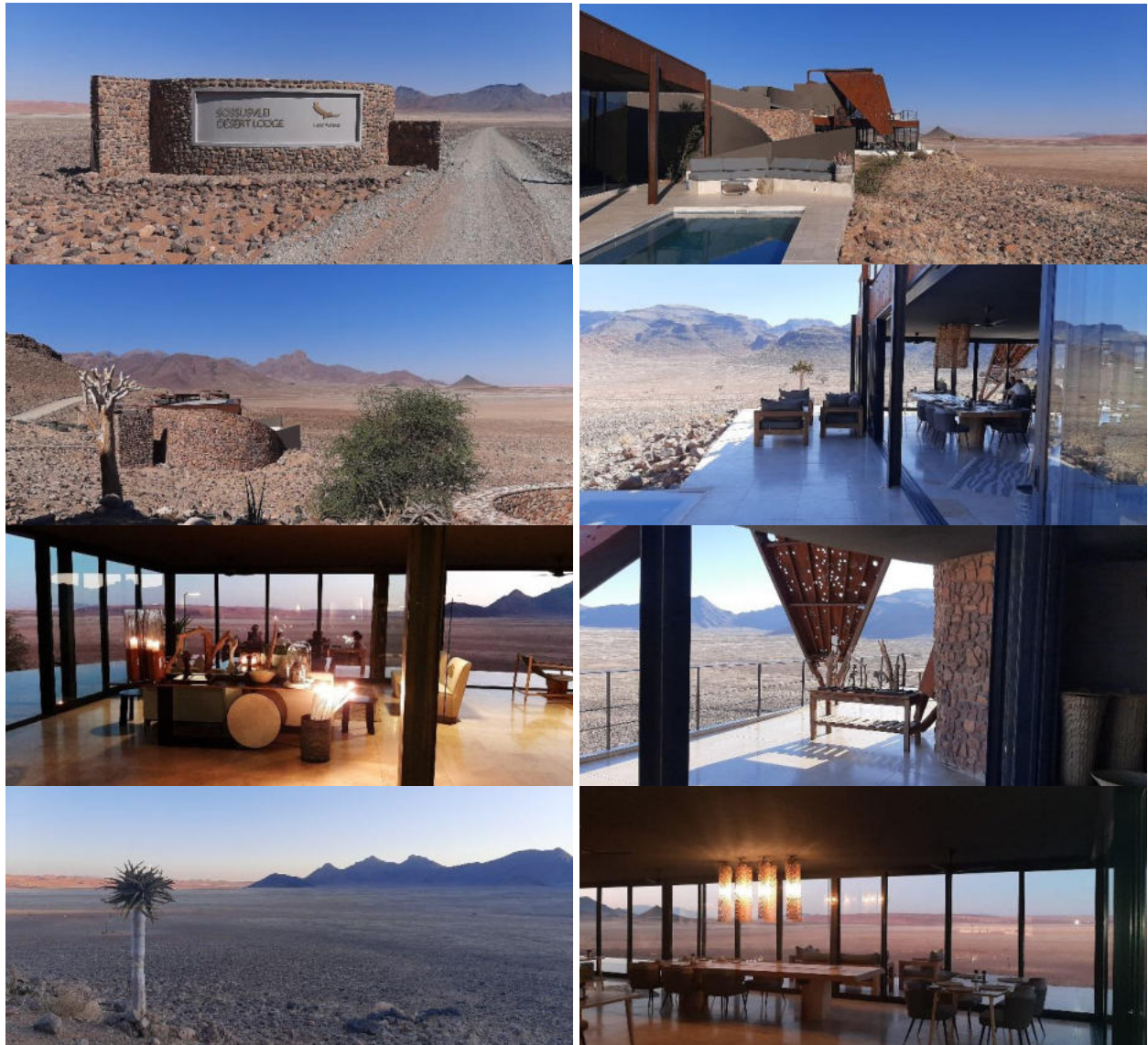


**IMPLEMENTATION OF AND COMPLIANCE WITH THE ENVIRONMENTAL
MANAGEMENT PLAN FOR THE &BEYOND SOSSUSVLEI DESERT LODGE,
GIBEON CONSTITUENCY, HARDAP REGION, NAMIBIA**



04 August 2023

Prepared by:



Prepared for:



CONTACT DETAILS



Mr Norman Walker
General Manager &BEYOND
Afro Ventures Namibia (Pty) Ltd T/A &Beyond
Sossusvlei Desert Lodge
P.O. Box 11480
Windhoek
Namibia
Tel: +264 63 693309
Fax: +264 88 6551288
E-mail: norman.walker@andbeyond.com
Web: www.andBeyond.com



Dr Lima Maartens
LM Environmental Consulting
P.O. Box 1284
Windhoek
Namibia
Tel: +264 61 255750
Fax: +264 88 619004
E-mail: lima@iway.na

Declaration: LM Environmental Consulting is an independent consulting firm with no interest in the project which is the subject matter hereof other than to fulfil the contract between the client and the consultant for delivery of specialised services as stipulated in the terms of reference.

Limitation of liability: LM Environmental Consulting accept no responsibility or liability in respect of losses, damages or costs suffered or incurred, directly or indirectly, under or in connection with this report to the extent that such losses, damages, and costs are due to information provided to LM Environmental Consulting for purposes of this report that is subsequently found to be inaccurate, misleading or incomplete, or due to the acts or omissions of any person other than ourselves. LM Environmental Consulting shall not be liable for any direct, incidental, special or consequential damages for loss of profit, revenue, data or use incurred by the Client or any third party, whether in contract or delict, regardless whether the Client or the other party has been advised of the possibility of such damages.

Copyright Warning: Unless otherwise noted, the copyright in all text and other matter (including the manner of presentation) is the exclusive property of LM Environmental Consulting and/or Dr Maartens. It is an offence to reproduce and/or use, without written consent, any substance, matter, technical procedure and/or technique or part thereof contained in this document.

TABLE OF CONTENTS

1	Introduction.....	6
1.1	Background	6
1.2	Terms of Reference	7
1.3	Environmental Assessment Practitioner	8
2	&Beyond Sossusvlei Desert Lodge.....	9
2.1	Infrastructure	9
2.2	Engineering Services	14
3	Environmental Management Plan: Implementation and Compliance.....	15
3.1	Introduction.....	15
3.2	Compliance: Environmental Management Plan.....	16
3.3	Compliance: Monitoring and Reporting.....	39
4	Conclusions and Recommendations	40
5	References	41

LIST OF TABLES

Table 1: List of the applications/reports submitted to the Ministry of Environment, Forestry and Tourism since 2016.....	7
Table 2: Compliance with the Environmental Management Plan for the &Beyond Sossusvlei Desert Lodge, Farm Vreemdelingspoort No. 141, Hardap Region, Namibia.....	17

LIST OF FIGURES

Figure 1: Map showing the location of the &Beyond Sossusvlei Desert Lodge on Farm Vreemdelingspoort No. 141, Gibeon Constituency, Hardap Region, Namibia (<i>Source: Linear Design & Mapping, September 2016</i>).	6
Figure 2: Map showing the location of the &Beyond Sossusvlei Desert Lodge, the airfield, the septic tank/French drain system, the Staff Village, and the location of the two boreholes, Farm Vreemdelingspoort No. 141 (<i>Source: Linear Design & Mapping, September 2016</i>).	9
Figure 3: Pictures showing: a) a helipad <i>en route</i> to the Staff Village; and b) the helicopter hanger at the Staff Village (<i>Source: L Maartens, July 2023</i>).	10
Figure 4: Pictures showing: a) main building; b) reception area; c) and d) lounge; e) bar; f) veranda; g) interactive kitchen-area; h) wine cellar; i) and j) first floor with gym and treatment room (<i>Source: L Maartens, July 2023</i>).	11
Figure 5: Pictures showing: a) swimming pool; and b) observatory (<i>Source: L Maartens, July 2023</i>).	11
Figure 6: Pictures showing: a) guest suites one to five; and b) guest suites six to twelve (<i>Source: L Maartens, July 2023</i>).	11
Figure 7: Pictures showing: a) solar panels on the back-of-house area; b) back-of-house; see the cage with gas bottles (yellow arrow); c) the batteries, inverter, and distribution board; d) 250 kilo Volt-Ampere (kVA) generator; e) and f) consumer fuel installation; g) and h) area with cage with gas bottles, laundry lines, and the fat trap; i) an area for waste segregation; j) e-bikes; k) the laundry; and l) store room for the guides (<i>Source: L Maartens, July 2023</i>).	12
Figure 8: Pictures showing: a) and b) Staff Village accommodation; c) borehole infrastructure; d) three 10,000 litre water storage tanks; e) wash bay; f) two workshops and a service pit; g) three storage containers; and h) additional two storage containers (<i>Source: L Maartens, July 2023</i>).	13
Figure 9: Structure to be removed / filled with sand so as to not pose a hazard to humans and/or animals (<i>Source: L Maartens, July 2023</i>).	14
Figure 10: Pictures showing the first aid kit given to the e-bike drivers (<i>Source: L Maartens, July 2023</i>).	22
Figure 11: Picture showing five small pigs (yellow oval), five bigger pigs (white oval), and a boar, sow and one more pig (blue oval) (<i>Source: L Maartens, July 2023</i>).	25

Figure 12: Pictures showing the container where some hazardous materials are stored (<i>Source: L Maartens, July 2023</i>).....	28
Figure 13: Pictures showing: a) and b) consumer fuel installation at the Staff Village; note the 80 kilo Volt-Ampere (kVA) generator and the oil spill kit in the background; and c) cracked bund wall (<i>Source: L Maartens, July 2023</i>).....	29
Figure 14: Pictures showing: a) and b) fenced off waste disposal area; c) drums into which the ashes from the “incinerator” is emptied; d) area for the short-term storage of burnable items; e) and f) container for the storage of the packed glass/tins/cans (<i>Source: L Maartens, July 2023</i>).....	31
Figure 15: Map showing the four septic tank/French drain systems at the Lodge (the image is dated April 2005) (<i>Source: GoogleEarth, 2023</i>).....	32
Figure 16: Pictures showing: a) moist sand at septic tank/French drain system number 1; b) water at septic tank/French drain system number 2; c) the trough between the Lodge and septic tank/French drain system number 3; d) the three-compartment septic tank (yellow oval) at septic tank/French drain system number 3; e), f), and g) blocked or saturated French drain (number 3) causing an overflow; h) moist sand at septic tank/French drain system number 4; and i) moist sand in the area between the main building and guest suite number 6 (<i>Source: L Maartens, July 2023</i>).....	33
Figure 17: Picture showing the Biorock sewage system at the Staff Village (<i>Source: L Maartens, July 2023</i>).....	34
Figure 18: Picture showing arrival and safety equipment (<i>Source: L Maartens, July 2023</i>).....	36

ABBREVIATIONS / ACRONYMS / SYMBOLS / UNITS

The following is a list of the abbreviations, acronyms, symbols, and units used in this Report:

AIDS	Acquired Immunodeficiency Syndrome
CARS	Civil Aviation Regulations
CATS	(Namibian) Civil Aviation Technical Standards
CIS	Consumer Installation Certificate
CSR	Corporate Social Responsibility
DEAF	Directorate of Environmental Affairs and Forestry
DWA	Department of Water Affairs
EAP	Environmental Assessment Practitioner
EAPAN	Environmental Assessment Professionals of Namibia
ECC	Environmental Clearance Certificate
EMP	Environmental Management Plan
FAO	Food and Agriculture Organization
FSMS	Food Safety Management System
GRN	Government of the Republic of Namibia
ha	hectare
HACCP	Hazard Analysis Critical Control Points
HIV	Human Immunodeficiency Virus
HVAC	Heating, Ventilation, and Air Conditioning
I&APs	Interested and Affected Parties
IEMA	Institute of Environmental Management and Assessment
IFC	International Finance Corporation
ISO	International Organization for Standardization
IWM	Integrated Waste Management
kVA	kilo Volt-Ampere
l	litre
m	metre
m ²	square metre
m ³	cubic metre
MAWF	Ministry of Agriculture, Water and Forestry
MAWLR	Ministry of Agriculture, Water, and Land Reform
MET	Ministry of Environment and Tourism
MEFT	Ministry of Environment, Forestry and Tourism
MFMR	Ministry of Fisheries and Marine Resources
MHSS	Ministry of Health and Social Services

MME	Ministry of Mines and Energy
MSDS	Material Safety Data Sheet
NaDEET	Namib Desert Environmental Education Trust
NCE	Namibia Chamber of Environment
NRAC	NamibRand Desert Research and Awareness Centre
NRCF	NamibRand Conservation Foundation
NRNR	NamibRand Nature Reserve
NTB	Namibia Tourism Board
PM	Particulate Matter
PPE	Personal Protective Equipment
PV	Photovoltaic
SA	South Africa
SEA	Strategic Environmental Assessment
SHE	Safety, Health and Environment
STIs	Sexually Transmitted Infections
T/A	Trading As
UK	United Kingdom
UNAM	University of Namibia
VOC	Volatile Organic Compound
WHO	World Health Organization

1 Introduction

1.1 Background

Afro Ventures Namibia (Pty) Ltd is a Namibian Company (Reg. No: 88/167) Trading As (T/A) &Beyond Sossusvlei Desert Lodge.

