ No solid waste may be burned on site. ▪ The Contractor should provide adequate waste skips (or similar) on site and the Construction Contract should specify that the Contractor must be responsible for the correct disposal of the contents of the waste skips. ▪ All construction waste (including rubble) should be frequently removed from site and correctly disposed using a licensed municipal landfill site ▪ Establish appropriate emergency procedures for accidental contamination of the surroundings. Waste recycling should be incorporated into the facility's operations as far as possible.		

No.	Impact management objectives and outcomes	Management actions	Methodology to achieve the management actions	Monitoring method & frequency	Responsibility
5.	Rehabilitation of the sites makes use of indigenous vegetation and top soil from the site, to enhance retention of natural seed-bank in the soil and minimise the risk of introducing alien plants.	▪ Implement the rehabilitation plan for the construction phase.	▪ Topsoil from excavations is to be stockpiled on site and used in subsequent rehabilitation, and may also contain an indigenous seed bank. Rehabilitation and planting to use indigenous and water-wise species.	Monthly, using the site monitoring checklist	ECO
6.	Minimise dust impact from construction vehicles, especially during winter when the soil is dry.	▪ Apply dust abatement measures	▪ Use dust abatement measures such as spraying water on the road (if sufficient water is available), or adding mulch to soil, or use of soil-binding sprays or applications. Construction vehicles travelling on unpaved roads to not exceed a speed of 40 km/hour.	Monthly, using the site monitoring checklist	ECO
7.	Minimise the visual impact of the construction phase on surrounding residents and on local fauna	▪ Apply standard visual impact mitigation for construction projects	▪ Apply standard visual impact mitigation for construction projects, such as limiting construction activities to day time hours, minimising security and construction lighting, minimise dust impacts from vehicles, etc.	Monthly, using the site monitoring checklist	ECO
8.	Prevent disturbance to and damage to heritage artefacts, should any be found on site during construction.	▪ Prevent damage and destruction to fossils,	▪ The construction workers must be briefed on the potential uncovering	Monthly, using the site monitoring checklist	ECO

No.	Impact management objectives and outcomes	Management actions	Methodology to achieve the management actions	Monitoring method & frequency	Responsibility
		artefacts and materials of heritage significance.	of heritage features and what actions are then required. If artefacts of heritage significance are discovered, the activities in that area must cease and the South African Heritage Resources Agency (SAHRA) must be immediately contacted.		
9.	Maximise the socio-economic benefits from employment creation and skills development during the construction phase, which is expected to give rise to approximately 6-12 temporary new jobs.	▪ Maximise local employment and local business opportunities to promote and improve the local economy.	▪ Enhance the use of local labour and local skills as far as reasonably possible. Where the required skills do not occur locally, and where appropriate and applicable, ensure that relevant local individuals are trained.	Specify local requirements in tender documents and review during the construction phase	Farm Manager
Water-based					
1.	Environmental criteria for organisms	▪ Cage sites must have good water quality appropriate temperature, salinity and dissolved oxygen (DO) necessary for the cultured species.	▪ Workers must be effectively trained to monitor the farm daily.	Daily using the site monitoring checklist	Farm Manager
2.	Grid system installation	▪ Cages must be installed by	▪ The construction workers must	Daily using the site monitoring checklist	ECO

No.	Impact management objectives and outcomes	Management actions	Methodology to achieve the management actions	Monitoring method & frequency	Responsibility
		qualified expect. ▪ All the farm components, equipment, gear and necessary materials will be stocked in this area, where one may work more readily than on a boat or underwater. Cage components need to be assembled on land, and they require a great deal of space. ▪ Avoid the risk of netting failure to prevent fish from escaping an additional internal net panel (identified as a reinforcing panel) can be added to the cage near the base rope.	calculate the volume in order to understand the stocking density and water exchange rates. The volume depends on the shape of the object. ▪ All the shackles are properly locked and their split-pins are present. ▪ The ropes do not show any fraying or other abrasion, and are not excessively colonized by biofouling organisms.		
3.	Nets	▪ Cover the open top of the cage with a bird net to prevent bird birds predation. ▪ No abrasion or damage is visible on the nets or ropes. ▪ Nets are not excessively	▪ Monitor the lines anchor make sure it is upright and properly embedded. ▪ The rope connecting the chain to the plate (or ring) must not show any abrasion and is not excessively	Daily	ECO

