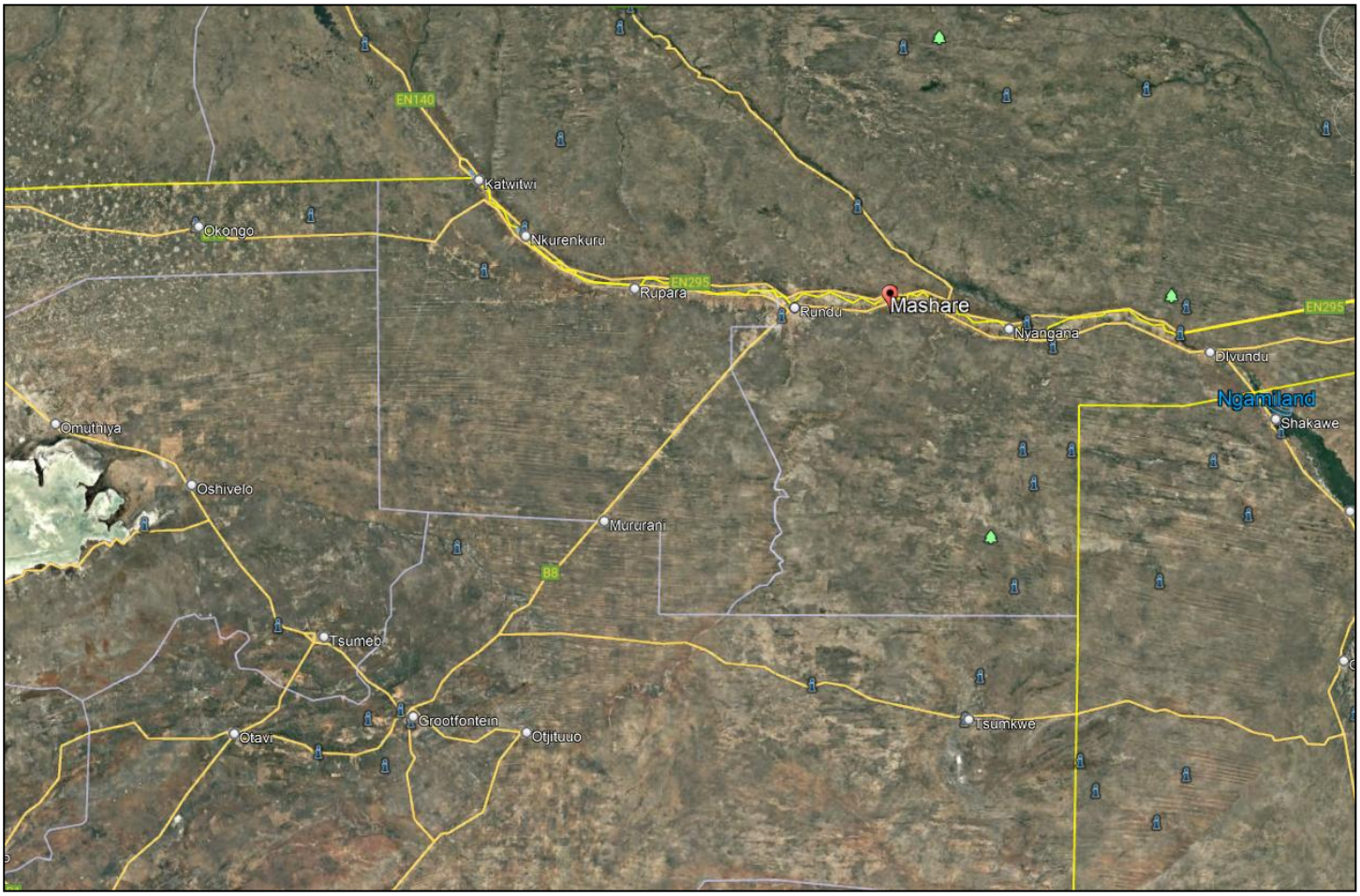

ENVIRONMENTAL IMPACT ASSESSMENT FOR THE AGRICULTURE, IRRIGATION AND WATER EXTRACTION ACTIVITIES OF MASHARE IRRIGATION (PTY) LTD, MASHARE, KAVANGO EAST REGION

2025

App - 250523005845

Project Name:	***ENVIRONMENTAL IMPACT ASSESSMENT FOR THE AGRICULTURE, IRRIGATION AND WATER EXTRACTION ACTIVITIES OF MASHARE IRRIGATION (PTY) LTD, MASHARE, KAVANGO EAST REGION***
The Proponent:	Mashare Irrigation Mashare Berries **Mashare Irrigation (Pty) Ltd** **PO Box 1943** **Rundu**
Prepared by:	Green Earth ENVIRONMENTAL CONSULTANTS 1st floor Bridgeview Offices & Apartments, No. 4 Dr Kwame Nkrumah Avenue, Klein Windhoek, Namibia PO Box 6871, Ausspannplatz, Windhoek
Release Date:	August 2025
Consultant:	C. Du Toit C. Van Der Walt Cell: 081 127 3145 Email: charlie@greenearthnamibia.com

EXECUTIVE SUMMARY

Green Earth Environmental Consultants were appointed by the Proponent, Mashare Irrigation (Pty) Ltd, to conduct an Environmental Impact Assessment to obtain an Environmental Clearance for the agriculture, irrigation and water extraction activities of Mashare Irrigation (Pty) Ltd, Mashare, Kavango East Region. In terms of the Regulations of the Environmental Management Act (No 7 of 2007) an Environmental Impact Assessment must be done to address the following 'Listed Activities':

AGRICULTURE AND AQUACULTURE ACTIVITIES
7.3 The genetic modification of any organism with the purpose of fundamentally changing the inherent characteristics of that organism.
7.4 The import, processing and transit of genetically modified organisms.
7.5 Pest control.
7.6 The release of genetically modified organisms into the environment where an environmental assessment is required by law.
7.7 The release of any organism outside its natural area of distribution that is to be used for biological pest control.
7.8 The introduction of alien species into local ecosystems.

WATER RESOURCE DEVELOPMENTS
8.1 The abstraction of ground or surface water for industrial or commercial purposes.
8.2 The abstraction of groundwater at a volume exceeding the threshold authorised in terms of a law relating to water resources.
8.3 Any water abstraction from a river that forms an international boundary.
8.5 Construction of dams, reservoirs, levees and weirs.
8.7 Irrigation schemes for agriculture excluding domestic irrigation.

The key characteristics/environmental impacts of the proposed project are as follows:

Impact on environment	Nature of impact
More efficient and intensive use of land.	Positive for the area and Namibia in general.
Creation of employment and transfer of skills.	Positive as employment is created during construction and operation.
The creation of dust.	Negative during construction.
There will be an impact on traffic.	Negative during operations especially land preparation and harvesting as the site will result in the increase in traffic on the main roads in the area.
The creation of noise.	Negative during land preparation and harvesting but low and on par with the noise levels associated with the general operational activities.
Possible impact on cultural/heritage aspects.	No items of archeologic value or graves were observed during the site visit which

	means the impact will be low. If any items or graves are found during construction, the impact will be high and irreversible.
Impact on fauna and flora.	There will be limited to no impact on animals, reptiles, and birds since most of the crop fields have been prepared and infrastructure are already constructed. Permits must be obtained to remove protected tree species.
There might be a possible visual impact.	Limited since the infrastructure are already on site.
Impact on groundwater, surface water and soil.	The impact will be negative in case of spilling of hazardous materials during construction and operation.
Production and export of crops.	Foreign currency is earned and import substitution of basic food crops like maize and wheat.
Impact on health and safety.	Low if mitigated during construction and operations.

The environmental impacts during the operational phase of the proposed project:

IMPACTS DURING OPERATIONAL PHASE			
Aspect	**Impact Type**	**Significance of impacts Unmitigated**	**Significance of impacts Mitigated**
Ecology Impacts	-	M	L
Dust and Air Quality	-	M	L
Groundwater Contamination	-	M	L
Waste Generation	-	M	L
Failure of Reticulation Pipeline	-	M	L
Fires and Explosions	-	M	L
Safety and Security	-	M	L

The impact evaluation criterion of the proposed project:

IMPACT EVALUATION CRITERION (*DEAT 2006*):		
Criteria	**Rating (Severity)**	
Impact Type	+	Positive
	O	No Impact
	-	Negative
Significance of impacts	L	Low (Little or no impact)
	M	Medium (Manageable impacts)

	H	High (Adverse impact)

The negative impacts associated with the project are the impact on the vegetation, birds and other animals, the natural drainage systems, ground and surface water, waste production, noise and dust during construction and operation, the danger of residents and visitors being injured during construction, the transmission of diseases from people or to people involved in construction and operations, the loss of land during the alignment and construction of roads. However, mitigation measures will be provided that can control the extent, intensity, and frequency of these named impacts in order not to have substantial negative effects or results.

The type of activities that will be carried out on the site will not negatively affect the amenity of the locality and the activities do not adversely affect the environmental quality of the neighbouring portions, erven or areas. None of the potential impacts identified are regarded as having a significant impact to the extent that the proposed project should not be allowed. However, the operational activities further on need to be controlled and monitored by the assigned subcontractors and the proponent.

The Environmental Impact Assessment which follows upon this paragraph was conducted in accordance with the guidelines and stipulations of the Environmental Management Act (No 7 of 2007) meaning that all possible impacts have been considered and the details are presented in the report.

Based upon the conclusions and recommendations of the Environmental Impact Assessment Report and Environmental Management Plan following this paragraph, the Environmental Commissioner of the Ministry of Environment, Forestry and Tourism is herewith requested to:

1. Accept the Environmental Impact Assessment.
2. Approve the Environmental Management Plan.
3. Issue an Environmental Clearance for the agriculture, irrigation and water extraction activities of Mashare Irrigation (Pty) Ltd, Mashare, Kavango East Region and for the following “listed activities”:

AGRICULTURE AND AQUACULTURE ACTIVITIES
7.3 The genetic modification of any organism with the purpose of fundamentally changing the inherent characteristics of that organism.
7.4 The import, processing and transit of genetically modified organisms.
7.5 Pest control.
7.6 The release of genetically modified organisms into the environment where an environmental assessment is required by law.
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8.7 Irrigation schemes for agriculture excluding domestic irrigation.

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LIST OF ABBREVIATIONS

CAN	Central Area of Namibia
EC	Environmental Clearance
ECO	Environment Control Officer
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
I&APs	Interested and Affected Parties
MEFT	Ministry of Environment, Forestry and Tourism
SQM	Square Meters

1. INTRODUCTION

The Proponent, Mashare Irrigation (Pty) Ltd, appointed Green Earth Environmental Consultants to conduct an Environmental Impact Assessment and develop an Environmental Management Plan to obtain an Environmental Clearance for the agriculture, irrigation and water extraction activities of Mashare Irrigation (Pty) Ltd, Mashare, Kavango East Region.

The Environmental Management Act (No. 7 of 2007) and the Environmental Impact Assessment Regulations (GN 30 in GG 4878 of 6 February 2012) stipulates that an Environmental Impact Assessment (EIA) report and management plan is required as the following 'Listed Activities' are involved:

AGRICULTURE AND AQUACULTURE ACTIVITIES
7.3 The genetic modification of any organism with the purpose of fundamentally changing the inherent characteristics of that organism.
7.4 The import, processing and transit of genetically modified organisms.
7.5 Pest control.
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8.5 Construction of dams, reservoirs, levees and weirs.
8.7 Irrigation schemes for agriculture excluding domestic irrigation.
The Environmental Impact Assessment below contains information on the proposed project and the surrounding areas, the proposed activities, the applicable legislation to the study conducted, the methodology that was followed, the public consultation that was conducted, and the receiving environment's sensitivity and any potential ecological, environmental, and social impacts.

2. TERMS OF REFERENCE

To be able to continue with the project, an Environmental Impact Assessment and Environmental Clearance is required. For this environmental impact exercise, Green Earth Environmental Consultants followed the terms of reference as stipulated under the Environmental Management Act.

The aim of the environmental impact assessment was:

- To ascertain existing environmental conditions on the site to determine its environmental sensitivity.
- To inform I&APs and relevant authorities of the details of the proposed development and to provide them with an opportunity to raise issues and concerns.
- To assess the significance of issues and concerns raised.
- To compile a report detailing all identified issues and possible impacts, stipulating the way forward and identify specialist investigations required.
- To outline management guidelines in an Environmental Management Plan (EMP) to minimize and/or mitigate potentially negative impacts.
- To comply with Namibia's Environmental Management Act (2007) and its regulations (2012).

The tasks that were undertaken for the Environmental Impact Assessment included the evaluation of the following: climate, water (hydrology), vegetation, geology, soils, socio economic impact, cultural heritage, groundwater, sedimentation, erosion, biodiversity, sense of place, socio-economic environment, health, safety and traffic.

The EIA and EMP from the assessment will be submitted to the Environmental Commissioner for consideration. The Environmental Clearance will only be obtained (from the DEA) once the EIA and EMP has been examined and approved for the listed activity.

The public consultation process as per the guidelines of the Act has been followed. The methods that were used to assess the environmental issues and alternatives included the collection of data on the project site and surrounding area, info obtained from the proponent and the Ministry of Environment, Forestry and Tourism and identified and affected stakeholders. Consequences of impacts were determined in five categories: nature of impact, expected duration of impact, geographical extent of the event, probability of occurring and the expected intensity.