The &Beyond Group owns and/or manages permanent and mobile lodges in Africa (Botswana, Kenya, Mozambique, Namibia, South Africa, and Tanzania); the &Beyond Group acts as a destination management company (i.e. it facilitates bookings) on behalf of guests wishing to travel to Rwanda, Uganda, and Zambia (Africa), Asia (Bhutan, India, Maldives, Nepal, and Sri Lanka) and South America (Chile and Argentina) (see www.andBeyond.com). The Sossusvlei Desert Lodge was taken over by the &Beyond Group in 2001.

The &Beyond Sossusvlei Desert Lodge is located on Farm Vreemdelingspoort No. 141 (~20,000 hectares (ha) in size (see Figure 1); the Farm is located within the NamibRand Nature Reserve (NRNR)), Gibeon Constituency, Hardap Region, Namibia.

Access to the &Beyond Sossusvlei Desert Lodge can be attained via the C27 Main Gravel Road between Sesriem and Betta (see Maartens, 2016; 2020).

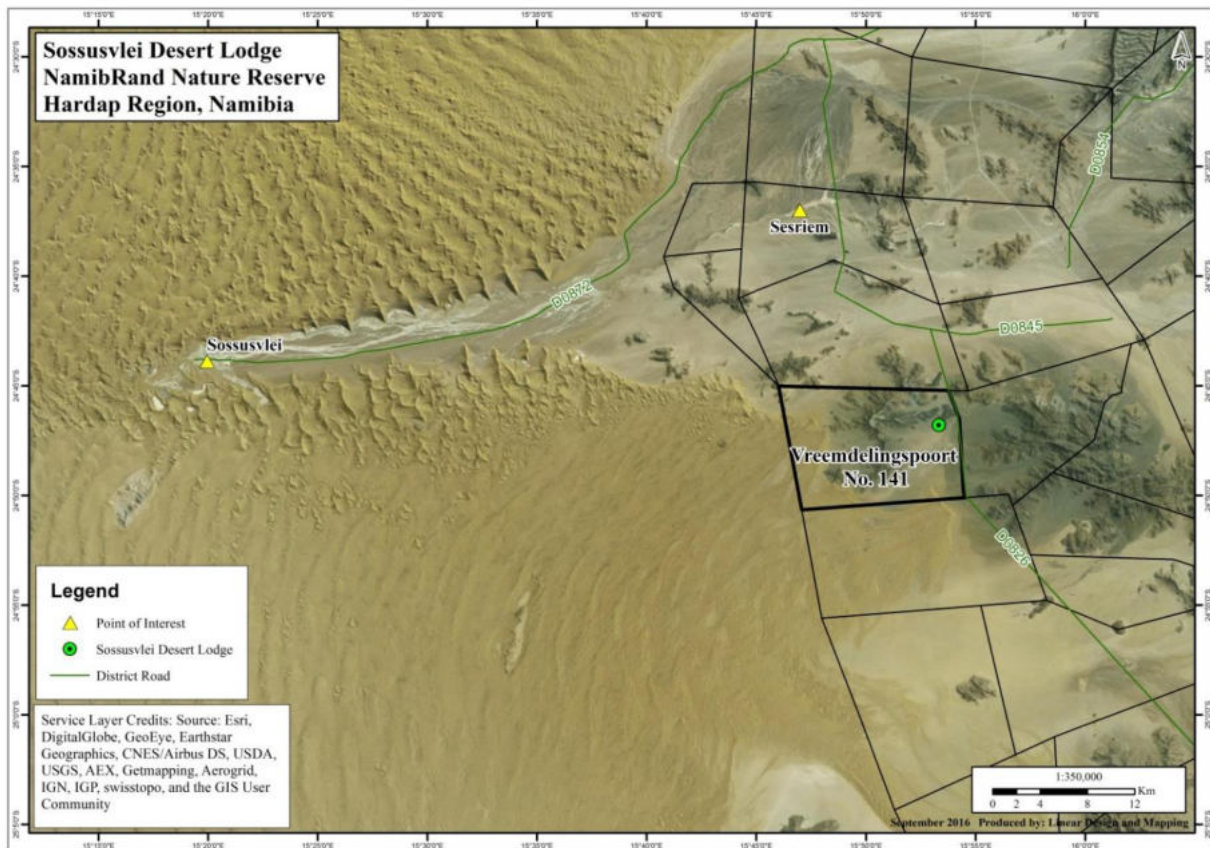


Figure 1: Map showing the location of the &Beyond Sossusvlei Desert Lodge on Farm Vreemdelingspoort No. 141, Gibeon Constituency, Hardap Region, Namibia (Source: Linear Design & Mapping, September 2016).

The NRNR, one of the largest private conservation areas in Africa, was established in 1992. The Reserve, consisting of 16 (now 15) former livestock farms and covering an area of approximately 215,000 ha, borders the Namib-Naukluft National Park. In 2001, all the Farm Owners signed an agreement that set aside their Farms for conservation. The Farm Owners still hold the title deeds, but they relinquished their individual management rights and instead serve as directors on the NamibRand Reserve's managing board. NamibRand

has since become a self-sustaining, non-for-profit organisation that derives its income from park fees paid by visitors. The NamibRand Conservation Foundation (NRCF) was subsequently established. The Foundation funds special projects (e.g. investigating the area's history and archaeology) and supports the NamibRand Desert Research and Awareness Centre (NRAC), as well as the Namib Desert Environmental Education Trust (NaDEET) (Jackson, 2009/2010; also see <http://www.namibrand.org/index.html>; Murray Tindall, Control Warden, NamibRand Nature Reserve, pers. comm., 2020).

Note that Afro Ventures Namibia (Pty) Ltd T/A &Beyond Sossusvlei Desert Lodge broke away from the Reserve towards the end of 2019. The property is still managed according to the same principles and guidelines (as to when Afro Ventures Namibia (Pty) Ltd was still a part of the NRNR); however, Afro Ventures Namibia (Pty) Ltd has since taken a more active role in the management of the land (Mr Andrew Schoeman, Back of House Manager, &Beyond Sossusvlei Desert Lodge, pers. comm.; see Maartens, 2020).

1.2 Terms of Reference

LM Environmental Consulting was appointed by Afro Ventures Namibia (Pty) Ltd T/A &Beyond Sossusvlei Desert Lodge in April 2023 to prepare a report, illustrating the implementation of and compliance with the Environmental Management Plan (EMP) (see Maartens, 2016; 2020), in aid of the application for the renewal of the ECC for the &Beyond Sossusvlei Desert Lodge.

The applications/reports submitted to the Ministry of Environment, Forestry and Tourism (MEFT) to date is summarised in Table 1.

Table 1: List of the applications/reports submitted to the Ministry of Environment, Forestry and Tourism since 2016.

Application / Report	Date of Submission	Status
Application for an Environmental Clearance Certificate (ECC) & Environmental Management Plan (EMP) for the &Beyond Sossusvlei Desert Lodge, Gibeon Constituency, Hardap Region, Namibia (see Maartens, 2016)	12 October 2016	ECC (19 January 2017)
Application for the renewal of the ECC (APP-001464) & Audit Report: Implementation of and Compliance with the Environmental Management Plan for the &Beyond Sossusvlei Desert Lodge, Gibeon Constituency, Hardap Region (see Maartens, 2020)	08 June 2020	Renewed ECC-00880 (28 August 2020)
Bi-Annual Environmental Report for the &Beyond Sossusvlei Desert Lodge, Gibeon Constituency, Hardap Region, Namibia. September 2020 to February 2021 (Maartens, 2021a)	10 March 2021 (online) & 11 March 2021 (hard copy)	No feedback received from the Directorate of Environmental Affairs and Forestry (DEAF), Ministry of Environmental, Forestry and Tourism (MEFT)
Bi-Annual Environmental Report for the &Beyond Sossusvlei Desert Lodge, Gibeon Constituency, Hardap Region, Namibia. March to August 2021 (Maartens, 2021b)	02 September 2021 (online) & 03 September 2021 (hard copy)	No feedback received from the DEAF, MEFT
Bi-Annual Environmental Report for the &Beyond Sossusvlei Desert Lodge, Gibeon Constituency, Hardap Region, Namibia. September 2021 to February 2022 (Maartens, 2022a)	04 April 2021 (online*) & 05 April 2022 (hard copy)	No feedback received from the DEAF, MEFT
Bi-Annual Environmental Report for the &Beyond Sossusvlei Desert Lodge, Gibeon Constituency, Hardap Region, Namibia. March to August 2022 (Maartens, 2022b)	04 November 2022 (hard copy only)	No feedback received from the DEAF, MEFT
Environmental Monitoring Report for the &Beyond Sossusvlei Desert Lodge, Gibeon Constituency, Hardap Region, Namibia. September 2022 to February 2023 (Maartens, 2023)	03 April 2023 (hard copy only)	No feedback received from the DEAF, MEFT

*The MEFT's Online Portal collapsed in July 2022 (all information was lost) and it was only reinstated in October 2022.

1.3 Environmental Assessment Practitioner

The author of this Report is Dr Lima Maartens who has more than 30 years' experience in natural resource management (*she gained her doctorate (Ph.D.) in Fisheries Science from Rhodes University, South Africa (SA) while working for the Namibian Ministry of Fisheries and Marine Resources (MFMR) in 2000*), lecturing (*University of Namibia (UNAM)*), environmental science and management (*De Beers Marine Namibia and the Canadian Forsys Metals Corp*), and consulting (*LM Environmental Consulting was established by Dr Maartens in October 2009*).

Sectors that she worked in as an Environmental Assessment Practitioner (EAP) include: exploration (including offshore oil and gas); mining and quarrying; renewable energy (solar and wind); tourism; manufacturing; agriculture; aqua- and mariculture; township, property (including medicine storage facilities) and waterfront developments, transport (rail and road), and infrastructure.

Dr Maartens is registered as a Lead Practitioner and Reviewer with the Environmental Assessment Professionals of Namibia (EAPAN) (she served on the Executive Committee during 2016/17), an Associate Member and Environmental Auditor with the Institute of Environmental Management and Assessment (IEMA) in the United Kingdom (UK), a Full Member of the Namibia Chamber of Environment (NCE), and a Member of the Namibia Scientific Society.

She has published five peer-reviewed scientific research articles (and three as co-author), six popular articles (and one as co-author), one book chapter (and one book chapter as co-author), 148 technical reports (LM Environmental Consulting), three technical reports (for De Beers Marine Namibia), and one conference paper.

2 &Beyond Sossusvlei Desert Lodge

2.1 Infrastructure

A detailed description of the infrastructure (and changes since 2016) is provided by Maartens (2016; 2020; 2021a; 2021b; 2022a; 2022b; and 2023).

A 1,410 by 10 metre (m) private airfield (gravel) can be found on Farm Vreemdelingspoort No. 141 (see Figure 2). The airfield is operated by PPR &Beyond Africa; the biggest aircraft that can make use of the airfield is the PC12 Pilatus, and the smallest aircraft is the Cessna 210. No re-fuelling of aircraft takes place at the airfield (see Maartens, 2016; 2020).