No.	Impact management objectives and outcomes	Management actions	Methodology to achieve the management actions	Monitoring method & frequency	Responsibility
		clogged by biofouling organisms. ▪ The nets are well installed and the attachment ropes are not worn or excessively fouled and are functioning properly ▪ Additional diagonal cross ropes may be added for strength.	colonized by biofouling organisms.		
4.	Fish feeding	▪ Feed must be stored in a warehouse, where the following characteristics should be ensured: ▪ Warehouse should be dedicated exclusively to feed storage. ▪ Low humidity (feed must be kept dry). ▪ Temperatures should not exceed 40 °C. ▪ Pest-free. All surfaces must be cleanable. ▪ Entry restricted to authorized			

No.	Impact management objectives and outcomes	Management actions	Methodology to achieve the management actions	Monitoring method & frequency	Responsibility
		staff only.			

4.3 Management objectives and actions for the Operational Phase

No.	Impact management objectives and outcomes	Management actions	Methodology to achieve the management actions	Monitoring method & frequency	Responsibility
Land-based					
1.	Maintain site using indigenous vegetation	▪ Limit risk of alien vegetation spreading on site	▪ Plant only locally indigenous flora if landscaping needs to be done	Throughout Operation	Farm Manager and ECO
Water-based					
2.	Water quality management must be conducted effectively to avoid impacts on the fish as well as the receiving environment.	▪ Water quality management to be implemented as crucial to successful ongoing operations	▪ Educate workers regarding the handling of hazardous substances and about waste management and emergency procedures with regular training and notices and talks. ▪ Establish appropriate emergency procedures for accidental contamination of the surroundings from waste-water spills.	Conduct daily water quality monitoring using the Operational phase monitoring checklist.	Farm Manager or ECO
3.	Avoid impacts on biosecurity and transmission of diseases.	▪ Prevent the attraction of pests and animals carrying	▪ Fish mortalities must be identified and removed immediately from	Use the Operational monitoring checklist.	ECO

No.	Impact management objectives and outcomes	Management actions	Methodology to achieve the management actions	Monitoring method & frequency	Responsibility
		infectious diseases and ensure the containment of disease outbreaks if the occur. ▪ Prior to the purchase and stocking of any organisms, the disease and parasitic status and risk of the species must be investigated in context to the area from which it originates, the area to which it will be taken and the degree to which any potential disease may pose a threat to the surrounding environment. The introduction of aquaculture organisms require specific veterinary assessments, treatments and quarantine measures.	tanks. ▪ Workers must be effectively trained to handle sick and dead fish. ▪ Emergency procedures that aim to address the potential for disease outbreaks must be developed and implemented where applicable ▪ Eggs or fish stocked in the facility must be disease free and preferably from a certified disease free strain ▪ Water used must be disease free or sterilised before going into the system ▪ No visitors or stuff should enter the farm sick. ▪ Aquaculture operators/farm manager should monitor the health status of aquaculture organisms as part of the daily operational activities. This includes behavioural monitoring, sampling, diagnostic dissection, microscopic investigation	Conduct monthly for first two years of operation, and thereafter quarterly.	
4.	Apply effective pest control measures to minimise spread of pests and associated disease risks.	▪ Prevent, detect and control pest infestations before they	▪ Ensure that there is effective storm water drainage around the facility	Quarterly using the Operational monitoring checklist.	Farm Manager