All other permits, licenses or certificates that are further on required for the operation of the proposed project still needs to be applied for by the proponent.

3. NEED, DESIRABILITY AND MOTIVATION

It is the intention of the proponent to promote agricultural production through producing food, creating employment and to transfer skills to the affected community.

Need

Namibia is a net importer of various agricultural commodities including maize and wheat which are important basic food for the bulk of the Namibian population, Namibia previously also imported all the blueberries consumed in the Country. The products currently produced at Mashare Irrigation project results in the local availability of the

products, import substitution of basic foodstuffs and the earning of foreign currency especially on the exports of blueberries to various internation destinations. The activity also creates employment, especially to women, in an area where formal employment is scarce.

Desirability

The Mashare area of the Okavango Region is ideally suited for the production of maize, wheat and blueberries due to the existence of good soils, high quality irrigation water from the Okavango River, its mild winters and the availability of labour. The project site is also linked to the Nored Electrical Grid for the electricity requirements associated with the irrigation of the crops as well as packaging and processing of the harvest. The site has good and safe access for the Main Road B8 linking the site with the rest of Namibia and the Countries North and East of Namibia.

It is therefore believed that there is a need for the proposed project and that the selected site is desirable for the project. The site is desirable for the proposed operations, the activities will have a limited impact on the bio-physical environment, enough water is available and proper accesses can be provided to the proposed operations.

Determining what the impact of the operations would be are broken down into different categories and environmental aspects and dealt with in the Environmental Management Plan (EMP). As per the ISO 14001 definition: *an environmental aspect is an element of an organization's activities, products and/or services that can interact with the environment to cause an environmental impact e.g., land degradation or land deterioration among others, that will cause harm to the environment.*

All concerns and potential impacts raised during the public participation process and consultative meetings were evaluated. Predictions were made with respect to their magnitude and an assessment of their significance was made according to the following criteria:

The Nature of the activity: The possible impacts that may occur are that water will be used in the construction and operational phases, wastewater will be produced that will be handled, land will be used for the proposed activities, a sewage system was constructed, and general construction activities will take place, namely the building of infrastructure.

The Probability of the impacts to occur: The probability of the above-named impacts to occur and have a negative or harmful impact on the environment and the community is small since the Environmental Management Plan will also guide these activities. Water will still be used, and wastewater produced, however guidelines will be set that will ensure the impact is minimum.

The Extent of area that the project will affect: The specific project will most likely only have a small impact on the proposed project site itself and not on the surrounding or neighbouring land except for noise, traffic, roads, electricity and dust and there may be a

visual impact because of the size of the proposed development. Therefore, the extent that the project will have a negative impact on is not extensive.

The Duration of the project: The duration of the project is uncertain. Water will still be used, and waste produced on a continuous basis and the structures that were constructed will remain and may be visually unpleasing to surroundings.

The Intensity of the project: The intensity of the project is mostly limited to the site however for the above-named items/processes where the intensity of the project will be felt outside the borders of the project site.

According to the information that was present while conducting the Environmental Impact Assessment for the construction and operation of the project, no high-risk impacts were identified and therefore it is believed that the operations will be feasible in the short and long run. Most of the impacts identified were characterized as being of a low impact on the receiving and surrounding environment and with mitigation measures followed, the impacts will be of minimum significance or avoided.

4. BACKGROUND INFORMATION ON PROJECT

4.1. THE HISTORY OF THE PROJECT AND SITE INFORMATION

The Mashari Irrigation project was established in 2012 by the Government of Namibia under the Green Scheme Initiative for the purpose of the promotion of agricultural production through producing food, creation of employment and the transfer of skills to the affected community. Water is extracted from the Kavango River and applied via various types of irrigation systems for the irrigation of crops. Initially mainly maize and wheat were produced in a crop rotation program, and it was supplemented with the production of various vegetables for the local and Namibian market. In the beginning the project was managed by the First National Development Corporation (FNDC) as agent of the GRN. In 2017 the GRN, acting through the Ministry of Works and Transport, signed a lease agreement with Mashare Irrigation (Pty) Ltd to lease the area with the aim to develop, operate and manage the Mashare Green Scheme in line with Articles 5.3 and 6.2 of the Green Scheme Policy.

The ***spirit/principles*** of the agreement are summarised in the Preamble below:

PREAMBLE

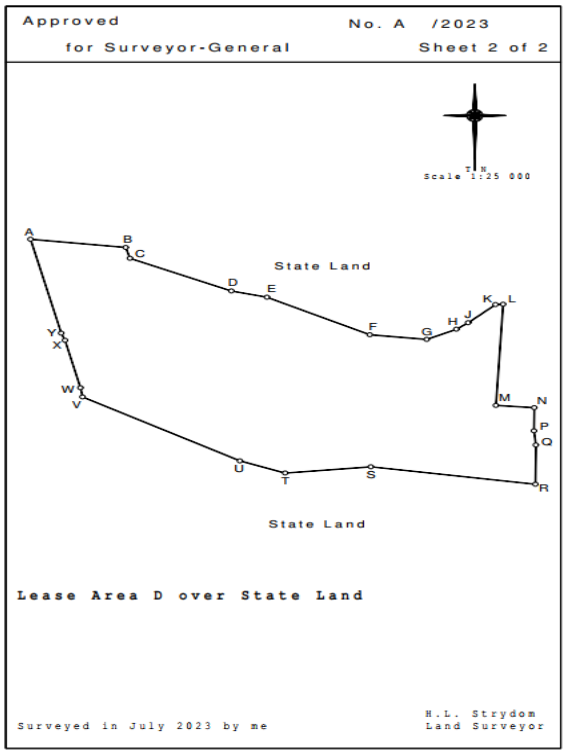
WHEREAS the Lessor through the Ministry of Agriculture, Water and Forestry entered into a Green Scheme Project Agreement in respect signed on 06 November 2017 of the Mashare Green Scheme Project for the promotion of agricultural production;

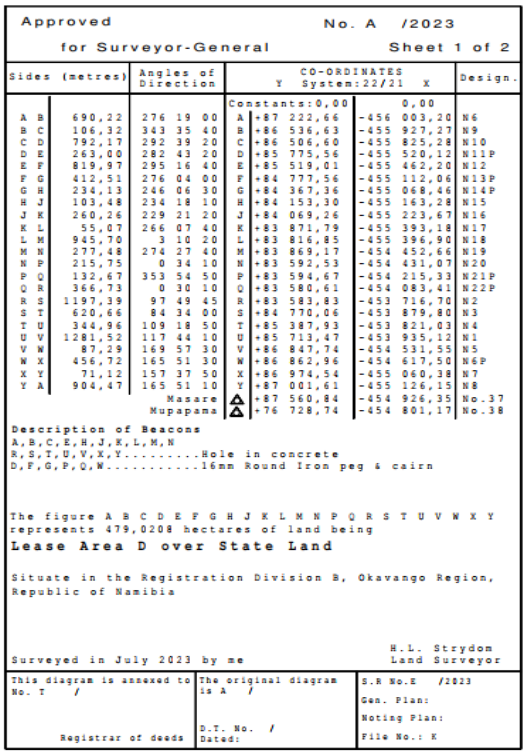
WHEREAS the Parties agree that the Lessee shall lease a portion of land measuring 760 hectares out of the total project size of 860 hectares of which 100 hectares is earmarked for Medium Scale Farmers situated in Mashare Constituency with the aim to develop, operate and manage the Mashare Green Scheme Project in line with Articles 5.3 and 6.2 of the Green Scheme Policy;

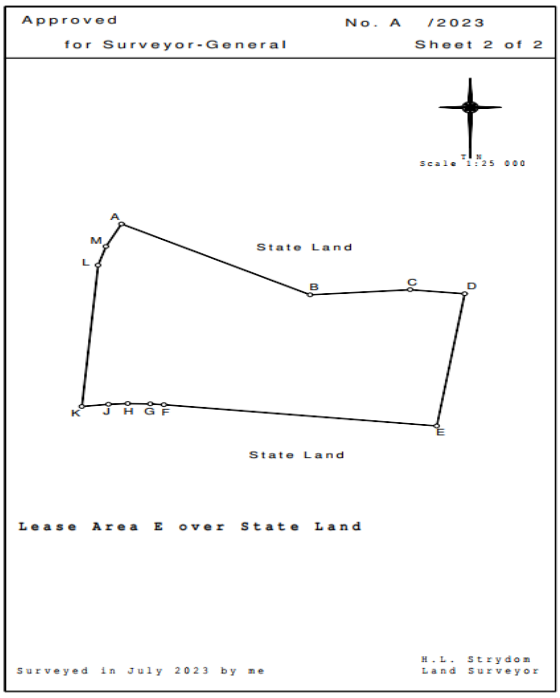
WHEREAS the Lessor is the owner of the portion of land measuring 860 hectares situated in Mashare Constituency some 50 kilometres East of Rundu, Kavango East Region, in the Republic of Namibia; and

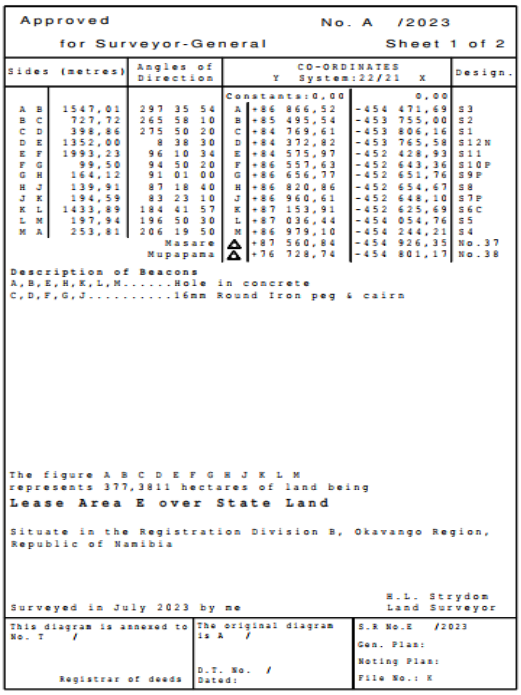
WHEREAS the Lessor and the Lessee wishes to enter into this Lease Agreement for the lease of the land for use by the Lessee to operate, further develop, and manage Mashare Green Scheme Project and to perform related activities pursuant to the Green Scheme Project Agreement.

The Lease Area has been surveyed by a registered land surveyor and is shown on the Lease Diagrams below:









The Agreement makes provision for the payment of Lease Fees to the GRN as well as Royalties to the Shambyu Traditional Authority.

From inception, Mashare was developed by the GRN to produce maize, wheat and other cash crops; produce that makes up the majority of local food basket and sustenance. In

mid-2018, the Proponent started planning its expansion into export-oriented, job-creating permanent crops in addition to the maize and wheat produced.

After exploring multiple options, blueberries were identified and selected, a crop that could grow without much soil manipulation, supply international market needs and serve these markets before the rest of the world's crops come to fruition. The research indicated that with the right management and genetics basis, the blueberries could thrive in the Kavango's more acidic soil and use less water than maize and wheat meaning that water can be used more efficiently.

To introduce blueberries onto the farm, the following ground and preparation work were undertaken:

- The land has been prepared by creating soil ridges, laying down irrigation pipes, and covering the area with shade nets for protection of the blueberries from sunburn, insects and hale damage.
- Blueberry plants were imported from Spain and planted on the ridges.
- The first plants started blossoming in early 2020.
- Bees were introduced to assist with pollination and ensure a good yield. The Kavango area has a very low bee population. Honeybees are therefore hired on a seasonal basis, arriving in state-of-the-art hives, and are periodically rotated to other farms.
- To prepare the product for marketing a packhouse has been constructed. In the packhouse the blueberries are tested, sorted, treated, packed and cooled to as low as 1 (one) degree Celsius from where it is dispatched and shipped to places like Europe, Hong Kong, India and Malaysia. Maintaining the cold chain from the packhouse to the end user is critical to ensure shelf life as well as quality produce to the end user.
- Additional permanent workers were employed and trained from the community to attend to the fertigation, pest control, weighing stations and to maintain machinery and equipment. Berry pickers make up most the farm's temporary workers and are all women from the surrounding community.

In November 2021, an additional 40 hectares of blueberries were planted. With the knowledge and skill obtained from the first and second harvest, which yielded over 350 tons in total, the Proponent could scale the knowledge and experience it had obtained. Now in its third blueberry harvest, the Proponent is working hard to ensure that the season's fruits are harvested, packed and shipped to the same standard that the international and local markets have become accustomed to.

Under the expansion plan, it is intended to introduce new blueberry variants that are better adapted to the local climate conditions, especially the cold winters, and to enlarge the area under production to 200ha. Maize and wheat are still produced on the farm and locally processed and distributed to markets in the area.

4.2. LOCALITY AND SIZE OF SITE

Mashare is in the Kavango East on the central northern border of Namibia with Angola, directly west of the Kavango River about 45km east from the town of Rundu. The site is in the Shambyu Traditional Authority's area. See Map below showing the locality of the site:

Figure 1: Mashare's location in relation to the rest of Namibia

Figure 2: Project site locality

The total lease area is 760ha.