A runway resurface is planned for the near future (Mr Radimar Karsten, Back of House Manager, &Beyond Sossusvlei Desert Lodge, pers. comm.).

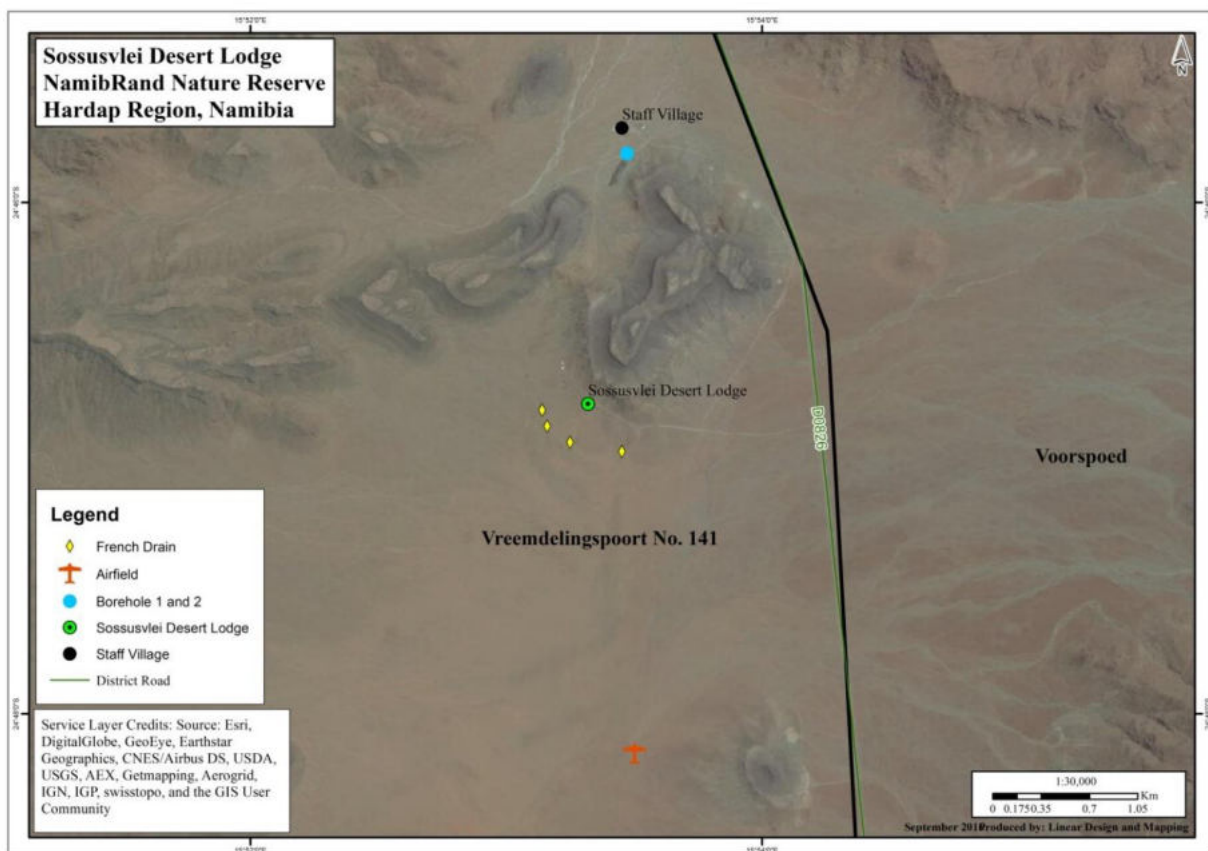


Figure 2: Map showing the location of the &Beyond Sossusvlei Desert Lodge, the airfield, the septic tank/French drain system, the Staff Village, and the location of the two boreholes, Farm Vreemdelingspoort No. 141 (Source: Linear Design & Mapping, September 2016).

Namibia Helicopter Services (see <https://nhs.na/>) is contracted by &Beyond Sossusvlei Desert Lodge to undertake scenic flights from the Lodge. A helipad (see Figure 3a) is located *en route* to the Staff Village; a hanger (see Figure 3b) was constructed at the Staff Village.



a)



b)

Figure 3: Pictures showing: a) a helipad *en route* to the Staff Village; and b) the helicopter hanger at the Staff Village (Source: L Maartens, July 2023).

The &Beyond Sossusvlei Desert Lodge itself consists of the following infrastructure/facilities:

- Main building: reception; signature shop; guest toilets; lounge; bar; dining room; interactive kitchen-area; wine cellar; veranda; wellness centre (with a gym and treatment room) (see Figure 4);



a)



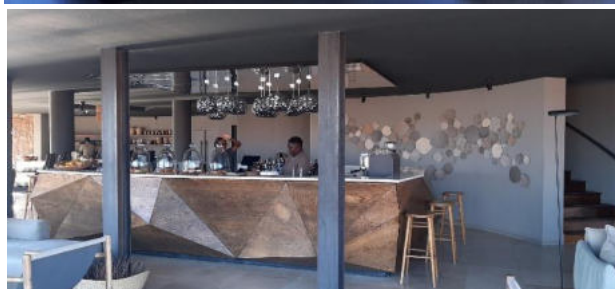
b)



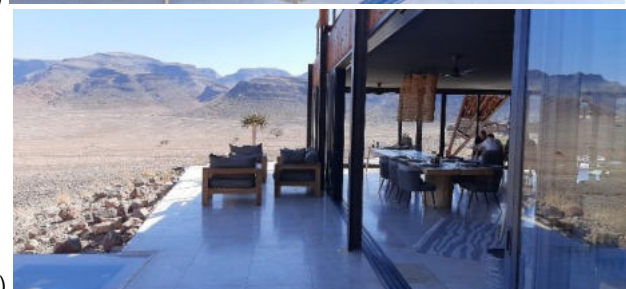
c)



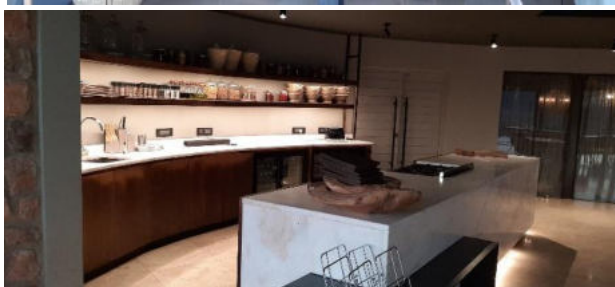
d)



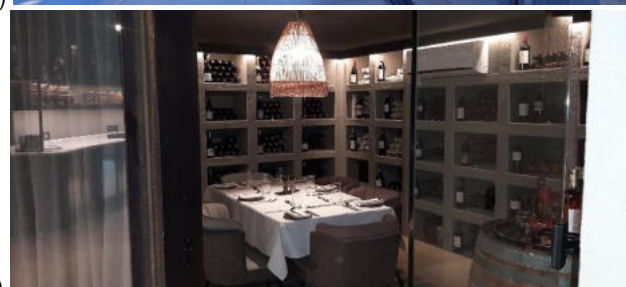
e)



f)



g)



h)



Figure 4: Pictures showing: a) main building; b) reception area; c) and d) lounge; e) bar; f) veranda; g) interactive kitchen-area; h) wine cellar; i) and j) first floor with gym and treatment room (Source: L Maartens, July 2023).

- A swimming pool and an observatory (see Figure 5);
- Twelve guest suites (see Figure 6);
- Three additional accommodation facilities for staff, each consisting of two units; and



Figure 5: Pictures showing: a) swimming pool; and b) observatory (Source: L Maartens, July 2023).



Figure 6: Pictures showing: a) guest suites one to five; and b) guest suites six to twelve (Source: L Maartens, July 2023).

- A Back of House-area with: a kitchen; laundry; laundry lines and fat trap; cage with gas bottles; toilet; offices; store rooms; consumer fuel installation, an area housing the batteries, inverter, distribution board, and the 250 kilo Volt-Ampere (kVA) generator; an area for waste segregation; e-bike storage-area (there are altogether eight e-bikes); a butler station; and an eating area for staff.





Figure 7: Pictures showing: a) solar panels on the back-of-house area; b) back-of-house; see the cage with gas bottles (yellow arrow); c) the batteries, inverter, and distribution board; d) 250 kilo Volt-Ampere (kVA) generator; e) and f) consumer fuel installation; g) and h) area with cage with gas bottles, laundry lines, and the fat trap; i) an area for waste segregation; j) e-bikes; k) the laundry; and l) store room for the guides (Source: L Maartens, July 2023).

At the Staff Village, the following (main) infrastructure can be found (see Maartens, 2016; 2020; 2021a; 2021b; 2022a; 2022b; and 2023):

- Accommodation facilities for staff (see Figure 8a, b);
- A soccer field;
- Helicopter hanger and pilot accommodation (see Figure 3b);
- Two boreholes (water is abstracted from one borehole only) (see Figure 8c);

- Three 10,000 litre water storage tanks (only two are in use; see Figure 8d); an additional five 10,000 litre water storage tanks supply the Lodge itself (only four are connected/in use);
- A wash bay (vehicles) and store (see Figure 8e);
- Two workshops with a service pit (see Figure 8f);
- Three storage containers (for spares/tools, fuel/tyres/oil, and maintenance) (see Figure 8g);
- Two storage containers (housekeeping, and cutlery/crockery) (see Figure 8h);
- A consumer fuel installation;
- A 80 kilo Volt-Ampere (kVA) generator;
- A gas store; and
- An upgraded (March 2023) waste disposal area.



Figure 8: Pictures showing: a) and b) Staff Village accommodation; c) borehole infrastructure; d) three 10,000 litre water storage tanks; e) wash bay; f) two workshops and a service pit; g) three storage containers; and h) additional two storage containers (Source: L Maartens, July 2023).

The purpose of the structure shown in Figure 9 is unknown. Since it fills up with water (and poses a threat to people and wildlife), it is advised that it be removed/filled up with sand.



Figure 9: Structure to be removed / filled with sand so as to not pose a hazard to humans and/or animals
(Source: L Maartens, July 2023).

2.2 Engineering Services

Upgrades (and challenges) as far as the water and power supply and the treatment of sewage and waste is concerned, is dealt with under the Environmental Management Plan (EMP; see Table 2).

3 Environmental Management Plan: Implementation and Compliance

3.1 Introduction

As part of the EMP performance review, the following actions were carried out:

- A site visit at was carried out at the Sossusvlei Desert Lodge between 17 and 19 July 2023;

Note that the &Beyond Sossusvlei Desert Lodge is in possession of / is a member of / was awarded:

- &Beyond Safety, Health and Environmental Policy (February 2013);
- &Beyond HIV/AIDS Policy Statement (May 2019);
- Certificate of Fitness, Ministry of Health and Social Services (MHSS) (17 February 2023 till 31 March 2024) (pers. obs.);
- Kitchen – HACCP (Hazard Analysis Critical Control Points) *Best Operating Practices* (April 2020);
- Certificate of Registration for Regulated Tourism Business, Namibia Tourism Board (NTB) (28 February 2023) (pers. obs.);