No.	Impact management objectives and outcomes	Management actions	Methodology to achieve the management actions	Monitoring method & frequency	Responsibility
		become a problem, through frequent and careful cleaning, monitoring and control. ▪ If a disease breakout occurs, production systems should be isolated from each other and the surrounding environment. A qualified aquaculture pathologist should be consulted to assist with further management inputs and treatments.	▪ Ensure that the facility is sufficiently ventilated to keep floors and feedstock as dry as possible. ▪ Clean floors regularly, removing any excess feed, excrement etc. ▪ Remove all trash, and sources of feed and water for pests from the outside perimeter of the facilities. ▪ Control rodents through effective sanitation. ▪ Ensure that measures to control pests are tightly restricted to areas where these are problematic. Pest control measures should be taxon-specific. If necessary, advice should be sought from an appropriate specialist.	It is advisable that a health assessment be conducted on aquaculture facilities by an aquaculture pathologist, at least twice a year. The assessment should be diagnostic, with recommendations of treatments or management of any diseases or parasites. The following practices can be implemented to reduce the risk of aquaculture disease: ▪ Screening or quarantine of brood stock for known pathogens and parasites. ▪ Appropriate treatment of brood stock prior to entering the hatchery environment.	

No.	Impact management objectives and outcomes	Management actions	Methodology to achieve the management actions	Monitoring method & frequency	Responsibility
				▪ Isolation of production sectors with independent water supplies and equipment. ▪ Installation and use of foot baths and hand washing facilities for employees. ▪ Regular disinfection of equipment and working areas. ▪ Restrictions on access to foreign vehicles and people. ▪ Management of bird and predator populations that could be disease carries. ▪ Minimising the potential for disease vector hosts to enter the aquaculture system.	
5.	Minimise the visual impact of the	▪ Apply standard visual impact	▪ Apply standard visual impact	Monthly, using the site	ECO

No.	Impact management objectives and outcomes	Management actions	Methodology to achieve the management actions	Monitoring method & frequency	Responsibility
	operations phase on surrounding residents and on local fauna	mitigation for agricultural operations	mitigation for the operation of agricultural projects, such as minimising security and construction lighting, ensure that all outdoor lights are angled downwards and/or fitted with hoods, etc. ▪ Where possible, using timer switches or motion detectors to control lighting in areas that are not occupied continuously (if permissible and in line with minimum security requirements). ▪ Switching off lights when not in use in line with safety and security.	monitoring checklist	
7	Maximise the socio-economic benefits from employment creation and skills development during the operations phase, which is expected to give rise to approximately 24 jobs.	▪ Maximise local employment and local business opportunities to promote and improve the local economy.	▪ Enhance the use of local labour and local skills as far as reasonably possible. Where the required skills do not occur locally, and where appropriate and applicable, ensure that relevant local individuals are trained.	Annual review of employee profile and employment & training opportunities provided to people from the local area.	Farm Manager
6.	Effective monitoring protocol to ensure that net integrities and supporting infrastructure are maintained.	▪ Regularly monitor the net	▪ Ensure that net is secured appropriately and there is regular inspection	Daily	Farm Manager

No.	Impact management objectives and outcomes	Management actions	Methodology to achieve the management actions	Monitoring method & frequency	Responsibility
7.	Ensure mortalities are quickly removed to minimise contamination and fluxed in the waste production	▪ Apply standard on fish mortality management	▪ Minimise waste production and disease transfer ▪ If mortalities are detected the behaviour of the remaining stock must be monitored carefully. If large numbers die, the first step is to check the physical and chemical characteristics of the water (e.g. temperature, pH, oxygen content, etc.) and implement the necessary corrective measures. Failing the detection of any adverse water conditions, a recognised aquaculture pathologist should be consulted. ▪ Orderly notes must be kept of the numbers of dead organisms and the behavioural patterns of the population as a whole. ▪ If large numbers die, the cause of death must be determined before disposal. In this case the dead organisms can be disposed of by incineration if done responsibly, safely and with prior notification to	Daily	Farm Manager