4.3. ACTIVITIES ON THE FARM

The land allocated to the Proponent is utilized as follows:

- Maize and wheat production irrigated with centre pivots – ± 400ha
- Blueberry production irrigated with drip irrigation - ±60ha
- The packhouse and supporting infrastructure
- A workshop and shed for the parking and servicing of vehicles and faming equipment, storage of spare parts, seed, fertiliser, pesticides and packing materials
- Offices
- Fuel storage
- Pumpstations and pipelines for the supply of the irrigation systems
- Three (3) boreholes for the supply of potable water

The site layout and utilisation in shown on the photos below:

Figure 3: The site layout and utilisation

The size of each centre pivot is shown on the plan below. The area shown under the centre pivot irrigation is used for maize and wheat production in a crop rotation program. The blueberries are irrigated with a drip irrigation system.

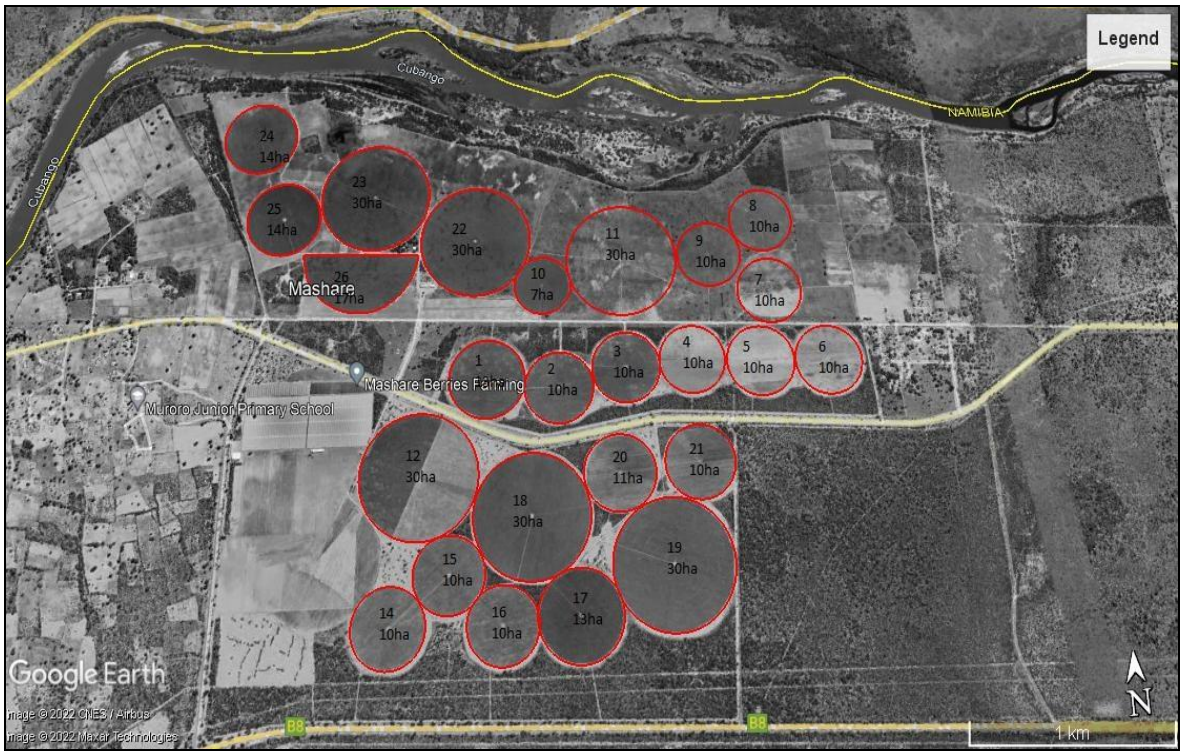


Figure 4: Size of the pivot area

Figure 5: Project site photo (Namib Blue, 2025)

Figure 6: Centre Pivot Irrigation and Maze Field

Figure 7: Plantations under nets

The following products / insecticides / pesticides are being sprayed on the crops / plants:

Trade Name	Register Number	Active Ingredients
Tamprid	N-AR2099	Acetamiprid [200 g/kg]
Obstructo	N-AR1562	Azoxystrobin [250g/L]
Dipel DF	N-AR0943	Bacillus thuringiensis subsp. Kurstaki [32000 UI/mg]
DEMILDEX	L5094	Copper oxychloride [850g/kg)]
Steward 150 EC	N-AR 1121	Indoxacarb (p) [150 g/L]
Harrier 500 EC	N-AR1904	Malathion (p) [500 g/L]
Delegate 250WG	N-AR 1502	Spinetoram (sum of spinetoram-J and spinetoram-L) [250 g/kg]
Tracer 480 SC	N-AR1040	Spinosad (p) [480g/L]
Corona 250 EW	L7603	Tebuconazole [250 g/l]

4.4. EMPLOYMENT CREATION

The wheat and maize production are highly mechanised from planting through, irrigation, fertigation, pest control and up to harvesting. Ten (10) permanent workers are employed for this activity.

The blueberry production on the other hand is labour intensive and thus creates both permanent and seasonal employment.

The main activities on blueberries are as follows:

- Irrigation, weed control, pest control and general care
- Harvest time – June to October
- Pruning – October and November

140 people are permanently employment of which 66% is women.

During harvest time and pruning 457 – 1000 people are temporarily employed. All the temporary workers are women.

4.5. SOCIOECONOMIC RESPONSIBILITY

The project also plays an important role from a socioeconomic perspective. It has the following impact:

- The project pays annual rental for the land of N$ 2,500,000 to the MAWLR.
- Royalties of N$ 105/ha/annum are paid to the Shambyu Traditional Authority annually.

The Proponent is also supporting the Herman Shiyamba Kindergarten which accommodates 83 pre-primary leaners through a feeding scheme and financially. Several of the workers make use of this facility to care for them and prepare their children for primary school.

Figure 8: Herman Shiyamba Kindergarten

5. APPROVALS ALREADY OBTAINED

The following Letter of Conformance from SGS was obtained on 24 November 2024:

SGS

SGS

Page 1 of 1

GGN: 4063061361561
Reg. No. of CB: SGS-SA 1139
-17.898772, 20.181097

SPRING ADD-ON LETTER OF CONFORMANCE

According to the SPRING Program
(Sustainable Program for Irrigation and Groundwater Use Rules)
Version 1.1

Option 1

Issued to
Mashare Berries Farming (Pty) Ltd
P.O. Box 1943, Namibia, 19000
PUC: KAV0001 & PHC: MAS01

The Annex (where applicable) contains details of the producers and production sites / product handling units included in the scope of this certificate. SGS South Africa (Pty) Ltd declares that the production of the products mentioned on this certificate has been found to be compliant in accordance with the standard:

Product (s)	First Harvest Non-Covered (Ha)	Harvest Included
Blueberry	60ha	Yes

Date of issue: 25/11/2024

Valid from: 24/11/2024

Valid to: 09/09/2025

Authorized by

Stephan Hulscher

Date of Certification Decision: 24/11/2024

The current status of this certificate is always displayed at:
https://database.globalgap.org/globalgap/search/SearchMain.faces

SGS

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Email: Stephan.hulscher@sgs.com Issue 3

Charmaine Mudau

SGS

GLOBALG.A.P. ADD-ON MODULE REPORT

The report covers evaluation results against the GlobalG.A.P. Add-on Modules specified

Registered Producer (Name as required on certificate)	Mashare Berries Farming (Pty) Ltd		**GlobalG.A.P. #**	SGS-SA 1139	
Physical Address	Mashare CFU		**GGN #**	4063061361561	
Pack house Address (if packing on-site)	Mashare CFU		**Postal Address**	PO Box 1943, 19000	
Activity date	23/10/2024	**Opening Time**	12h30	**Closing Time**	15h00
Activity Scope	GRASP V1_3-1-i ☐ AH-DLL GROW V3.0 ☐ SPRING V1.1-1 ☒ TR4 Biosecurity V1 April 2017 ☐		**Activity Type:**	Initial ☐ Annual / Recertification ☒ Transfer ☐ Unannounced ☐ Follow-up ☐	
Products to be certified:	Blueberries				
Option:	1 ☒ 1 Multi-site w/o QMS ☐ 1 Multi-site with QMS ☐ 2 ☐		**Crop:**	Covered ☐ Uncovered ☒	
Parallel Production: ☐	**Parallel Ownership:** ☐		**Buy certified products:** ☐	**Not applicable** ☒	
Produce Handling:	Applicable ☒	On Farm Packing ☒	In-field packing ☐	Subcontracted Packing ☐	Not Applicable ☐
Logistics:	Was the inspection completed during harvest?		Yes ☒ No ☐		
	Crops harvested on the day:		Blueberries		
	Crops packed on the day (where applicable for produce handling):		Blueberries		

Block name / Physical address	Produce Covered	Produce Uncovered	Certified ha
Mashare Berries Farming – Rundu Namibia		Blueberries	60 ha
Total Certified Hectares			60 ha

Charmaine Mudau

KSSA-AGR-004 Revision 1 Page 1 of 2

SGS

GLOBALG.A.P. ADD-ON MODULE REPORT

Corrective Action Requests - The completed checklist and associated comments comprise a report of our audit findings. The audit checklists are available upon request. Issues requiring your attention are set out as numbered Corrective Action Requests (CARs).
All Corrective Action Requests will be reviewed by SGS prior to making a certification decision.

Summary of Corrective Actions Requests Raised

Clause No	Major Minor Recom	Details of non-compliances	Date for Action	Date closed
		SPRING:		
		None		

Based on the outcomes of this activity, the audit team recommends that GlobalG.A.P. Add-on module certification be:

Granted or renewed	☒	**Declined**	☐	**Granted or renewed subject to close-out of CARs**	☐
Suspended	☐	**Warning issued**			

Please note.

- This recommendation and/or certification is valid as long as GLOBAL G.A.P. IFA-certificate remains valid
- Certification Decision is made by SGS and considers the recommendation contained in this report
- While SGS has verified conformity to the GlobalG.A.P. Add-on module, SGS cannot be held responsible for any subsequent changes or alterations to documentation, procedures, or practices.
- This audit was performed subject to the General Terms and Conditions of SGS

The client authorised representative commits to producing products according to the GlobalG.A.P. General Regulations and Compliance Criteria, acknowledges the Corrective Action Requests raised (if any), audit opening and closing times and confirms with his/her signature the accuracy of the information, completeness of this audit report and its content.	
Name and signature of authorised representative	Nico Visser – refer to signature on JD1 and O&C meeting
Name and signature of auditor	Alexis Visser – refer to signature on JD1 and O&C meeting
Name and signature of observer (if applicable)	-
Name and signature of CB technical reviewer	Freyni du Toit – refer to signature on file review form

SGS South Africa (Pty) Ltd Knowledge Solutions Division, Panther Park, 11 Berkley Road, Maitland, 7405 - South Africa

Telephone : +27 (0) 21 506 3280□ **Website**: www.sgs.com

6. MASHARE GREEN SCHEME LEASE AGREEMENT

See below details with regards to the Mashare Green Scheme Lease Agreement between the Government of the Republic of Namibia acting through the Ministry of Works and Transport and Mashare Irrigation (Pty) Ltd signed on 28 December 2017:

LEASE AGREEMENT

In respect of Mashare Green Scheme Project

Entered into by and between

THE GOVERNMENT OF THE REPUBLIC OF NAMIBIA

(Hereinafter referred to as "Lessor")

Acting through

THE MINISTRY OF WORKS AND TRANSPORT

Herein represented by Mr. Willem Goeiemann in his capacity as PERMANENT SECRETARY being duly authorised in terms of the Special General Power of Attorney No. 15/1983

AND

MASHARE IRRIGATION (PTY) LTD
Registration No: 2005/135

(Hereinafter referred to as the "Lessee")

Herein represented by Mr Lourens M. Le Grange in his capacity as DIRECTOR, being duly authorised

(Collectively the Lessor and the Lessee referred to as the PARTIES)

1

PREAMBLE

WHEREAS the Lessor through the Ministry of Agriculture, Water and Forestry entered into a Green Scheme Project Agreement in respect signed on 06 November 2017 of the Mashare Green Scheme Project for the promotion of agricultural production;

WHEREAS the Parties agree that the Lessee shall lease a portion of land measuring 760 hectares out of the total project size of 860 hectares of which 100 hectares is earmarked for Medium Scale Farmers situated in Mashare Constituency with the aim to develop, operate and manage the Mashare Green Scheme Project in line with Articles 5.3 and 6.2 of the Green Scheme Policy;

WHEREAS the Lessor is the owner of the portion of land measuring 860 hectares situated in Mashare Constituency some 50 kilometres East of Rundu, Kavango East Region, in the Republic of Namibia; and

WHEREAS the Lessor and the Lessee wishes to enter into this Lease Agreement for the lease of the land for use by the Lessee to operate, further develop, and manage Mashare Green Scheme Project and to perform related activities pursuant to the Green Scheme Project Agreement.

NOW THEREFORE THE PARTIES AGREE AS FOLLOWS:

1. INTERPRETATION

1.1 The headings to the paragraphs in this Lease are for reference purposes only and shall not affect the interpretation of any part hereof.

1.2 In this Lease unless the context clearly indicates a contrary intention, words importing any one gender shall include all of the other genders; the singular shall include the plural and vice versa; and any reference to a natural person shall include a body corporate, firm or association and vice versa.

2. DEFINITIONS

2.1 In this Lease, unless clearly inconsistent with or otherwise indicated by the context, the following words shall each bear the meaning set out opposite them below and cognate expressions shall bear corresponding meanings:

"Effective Date" means the date on which this Lease enters into force.