- &Beyond Sossusvlei Desert Lodge is featured in the US Condé Nast Traveller's Hot List (2001);
- &Beyond Sossusvlei Desert Lodge is #21 in the US Condé Nast Traveller Readers' Choice Awards Top 30 Resorts & Camps (Africa & Middle East) (October 2007);
- &Beyond Sossusvlei Desert Lodge is #21 in the Condé Nast Traveller (US) Readers' Choice Awards 2007 Top 30 (Africa & Middle East) (November 2008);
- &Beyond Sossusvlei Desert Lodge is listed in the Smart Luxury Awards by Sherman's Travel (December 2010);
- &Beyond Sossusvlei Desert Lodge becomes Namibia's first Virtuoso Property (November 2012);
- &Beyond Sossusvlei Desert Lodge is awarded a TripAdvisor Certificate of Excellence (December 2012);
- &Beyond Sossusvlei Desert Lodge is #69 in International Traveller's 100 Best Hotels and Resorts in the World (September 2013);
- &Beyond Sossusvlei Desert Lodge is Namibia's Leading Safari Lodge at the World Travel Awards 2016 (April 2016) (see Maartens, 2016);
- &BEYOND Sossusvlei Desert Lodge named one of The Telegraphs top 10 hottest hotel openings (October 2019);
- &BEYOND Sossusvlei Desert Lodge featured in Elite Traveller.com The biggest luxury hotel transformation of 2019;
- &BEYOND Sossusvlei Desert Lodge #3 in the Travel + Leisure World's Best Awards (2019) (see https://www.andbeyond.com/our-lodges/africa/namibia/sossusvlei-desert/andbeyond-sossusvlei-desert-lodge/?utm_campaign=search-sa-bofu-brand-leads&qclid=EAlaIqobChMIsZG6xOCi_wlVQfN3Ch3evAXYEAAAYASAAEgK7K_D_BwE);
- &Beyond Sossusvlei Desert Lodge made it into Condé Nast Traveller Magazine as the best new property in Namibia (2020);
- &Beyond Sossusvlei Desert Lodge made the cover of Visi Magazine (early-2020);
- &Beyond Sossusvlei Desert Lodge is named Best Eco or Socially Conscious Hotel in the Gold Key Awards (2020);
- &Beyond Sossusvlei Desert Lodge is named one of The Best Luxury Lodges in Namibia in the Luxury Lifestyle Awards (2020);
- &Beyond Sossusvlei Desert Lodge mentioned in the National Geographic Cool List (2020) (see https://www.andbeyond.com/our-lodges/africa/namibia/sossusvlei-desert/andbeyond-sossusvlei-desert-lodge/?utm_campaign=search-sa-bofu-brand-leads&qclid=EAlaIqobChMIsZG6xOCi_wlVQfN3Ch3evAXYEAAAYASAAEgK7K_D_BwE); and
- &Beyond Sossusvlei Desert Lodge is rated fourth in the Travel + Leisure Readers' 5 Favorite Resorts in Africa (2023) (see <https://www.travelandleisure.com/best-resorts-in-africa-2023-7508384> (Miss Emsie Skrywer, Lodge Manager, &Beyond Sossusvlei Desert Lodge, pers. comm.)).

Upon arrival, guests to &Beyond Sossusvlei Desert Lodge are provided with the following, amongst other, information:

- Booklet 1: *Discover Sossusvlei Desert Lodge* &Beyond Sossusvlei's Star Birds;
- Booklet 2: *Eco Guide Naturalist Notes* containing information re: The Namib Desert; People and

History; Landscape and Climate; Rocky Hillside; Sandy Plains; Dry River Beds; Dunes; Sossusvlei; Sesriem; Fairy Circles; List of Mammals, Reptiles and Frogs; List of Birds; List of Common Plants; and Further Reading;

- Booklet 3: *Guides' Journal Namibia Safari* containing information re: EXPLORE (The world of &Beyond, Our legacy impact; History of Namibia, Meet the people of Namibia, and Namibia safaris); GUIDES' NOTES (Guide's recommendations, and Wildlife checklists and illustrations); and DISCOVER (Wildlife photography, The night sky, and Tracks);
- Copy of the glossy magazine *bateleur* (from andBeyond.com);
- Notes on: Precious Water (urging guests to re-use towels); Telephone (relevant telephone numbers); Desert Experiences (*Guided Sossusvlei Excursion, Living Dunes, Desert People, Desert Rock, Desert Drive, Big Dune Walk, Stargazing*); Scenic Helicopter Flight and Hot Air Ballooning; Helicopter Experiences (*Scenic Desert Flight, Namib Dune Photographic Flight, and Scenic Coastal Flight*); Self Exploration (E-biking and Hiking); and a Body Treatment Menu (*Quiet mind journey, Healing Earth Africa shea butter ritual, Soul of the earth celebration, Earth glow body polish and wrap, African hand and foot treatments, and WILDchild beauties and buddies*) (pers. obs.).

3.2 Compliance: Environmental Management Plan

In order to illustrate compliance with the EMP (see Table 2), the following colour codes were applied:

	Compliance/Completed
	In Progress/Ongoing
	Non-compliance
	Not (Currently) Applicable
	Changes made to existing EMP

The EMP (see Maartens, 2016; 2020; also see International Finance Corporation (IFC), 2007a; b) is not a static document and the document should be updated as &Beyond Sossusvlei Desert Lodge's activities progresses.

Table 2: Compliance with the Environmental Management Plan for the &Beyond Sossusvlei Desert Lodge, Farm Vreemdelingspoort No. 141, Hardap Region, Namibia.

Aspect	Impact	Mitigation & Management Measures	Compliance & Comments (Maartens, 2020)	Compliance & Comments (July 2023)
Social and Environmental Performance: &Beyond Sossusvlei Desert Lodge				
Management and Monitoring	Social and Environmental Performance	<p>Adhere to all Namibian Legislation, including Best Practice Guidelines.</p> <p>Ensure that all aspects related to the Environmental Management Plan (EMP) are implemented.</p> <p>Cognicance to be taken of: A Strategic Collaborative Management & Development Plan For Greater Sossusvlei – Namib Landscape 2013 – 2018; the Landscape Conservation Areas' Law Enforcement Manual; and Strategic Environmental Assessment (SEA) Of The Tourism Sector For The Greater Sossusvlei Namib Landscape 2014 (see http://www.landscapesnamibia.org/sossusvlei-namib/our-approach).</p>	<p>Ongoing. Note that the current Back of House Manager, Mr Andrew Schoeman, took over from Mr Grant Chambers, Back of House/Maintenance Manager in February 2020 (without any handover). Mr Chambers was previously in charge of the implementation of the EMP (Mr Andrew Schoeman, Back of House Manager &BEYOND, pers. comm.).</p>	<p>Ongoing. Mr Willem Pelsler took over the position of Back of House Manager in October 2021 (until mid-April 2022); Mr Ivan Maré (Technical Manager) provided assistance, and later Mr Norman Walker (General Manager), until the appointment of Mr Radimar Karsten on 03 January 2023.</p> <p>It is uncertain as to whether the Strategic Collaborative Management & Development Plan For Greater Sossusvlei – Namib Landscape 2013 – 2018 has been updated? The Ministry of Environment, Forestry and Tourism (MEFT) planned a Stateholder Meeting for early-2023. The Meeting was, however, cancelled (Mr Radimar Karsten, Back of House Manager, &Beyond Sossusvlei Desert Lodge, pers. comm.).</p>
Consultation and Disclosure	Social and Environmental Performance	<p>Maintain open and direct lines of communication with the Authorities and Interested and Affected Parties (I&APs) (e.g. the Hardap Regional Council, the Ministry of Environment, Forestry and Tourism (MEFT), the Ministry of Health and Social Services (MHSS), the Namibia Tourism Board (NTB), etc.) with regards to environmental matters.</p> <p>Consult with I&APs throughout the project process and adequately incorporate I&APs' concerns.</p>	<p>Ongoing.</p>	<p>Ongoing.</p> <p>Staff from the MHSS visited the Lodge on 17 February 2023 (see Maartens, 2023).</p> <p>Staff from the MHSS Clinic in Maltahöhe raised awareness re HIV/AIDS (and handed out condoms) at the Lodge in March 2023 (Miss Tessa Ayres, Admin. Manager,</p>

Aspect	Impact	Mitigation & Management Measures	Compliance & Comments (Maartens, 2020)	Compliance & Comments (July 2023)
				<p>&Beyond Sossusvlei Desert Lodge, pers. comm.).</p> <p>On 12 March 2023, Dr Schroder certified 28 staff members to be fit for working with food.</p> <p>Representatives from the Maltahöhe Village Council were contracted to pump out the septic tank at the Staff Village (the visit to the Lodge was cancelled) in June 2023 (Mr Radimar Karsten, Back of House Manager, &Beyond Sossusvlei Desert Lodge, pers. comm.).</p>
Grievance Mechanism	Social and Environmental Performance	<p>Implement a grievance mechanism for receiving and resolving any concerns and grievances related to the project's social and environmental performance throughout the project life cycle.</p> <p>Inform all I&APs about the mechanism.</p> <p>Address concerns promptly and transparently and in a culturally appropriate manner.</p> <p>Keep a register of all concerns/issues received from I&APs, as well as the measures taken to address these.</p>	<p>Ongoing. Guests are requested to fill out a form <i>DID WE CREATE AN EXTRAORDINARY EXPERIENCE FOR YOU?</i> Topics that are to be rated "not very good", "fair", "good" or "excellent" include: overall hospitality; accommodation; the food; housekeeping; the ranger/guide; overall wildlife experience; and overall impression of &BEYOND as a company which contributes to conservation and communities (documentation made available by Mr Andrew Schoeman, Back of House Manager &BEYOND).</p> <p>Shop Stewards act as the link between Management and Staff. Regular communication with the Unions also take place (Mr Andrew Schoeman, Back of House Manager &BEYOND, pers. comm.).</p>	<p>Ongoing. Guests are requested to fill out a form (made available to LM Environmental Consulting) <i>Did we create an extraordinary experience for you?</i> Topics that are to be rated "not very good", "fair", "good" or "excellent" include: overall hospitality; your accommodation; the food; housekeeping; your guide(s); overall activity experience; your overall impression of &Beyond as a company which contributes to conservation and communities; and would you recommend this &Beyond lodge to you friends?</p> <p>Shop Stewards (two staff members) act as the link between Management and Staff. Regular communication with the Union (TAWUN - Tourism and Allied Workers</p>

Aspect	Impact	Mitigation & Management Measures	Compliance & Comments (Maartens, 2020)	Compliance & Comments (July 2023)
				Union of Namibia) also take place (Miss Tessa Ayres, Admin. Manager, &Beyond Sossusvlei Desert Lodge, pers. comm.).
Training, including awareness and inductions	Social and Environmental Performance	<p>Train employees in matters related to the project's social and environmental performance and Namibia's regulatory requirements.</p> <p>Ensure adequate environmental awareness training for all personnel.</p> <p>Give environmental induction presentations to all personnel.</p>	<p>Ongoing.</p> <p>New staff do receive inductions, i.e. do's and don'ts, where everything is, and how things operate (Mr Andrew Schoeman, Back of House Manager &BEYOND, pers. comm.).</p>	Ongoing (Miss Emsie Skrywer, Lodge Manager, and Miss Tessa Ayres, Admin. Manager, &Beyond Sossusvlei Desert Lodge, pers. comm.).
Employment and procurement opportunities	Social and Environmental Performance	<p>Source contracting companies/service providers/workers based on merit and expertise giving preference to local contractors/service providers/workers on condition that the local contractors/service providers/workers have the required experience and expertise.</p> <p>Consider utilising local labour for unskilled work and to then provide training to workers in order to perform semi-skilled work; this should be done under the supervision of managers/specialists to ensure maximum local beneficiation.</p> <p>Ensure that contractors/service providers adhere to the Namibian Labour, Social Security, Health and Safety, and Affirmative Action laws.</p> <p>Contracts to stipulate that all contractors/service providers have an HIV/AIDS Policy and Programme in place.</p> <p>Source maximally from local resources to ensure maximum economic beneficiation of local businesses in terms of new business sales.</p>	<p>Ongoing.</p> <p>&Beyond Sossusvlei Desert Lodge makes use of very few external companies/service providers/workers (Mr Andrew Schoeman, Back of House Manager &BEYOND, pers. comm.).</p>	Ongoing. Contractors include e.g. Namibia Helicopter Services (NHS; https://nhs.na/) and LLEWELLYN Fire Fighting & Suppliers CC in Keetmanshoop. Suppliers include: LVW Boerediens in Mariental; Hotline and Pupkewitz Catering in Windhoek, Wecke & Voights, African Marketing and Seapride Foods (Windhoek), SG Motors and LR Parts (Miss Tessa Ayres, Admin. Manager, &Beyond Sossusvlei Desert Lodge, pers. comm.).
Labour and Working Conditions	Social and Environmental Performance	<p>Establish, maintain and improve the worker-management relationship. Base the employment relationship on equal opportunity and fair treatment and no discrimination to be allowed.</p> <p>Comply with Namibia's labour and employment laws.</p>	<p>Ongoing.</p> <p>The &Beyond Sossusvlei Desert Lodge currently employs 55 people (27 males and 28 females). The staff originally</p>	Ongoing. The &Beyond Sossusvlei Desert Lodge currently employs 68 people (36 males and 32 females) (and