No.	Impact management objectives and outcomes	Management actions	Methodology to achieve the management actions	Monitoring method & frequency	Responsibility
			local and district authorities and surrounding landowners. Certain local and district authorities also have facilities for the disposal of such organic matter.		
8.	Ensure feed waste is limited (i.e. prevent overfeeding by maximising the feed conversion ratio of cultured fish).	▪ Feed types and feeding rates should be recorded daily so that conversion efficiency can be calculated and monitored	▪ Minimise waste	Daily	Farm Manager
9.	Ensure chemicals, antibiotics, antifoulants and hormones are registered. Monitor the caged fish daily during feeding to ensure a healthy fish stock and limit fish waste by preventing overfeeding as it maximise the feed conservation ratio.	▪ Maintenance of water quality and aquatic environment	▪ Maintain health of cultured stock	Daily	ECO
10.	Visual observations must be undertaken beneath each cage to assess the extent of pellet and faecal deposition beneath the cages.	▪ Regularly check the cages ▪ Fallowing which entails moving of the cages within the farm footprint	▪ Waste and organic pollution of water column and sediments must be minimised	Daily	ECO
11.	Moving and harvesting must be done in a manner that causes the least possible stress or injury and which eliminates the potential of escape.	▪ Moving and harvesting equipment and techniques should not cause unnecessary injury and stress and should be adequate to	▪ Harvesting and killing must be done by the most humane method possible. ▪ When fish are graded and moved on a cage culture system, netting	Daily	ECO

No.	Impact management objectives and outcomes	Management actions	Methodology to achieve the management actions	Monitoring method & frequency	Responsibility
		prevent escape	should be placed between the working surface and the cage net to prevent the escape of any fish that are accidentally dropped during handling.		

4.4 Management objectives and actions for the Decommissioning Phase

No.	Impact management objectives and outcomes	Management actions	Methodology to achieve the management actions	Monitoring method & frequency	Responsibility
1.	Conduct decommissioning in accordance with legislated requirements applicable at the time.	▪ Identify applicable legal requirements	▪ Identify applicable legal requirements for site clearing and clean-up at the time of decommissioning.	To be determined	Farm Manager
2.	Prevent proliferation of alien invasive plant and animal species	▪ By law, remove and dispose of Category 1b alien species on site. All Category 2 species that remain on site must require a permit.	▪ Remove Category 1b alien species that may have appeared on site using mechanical methods and minimise soil disturbance as far as possible.	Conduct monthly during decommissioning using the Decommissioning checklist	ECO
3.	Limit disturbances to surrounding residents and local fauna and flora from decommissioning activities	▪ Minimise impacts of noise, dust and lightning.	▪ Limit demolition activities to day time hours. Minimise vehicle activity and ensure vehicles are properly serviced. Apply effective dust management.	Conduct monthly during decommissioning using the Decommissioning checklist	ECO
4.	Potential spillage of effluent to the surrounding environment (from portable sanitation facilities for decommissioning personnel).	▪ Reduce the spillage of domestic effluent and the impact thereof on the environment.	▪ Normal sewage management practises should be implemented. These include ensuring that portable sanitation facilities are regularly emptied and the resulting sewage is transported safely (by an appointed service provider) for correct disposal at an appropriate, licenced facility. Proof of disposal (in the form of waste disposal slips or waybills) should be retained on file for auditing purposes.	Conduct monthly during decommissioning using the Decommissioning checklist	ECO

No.	Impact management objectives and outcomes	Management actions	Methodology to achieve the management actions	Monitoring method & frequency	Responsibility
5.	Pollution of the surrounding environment as a result of the handling, temporary storage and disposal of solid waste.	▪ Reduce soil and groundwater contamination as a result of incorrect storage, handling and disposal of general and hazardous waste.	▪ General waste (i.e. building rubble, demolition waste, discarded concrete, bricks, tiles, wood, glass, plastic, metal, excavated material, packaging material, paper and domestic waste etc.) and hazardous waste (i.e. empty tins, paint and paint cleaning liquids, oils, fuel spillages and chemicals etc.) generated during the decommissioning phase should be stored temporarily on site in suitable (and correctly labelled) waste collection bins and skips (or similar). Waste collection bins and skips should be covered with suitable material, where appropriate. ▪ Ensure that general waste and hazardous waste generated are removed from the site on a regular basis and disposed of at an appropriate, licensed waste disposal facility by an approved waste management Contractor. Waste disposal slips or waybills should be kept on file for auditing purposes as proof of disposal.	Conduct monthly during decommissioning using the Decommissioning checklist	ECO