"Green Scheme Project" means an initiative conceptualized and introduced by the Government of the Republic of Namibia and implemented by the Ministry of Agriculture, Water and Forestry to encourage the development of irrigation-based agronomic production within the agro-industry in Namibia with the aim of increasing the contribution of agriculture to the country's Gross Domestic Product;

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2 FA

23.3 Notwithstanding anything to the contrary contained in this Lease, a written notice or communication actually received by one of the Parties from another including by way of telecopy shall be adequate written notice to such Party.

24. ENTIRE AGREEMENT

24.1 The Parties hereto agree that this Lease and annexes hereof, constitute the entire and exclusive agreement between them pertaining to the subject matter contained in it and supersedes all prior agreements, oral or written, conditions, representations, warranties, proposals and undertakings of the Parties pertaining to the subject matter.

24.2 In the event of there being a conflict between the content of this document and its annexes, this Lease shall supersede the content of annexes.

Signed at Windhoek on this 28TH day of DECEMBER 2017.

AS WITNESS

1. _____

2. _____

PERMANENT SECRETARY
2017 -12- 28
MINISTRY OF WORKS AND TRANSPORT

_____
MR WILLEM GOREMANN
IN HIS CAPACITY AS PERMANENT SECRETARY: MINISTRY OF WORKS AND TRANSPORT

AS WITNESSES

1. _____

2. _____

_____
MR. LOURENS M LE GRANGE
IN HIS CAPACITY AS DIRECTOR

12

7. MEMORANDUM OF AGREEMENT

See below the Memorandum of Agreement between Mashare (Mupapama) Irrigation (Pty) Ltd and Mupapama Community, Kavango East dated 10 October 2023:

Mashare Irrigation
Committed to feed Namibia

MASHARE IRRIGATION (PTY) LTD
Registration No. 2005/135
VAT Nr. 3964355-01-5

PO Box 86127, Windhoek, NAMIBIA
PO Box 1943, Rundu, NAMIBIA
Tel: +264 (0)66 258 656
Fax: +264 (0)88 615 498

~~5 August 2022~~ 10 October 2023 M M S, K.A.K.M, H.E.H P.N.N

MEMORANDUM OF AGREEMENT

made and entered into between

Mashare (Mupapama) Irrigation (Pty) Ltd
Reg. no: 2018/0805
and

Mupapama Community, Kavango East

1. Background and History

a. This agreement replaces the previous signed agreement dated 21 September 2021.
b. Land from the Mupapama Community was availed to Rentel (±173ha) and Van Wyk (±228ha) some years ago but to date they have not developed the land.
c. Mashare Irrigation has entered into development and cooperation agreements with both Rentel and Van Wyk where Mashare Irrigation will take over the leaseholds and develop the land.
d. Now therefore Mashare Irrigation and the Mupapama Community, represented by the Mupapama Foreman and the Village Development Committee (VDC) wishes to enter into an agreement to agree the framework of the development and the responsibilities and benefits to each party
e. The total area of the existing two leaseholds is ± 401ha (173ha + 228ha). Mashare (Mupapama Irrigation) will apply for a new leasehold to replace the current leasehold, and also to allow for the new boundary

Directors: A.J. Basson - L.M. Le Grange

M M S, K.A.K.M, H.E.H N.P.N

(as per attached diagram – larger at Pivot 1 and smaller at Pivot 7). The total area will be ± 406 – 408ha.

f. The current duration of the existing leaseholds is 25 years, whereas the Mupapama Communty is availing the land to Mashare (Mupapama) Irrigation for a ~~99~~ 66 year period (leasehold).

M M S, K. A. I. C. M, H. E. H P. N. N

2. Mashare Irrigation's Responsibilities

a. To register a new company (Mupapama Irrigation (Pty) Ltd) in whose name the new leasehold will be issued.
b. To do all the development plans and applications and processes necessary to establish an irrigation project, including financing
c. To drill 2 boreholes and provide each borehole with solar panels and 2 x 5,000 liter water tanks, water taps and cattle trough. The position where the borehole must be drilled must be indicated by the Foreman and the VDC.
d. To put a fence around two (2) graveyard sites, at Mausivi and Takwasa, at the places indicated by the VDC
e. To provide the community with 10 pit latrines, and to install it in the places indicated by the Foreman and the VDC. The total budget allowed by Mashare Irrigation for the pit latrines is N$ 100,000.
f. To construct a corridor on the northern side of the Rentel area, to allow for passage of livestock and people. This is done to mitigate the impact of the north - south corridor that are being closed.
g. To provide a fenced and irrigated area inside the farm for a community garden, for a total area of ± 1.5 ha (75 persons x 200 m^2 each)
h. To pay to the Community an annual amount of N$ 110 / ha (110 x 410ha = N$ 45,100) each year for the duration of the Leasehold. This funds to be used for maintenance of the water and solar installation, or for other Community objectives, as decided by the community members
i. To annually pay to the Traditional Authority 50% of the above amount, calculated as follows: 50% of N$ 45,100 = N$22,550.
j. To develop the project in order to provide employment opportunities to the Community, and specifically to offer Mupapama community members the first option of employment.

3. Mupapama Community's Responsibilities

a. To avail the land for development, ± 408 ha as shown on the map, for a lease period of ~~99 years~~ 66 years.
b. To give consent for combining the Rentel and Van Wyk leasehold into one new leasehold
c. To give consent for the closure of the north – south corridor that run between the Rentel and Van Wyk leaseholds

M M S, K. A. I. C. M, H. E. H P. N. N

d. To avail a suitable place for the pump station to pump water from the river.

e. To avail a suitable route for the pipeline construction, which route cannot go through a homestead but may go through a mahango field or a cattle or goat kraal.

f. To register a SERVITUDE (right of way) over the pipeline route and the pumpstation area

g. To introduce Mashare (Mupapama) Irrigation to the Shambyu Traditional Authority and to submit all documentation necessary to obtain CONSENT from the Traditional Authority

h. To support Mashare (Mupapama) Irrigation's application for a ~~99~~ 66 year LEASEHOLD at the Lands Board

i. To support the application for a WATER ABSTRACTION PERMIT from Department of Water Affairs

4. Any other points

a. Mashare (Mupapama) Irrigation may in future assist the Mupapama community with electricity black line

b. Provision of land for Access Road from Gravel Road

c. When the project has started, all Parties strive to have good communication and mutual support between the Parties

d. When the project is ongoing, all Parties to protect each other's interests and to protect the project's properties and equipment and harvest

e. The Parties agree that any dispute as to the interpretation of this Agreement or any dispute arising thereunder or any claim for the recovery of any payment or for any situation whatsoever, being subject to the jurisdiction of the Magistrates Court at Rundu

f. .....

g. .....

h. .....

i. .....

Directors: A.J. Basson - L.M. Le Grange

MMS, K.A.I.C.M, H.E.H P.N.N

8. BULK SERVICES AND INFRASTRUCTURE

The project consists of irrigation pivots, sheds, cooling rooms, offices and housing. It is the intention to maximize crop production on the site. Soil surveys were obtained to identify suitable crops for this area (*Lithon Project Consultants, 2025*). The following infrastructure is currently present and used on site:

8.1. ACCESS / INTERNAL ROADS

The Mashare Irrigation scheme can be accessed from the B8 Main Road that is connected to internal tar and gravel roads leading to the project area.

8.2. WATER SUPPLY / RETICULATION

The project has an approved water allocation of 6,975,000m³/annum which may be extracted from the Kavango River. This allocation is based on an allocation of 15 000m³/ha to irrigate 465ha which includes the areas under maize, wheat and the blueberries.

The project also has a NamWater connection to be used on the site. This connection is currently locked and not being used.

There are also two boreholes on the site which are used for the supply of potable water to the offices, ablution facilities, packhouse and canteen.

Figure 9: Water storage tank and water connection

The main pump abstracting water from the river as well as the booster pumps along the distribution lines are all provided with water meters to measure the abstraction and distribution of water on the site.


Figure 10: The main and booster pumpstation

8.3. ELECTRICITY

The project is supplied from the Nored Electrical Grid by an 11kV Reticulation Line with low voltage which feeds the pumpstations, centre pivots offices, cold rooms and other supporting infrastructure.

11kV Reticulation, low voltage feeds to the pivots, River and Booster Pump Station Designs including all MCC's VSDs, PLCs, Pumps and Piping to supply the 380ha scheme with power and pumping facilities.

Figure 11: Electrical infrastructure

8.4. STORM WATER AND DRAINAGE

The natural flow of storm water and drainage will be minimally disturbed, and the natural flow accommodated where possible. Any new structures or developments on the site must be planned to accommodate surface water/stormwater and ensure that it does not endanger neighbouring structures.

8.5. SOLID WASTE / REFUSE REMOVAL

Solid waste is collected and disposed of in a trench on site where it is burned and covered with soil.

8.6. SEWAGE INFRASTRUCTURE

Only household sewer is generated at the offices and parking shed as well as the two managers houses. The sewer of the site is connected to French drains and soak away which is located on the site.

8.7. FIRE PROTECTION

The Proponent has the necessary fire protection infrastructure / extinguishers as per municipal requirements. A Fire Protection Specialist has introduced a proper fire protection plan with the required infrastructure and is overseeing the annual auditing and maintenance of the infrastructure.

9. APPROACH TO THE STUDY

The assessment included the following activities:

a) Desktop sensitivity assessment

Literature, legislation and guidance documents related to the natural environment and land use activities available on the erf and area in general were reviewed to determine potential environmental issues and concerns.

b) Site assessment (site visit)

The proposed project site and the immediate neighbourhood and surrounding area were assessed through several site visits to investigate the environmental parameters on site to enable further understanding of the potential impacts on site.

c) public participation

The project is in existence since 2012 and is an ongoing project and therefore no public participation were done.

d) Scoping

Based on the desk top study, site visit and public participation, the environmental impacts were determined in five categories: nature of project, expected duration of impact, geographical extent of the event, probability of occurring and the expected intensity. The findings of the scoping have been incorporated in the environmental impact assessment report below.

e) Environmental Management Plan (EMP)

To minimize the impact on the environment, mitigation measures have been identified to be implemented during planning, construction, and implementation. These measures have been included in the Environmental Management Plan to guide the planning, construction and operation of the development which can also be used by the relevant authorities to ensure that the project is planned, developed, and operated with the minimum impact on the environment.

10. ASSUMPTIONS AND LIMITATIONS

It is assumed that the information provided by the proponent (Mashare Irrigation (Pty) Ltd) is accurate. No alternative portions/farms/sites for the proposed project were examined. The site was visited several times and any happenings after this are not mentioned in this report. (The assessment was based on the prevailing environmental conditions and not on future happenings on the site.) However, it is assumed that there will be no significant changes to the proposed project, and the environment will not adversely be affected between the compilation of the assessment and the implementation of the proposed activities.

11. ADMINISTRATIVE, LEGAL AND POLICY REQUIREMENTS

To protect the environment and achieve sustainable development, all projects, plans, programs and policies deemed to have adverse impacts on the environment require an EIA according to Namibian legislation. The administrative, legal and policy requirements to be considered during the Environmental Assessment for the proposed project are the following:

- The Namibian Constitution.
- The Environmental Management Act (No. 7 of 2007).
- The Water Resources Management Act (No 11 of 2013) and Water Resources Management Regulations (WRMA).
- Other Laws, Acts, Regulations and Policies

THE NAMIBIAN CONSTITUTION

Article 95 of Namibia's constitution provides that:

"The State shall actively promote and maintain the welfare of the people by adopting, inter alia, policies aimed at the following:

Management of ecosystems, essential ecological processes and biological diversity of Namibia and utilization of living natural resources on a sustainable basis for the benefit of all Namibians, both present and future; in particular, the Government shall provide measures against the dumping or recycling of foreign nuclear and toxic waste on Namibian territory." This article recommends that a relatively high level of environmental protection is called for in respect of pollution control and waste management.

Article 144 of the Namibian Constitution deals with environmental law and it states:

"Unless otherwise provided by this Constitution or Act of Parliament, the general rules of public international agreements binding upon Namibia under this Constitution shall form part of the law of Namibia". This article incorporates international law, if it conforms to the Constitution, automatically as "law of the land". These include international agreements, conventions, protocols, covenants, charters, statutes, acts, declarations, concords, exchanges of notes, agreed minutes, memoranda of understanding, and agreements (Ruppel & Ruppel-Schlichting, 2013). It is therefore important that the international agreements and conventions are considered (see section 4.9).

In considering these environmental rights, Mashare Irrigation (Pty) Ltd (the Proponent) should consider the following in devising an action plan in response to these articles:

- Implement a "zero-harm" policy at that would guide decisions.
- Ensure that no management practice or decision result in the degradation of future natural resources.
- Take a decision on how this part of the Constitution will be implemented as part of the Proponent's Environmental Control System (ECS).

ENVIRONMENTAL MANAGEMENT ACT (NO. 7 OF 2007)

The Environmental Impact Assessment Regulations (GN 30 in GG 4878 of 6 February 2012) of the Environmental Management Act (No. 7 of 2007) that came into effect in 2012 requires/recommends that an Environmental Impact Assessment and an Environmental Management Plan (EMP) be conducted for the following listed activities to obtain an Environmental Clearance Certificate:

> *AGRICULTURE AND AQUACULTURE ACTIVITIES*
> *7.3 The genetic modification of any organism with the purpose of fundamentally changing the inherent characteristics of that organism.*
> *7.4 The import, processing and transit of genetically modified organisms.*
> *7.5 Pest control.*

7.6 The release of genetically modified organisms into the environment where an environmental assessment is required by law.
7.7 The release of any organism outside its natural area of distribution that is to be used for biological pest control.
7.8 The introduction of alien species into local ecosystems.