Aspect	Impact	Mitigation & Management Measures	Compliance & Comments (Maartens, 2020)	Compliance & Comments (July 2023)
		<p>Promote safe and healthy working conditions and the protection and promotion of worker health.</p> <p>Document and communicate the Working Conditions and Terms of Employment.</p> <p>Respect Collective Agreements and the right of workers to organize and bargain collectively.</p> <p>Implement a Grievance Mechanism.</p>	<p>comes from Maltahöhe, Windhoek and surrounds, and northern Namibia; staff work for six weeks at a time and then gets 16 days off.</p> <p>Most labour-related tasks are handled in-house; e.g. wage negotiations are done during a meeting with the following persons present: a Director from South Africa, the Regional Director, the General Manager, the Shop Stewards, and Union Representatives.</p> <p>Issues that cannot be resolved in-house are referred to and handled by Mr August Awaseb, a Labour Lawyer (Mr Andrew Schoeman, Back of House Manager &BEYOND, pers. comm.).</p>	<p>including six casual staff). The staff originally comes from Maltahöhe, Windhoek and surrounds, and northern Namibia; staff work for six weeks at a time and then gets two weeks off.</p> <p>Most labour-related tasks are handled in-house; e.g. wage negotiations are done during a meeting with the following persons present: a Director from South Africa, the Regional Director, the General Manager, the Shop Stewards, and Union Representatives.</p> <p>Issues that cannot be resolved in-house are referred to and handled by Mr August Awaseb, a Labour Lawyer (see Maartens, 2020; Miss Tessa Ayres, Admin. Manager, &Beyond Sossusvlei Desert Lodge, pers. comm.).</p>
Occupational and Community Health and Safety and Security	Social and Environmental Performance	<p>Adhere to all Namibia's Health and Safety Regulations (Labour Act, 1992: Regulations Relating to the Health and Safety of Employees at Work).</p> <p>Ensure that an HIV/AIDS Policy and Programme and Health and Safety Plan is in place.</p>	<p>Ongoing.</p> <p>Compliant and Ongoing. &Beyond is in possession of an HIV/AIDS Policy Statement (May 2019) and a very detailed Health and Safety checklist (documentation made available by Mr Andrew Schoeman, Back of House Manager &BEYOND).</p> <p>All health-related issues (e.g. Covid-19) is handled by the centralised &Beyond office in Johannesburg / the HR</p>	<p>Ongoing.</p> <p>Compliant and Ongoing (see Maartens, 2020).</p>

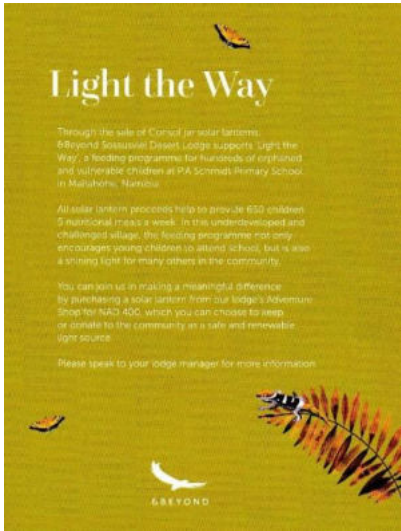
Aspect	Impact	Mitigation & Management Measures	Compliance & Comments (Maartens, 2020)	Compliance & Comments (July 2023)
			Director distributes awareness material (e.g. related to HIV/AIDS and Covid-19) to all the Lodges (Mr Andrew Schoeman, Back of House Manager &BEYOND, pers. comm.).	
		A SHE (Safety, Health, Environment) Representative to be appointed once the staff complement reaches 20.	It is advised that &Beyond Sossusvlei Desert Lodge appoints a SHE Representative.	Mr Radimar Karsten, Back of House Manager, was appointed as the SHE Representative.
		Occupational Health and Safety Training to be provided to all employees.	Ongoing. First aid and firefighting training are provided to staff. It is advised that records be kept of all training provided. All fire fighting equipment was serviced by LLEWELLYN Fire Fighting & Suppliers CC in October 2019 (documentation made available by Mr Andrew Schoeman, Back of House Manager &BEYOND).	Ongoing. First aid training was provided to staff (see Maartens, 2023) (also see below). All fire fighting equipment was serviced by LLEWELLYN Fire Fighting & Suppliers CC in November 2022 (pers. obs.) and two new hose heels have since been put up (Mr Radimar Karsten, Back of House Manager, &Beyond Sossusvlei Desert Lodge, pers. comm.).
	Ensure that qualified first aid can be provided at all times.			
	Comply with all safety regulations re. electricity supply.			
	Ensure that employees are trained in the use of appropriate fire fighting equipment and ensure that such equipment is on hand at all times. <i>Forty two serviced fire extinguishers are available (at the airfield, in the vehicles, at the Lodge, and at the Staff Village).</i>			
	Provide and ensure the active use of Personal Protective Equipment (PPE).			
	<p>Make suitable arrangements, as far as practicable, for the maintenance of health, the prevention and overcoming of outbreaks of disease and of adequate first aid services.</p> <p>Prevent communicable disease (e.g. Sexually Transmitted Infections (STIs) such as HIV transmission): provide surveillance and active screening and treatment of employees; prevent illness among employees (through health awareness and education initiatives); ensure ready access to medical treatment, confidentiality and appropriate care, particularly with respect to migrant workers; and promote immunization.</p>	Ongoing	Ongoing	

Aspect	Impact	Mitigation & Management Measures	Compliance & Comments (Maartens, 2020)	Compliance & Comments (July 2023)
		Ensure that security arrangements are in place.	&BEYOND contracts Crown Security who places a security guard at the Lodge every night (Mr Andrew Schoeman, Back of House Manager &BEYOND, pers. comm.).	&BEYOND contracts Crown Security who places a security guard at the Lodge every night (Mr Radimar Karsten, Back of House Manager, &Beyond Sossusvlei Desert Lodge, pers. comm.).

Each guide (quad bikes (seven) and hiking trails) carry a first aid kit and pit stop bag (with a small shovel, toilet paper, and hand sanitiser). Small first aid bags (see Figure 10) are issued to the drivers of the e-bikes (Mr Radimar Karsten, Back of House Manager, &Beyond Sossusvlei Desert Lodge, pers. comm.).



Figure 10: Pictures showing the first aid kit given to the e-bike drivers (Source: L Maartens, July 2023).

Corporate Social Responsibility (CSR)	Social and Environmental Performance	Maintain the existing CSR Programme. 	Compliant and ongoing. Solar lamps/lanterns are sold (for N\$400) at the Safari Shop at &Beyond Sossusvlei Desert Lodge. Each of the lanterns sold, provides the funding to light up a home in the community (without access to electricity), as well as to feed 12 children for one day, or one child for 12 days. &Beyond Sossusvlei Desert Lodge currently feeds 600 children (vs 200 children in 2016), many of whom have been orphaned due to HIV/AIDS, at their feeding scheme for orphans and vulnerable children in Maltahöhe. The children are also provided with a mineral and vitamin enriched porridge five	Compliant and ongoing. Solar lamps/lanterns are sold (for N\$400) at the signature shop (see Light the Way); Sossusvlei Desert Lodge currently provides 650 children with five nutritional meals a week. African Marketing delivers the food directly to P.A. Schmidt Primary School in Maltahöhe (Miss Tessa Ayres, Admin. Manager, &Beyond Sossusvlei Desert Lodge, pers. comm.).
---------------------------------------	--------------------------------------	---	---	--

Aspect	Impact	Mitigation & Management Measures	Compliance & Comments (Maartens, 2020)	Compliance & Comments (July 2023)
			days a week, as well as fresh fruit three times a week (Mr Andrew Schoeman, Back of House Manager & BEYOND, pers. comm.).	
&Beyond Sossusvlei Desert Lodge				
Operational activities	Negative impact on floral species	<p>Avoid/prevent the planting of potentially invasive alien plant species for ornamental purposes as part of the landscaping (these species often “escape” and become invasive causing further ecological damage); rather incorporate indigenous vegetation into the overall landscaping of the area (this would create a natural ambiance and indigenous species require less water and overall maintenance).</p> <p>Promote appropriate guest and staff behaviour (e.g. do not allow any native plant species to be removed/damaged).</p>	Ongoing.	Ongoing.
Operational activities	Pollution of biophysical environment (surface and groundwater)	<p><u>Fertilizers:</u> Conduct regular soil testing (to establish nutrient needs) in order to determine fertilizer application rates/correct doses. Store fertilizers in their original packaging in a dedicated, locked area, with proper signage, and with access limited only to authorised personnel. Use slow-release and/or natural organic fertilizers. Manure can be an alternative, but if over applied it may also cause pollution. Prepare a management plan covering the measures for containment, storage and ultimate destruction of obsolete fertilizers in accordance to the Food and Agriculture Organization (FAO) guidelines (and consistent with country commitments under the Stockholm, Rotterdam and Basel Conventions).</p> <p><i>Note that it is planned to use the food scraps from the kitchen as compost for the gardens at the &Beyond Sossusvlei Desert Lodge.</i></p> <p><u>Pesticides:</u> Consider non-chemical methods (e.g. use beneficial organisms to perform the biological control of pests, or use mechanical controls, i.e. traps, barriers, light and sound to kill/relocate/repel pests, or use</p>	<p>Ongoing. No fertilizers are used, only potting soil for the planting of some herbs, lettuce and spinach (back of house) (Mr Andrew Schoeman, Back of House Manager & BEYOND, pers. comm.).</p> <p>It is advised that the organic waste from the kitchen be composted and used in the gardens.</p> <p>Delta 7 WP only is used for the control of mainly flies and mosquitos (Mr Andrew Schoeman, Back of House</p>	<p>Ongoing. No fertilizers are used.</p> <p>See below.</p> <p>Inesfly Insecticide Coatings CC inspected and professionally treated the premises according to Hazard</p>

Aspect	Impact	Mitigation & Management Measures	Compliance & Comments (Maartens, 2020)	Compliance & Comments (July 2023)
		<p>mechanical weed control/thermal weeding) before resorting to chemical application.</p> <p>Maintain a pesticide logbook: e.g. field observations, weather data, time and dosage of treatment, and effectiveness and apply pesticides based on these criteria. Ensure that only the minimum effective dose is applied.</p> <p>Avoid the use of pesticides that fall under the World Health Organization (WHO) Recommended Classification of Pesticides by Hazard Classes 1a and b, and by Hazard Class II. Also those that are listed in Annexes A and B of the Stockholm Convention (except under the conditions noted in the convention). Only use pesticides that are manufactured under license, registered and approved by the appropriate authority and in accordance with the FAO's International Code of Conduct on the Distribution and Use of Pesticides. Only use pesticides that are labeled in accordance with international standards and norms.</p> <p>Pesticide application equipment to be maintained and calibrated in accordance with manufacturer's recommendations.</p> <p>Store pesticides in their original packaging in a dedicated, dry, cool, frost-free, well aerated, locked area, with proper signage, and with access limited only to authorised personnel. Also ensure that spill containment measures are in place.</p> <p>Ensure that the personnel applying pesticides are properly trained; mixing and transfer of pesticides to be done in ventilated and well-lit areas using containers designed/dedicated for the task.</p> <p>Contaminated containers to be handled and treated as hazardous waste (see Hazardous materials management).</p> <p>Purchase and store only the required amounts of pesticides.</p>	<p>Manager & BEYOND, pers. comm.).</p>	<p>Analysis and Critical Control Point Principles (HACCP) and Application Guidelines in December 2022; the three-monthly follow-up inspections (March and June 2022) are to take place.</p> <p>No poison is used at the Lodge (Mr Radimar Karsten, Back of House Manager, & Beyond Sossusvlei Desert Lodge, pers. comm.).</p>
<p>An arrangement is in place with a member of the local community; the person's pigs are left at the Staff Village, fed and given water and shelter, and in turn, two members of staff from the Lodge (looking after the pigs), get to keep a piglet each of each litter.</p> <p>A pig stall was constructed (see Maartens, 2022a) (see Figure 11). Since the completion (see Maartens, 2022b), all the food waste (~75 kg wet waste/day) have been given to the pigs. Currently there are 13 pigs (12 boars), of various sizes. The pigs have access to water and a covered pig stall of around 4 by 5 m (20 m²).</p>				

Aspect	Impact	Mitigation & Management Measures	Compliance & Comments (Maartens, 2020)	Compliance & Comments (July 2023)
--------	--------	----------------------------------	--	-----------------------------------



Figure 11: Picture showing five small pigs (yellow oval), five bigger pigs (white oval), and a boar, sow and one more pig (blue oval) (Source: L Maartens, July 2023).