No.	Impact management objectives and outcomes	Management actions	Methodology to achieve the management actions	Monitoring method & frequency	Responsibility
			▪ Ensure that sufficient general waste disposal bins are provided for all personnel throughout the site. These bins must be emptied on a regular basis.		
6.	Emissions from decommissioning vehicles and generation of dust as a result of earthworks and demolition.	▪ Reduce dust emissions during decommissioning activities.	▪ Ensure that cleared (excavated) areas and unpaved surfaces are sprayed with water (obtained from an approved source) to minimise dust generation. ▪ Approved soil stabilisers may be utilised to limit dust generation. ▪ Ensure that decommissioning vehicles travelling on unpaved roads do not exceed a speed limit of 40 km/hour.	Conduct monthly during decommissioning using the Decommissioning checklist	ECO
7.	Potential health injuries to workers during decommissioning, especially activities like demolition.	▪ Prevent health effects such as on hearing impacts and respiratory illnesses on personnel.	▪ Ensure that all decommissioning personnel are provided with adequate PPE for use where appropriate. Decommissioning personnel must wear proper hearing protection.	Check continuously during decommissioning	ECO

5 ENVIRONMENTAL EDUCATION AND AWARENESS PLAN

The environmental awareness training should be undertaken when necessary and it is the responsibility of the farm manager to ensure that every person who will be coming to site is educated about the general conduct. Furthermore a register must be signed as part of the monitoring process; this will serve as proof that workers were made aware of the sensitivities on site. A method statement will be compiled by the contractor prior to commencement of construction activities. The method statement will comply with all the recommendations that have been outlined in the EMPr of the project with aims to protect environmental resources, minimise pollution and to rehabilitate disturbed areas.

The Farm Manager will be responsible for implementing a programme that will raise environmental awareness for all construction workers. The environmental awareness training will be presented to all workers in other to promote a successful implementation of the EMPr. An Environmental Control Officer shall be appointed to assist the manager with effective implementation of the programme and to also ensure compliance with all conditions of authorisations received.

The Awareness training shall emphasise the importance of an EMPr in order to promote compliance. All the environmental impacts that are associated with the proposed development should be outlined together with the proposed mitigation measures.

During construction, the ECO must conduct awareness training with the Contractors that includes: the need to conserve water and makes all affected parties aware of the water conservation and water demand management practices on site, as well as water pollution avoidance and reporting procedures for incidents; briefing construction workers on the potential uncovering of heritage features, what these might look like, and what actions are then required.

6 ENVIRONMENTAL MONITORING, REPORTING AND AUDITING

The construction area must be inspected and the Environmental Control Officer must compile a report after each inspection. Should non-compliance be recorded, the construction activities must be ceased until remedial actions are taken to ensure compliance. The report must be submitted to the Farm manager who can then address any issues raised with the engineer and contractor. The reports will be kept as part of record keeping and will be sent to LEDET should they be requested.

The Environmental Control Officer will be responsible for monitoring of construction activities on site to also ensure that all the recommendations of the EMPr are adhere to during the construction phase of the programme. Monitoring of compliance with all the recommendations should be done regularly in order to protect the natural resources on site.

Written records should entail the method statement, the approved EMPr that consists of monitoring reports, a site incident register, relevant authorisations that have been obtained and records of any meeting and training held with the construction workers. The farm manager will also be responsible for post construction phase monitoring programme i.e. clearance of Invasive Alien Species on site, the removal of debris during flooding etc.

7 REFERENCES

Jacob Bregnballe. A Guide to Recirculation Aquaculture An introduction to the new environmentally friendly and highly productive closed fish farming systems. FAO 2015.