WATER RESOURCE DEVELOPMENTS
8.1 The abstraction of ground or surface water for industrial or commercial purposes.
8.2 The abstraction of groundwater at a volume exceeding the threshold authorised in terms of a law relating to water resources.
8.3 Any water abstraction from a river that forms an international boundary.
8.5 Construction of dams, reservoirs, levees and weirs.
8.7 Irrigation schemes for agriculture excluding domestic irrigation.

Cumulative impacts associated with the development must be included as well as public consultation. The Act further requires all major industries and mines to prepare waste management plans and present these to the local authorities for approval.

The Act, Regulations, Procedures and Guidelines have integrated the following sustainability principles. These need to be given due consideration, particularly to achieve proper waste management and pollution control:

Cradle to Grave Responsibility

This principle provides that those who handle or manufacture potentially harmful products must be liable for their safe production, use and disposal and that those who initiate potentially polluting activities must be liable for their commissioning, operation and decommissioning.

Precautionary Principle

It provides that if there is any doubt about the effects of a potentially polluting activity, a cautious approach must be adopted.

The Polluter Pays Principle

A person who generates waste or causes pollution must, in theory, pay the full costs of its treatment or of the harm, which it causes to the environment.

Public Participation and Access to Information

In the context of environmental management, citizens must have access to information and the right to participate in decisions making.

CONCLUSION AND IMPACT

The proposed activity fits in with the surrounding activities and does not have a negative impact on the prevailing environment. No further de-bushing or land clearing is required for the agricultural activities and no additional water above the current abstraction allocation is required for the continues operation of the project.

THE WATER RESOURCES MANAGEMENT ACT (NO 11 OF 2013)

Water Resources Management Act (No 11 of 2013) provide for the management, development, protection, conservation, and use of water resources; to establish the Water Advisory Council, the Water Regulatory Board and the Water Tribunal; and to provide for incidental matters. Part VIII of the Act stipulates the conditions to comply with before a permit is issued for the abstraction and use of water for irrigation purposes.

For the purposes of the application and renewal of the water abstraction license, the following sections of the Act are applicable:

Section 33 of the Act - Application for licence to abstract and use water:

33. (1) A person who wishes to abstract and use water may apply to the Minister for a licence to abstract and use water in the prescribed manner and form, which application must include:

(a) the name of the applicant;
(b) the water resource from which the proposed abstraction will be made;
(c) the proposed location of the abstraction;
(d) the type and location of the proposed beneficial use;
(e) the names of owner and occupier of the land upon which the proposed beneficial use will be made;
(f) the proposed rate and volume of the abstraction;
(g) the proposed timing of the abstraction;
(h) a description of any waterworks necessary to accomplish the proposed abstraction and put the abstracted water to beneficial use and a proposed schedule for the completion of such waterworks;
(i) a description of the proposed treatment that will be given to the abstracted water, including any chemicals proposed to be applied to the water;
(j) a description of the volume, rate and chemical composition of any effluent or return flow resulting from application of the abstracted water to beneficial use and a description of the location that any such effluent or return flow is expected to enter a water resource; and
(k) any additional information the Minister may prescribe.

(2) An applicant for a licence to abstract and use water must, at least 60 days before he or she submits the application to the Minister, issue a notice in the Gazette -

(a) inviting all interested persons to submit their objections in writing, if any; and
(b) stating the place at and period within which objections are to be submitted, which period may not be less than 30 days.

(3) An application for a licence to abstract and use water must be accompanied by -
(a) proof of publication of the notice referred to in subsection (2), and all the objections, if any;
(b) the prescribed fee; and
(c) an environmental impact analysis of the proposed abstraction of water upon the environment and existing water users and water resources.

Section 35 of the ACT - Criteria upon which licence to abstract and use water may be issued:

35. (1) In deciding whether a licence to abstract and use water should be issued, the Minister must consider the following criteria –

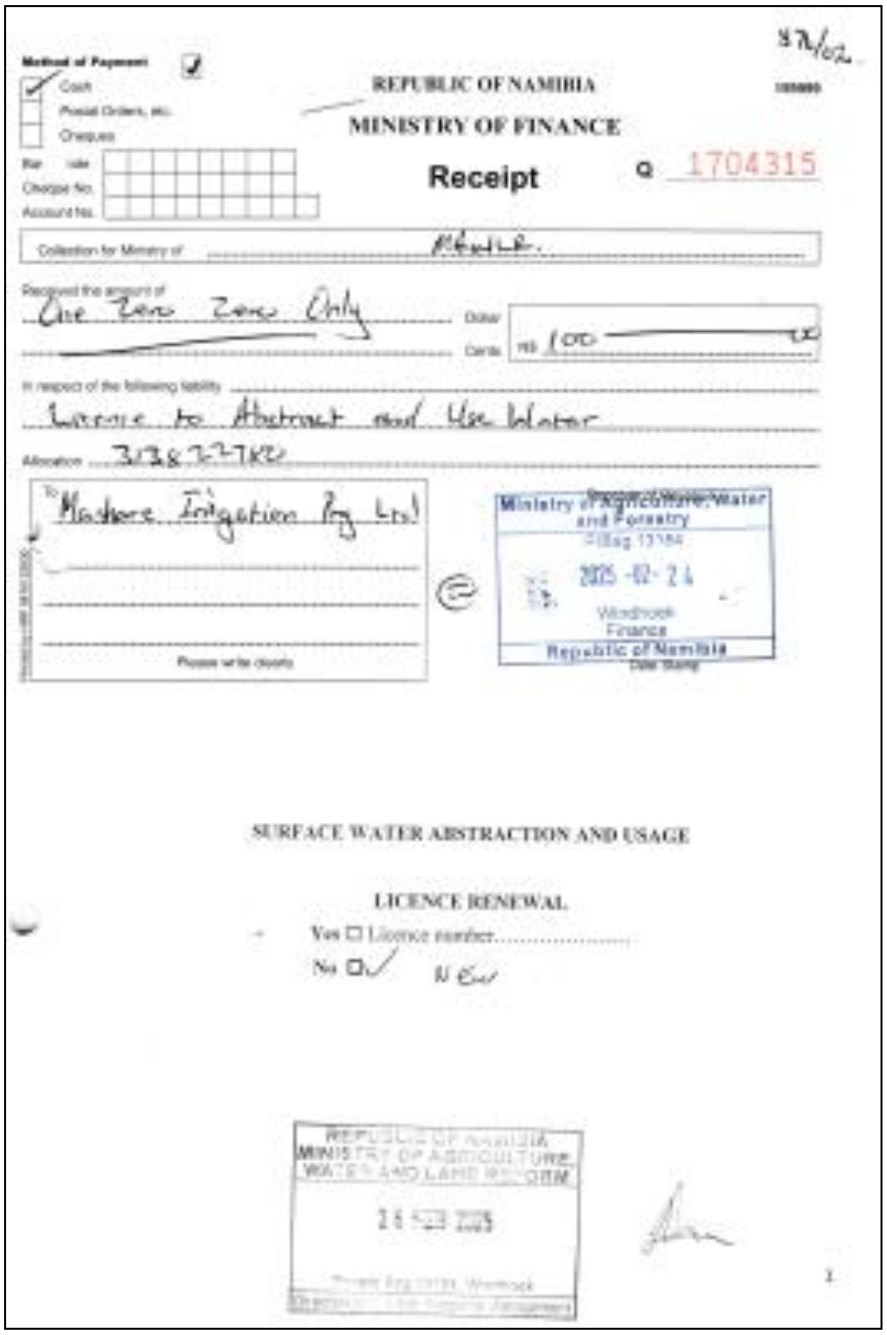
(a) whether the proposed abstraction and use of water are consistent with -
(i) the objectives and principles referred to in sections 2 and 3, respectively;
(ii) the Master Plan; and
(iii) any reservation of water made under section 27;
(b) the impact of the proposed abstraction upon existing water users, water resources and the water reserved or allocated for environmental uses;
(c) the safe yield of the aquifer from which the abstraction is proposed, if the application is for the abstraction of groundwater;
(d) the conformity of the proposed use with the efficient water management practices;
(e) the need to redress the effects of past racial and gender discrimination;
(f) the likely effect of the proposed abstraction -
(i) on the quality of any water resource, and on aquatic ecosystems dependent on the resource;
(ii) on Namibia's international obligations relating to internationally shared waters;
(g) the need to ensure the efficient and beneficial use of water resources;
(h) the existence of any traditional community and the extent of customary rights and practices in, or dependent upon, the water resource to which an application for the licence relates; and
(i) any additional criteria the Minister may prescribe.

(2) If the application for a licence to abstract and use water relates to a shared watercourse, the Minister, in addition to the criteria referred to in subsection (1), must consider the following matters -
(a) the volume of water abstracted and used by all concerned persons or communities;
(b) the nature of the uses dependent on the watercourse, including the economic and cultural value of the use;
(c) the number of persons relying upon the watercourse for domestic, agricultural or commercial purposes;
(d) the date on which the abstractions of water from the watercourse commences;

(e) the availability and reliability of alternative sources of water to support existing uses; and
(f) the increases in demand for water from the watercourse reasonably expected to occur in the foreseeable future.

(3) The Minister may issue more than one licence to abstract and use water from one water resource, subject to such terms and conditions as will enable concurrent use of the same resource by the applicants.

The Proponent already applied for the abstraction licence. See copy of proof of submission below:



REPUBLIC OF NAMIBIA
MINISTRY OF FINANCE
Receipt Q 1704315

Collection for Ministry of: MAWLR.

Received the amount of: One Zero Zero Only — Dollar N$ 100 — Cents

In respect of the following liability: Licence to Abstract and Use Water

Allocation: 3138777KE

Madores Irrigation Pty Ltd

Ministry of Agriculture, Water and Forestry
2025-02-24
Windhoek
Finance
Republic of Namibia

SURFACE WATER ABSTRACTION AND USAGE

LICENCE RENEWAL

Yes ☐ Licence number.....
No ☑ N Ew

REPUBLIC OF NAMIBIA
MINISTRY OF AGRICULTURE, WATER AND LAND REFORM

The approval of the abstraction license is subject to obtaining an Environmental Clearence.

CONCLUSION AND IMPACT

The issuing / renewal of the abstraction license for water to be used for the irrigation of the Mashare Irrigation Project is subject to the conditions stipulated in the Act and obtaining an environmental clearance for the activities of the project. The Proponent already applied for the license for abstraction of water from the Okavango River for irrigation and the issuing of the permit is subject to the ECC be obtained.

It is believed that by adhering to the stipulations of the Act, the continued activities on the project will not have a negative impact on the other users relying on water from the Okavango River.

OTHER LAWS, ACTS, REGULATIONS AND POLICIES

The laws, acts, regulations, and policies listed below have also been considered during the Environmental Assessment.

Table 1: Laws, Acts, Regulations and Policies

Laws, Acts, Regulations & Policies consulted:		
Electricity Act (No. 4 of 2007)	In accordance with the Electricity Act (No. 4 of 2007) which provides for the establishment of the Electricity Control Board and provide for its powers and functions; to provide for the requirements and conditions for obtaining licenses for the provision of electricity; to provide for the powers and obligations of licenses; and to provide for incidental matters: the necessary permits and licenses will be obtained.	The Proponent must abide to the Electricity Act.
Pollution Control and Waste Management Bill (guideline only)	The **Pollution Control and Waste Management Bill** is currently in preparation and is therefore included as a guideline only. Of reference to the mining, Parts 2, 7 and 8 apply. Part 2 provides that no person shall discharge or cause to be discharged, any pollutant to the air from a process except under and in accordance with the provisions of an air pollution	The Proponent must adhere to the Pollution Control and Waste Management Bill.

	license issued under section 23. Part 2 also further provides for procedures to be followed in license application, fees to be paid and required terms of conditions for air pollution licenses. Part 7 states that any person who sells, stores, transports or uses any hazardous substances or products containing hazardous substances shall notify the competent authority, in accordance with sub-section (2), of the presence and quantity of those substances. The competent authority for the purposes of section 74 shall maintain a register of substances notified in accordance with that section and the register shall be maintained in accordance with the provisions. Part 8 provides for emergency preparedness by the person handling hazardous substances, through emergency response plans.	
Water Resources Management Act	The **Water Resources Management Act (No. 11 of 2013)** stipulates conditions that ensure effluent that is produced to be of a certain standard. There should also be controls on the disposal of sewage, the purification of effluent, measures should be taken to ensure the prevention of surface and groundwater pollution and water resources should be used in a sustainable manner.	The Act must be consulted. Fresh water abstraction and waste-water discharge permits should be obtained when required.
Solid and Hazardous Waste Management Regulations: Local Authorities 1992	Provides for management and handling of industrial, business and domestic waste.	The Proponent must abide to the solid waste management provisions.
Hazardous Substances	The **Ordinance** applies to the manufacture, sale, use, disposal	The Proponent must abide to the Ordinance's provisions.