The current infrastructure is not adequate to protect the pigs from extreme weather. The South African Pork Producers' Organisation (SAPPO), for example, proposes the allocation of 0,5 ha per sow (5,000 m²) (Botha, 2020). Also, African swine fever (ASF), classical swine fever (CSF; hog cholera or European swine fever), and swine flu are three of the diseases that can affect pigs (Ryan, 2023) (and no biosecurity measures are in place). It should also be noted that pigs in different stages of production – growth, production or reproduction – have different nutritional requirements. The daily drinking water requirement according to production phase is as follows: grower pig 8-12 litres; weaner pig 6-10 litres; lactating sow 10-35 litres; pregnant sow 12-25 litres; young sow 12 litres; and a boar 20 litres (Du Pisanie, 2021).

&Beyond Sossusvlei Desert Lodge: Resource Use

Energy Management	Resource use (e.g. coal) / depletion of natural resources	Promote the sustainable use of energy (that will result in the reduction of use and cost reductions) (e.g. energy efficient light sources).	Compliant and ongoing (see below).	Compliant and ongoing (see below).
-------------------	---	---	------------------------------------	------------------------------------


Power for the &Beyond Sossusvlei Desert Lodge used to come from two 250 kilo Volt-Ampere (kVA) generators (supplying the Lodge) and one 125 kVA generator (supplying the workshop at the Staff Village) (see Maartens, 2016).




In 2020, the Lodge was operated on between 60 and 65% solar power and a new 250 KVA generator was procured. The Staff Village was powered by a new 80 kVA generator.

In October 2019, New Southern Energy (<https://www.newsouthernenergy.com/>) put up 57 Solar PV (Photovoltaic) panels (from Canadian Solar) on the roofs of the guest suites, the office and the kitchen (covering 1,131 square metres (m²) in total), as well as the associated infrastructure (e.g. 15 PV Inverters, two Tesla Powerpack Lithium Ion


Aspect	Impact	Mitigation & Management Measures	Compliance & Comments (Maartens, 2020)	Compliance & Comments (July 2023)
<p>Batteries, etc.). The 57 PV modules has a nominal output of 199,51kWp; the batteries will have a total of 420kWh (kilowatt hours) per day. The life of the Solar PV structure is estimated at between 10 (Product Warranty) and 25 years (Linear Power Warranty) (Tesla Powerpack energy retention of ~80% capacity expected after 10 years, 70% after 15 years @ 1 cycle per day; SMA Inverters with approximate expected 10 years of life, and PV Panels with an expected ~80% of production after 25 years) (see Maartens, 2020).</p> <p>In 2021, an additional 230 Kwh Tesla battery was added to the solar system. This reduced the generator runtime to 0% during the winter, and saved on diesel, emissions, and costs; during the summer, it will reduce the generator runtime to approximately two hours/day (see Maartens, 2021b).</p> <p>In 2022, one more Tesla battery was added, bringing the total battery count to three (see Maartens, 2022b).</p> <p>At the moment, the Lodge is operated on 80% solar power. There are currently 64 Solar PV panels (from Canadian Solar), 15 PV inverters, two battery inverters, and 14 combination heat pumps (Mr Radimar Karsten, Back of House Manager, &Beyond Sossusvlei Desert Lodge, pers. comm.).</p>				
Energy Management	Resource use (e.g. coal) / depletion of natural resources	<p>Raise awareness amongst the residents, staff (and contractors).</p> <p>For reduction of energy consumption associated with heating, ventilation, and air conditioning (HVAC), lighting, and cooking and refrigeration equipment see IFC (2007b).</p>	<p>Ongoing</p> <p>Ongoing. There is a qualified refrigerant technician at the Lodge that is responsible for basic maintenance and servicing of the equipment. There is also an ongoing servicing programme in place (Mr Andrew Schoeman, Back of House Manager &BEYOND, pers. comm.).</p>	<p>Ongoing</p> <p>Ongoing. There is a qualified refrigerant technician, Me Klementine Amunyela, at the Lodge who is responsible for basic maintenance and servicing of the equipment. There is also an ongoing servicing programme in place (Miss Tessa Ayres, Admin. Manager, &Beyond Sossusvlei Desert Lodge, pers. comm.).</p>
Water Management	Resource use / depletion of natural resources	<p>Implement a water conservation program, promoting the continuous reduction in water consumption.</p> <p>Promote and enforce a policy on landscape and garden designs that minimise water consumption e.g. the use of indigenous plants.</p> <p>Raise awareness amongst the residents, staff (and contractors) re the importance of saving water.</p>	<p>Compliant and ongoing (see below).</p>	
<p>Water for the &Beyond Sossusvlei Desert Lodge is obtained from one (of two) borehole(s) and stored in eight 10,000 litre tanks (currently two tanks at the Staff Village and four tanks at the Lodge) (Mr Radimar Karsten, Back of House Manager, &Beyond Sossusvlei Desert Lodge, pers. comm.).</p> <p>In December 2022, the system was upgraded (by Afro Pumps from Windhoek) to pump 4,800 litres of water per hour (l/h) to the holding tanks (vs 2,700 l/h previously) and in order to only run the generator for half the time to pump the same amount of water as before (see Maartens, 2023).</p>				


Aspect	Impact	Mitigation & Management Measures	Compliance & Comments (Maartens, 2020)	Compliance & Comments (July 2023)
<p>The &Beyond Sossusvlei Desert Lodge does not fall within a Water Control Area (Water Act 54 of 1956 (as amended)), and a water abstraction permit is not required. A letter was requested from Mr Franciskus Witbooi, Deputy Director Law Administration, Ministry of Agriculture, Water and Land Reform (MAWLR) (June 2020), stating that it is not a Water Control Area (and that the &Beyond Sossusvlei Desert Lodge may abstract water for commercial purposes) (see Maartens, 2016; 2020; 2021a). The <i>Application for a Permit for the Abstraction of Groundwater for Lodge Operation Purposes on Beyond Sossusvlei Desert Lodge</i> was approved on 12 August 2021 (see Maartens, 2021b).</p> <p>Water from the showers and basins in the guest suites are collected and pumped into a Hydraloop water recycling system that cleans the water. The recycled water gets stored in a 1,000 litre tank and this water is then used to fill the toilet cisterns, as well as the swimming pools. The Hydraloop water recycling system is currently not functioning properly; repairs/upgrades to be done by Metsitec from South Africa (also on the Biorock system; see below) towards end-July 2023.</p> <p>Each guest suite has a Hydratherm hot water heat pump; a similar system was installed at the Lodge kitchen.</p> <p>In 2016, the water abstraction and consumption figures were unknown (see Maartens, 2016). Water metres have since been installed: between the abstraction borehole and the first water tank; and before the Lodge-area is entered (to distinguish between what is used by the Lodge, and the Back of House-area).</p> <p>In March 2021, a potable water sample was submitted to and tested by Analytical Laboratory in Windhoek. The drinking water was found to be Group B: microbiologically still suitable for human consumption; from the chemical analysis, the water was found to be of Group A and/or B, except for Fluoride (4.6 mg/l) that was rated Group D (see Maartens, 2021b).</p> <p>In 2023, Aqua PS in Windhoek was commissioned for the installation of a Water Softener Plant at the Lodge. The purpose of the Water Softener Plant is to remove most of the lime in the water, the latter that is negatively impacting the high tech assets (e.g. the heat pumps and Hydraloops). The wastewater contains salt (for the regeneration of the softener) and it can be discarded into the “wild” - there is a wet, white spot with calcium, magnesium and salt at the point where the backwash water gets discarded – according to Mr Bernd Kühne, Owner, Aqua PS. The Plant is located at the northernmost part of the Lodge, where the 63 mm supply line comes into the Lodge and down from the storage tanks in the paved backyard of the Manager’s house (pers. obs.). On 18 May 2023, a water sample was collected and analysed by Analytical Laboratory in Windhoek. The water was found to be Group A: excellent quality water (23 May 2023).</p> <p>During the past 6 months, an estimated 598 litres of water was used per person per day (excluding the water used in the swimming pools (~1.2 m³/day) and for the Water Softener Plant (4.5 m³/day), and including drinking water, water for the shower/toilet/basin, laundry, the cooking of food, and the water used for the water trough (for the oryx, springbok, and ostrich) in front of the Lodge). More detailed calculations will be carried out and ways in which water can be saved, identified.</p>				
<p>&Beyond Sossusvlei Desert Lodge: Hazardous Materials Management</p>				
<p>Hazardous materials management</p>	<p>Social and Environmental Performance</p>	<p>Establish hazardous materials management priorities (based on hazard analysis of risky operations).</p> <p>Avoid, or minimize the use of hazardous materials.</p> <p>Prevent uncontrolled releases of hazardous materials to the environment or uncontrolled reactions that may result in fire or explosion.</p> <p>Implement management controls (procedures, inspections and training, communication and drills) to address residual risks.</p>	<p>Ongoing.</p>	<p>Ongoing (see Figure 12).</p>

Aspect	Impact	Mitigation & Management Measures	Compliance & Comments (Maartens, 2020)	Compliance & Comments (July 2023)
 <p>Figure 12: Pictures showing the container where some hazardous materials are stored (Source: L Maartens, July 2023).</p>				
<p>Hazardous materials management</p>	<p>Pollution of biophysical environment (soil and water)</p>	<p>Implement prevention and control measures for the use, handling and storage of hazardous materials:</p> <p><u>Materials transfer</u>: regularly inspect, maintain and repair fittings/pipes/hoses; make use of drip trays/other drip containment measures at connection/possible overflow points;</p> <p><u>Overfill protection</u>: use trained filling operators; install gauges on tanks to measure the volume inside; make use of dripless hose connections (vehicle tanks) and fixed connections (storage tanks); use a catch basin/drip tray around the fill pipe to collect spills;</p> <p><u>Reaction, fire, and explosion prevention</u>: hazardous materials to be stored in marked containers and separate (from non-hazardous materials); incompatible hazardous materials (acids, bases, flammables, oxidizers, reactive chemicals) to be stored in separate areas and with containment facilities separating material storage; smoking or working with open flames not to be permitted in the presence of these substances; limit access to hazardous waste storage areas and clearly label and demarcate the area; conduct regular inspections of the areas and document the findings; prepare and implement spill response and emergency plans; train employees in the use of appropriate fire fighting equipment and ensure that such equipment is on hand at all times.</p> <p>Train workers on the correct transfer and handling of fuels and chemicals and the response to spills.</p>	<p>Ongoing.</p>	<p>Ongoing (see below).</p>