Recirculation Aquaculture by M.B. Timmons & J.M. Ebeling, NRAC Publication No. 01-007, Cayuga Aqua Ventures, USA, 2002, ISBN 978-0-9712646-2-5

The EMPr is also informed by the following specialist studies and authorities conducted as part of the Basic Assessment process.

Name	Company/organisation	Specialist topic
M. Meintjies	Scientific Aquatic Services	Freshwater and Aquatic Ecological Assessment and Terrestrial Ecological Scan
K. Dyamond	Scientific Aquatic Services	Freshwater and Aquatic Ecological Assessment and Terrestrial Ecological Scan
S. van Staden	Scientific Aquatic Services	Freshwater and Aquatic Ecological Assessment and Terrestrial Ecological Scan
Jaco van der Walt	HCAC	Heritage impact assessment
Aquaculture authorities		
Kishan Sankar	DAFF	
Ferdie Endemann	WC DEADP	
Thabo Sefike	WC DEADP	

BASIC ASSESSMENT REPORT

Appendix G:
Water use license(s) authorisation, SAHRA information, service letters from municipalities, water supply information

CONTENTS

Provincial Heritage Resources Authority Limpopo Letter: Specialist Report attached in Appendix G

Basic Assessment for the proposed Mozambique tilapia farm project Albasini Dam Elim, Louis Trichardt Limpopo Province

Our Ref: 12199

an agency of the Department of Arts and Culture

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CaseID: 12199

Date: Thursday March 08, 2018
Page No: 1

Response to NID (Notification of Intent to Develop)

In terms of Section 38(8) of the National Heritage Resources Act (Act 25 of 1999)

Attention: Makwaria Trading

Makwaria Trading is a small-scale start up fish farming enterprise located on Albasini Dam Elim, Louis Trichardt. There is nothing on site currently and they are proposing a less than 200 tons fish production. The proposed development will be a great socio-economic value to the fish industry in the area, to the consumer, the business, and to allow local employment opportunities, as well as contributing greatly to the farming industry of South Africa.

Makwarela Fisheries (Pty) Ltd is proposing to operate a Tilapia aquaculture facility using the Albasini Dam near Elim, in the Blouberg Local Municipality of Limpopo Province. CSIR is carrying out the Basic Assessment in support of an Environmental Authorisation. A Background Information Document (BID) has been submitted for commenting to SAHRA in terms of the National Environmental Management Act, 1998.

In terms of the National Heritage Resources Act, no 25 of 1999 (NHRA), heritage resources, including archaeological or palaeontological sites over 100 years old, graves older than 60 years, structures older than 60 years are generally protected. They may not be disturbed without a permit from the relevant heritage resources authority. In contexts of development applications, the developer must ensure that no heritage resources will be impacted by the proposed development, by lodging an application to SAHRA and submitting detailed development specifications as a notification of intent to develop. If the application is made in terms of s. 38 (8) of the NHRA then it is incumbent on the developer to ensure that a Heritage Impact Assessment (HIA) is undertaken, as s. 38(2)a does not apply. Such a study should follow the SAHRA 2007 impact assessment guidelines and section 38(3).

The BID does not contain a detailed description about the project, although most of the development will be in the Albasini Dam, all land construction activity areas must be assessed for any heritage resources. The proposed development area is in a highly sensitive heritage landscape, therefore SAHRA requires a Heritage Impact Assessment that is carried out by a suitably qualified archaeologist. As the development is located in palaeontological insignificant location, SAHRA exempts the development from undertaking an assessment on palaeontological resources.

SAHRA will provide further comments on the case once the above requested documents are submitted.

Basic Assessment for the proposed Mozambique tilapia farm project Albasini Dam Elim, Louis Trichardt Limpopo Province

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Date: Thursday March 08, 2018
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Should you have any further queries, please contact the designated official using the case number quoted above in the case header.

Yours faithfully

Nokukhanya Khumalo
Heritage Officer
South African Heritage Resources Agency

Phillip Hine
Acting Manager: Archaeology, Palaeontology and Meteorites Unit
South African Heritage Resources Agency

ADMIN:
Direct URL to case: http://www.sahra.org.za/node/488232