Ordinance (No. 14 of 1974)	and dumping of hazardous substances, as well as their import and export and is administered by the Minister of Health and Social Welfare. Its primary purpose is to prevent hazardous substances from causing injury, ill-health or the death of human beings.	
Atmospheric Pollution Prevention Ordinance of Namibia (No. 11 of 1976)	Part 2 of the **Ordinance** governs the control of noxious or offensive gases. The Ordinance prohibits anyone from carrying on a scheduled process without a registration certificate in a controlled area. The registration certificate must be issued if it can be demonstrated that the best practical means are being adopted for preventing or reducing the escape into the atmosphere of noxious or offensive gases produced by the scheduled process.	The proponent should adhere to the stipulations of the Atmospheric Pollution Prevention Ordinance.
Nature Conservation Ordinance	The **Nature Conservation Ordinance (No. 4 of 1975)** covers game parks and nature reserves, the hunting and protection of wild animals, problem animals, fish and indigenous plant species. The Ministry of Environment, Forestry and Tourism (MEFT) administer it and provides for the establishment of the Nature Conservation Board.	The proposed project implementation is not located in a demarcated conservation area, national park or unique environments.
Forestry Act	The **Forestry Act (No. 12 of 2001)** specifies that there be a general protection of the receiving and surrounding environment. The protection of natural vegetation is of great importance, the Forestry Act especially stipulates that no living tree, bush, shrub or indigenous plants within 100m from any river, stream or watercourse, may be removed without the necessary license.	No removal of protected tree species or removal of mature trees should happen. The Ministry of Environment, Forestry and Tourism should be consulted when required.
Labour Act	The **Labour Act (No. 11 of 2007)** contains regulations relating to the	The proponent and contractor should adhere to the Labour

	Health, Safety and Welfare of employees at work. These regulations are prescribed for among others safety relating to hazardous substances, exposure limits and physical hazards. Regulations relating to the Health and Safety of Employees at Work are promulgated in terms of the Labour Act 6 of 1992 (GN156, GG1617 of 1 August 1997).	Act.
Communal Land Rights	Communal land is land that belongs to the State and is held in trust for the benefit of the traditional communities living in those areas. Communal land cannot be bought or sold, but one can be given a customary land right or right of leasehold to a part of communal land in accordance with the provisions of the **Communal Land Reform Act (No. 5 of 2002)** and **Communal Land Reform Amendment Act (No. 13 of 2013)**. The Communal Land Reform Act provide for the allocation of rights in respect of communal land to establish Communal Land Boards to provide for the powers of Chiefs and Traditional Authorities and boards in relation to communal land and to make provision for incidental matters. Consent and access to land for the proposed project should be requested from the relevant traditional authority through the Regional Council and Regional Communal Land Boards.	Consent should be obtained from Traditional Authorities, Communal Boards, Chiefs, Kings, Queens etc. if required.
Public and Environmental Health Act	The Public and Environmental Health Act (No. 1 of 2015) provides with respect to matters of public health in Namibia. The objects of this Act are to: (a) promote public health and wellbeing; (b) prevent injuries, diseases and disabilities; (c) protect individuals and	The proponent and contractor should adhere to the Public and Environmental Health Act.

	communities from public health risks; (d) encourage community participation to create a healthy environment; and (e) provide for early detection of diseases and public health risks.	
National Heritage Act (No. 27 of 2004)	All protected heritage resources discovered need to be reported immediately to the National Heritage Council (NHC) and require a permit from the NHC before it may be relocated. This should be applied from the NHC.	The National Heritage Council should be consulted when required.
National Monuments Act of Namibia (No. 28 of 1969) as amended until 1979	No person shall destroy, damage, excavate, alter, remove from its original site or export from Namibia: (a) any meteorite or fossil; or (b) any drawing or painting on stone or a petroglyph known or commonly believed to have been executed by any people who inhabited or visited Namibia before the year 1900 AD; or (c) any implement, ornament or structure known or commonly believed to have been used as a mace, used or erected by people referred to in paragraph; or (d) the anthropological or archaeological contents of graves, caves, rock shelters, middens, shell mounds or other sites used by such people; or (e) any other archaeological or palaeontological finds, material or object; except under the authority of and in accordance with a permit issued under this section.	The proposed site for development is not within any known monument site both movable or immovable as specified in the Act, however in such an instance that any material or sites or archeologic importance are identified, it will be the responsibility of the developer to take the required route and notify the relevant commission.
Public Health Act (No. 36 of 1919)	Under this act, in section 119: "No person shall cause a nuisance or shall suffer to exist on any land or premises owned or occupied by him or of which he is in charge any nuisance or other condition liable to be injurious or dangerous to health."	The proponent will ensure that all legal requirements of the project in relation to protection of the health of their employees and surrounding residents is protected and will be included in the EMP. Relevant protective equipment

		shall be provided for employees in construction. The development shall follow requirements and specifications in relation to water supply and sewerage handling and solid waste management so as not to threaten public health of future residents on this piece of land.
Soil Conservation Act (No. 76 of 1969)	The objectives of this Act are to: Make provisions for the combating and prevention of soil erosion; Promote the conservation, protection and improvement of the soil, vegetation, sources and resources of the Republic;	Only the area required for the operations should be cleared from vegetation to ensure the minimum impact on the soil through clearance for construction.
Air Quality Act (N0. 39 of 2004)	The **Air Quality Act (No. 39 of 2004)** intends to provide for national norms and standards regulating air quality monitoring, management and control by all spheres of government; for specific air quality measures; and for matters incidental thereto.	The proponent and contractor should adhere to the Air Quality Act.
Vision 2030 and National Development Plans	Namibia's overall development ambitions are articulated in the Nation's Vision 2030. At the operational level, five-yearly national development plans (NDP's) are prepared in extensive consultations led by the National Planning Commission in the Office of the President. Currently the Government has so far launched a 4th NDP which pursues three overarching goals for the Namibian nation: high and sustained economic growth; increased income equality; and employment creation.	The proposed project is an important element in employment creation.

CONCLUSION AND IMPACT

It is believed the above administrative, legal and policy requirements which guide and governs development will be followed and complied with in the planning, implementation and operations of the activity.

A flowchart indicating the entire EIA process is shown in the *Figure* below:

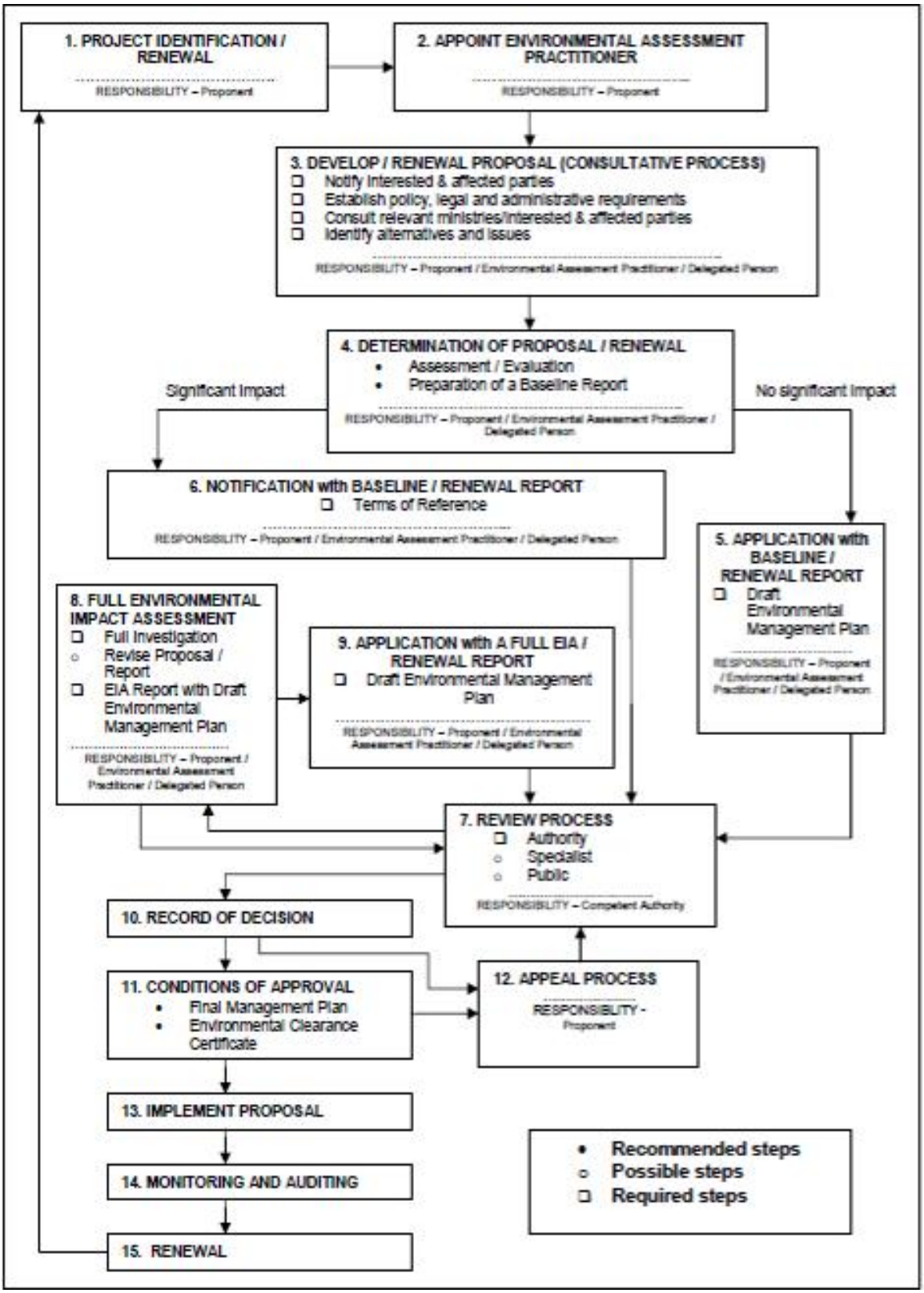


Figure 12: Flowchart of the Impact Process

12. AFFECTED RECEIVING ENVIRONMENT

12.1. BIODIVERSITY AND VEGETATION

Mashare forms part of the Tree and Shrub Savannah Biome (specifically the Highland Savannah). See map below showing the biomes in Namibia:

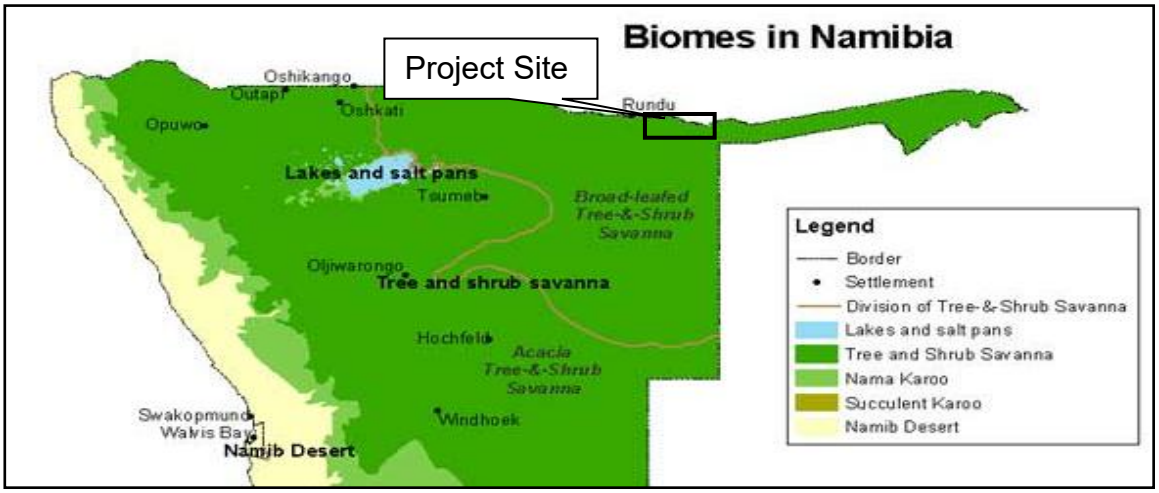


Figure 13: Biomes in Namibia (Atlas of Namibia, 2002)

Only the necessary plants/vegetation will be removed if necessary for possible future construction. The natural characteristics of the project site namely the vegetation clearance and the destruction of habitats is expected to further on have a low impact on the environment before the mitigation measures are taken and after the mitigation measures are taken, the impact will be very low.