Aspect	Impact	Mitigation & Management Measures	Compliance & Comments (Maartens, 2020)	Compliance & Comments (July 2023)
		Immediately report and clean up any accidental hydrocarbon spill: Sunisorb, Drizit, Peatsorb can be used to clean up small spills; in case of larger spills, the spill together with the polluted soil should be removed and disposed of at e.g. a biological remediation site.		
<p>Fuel (~15,000 litres) is delivered to &Beyond Sossusvlei Desert Lodge by LVW Boerediens in Mariental once a month (see Maartens, 2016; 2020; 2021a; 2021b; 2022a; 2022b; 2023). The fuel is stored in two, bunded fuel tanks (23,000 litres), one at the Lodge (see Figure 7) and one at the Staff Village (see Figure 13).</p> <p>A Consumer Installation Certificate (CIS) for the consumer fuel installation at the Staff Village was granted to Gold Venture Lodges (Pty) Ltd by the Ministry of Mines and Energy (MME) in July 2002. It is uncertain whether a CIS is in place for the consumer fuel installation at the Lodge.</p> <p>The fuel consumption has since decreased (to around 10,000 litres/month) (Mr Radimar Karsten, Back of House Manager, &Beyond Sossusvlei Desert Lodge, pers. comm.).</p> <div style="display: flex; justify-content: space-around;">    </div> <p>Figure 13: Pictures showing: a) and b) consumer fuel installation at the Staff Village; note the 80 kilo Volt-Ampere (kVA) generator and the oil spill kit in the background; and c) cracked bund wall (Source: L Maartens, July 2023).</p>				
Hazardous materials management	Occupational Health and Safety	Implement hazard communication and training programmes (including information on Material Safety Data Sheets (MSDS)) to make employees aware of workplace chemical hazards and how to respond to these. Provide and ensure the active use of PPE.	Ongoing.	Ongoing.
&Beyond Sossusvlei Desert Lodge: Waste Management				
Waste management: non-hazardous and hazardous	Pollution of biophysical environment	Prepare an Integrated Waste Management Plan . The generation of waste should be avoided as far as practicable; where it cannot be avoided, waste should be reduced, re-used and recovered (including recycling and composting) (e.g. set up collection points for the recycling of solid waste; <i>note that it is planned to use the organic waste is used for composting</i>); where waste cannot be reduced, re-	Ongoing. There is a Waste Management Plan in place (also see Maartens, 2020; Figure 10). Waste is reduced (by buying in bulk quantities) and recovered,	Ongoing. The generation of waste is avoided as far as practicable; where it cannot be avoided, waste is reduced (by buying in bulk quantities), re-used (N/A at the moment) and

Aspect	Impact	Mitigation & Management Measures	Compliance & Comments (Maartens, 2020)	Compliance & Comments (July 2023)
		<p>used and/or recovered, it should be disposed of in an environmentally sound manner.</p> <p>Waste reduction can be achieved by: buying in bulk quantities; using refillable, bulk dispensers (e.g. toiletries) (vs. individually packaged products); working with suppliers in order to limit the use of, and establishing recycling for, product packaging; avoiding the use of polystyrene foam altogether; using glass/durable plastic rather than disposable plastic items (straws/cups); providing in-room recycling procedures and appropriate receptacles.</p> <p>Raise awareness amongst residents, staff and contractors (to reduce, recycle and reuse waste).</p> <p>Stamp down on any form of littering.</p> <p>Non-hazardous and hazardous waste to be collected and stored separately.</p> <p>Hazardous waste: recycle petroleum (fuels and lubricants) waste products and collect and recycle batteries and print cartridges. The remainder to be transported by an approved contractor to a recognized hazardous waste disposal site (e.g. Walvis Bay or Windhoek), with prior permission from the relevant Municipality.</p>	<p>i.e. tins and glass are taken to Rent-a-Drum in Windhoek via truck and used vehicle oil and filters are sent to OilTech Namibia CC in Windhoek for recycling and disposal (documentation made available by Mr Andrew Schoeman, Back of House Manager &BEYOND).</p> <p>Paper and cardboard are incinerated (Mr Andrew Schoeman, Back of House Manager &BEYOND, pers. comm.).</p> <p>It is advised that the organic waste from the kitchen be composted and used in the gardens.</p>	<p>recovered (including <u>recycling</u> (i.e. tins and glass are taken to Rent-a-Drum in Windhoek via truck and used vehicle oil and filters are sent to OilTech Namibia CC in Windhoek for recycling and disposal) and <u>composting</u> (N/A at the moment)).</p> <p>Where the waste cannot be reduced, re-used and/or recovered, it is disposed of in an environmentally sound manner (note that plastic, paper and cardboard are incinerated) (see Maartens, 2023).</p>
<p>The waste disposal area was upgraded and commissioned during the first week of March 2023 (see Maartens, 2023). The fenced-off area houses: an “incinerator” (consisting of three old fireplaces that were welded together) and drums into which the ashes are emptied (the latter is then put into bags and disposed of at Rent-a-Drum in Windhoek); two drums for sorted glass and tins/cans; a container for the storage of the packed glass/tins/cans that is ready for transport to the recycling facility; and a small storage area for the short-term storage of burnable items (see Figure 14).</p>				

Aspect	Impact	Mitigation & Management Measures	Compliance & Comments (Maartens, 2020)	Compliance & Comments (July 2023)
 <p>Figure 14: Pictures showing: a) and b) fenced off waste disposal area; c) drums into which the ashes from the “incinerator” is emptied; d) area for the short-term storage of burnable items; e) and f) container for the storage of the packed glass/tins/cans (Source: L Maartens, July 2023).</p>				
Waste management: sanitary	Pollution of biophysical environment	<p>Ensure that the discharge of sanitary wastewater to land conform to the regulatory requirements (Ministry of Agriculture, Water and Forestry’s (MAWF) Water Quality Standards for Effluent (2008).</p> <p><i>Note that all toilets are of the flush-type and drain into septic tanks and French drains.</i></p> <p>Use bio-degradable toilet cleaners that do not kill the bacteria in the septic tanks. <i>Biotreatment is added (to the toilets, etc.) once every three weeks.</i></p>	<p>Afro Ventures Namibia (Pty) Ltd T/A &Beyond Sossusvlei Desert Lodge needs to apply for an effluent discharge permit from the DWA, Ministry of Agriculture Water and Land Reform (see Maartens, 2016).</p>	<p>Afro Ventures Namibia (Pty) Ltd T/A &Beyond Sossusvlei Desert Lodge needs to apply for an effluent discharge permit from the DWA, MAWLR (see Maartens, 2016; 2020).</p> <p>First, the sewage systems need to be repaired and/or upgraded (see below).</p>
<p>All the flush toilets at the &Beyond Sossusvlei Desert Lodge (see Figures 15 and 16) and Staff Village drain into septic tanks and then a French drain system (see Maartens, 2016).</p> <p>Since 2016, a Biorock sewerage plant (see www.biorock.com; Figure 17) that processes all sewerage and waste water has been installed at the Staff Village (see Maartens, 2020). The system is not functioning as desired and it is proposed to optimise the workings of the septic tank, or to replace the Biorock tanks with an aeration plant (Mr Radimar Karsten, Back of House Manager, &Beyond Sossusvlei Desert Lodge, pers. comm.).</p> <p>At the Lodge, the sewage system seem to be blocked, especially at point 3 (see Figure 15), or has become saturated.</p>				

Aspect	Impact	Mitigation & Management Measures	Compliance & Comments (Maartens, 2020)	Compliance & Comments (July 2023)
				
<p>Figure 15: Map showing the four septic tank/French drain systems at the Lodge (the image is dated April 2005) (Source: GoogleEarth, 2023).</p>				











Aspect	Impact	Mitigation & Management Measures	Compliance & Comments (Maartens, 2020)	Compliance & Comments (July 2023)
				
				
				

Figure 16: Pictures showing: a) moist sand at septic tank/French drain system number 1; b) water at septic tank/French drain system number 2; c) the trough between the Lodge and septic tank/French drain system number 3; d) the three-compartment septic tank (yellow oval) at septic tank/French drain system number 3; e), f), and g) blocked or saturated French drain (number 3) causing an overflow; h) moist sand at septic tank/French drain system number 4; and i) moist sand in the area between the main building and guest suite number 6 (Source: L Maartens, July 2023).

On 19 July 2023, representatives from the Namibian Roads Authority (RA) visited the Lodge. Around 350,000 litres of water per day is needed to upgrade the road (C27). Note that stated in the *Permit for the Abstraction of Groundwater for Lodge Operation Purposes on Beyond Sossusvlei Desert Lodge* (12 August 2021) is that "If you want to sell or give water to someone else for any purpose on any other property, you will have to apply for such a permit in terms of section 5(2)(a) of the said Act." The RA did indicate that they could also make use of wastewater. Depending on the time frame, the RA could use the wastewater, and at the same time the septic tank/French drain system could be repaired/upgraded. The latter should be done sooner rather than later.

Aspect	Impact	Mitigation & Management Measures	Compliance & Comments (Maartens, 2020)	Compliance & Comments (July 2023)
				
<p>Figure 17: Picture showing the Biorock sewage system at the Staff Village (Source: L Maartens, July 2023).</p>				
Wastewater management	Pollution of biophysical environment	<p>Minimize the use of the laundry through asking guests to reuse the towels and bedding. <i>Guests are asked to re-use towels.</i></p> <p>Control the consumption of cleaning materials. If feasible, substitute cleaning materials with biodegradable products.</p> <p>Avoid/minimize the use of cleaning agents that contain phosphates, nitrilotriacetic acid or any of its salts, ethylene diaminetetraacetic acid and ethylene dinitrilotetraacetic acid or any of their salts, alkylphenol ethoxylate, halogenated organic solvents, butoxy-ethanol, and (Volatile Organic Compounds (VOCs) in excess of 10 percent by mass.</p>	<p>Ongoing.</p> <p>All cleaning materials are bought from Taurus Maintenance Products (see https://www.tmpn.com/; Mr Andrew Schoeman, Back of House Manager & BEYOND, pers. comm.).</p>	Ongoing (see Maartens, 2020).
Wastewater management -	Soil erosion	Regular inspection and maintenance of permanent erosion and runoff control features.	Ongoing.	Ongoing (see Maartens, 2020).

Aspect	Impact	Mitigation & Management Measures	Compliance & Comments (Maartens, 2020)	Compliance & Comments (July 2023)
stormwater management				
&Beyond Sossusvlei Desert Lodge: Occupational and Community Health and Safety				
Food quality	Occupational and Community Health and Safety	Apply international standards/implement systems re. the handling, preparation and storage of food, e.g. SANS 10049:2001 (Food Hygiene Management) and/or ISO (International Organization for Standardization) 22000:2018 (Food Safety Management System (FSMS)).	Ongoing. A very comprehensive Kitchen – HACCP (Hazard Analysis Critical Control Points) <i>Best Operating Practices</i> (April 2020) is in place (documentation made available by Mr Andrew Schoeman, Back of House Manager &BEYOND).	Ongoing (see Maartens, 2020).
Indoor air quality	Occupational and Community Health and Safety	Use low VOC-emitting products. Avoid, where possible, the use of aerosols, sprays and air fresheners. Housekeeping and cleaning products to be used during unoccupied hours. HVAC system: conduct periodic, preventive maintenance (incl. cleaning drain pans and changing filters); keep duct lining dry; ensure clean mechanical rooms; and fix leaks and clean spills immediately.	Ongoing. There is a qualified refrigerant technician at the Lodge that is responsible for basic maintenance and servicing of the equipment. There is also an ongoing servicing programme in place (Mr Andrew Schoeman, Back of House Manager &BEYOND, pers. comm.).	Ongoing (see Maartens, 2020). There is a qualified refrigerant technician, Me Klementine Amunyela, at the Lodge who is responsible for basic maintenance and servicing of the equipment.
Swimming pools	Community Health and Safety	Implement a pool water sanitization programme; the programme should include the monitoring of water quality (also see World Health Organization (WHO), 2006).	Compliant and ongoing. Filtration takes place for eight hours per day. The pools are brushed and vacuumed each day. Each pool has a pool floater (BLU52) and a chlorine test is carried out at least every two weeks. Acid is used on demand (Mr Andrew Schoeman, Back of House Manager &BEYOND, pers. comm.).	Ongoing. A chlorine test is carried out every Friday (Mr Radimar Karsten, Back of House Manager, &Beyond Sossusvlei Desert Lodge, pers. comm.).
&Beyond Sossusvlei Desert Lodge Airfield				
Management and Monitoring	Social and Environmental Performance	Comply with Namibia's Aviation Act, the Civil Aviation Regulations (CARS), and the Civil Aviation Technical Standards (CATS).	Ongoing (also see Maartens, 2020; Figure 12).	Ongoing (see Figure 18; emergency contact details can be found on a Notice Board at the Lodge).

Aspect	Impact	Mitigation & Management Measures	Compliance & Comments (Maartens, 2020)	Compliance & Comments (July 2023)
Occupational and Community Health and Safety	Social and Environmental Performance	<p>Comply with the NamibRand Nature Reserve EMP (2007): Aircraft flying over the Reserve should maintain a minimum height of 1,000 metres (m) (3,000 feet); scenic flights departing and returning to the Reserve should maintain this height until passing the boundaries of the Reserve</p> <p>Notice or information boards relating public health and safety hazards and emergency contact details should be put up at the aircraft parking area.</p>		<p>Namibia Helicopter Services (see https://nhs.na/) is contracted by &Beyond Sossusvlei Desert Lodge to undertake scenic flights from the Lodge. A helipad (see Figure 3a) is located <i>en route</i> to the Staff Village; a hanger (see Figure 3b) was constructed at the Staff Village.</p> <p>A height of 4,500 feet above sea level or 1,500 feet above ground is maintained (Mr Duan Gous, Helicopter Pilot, Namibia Helicopter Services, pers. comm.).</p>



Figure 18: Picture showing arrival and safety equipment (Source: L Maartens, July 2023).

Aspect	Impact	Mitigation & Management Measures	Compliance & Comments (Maartens, 2020)	Compliance & Comments (July 2023)
Landing Strip Maintenance	Air quality (dust or Particulate Matter (PM) pollution)	Maintain the landing strip surface to preserve surface characteristics (e.g. texture and roughness). <i>The landing strip is graded once a year; tyres are used to grade the strip on a monthly basis.</i> Avoid landing strip maintenance under high wind conditions or when a visible dust plume is present. Use dust control/suppression methods, such as applying water or non-toxic chemicals to minimize dust.	Ongoing.	Ongoing. A runway resurface is planned for the near future (Mr Radimar Karsten, Back of House Manager, &Beyond Sossusvlei Desert Lodge, pers. comm.). No dust control/suppression methods are used (Mr Radimar Karsten, Back of House Manager, &Beyond Sossusvlei Desert Lodge, pers. comm.). A new wind sock is currently available at the Lodge (pers. obs.) (and have since been put up).
	Soil erosion	Reduce or prevent soil erosion (if relevant).		
	Occupational and Community Safety	Maintain the landing strip surface to preserve surface characteristics (e.g. texture and roughness). <i>The landing strip is graded once a year; tyres are used to grade the strip on a monthly basis.</i> Replace the wind sock (as needed). Paint the boundary demarcation stones (of the landing strip) white. <i>The landing strip is demarcated with white stones.</i>		
	Economical	Ensure that the run-up pad is free of rocks/stones before landing.		
Landing and Takeoff of Aircraft: Fauna/Avifauna on the landing strip	Occupational and Community Safety	Apply wildlife repellent techniques (if necessary), e.g. audio techniques, or visual techniques to scare and repel wildlife. <i>The runway is cleared 30 minutes before takeoff and landing.</i>	Ongoing. There is an Air Strip Procedure in place. The Aviation Company is in Whatsapp contact with the Lodge; the Rangers check the landing strip 10 to 15 minutes before landing (Mr Andrew Schoeman, Back of House Manager &BEYOND, pers. comm.).	Ongoing. There is an Air Strip Procedure in place. The Aviation Company is in WhatsApp contact with the Lodge; the Rangers check the landing strip 30 minutes before landing (Mr Radimar Karsten, Back of House Manager, &Beyond Sossusvlei Desert Lodge, pers. comm.).
Parked Aircraft	Pollution of biophysical environment (air, soil and water)	Aircraft maintenance/servicing/washing not to be allowed on site. Enforce proper waste (hazardous and non-hazardous) management practices. <i>Note that no re-fuelling of aircraft takes place in the area.</i>	Ongoing.	Ongoing.

Aspect	Impact	Mitigation & Management Measures	Compliance & Comments (Maartens, 2020)	Compliance & Comments (July 2023)
Rehabilitation and Closure				
Rehabilitation and Closure	Social and Environmental Performance	Remove the Solar PV (photovoltaic) Modules. If it cannot be recycled, the modules to be disposed of at the hazardous waste disposal site in Windhoek or Walvis Bay.	Not (Currently) Applicable	Not (Currently) Applicable

3.3 Compliance: Monitoring and Reporting

In order to illustrate &Beyond Sossusvlei Desert Lodge’s compliance with the proposed “monitoring and reporting” (see Maartens, 2016; 2020), the following colour codes were applied:

	Compliance/Completed
	In Progress/Ongoing
	Non-compliance
	Not Applicable

Type	Parameter	Frequency	Compliance (Maartens, 2020)	Compliance (July 2023)
Wastewater discharge	As per the Department of Water Affairs (DWA), Ministry of Agriculture, Water and Forestry’s (MAWF) Effluent Numeric Requirements.	As per DWA effluent discharge permit requirements	Afro Ventures Namibia (Pty) Ltd T/A &Beyond Sossusvlei Desert Lodge needs to apply for an effluent discharge (and reuse) permit from the DWA, Ministry of Agriculture Water and Land Reform (see Maartens, 2016).	
Swimming pool water sanitization	Monitor the water quality to establish treatment need and frequency	<i>Ad hoc</i>	Ongoing.	Ongoing.
Stormwater and soil erosion	Soil erosion rates	<i>Ad hoc</i> (rainy season)	Ongoing.	Ongoing.
Alien invasive plant species	Identification and removal of any alien invasive species	Three-monthly monitoring	Ongoing.	Ongoing.
Environmental Management Plan	Environmental performance / corrective measures to be taken as or when required	Internal audits (monthly) External audits (annual)	The Ministry of Environment, Forestry and Tourism (MEFT) requires Environmental Clearance Certificate-holders to submit Bi-Annual Environmental Reports to the MEFT (see http://www.eia.met.gov.na/).	See Maartens (2021a; 2021b; 2022a; 2022b; 2023)

4 Conclusions and Recommendations

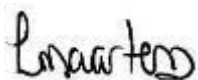
The Sossusvlei Desert Lodge was taken over by the &Beyond Group in 2001.

It is advised that &Beyond Sossusvlei Desert Lodge, and their employees and contractors, should implement and observe the Environmental Management Plan on an ongoing basis.

Specific recommendations include (that Afro Ventures Namibia (Pty) Ltd T/A &Beyond Sossusvlei Desert Lodge):

- Waste:
 - Conduct the pig farming business in a proper manner, or do away with it (as a matter of urgency);
 - Compost the organic waste from the kitchen for use in the gardens (if feasible), or donate/sell it to neighbouring lodges/communities;
 - Consider the use of colour-coded (and laminated) notices (at the Lodge and Staff Village), or consider painting the drums/containers/skips in different colours (e.g. sanitary – red; organic – green; paper – yellow; plastic - orange; glass – light blue; metal – dark blue; e-waste – black; etc.) to assist with the segregation of the waste;
 - Remove the contents of the fat trap (it is done weekly on a Wednesday and amounts to ~40 litres/week), and dispose of it in an environmentally sound manner (consider transporting the contents to Windhoek in a drum during the two-weekly staff transfer);
 - Recover the plastic waste (vs burning);
- Hazardous materials:
 - Inspect and repair (as applicable) the bund walls at the two consumer fuel installations;
 - Remove the contaminated soil (Staff Village) and dispose of it at the hazardous waste facility in Windhoek;
 - Apply for a Consumer Installation Certificate (CIS) from the Ministry of Mines and Energy for the consumer fuel installation at the Lodge (if applicable);
- Sewage:
 - Repair/upgrade the sewage systems at the Lodge and Staff Village (as a matter of urgency);
 - Apply for wastewater discharge and reuse permits from the Ministry of Agriculture, Water and Land Reform.
- Resource use:
 - Conserve water (consider presenting the guests (and staff) with up-to-date statistics re water availability and use in the region and at the Lodge and Staff Village; the use of fossil water (that is not recharged during precipitation events) should be emphasised).

Environmental performance should be regularly monitored (so that the lessons learnt can be incorporated into the improvement of the Environmental Management Plan over time) and corrective measures taken as or when required.



Dr Lima Maartens
LM Environmental Consulting

5 References

- Botha, L. 2020. *How to start a pig farming business*. Farmer's Weekly. <https://www.farmersweekly.co.za/animals/pigs/how-to-start-a-pig-farming-business/> Accessed 23 July 2023.
- Du Pisanie, K. 2021. *How to run a profitable small-scale piggery*. Stockfarm. Vol 11(9).
- Government of the Republic of Namibia (GRN). 2012. Ministry of Environment and Tourism. Government Notice No. 28. *Commencement of the Environmental Management Act, 2007*. Government Notice No. 29. *List of activities that may not be undertaken without Environmental Clearance Certificate: Environmental Management Act, 2007*. Government Notice No. 30. *Environmental Impact Assessment Regulations: Environmental Management Act, 2007*. Government Gazette of the Republic of Namibia. No. 4878. 6 February 2012.
- International Finance Corporation (IFC). World Bank Group. 2007a. *Environmental, Health, and Safety General Guidelines*. 99 pp.
- International Finance Corporation (IFC). World Bank Group. 2007b. *Environmental, Health, and Safety General Guidelines for Tourism and Hospitality Development*. 20 pp.
- Jackson, T. 2009/2010. *Desert Revival*. Africa Geographic. www.africageographic.com
- Maartens, L. (LM Environmental Consulting). 2016. *Environmental Management Plan for the &Beyond Sossusvlei Desert Lodge, Gibeon Constituency, Hardap Region, Namibia*. Prepared for Afro Ventures Namibia (Pty) Ltd T/A &Beyond Sossusvlei Desert Lodge. 30 pp (plus 6 Annexures).
- Maartens, L. (LM Environmental Consulting). 2020. *Implementation of and Compliance with the Environmental Management Plan for the &Beyond Sossusvlei Desert Lodge, Gibeon Constituency, Hardap Region*. Prepared for Afro Ventures Namibia (Pty) Ltd T/A &Beyond Sossusvlei Desert Lodge. 30 pp.
- Maartens, L. (LM Environmental Consulting). 2021a. *Bi-Annual Environmental Report for the &Beyond Sossusvlei Desert Lodge, Gibeon Constituency, Hardap Region, Namibia. September 2020 to February 2021*. Prepared for Afro Ventures Namibia (Pty) Ltd T/A &Beyond Sossusvlei Desert Lodge. 12 pp.
- Maartens, L. (LM Environmental Consulting). 2021b. *Bi-Annual Environmental Report for the &Beyond Sossusvlei Desert Lodge, Gibeon Constituency, Hardap Region, Namibia. March to August 2021*. Prepared for Afro Ventures Namibia (Pty) Ltd T/A &Beyond Sossusvlei Desert Lodge. 16 pp.
- Maartens, L. (LM Environmental Consulting). 2022a. *Bi-Annual Environmental Report for the &Beyond Sossusvlei Desert Lodge, Gibeon Constituency, Hardap Region, Namibia. September 2021 to February 2022*. Prepared for Afro Ventures Namibia (Pty) Ltd T/A &Beyond Sossusvlei Desert Lodge. 16 pp.
- Maartens, L. (LM Environmental Consulting). 2022b. *Bi-Annual Environmental Report for the &Beyond Sossusvlei Desert Lodge, Gibeon Constituency, Hardap Region, Namibia. March to August 2022*. Prepared for Afro Ventures Namibia (Pty) Ltd T/A &Beyond Sossusvlei Desert Lodge. 14 pp.
- Maartens, L. (LM Environmental Consulting). 2023. *Environmental Monitoring Report for the &Beyond Sossusvlei Desert Lodge, Gibeon Constituency, Hardap Region, Namibia. September 2022 to February 2023*. Prepared for Afro Ventures Namibia (Pty) Ltd T/A &Beyond Sossusvlei Desert Lodge. 17 pp.
- NamibRand Nature Reserve. 2007. *NamibRand Nature Reserve Environmental Management Plan*. 43 pp.
- Republic of Namibia, Ministry of Environment and Tourism. *A Strategic Collaborative Management & Development Plan For Greater Sossusvlei – Namib Landscape 2013 – 2018*. 24 pp.
- Ryan, J. 2023. *Avoid confusion with the quick guide to pig diseases*. Farmer's Weekly. 21 April 2023.
- Southern African Institute for Environmental Assessment (SAIEA). 2014. *Strategic Environmental Assessment (SEA) of the Tourism Sector for the Greater Sossusvlei Namib Landscape*. Prepared for the Ministry of Environment and Tourism. 72 pp.
- World Health Organization (WHO). 2006. *Guidelines for safe recreational water environments. Volume 2, Swimming pools and similar environments*. 146 pp.