12.2. GEOLOGY AND SOILS

Mashare is in the Kalahari Group. See *Map* below:

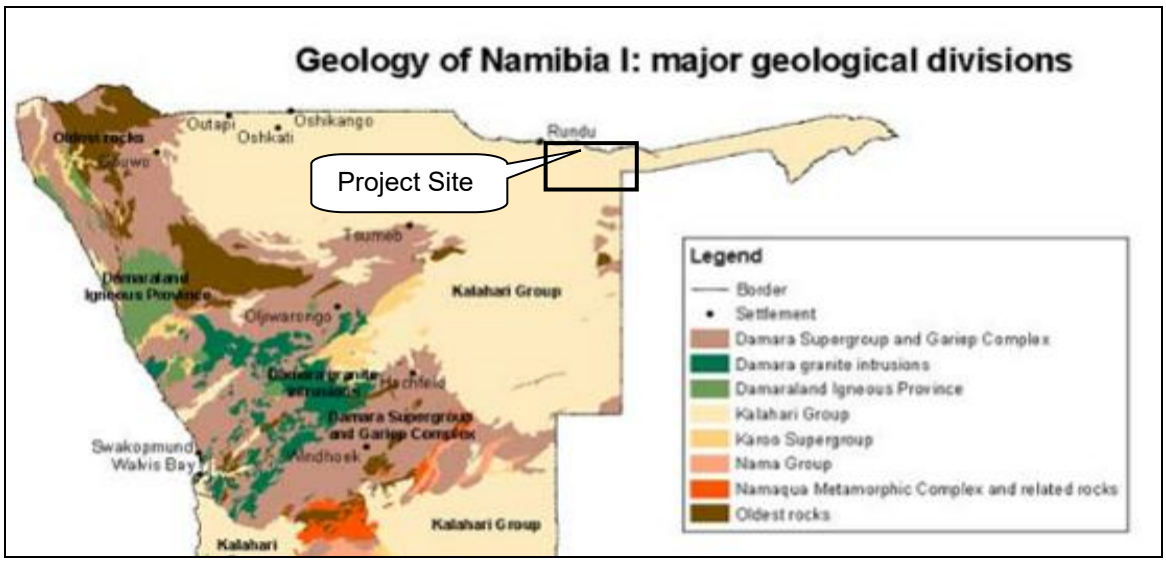


Figure 14: Geology of Namibia (Atlas of Namibia Project, 2002)

The project site is generally even with some higher areas at places. Natural slopes are seen near natural drainage courses on the project site. The soil is suitable for development however the soil is also erodible and should not be cleared unnecessarily if not required for the placement of buildings or roads. Unnecessary clearing of soil will lead to erosion (*Grunert, 2003*).

12.3. SOCIO ECONOMIC ENVIRONMENT

Most of the land uses around the project site are characterized by agricultural, farming, residential and commercial activities; therefore, the activities will not have a negative impact on the social environment.

The wheat and maize production of Mashare Irrigation are highly mechanised from planting through to irrigation, fertigation, pest control and harvesting. Ten (10) permanent workers are employed for this activity. The blueberry production on the other hand is labour intensive and thus creates both permanent and seasonal employment. 140 people are permanently employment of which 66% is women.

During harvest time and pruning 457 – 1000 people are temporarily employed. All the temporary workers are women.

The project also plays an important role from a socioeconomic perspective. It has the following impact:

- The project pays annual rental for the land of N$ 2,500,000 to the MAWLR.

- Royalties of N$ 105/ha/annum are paid to the Shambyu Traditional Authority annually.
- The Proponent is also supporting the Herman Shiyamba Kindergarten which accommodates 83 pre-primary leaners through a feeding scheme and financially. Several of the workers make use of this facility to care for them and prepare their children for primary school.

The proposed project will have a positive impact on the socio-economic environment. Positive impacts associated with the project will be in the form of additional job opportunities during construction as well as in operation. The community will also benefit from skills and technology transfer. The spending power of locals is likely to increase because of employment during the construction and operational phase.

12.4. CLIMATE

In broad terms, the climate can be described as semi-arid, with summer rainfalls and highest temperatures occurring during October and February. Maximum temperatures recorded in the area vary just under 40 degrees Celsius with an average annual temperature of more than 22 degrees Celsius (*Weather - the Climate in Namibia*, 1998 – 2012).

Rainfall in the form of thunderstorms is experienced in the area during the summer months between October and April. It is further characterised by relatively high average mean annual rainfall of 400 - 500mm in comparison to 250mm for the entire country. Over 70% of the rainfall occurs in the period between November and March with mean annual gross evaporation of 2600-2800mm (*Weather - the Climate in Namibia*, 1998 – 2012).

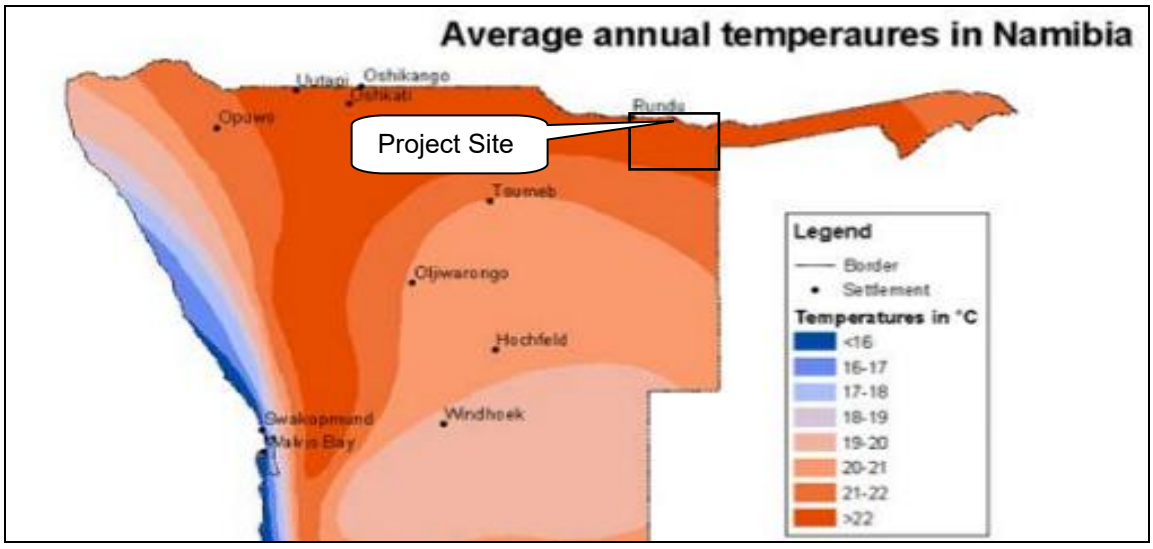


Figure 15: Average temperatures (Atlas of Namibia Project, 2002)

12.5. CULTURAL HERITAGE

The proposed project site is not known to have any historical significance prior to or after Independence in 1990. The specific area does not have any National Monuments and the specific site has no record of any cultural or historical importance or on-site resemblance of any nature. No graveyard or related article was found on the site.

13. IMPACT ASSESSMENT AND EVALUATION

The Environmental Impact Assessment sets out potential positive and negative environmental impacts associated with the proposed project site. The following assessment methodology will be used to examine each impact identified:

Table 2: Impact Evaluation Criterion (DEAT 2006)

Criteria	Rating (Severity)	
Impact Type	+	Positive
	O	No Impact
	-	Negative
Significance of impact being either	L	Low (Little or no impact)
	M	Medium (Manageable impacts)
	H	High (Adverse impact)

Probability:	Duration:
5 – Definite/don't know	5 - Permanent
4 – Highly probable	4 – Long-term (impact ceases)
3 – Medium probability	3 – Medium term (5 – 15 years)
2 – Low probability	2 – Short-term (0 – 5 years)
1 – Improbable	1 - Immediate
0 - None	
Scale:	**Magnitude:**
5 – International	10 – Very high/don't know
4 – National	8 - High
3 – Regional	6 - Moderate

2 – Local	**4 - Low**
1 – Site only	**2 - Minor**
	0 - None

The impacts on the receiving environment are discussed in the paragraphs below:

13.1. IMPACTS DURING THE CONSTRUCTION ACTIVITY

Some of the impacts that the development has on the environment includes water will be used for the construction and operation activities, electricity will be used, a sewer system will be used and wastewater will be produced on the site that will have to be handled.

13.1.1. WATER USAGE

Water is a scarce resource in Namibia and therefore water usage should be monitored and limited to prevent unnecessary wastage. The proposed project might make use of water in its construction phase and operations.

Impact Evaluation

Aspect	Impact Type	Scale	Duration	Magnitude	Probability	Significance	
						Unmitigated	Mitigated
Water	-	2	2	4	2	L	L

13.1.2. ECOLOGICAL IMPACTS

The proposed infrastructure will be in a semi disturbed natural area which is partly covered with vegetation. Special care should be taken to limit the destruction or damage of the vegetation. However, impacts on fauna and flora are expected to be minimal. Disturbance of areas outside the designated working zone is not allowed.

Impact Evaluation

Aspect	Impact Type	Scale	Duration	Magnitude	Probability	Significance	
						Unmitigated	Mitigated
Ecology	-	1	2	4	2	L	L

13.1.3. DUST POLLUTION AND AIR QUALITY

Dust generated during the transportation of building materials; construction and installation of bulk services, and problems thereof are expected to be low and site specific. Dust is expected to be worse during the winter months when strong winds occur. Release of various particulates from the site during the construction phase and exhaust fumes from vehicles and machinery related to the construction of bulk services are also expected to take place. Dust is regarded as a nuisance as it reduces visibility, affects the human health and retards plant growth. It is recommended that regular dust suppression be included in the construction activities, when dust becomes an issue.

Impact evaluation

Aspect	Impact Type	Scale	Duration	Magnitude	Probability	Significance	
						Unmitigated	Mitigated
Dust & Air Quality	-	2	2	2	2	M	L

13.1.4. NOISE IMPACT

An increase of ambient noise levels at the proposed site is expected due to the construction activities. Noise pollution due to heavy-duty equipment and machinery might be generated. It is not expected that the noise generated during construction will impact any third parties due to the distance of the neighbouring activities. Ensure all mufflers on vehicles are in full operational order; and any audio equipment should not be played at levels considered intrusive by others. The construction staff should be equipped with ear protection equipment.

Impact evaluation

Aspect	Impact Type	Scale	Duration	Magnitude	Probability	Significance	
						Unmitigated	Mitigated
Noise	-	2	1	4	2	M	L

13.1.5. HEALTH, SAFETY AND SECURITY

The safety, security and health of the labour force, employees and general public are of great importance. Workers should be orientated with the maintenance of safety and health procedures and they should be provided with PPE (Personal Protective Equipment). A health and safety officer should be employed to manage, coordinate and monitor risk and hazard and report all health and safety related issues in the workplace.

Safety issues could arise from the earthmoving equipment and tools that will be used on site during the construction phase. This increases the possibility of injuries and the contractor must ensure that all staff members are made aware of the potential risks of injuries on site. The presence of equipment lying around on site may also encourage criminal activities (theft).

Sensitize operators of earthmoving equipment and tools to switch off engines of vehicles or machinery not being used. The contractor is advised to ensure that the team is equipped with first aid kits and that these are available on site, at all times. Workers should be equipped with adequate personal protective gear and properly trained in first aid and safety awareness.

No open flames, smoking or any potential sources of ignition should be allowed at the project location. Signs such as 'NO SMOKING' must be prominently displayed in parts where inflammable materials are stored on the premises. Proper barricading and/or fencing around the site especially trenches for pipes and drains should be erected to avoid entrance of animals and/or unauthorized persons. Safety regulatory signs should be placed at strategic locations to ensure awareness. Adequate lighting within and around the construction locations should be erected, when visibility becomes an issue.

Impact evaluation

Aspect	Impact Type	Scale	Duration	Magnitude	Probability	Significance	
						Unmitigated	Mitigated
Safety & Security	-	1	2	4	2	M	L

13.1.6. CONTAMINATION OF GROUNDWATER

Care must be taken to avoid contamination of soil and groundwater. Use drip trays when doing maintenance on machinery. Maintenance should be done on dedicated areas with linings or concrete flooring. The risk can be lowered further through proper training of staff. All spills must be cleaned up immediately. Excavations should be backfilled and sealed with appropriate material, if it is not to be used further.

Impact Evaluation

Aspect	Impact Type	Scale	Duration	Magnitude	Probability	Significance	
						Unmitigated	Mitigated
Groundwater	-	2	2	2	2	M	L

13.1.7. SEDIMENTATION AND EROSION

The surrounding area is mostly covered by vegetation. The vegetation is stabilizing the area against wind and water erosion. Vegetation clearance and creation of impermeable

surfaces could result in erosion in areas across the proposed area. The clearance of vegetation will further reduce the capacity of the land surface to slow down the flow of surface water, thus decreasing infiltration, and increasing both the quantity and velocity of surface water runoff. The proposed construction activities will increase the number of impermeable surfaces and therefore decrease the amount of groundwater infiltration. As a result, the amount of storm water during rainfall events could increase. If proper storm water management measures are not implemented this will impact negatively on the water courses close to the site.

Impact Evaluation

Aspect	Impact Type	Scale	Duration	Magnitude	Probability	Significance	
						Unmitigated	Mitigated
Erosion and Sedimentation	-	1	2	4	2	M	L

13.1.8. GENERATION OF WASTE

This can be in a form of rubble, cement bags, pipe and electrical wire cuttings. The waste should be gathered and stored in enclosed containers to prevent it from being blown away by the wind. Contaminated soil due to oil leakages, lubricants and grease from the construction equipment and machinery may also be generated during the construction phase.

The oil leakages, lubricants and grease must be addressed. Contaminated soil must be removed and disposed of at a hazardous waste landfill. The contractor must provide containers on-site, to store any hazardous waste produced. Regular inspection and housekeeping procedure monitoring should be maintained by the contractor.

The Proponent intends to appoint and contract specialist waste managers to collect and dispose of the waste generated on the site. The proponent must ensure that the subcontractors complied with the applicable Namibian Legislation, Policies and Practices.

Impact Evaluation

Aspect	Impact Type	Scale	Duration	Magnitude	Probability	Significance	
						Unmitigated	Mitigated
Waste	-	1	2	4	2	M	L

13.1.9. CONTAMINATION OF SURFACE WATER

Contamination of surface water might occur through oil leakages, lubricants and grease from the equipment and machinery during the installation, construction and maintenance

of bulk services at the site. Oil spills may form a film on water surfaces in the nearby streams causing physical damage to water-borne organisms.

Machinery should not be serviced at the construction site to avoid spills. All spills should be cleaned up as soon as possible. Hydrocarbon contaminated clothing or equipment should not be washed within 25m of any surface water body.

Impact Evaluation

Aspect	Impact Type	Scale	Duration	Magnitude	Probability	Significance	
						Unmitigated	Mitigated
Surface water	-	2	2	4	3	M	L

13.1.10. TRAFFIC AND ROAD SAFETY

All drivers of delivery vehicles and construction machinery should have the necessary driver's licenses and documents to operate these machines. Speed limit warning signs must be erected to minimise accidents. Heavy-duty vehicles and machinery must be tagged with reflective signs or tapes to maximize visibility and avoid accidents.

Impact Evaluation

Aspect	Impact Type	Scale	Duration	Magnitude	Probability	Significance	
						Unmitigated	Mitigated
Traffic	-	2	2	4	3	M	L

13.1.11. FIRES AND EXPLOSIONS

There should be sufficient water available for firefighting purposes. Ensure that all fire-fighting devices are in good working order and are serviced. All personnel have to be trained about responsible fire protection measures and good housekeeping such as the removal of flammable materials on site. Regular inspections should be carried out to inspect and test firefighting equipment by the contractor.

The Proponent will put in the necessary fire protection infrastructure / extinguishers as per requirements. It is advised that a specialist Fire Protection Specialist is contracted to introduce a proper fire protection plan with the required infrastructure and to oversee the annual auditing and maintenance of the infrastructure.

Impact Evaluation

Aspect	Impact Type	Scale	Duration	Magnitude	Probability	Significance	
						Unmitigated	Mitigated
Fires and Explosions	-	2	2	4	2	M	L

13.1.12. SENSE OF PLACE

The placement, design and construction of the proposed project should be as such as to have the least possible impact on the natural environment. The proposed activities will not have a large/negative impact on the sense of place in the area since it will be constructed in a manner that will not affect the neighbouring portions and it will not be visually unpleasing.

Impact Evaluation

Aspect	Impact Type	Scale	Duration	Magnitude	Probability	Significance	
						Unmitigated	Mitigated
Nuisance Pollution	-	1	1	2	2	L	L

13.2. IMPACTS DURING THE OPERATIONAL PHASE

13.2.1. ECOLOGICAL IMPACTS

Staff and visitors should only make use of walkways and existing roads to minimise the impact on vegetation. Minimise the area of disturbance by restricting movement to the designated working areas during maintenance and drives.

Impact Evaluation

Aspect	Impact Type	Scale	Duration	Magnitude	Probability	Significance	
						Unmitigated	Mitigated
Ecology Impacts	-	1	2	4	2	L	L

13.2.2. DUST POLLUTION AND AIR QUALITY

Vehicles transporting goods and staff will contribute to the release of hydrocarbon vapours, carbon monoxide and sulphur oxides into the air. Possible release of sewer odour, due to sewer system failure of maintenance might also occur. All maintenance of

bulk services and infrastructure at the project site has to be designed to enable environmental protection.

Impact Evaluation

Aspect	Impact Type	Scale	Duration	Magnitude	Probability	Significance	
						Unmitigated	Mitigated
Dust & Air Quality	-	2	2	4	4	M	L

13.2.3. CONTAMINATION OF GROUNDWATER

Spillages might also occur during maintenance of the sewer system. This could have impacts on groundwater especially in cases of large sewer spills. Proper containment should be used in cases of sewerage system maintenance to avoid any possible leakages. Oil and chemical spillages may have a heath impact on groundwater users. Potential impact on the natural environment from possible polluted groundwater also exists.

Impact Evaluation

Aspect	Impact Type	Scale	Duration	Magnitude	Probability	Significance	
						Unmitigated	Mitigated
Groundwater contamination	-	2	2	4	2	L	L

13.2.4. GENERATION OF WASTE

Household waste from the activities at the site and from the staff working at the site will be generated. This waste will be collected, sorted to be recycled and stored in on site for transportation and disposal at an approved landfill site.

The Proponent intends to appoint and contract specialist waste managers to collect and dispose of the waste generated on the site. The proponent must ensure that the subcontractors complied with the applicable Namibian Legislation, Policies and Practices.

Impact Evaluation

Aspect	Impact Type	Scale	Duration	Magnitude	Probability	Significance	
						Unmitigated	Mitigated
Waste Generation	-	1	2	2	2	M	L

13.2.5. FAILURE IN RETICULATION PIPELINES

There may be a potential release of sewage, stormwater or water into the environment due to pipeline/system failure. As a result, the spillage could be released into the environment and could potentially be health hazard to surface and groundwater. Proper reticulation pipelines and drainage systems should be installed. Regular bulk services infrastructure and system inspection should be conducted.

Impact Evaluation

Aspect	Impact Type	Scale	Duration	Magnitude	Probability	Significance	
						Unmitigated	Mitigated
Failure of Reticulation Pipeline	-	1	1	4	2	M	L

13.2.6. FIRES AND EXPLOSIONS

Food will be prepared on gas fired stoves. There should be sufficient water available for firefighting purposes. Ensure that all fire-fighting devices are in good working order and are serviced. All personnel have to be trained about responsible fire protection measures and good housekeeping such as the removal of flammable materials on site. Regular inspections should be carried out to inspect and test firefighting equipment by the contractor.

The Proponent will put in the necessary fire protection infrastructure / extinguishers as per requirements. It is advised that a specialist Fire Protection Specialist is contracted to introduce a proper fire protection plan with the required infrastructure and to oversee the annual auditing and maintenance of the infrastructure.

Impact Evaluation

Aspect	Impact Type	Scale	Duration	Magnitude	Probability	Significance	
						Unmitigated	Mitigated
Fires and Explosions	-	2	1	4	2	M	L

13.2.7. HEALTH, SAFETY AND SECURITY

The safety, security and health of the labour force, employees and neighbours are of great importance, workers should be orientated with the maintenance of safety and health procedures and they should be provided with PPE (Personal Protective Equipment). Workers should be warned not to approach or chase any wild animals

occurring on the site. No open flames, smoking or any potential sources of ignition should be allowed at the project location. Signs such as 'NO SMOKING' must be prominently displayed in parts where inflammable materials are stored on the premises.

Impact Evaluation

Aspect	Impact Type	Scale	Duration	Magnitude	Probability	Significance	
						Unmitigated	Mitigated
Safety & Security	-	1	2	4	2	M	L

13.3. CUMULATIVE IMPACTS

These are impacts on the environment, which results from the incremental impacts of the construction and operation of the proposed project when added to other past, present, and reasonably foreseeable future actions regardless of what person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. In relation to an activity, it means the impact of an activity that in it may not become significant when added to the existing and potential impacts resulting from similar or diverse activities or undertakings in the area.

Possible cumulative impacts associated with the proposed project include sewer damages/maintenance, vegetation and animal disturbance, uncontrolled traffic and destruction of the natural environment. These impacts could become significant especially if it is not properly supervised and controlled. This could collectively impact on the environmental conditions in the area. Cumulative impacts could occur in both the operational and the construction phase.

Impact Evaluation

Aspect	Impact Type	Scale	Duration	Magnitude	Probability	Significance	
						Unmitigated	Mitigated
Cumulative Impacts	-	1	3	4	3	L	L

14. ENVIRONMENTAL MANAGEMENT PLAN

The Environmental Management Plan (EMP) provides management options to ensure impacts of the proposed construction and operation are minimised. An EMP is an environmental management tool used to ensure that undue or reasonably avoidable adverse impacts of the operations are prevented, and the positive benefits of the projects are enhanced.

The objectives of the EMP are:

- ✓ to include all components of the proposed project.
- ✓ to prescribe the best practicable control methods to lessen the environmental impacts associated with the project.
- ✓ to monitor and audit the performance of the project personnel in applying such controls.
- ✓ to ensure that appropriate environmental training is provided to responsible project personnel.

The EMP acts as a document that can be used during the various phases of the proposed project. The contractor as well as the management and staff should be made aware of the contents of the EMP. See *Appendix* for EMP.

15. CONCLUSION

The EIA has been completed in line with the requirements of the Environmental Management Act, 2007 and Regulations and it is concluded and recommended that the specific site identified namely Mashare Irrigation (Pty) Ltd, Mashare, Kavango East Region, has the full potential to be used for the proposed activities. The identified environmental and social impacts can be minimized and managed through implementing preventative measures and sound management systems. It is recommended that the environmental performance be monitored regularly to ensure compliance and that corrective measures be taken if necessary.

In general, the construction and operation of the proposed project would pose limited environmental risks, provided that the EMP for the activity is used properly. The EMP should be used as an onsite tool during the construction and operation of the project. Parties responsible for non-conformances of the EMP should be held responsible for any rehabilitation that has to be undertaken. After assessing all information available on this project, Green Earth Environmental Consultants are of the opinion that the proposed project site is suitable for the proposed activities. The accompanying EMP will focus on mitigation measures that will remediate or eradicate the negative or adverse impacts.

16. RECOMMENDATION

It is therefore recommended that the Ministry of Environment, Forestry and Tourism through the Environmental Commissioner support and approve the Environmental Clearance for the agriculture, irrigation and water extraction activities of Mashare Irrigation (Pty) Ltd, Mashare, Kavango East Region and to issue an Environmental Clearance for the following 'Listed Activities':

AGRICULTURE AND AQUACULTURE ACTIVITIES
7.3 The genetic modification of any organism with the purpose of fundamentally changing the inherent characteristics of that organism.
7.4 The import, processing and transit of genetically modified organisms.

7.5 Pest control.
7.6 The release of genetically modified organisms into the environment where an environmental assessment is required by law.
7.7 The release of any organism outside its natural area of distribution that is to be used for biological pest control.
7.8 The introduction of alien species into local ecosystems.

WATER RESOURCE DEVELOPMENTS
8.1 The abstraction of ground or surface water for industrial or commercial purposes.
8.2 The abstraction of groundwater at a volume exceeding the threshold authorised in terms of a law relating to water resources.
8.3 Any water abstraction from a river that forms an international boundary.
8.5 Construction of dams, reservoirs, levees and weirs.
8.7 Irrigation schemes for agriculture excluding domestic irrigation.

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APPENDIX A: CURRICULUM VITAE OF CHARLIE DU TOIT

1.	**Position:**	Environmental Practitioner
2.	**Name/Surname:**	Charl du Toit
3.	**Date of Birth:**	29 October 1960
4.	**Nationality:**	Namibian

5.	**Education:**	Name of Institution	University of Stellenbosch, South Africa
		Degree/Qualification	Hons B (B + A) in Business Administration and Management
		Date Obtained	1985-1987
		Name of Institution	University of Stellenbosch, South Africa
		Degree/Qualification	BSc Agric Hons (Chemistry, Agronomy and Soil Science)
		Date Obtained	1979-1982
		Name of Institution	Boland Agricultural High School, Paarl, South Africa
		Degree/Qualification	Grade 12
		Date Obtained	1974-1978

6.	**Membership of Professional Association:**	EAPAN Member (Membership Number: 112)

7.	**Languages:**		Speaking	Reading	Writing
		English	Good	Good	Good
		Afrikaans	Good	Good	Good

8.	**Employment Record:**	From	To	Employer	Position(s) held
		2009	Present	Green Earth Environmental Consultants	Environmental Practitioner
		2005	2008	Elmarie Du Toit Town Planning Consultants	Manager
		2003	2005	Pupkewitz Megabuild	General Manager
		1995	2003	Agra Cooperative Limited	Manager Trade

		Namibia	Chief Agricultural
1989	1995	Development	Consultant
		Corporation	
		Ministry of	Agricultural
1985	1988	Agriculture	Researcher

Certification:

I, the undersigned, certify that to the best of my knowledge and belief, this CV correctly describes myself, my qualifications, and my experience. I understand that any wilful misstatement described herein may lead to my disqualification or dismissal, if engaged.

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Charl du Toit

APPENDIX B: CURRICULUM VITAE OF CARIEN VAN DER WALT

1. **Position:** Environmental Consultant

2. **Name/Surname:** Carien van der Walt

3. **Date of Birth:** 6 August 1990

4. **Nationality:** Namibian

5. **Education:**

Institution	Degree/Diploma	Years
University of Stellenbosch	B.A. (Degree) Environment and Development	2009 to 2011
University of South Africa	B.A. (Honours) Environmental Management	2012 to 2013

6. **Membership of Professional Associations:**

   EAPAN Member (Membership Number: 113)

7. **Languages:**

Language	Speaking	Reading	Writing
English	Good	Good	Good
Afrikaans	Good	Good	Good

8. **Employment Record:**

From	To	Employer	Positions Held
07/2013	Present	Green Earth Environmental Consultants	Environmental Consultant
06/2012	03/2013	Enviro Management Consultants Namibia	Environmental Consultant
12/2011	05/2012	Green Earth Environmental Consultants	Environmental Consultant

9. **Detailed Tasks Assigned:**

Conducting the Environmental Impact Assessment, Environmental Management Plan, Public Participation, Environmental Compliance and Environmental Control Officer

Certification:

I, the undersigned, certify that to the best of my knowledge and belief, this CV correctly describes myself, my qualifications, and my experience. I understand that any wilful misstatement described herein may lead to my disqualification or dismissal, if engage.

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Carien van der Walt

APPENDIX C: ENVIRONMENTAL MANAGEMENT PLAN