ENVIRONMENT AND SOCIAL IMPACT ASSESSMENT REPORT | PROPOSED HOTEL DEVELOPMENT ON ASSOMPTION ISLAND, SEYCHELLES

Prepared by Island Conservation Society

This document has been prepared by the Island Conservation Society (ICS)

Report Type:	Environmental and Social Impact Assessment
Project Name:	Proposed Hotel Development on Assomption Island, Seychelles
Project Proponent:	Assets Development
Submitted to:	Ministry of Agriculture, Climate Change and Environment Victoria, Mahé Republic of Seychelles
Document Status	Draft for public comment
Date Issued	13 May 2024
Version	v1.0
Language	English

Contents

Glossary

IDC: Island Development Company
ICS: Island Conservation Society
IAS: Invasive Alien Species
MACCE: Ministry of Agriculture, Climate Change and Environment
SIF: Seychelles Islands Foundation
ESIA: Environmental and Social Impact Assessment
EEZ: Exclusive Economic Zone
SLA: Seychelles Licensing Authority
MLH: Ministry of Lands and Housing
SMSP: Seychelles Marine Spatial Plan
UNESCO: United Nations Educational, Scientific and Cultural Organisation
TOR: Terms of Reference
IDCC: International Design Consulting Company
BOH: Back of House
SCAA: Seychelles Civil Aviation Authority
EMP : Environnent Management Plan
PV : Photovoltaïque
STP: Sewage Treatment Plant
ACD: Admiralty Chart Datum
EO: Environment Officer
EMP: Environment Management Plan
WIO: Western Indian Ocean
IWC: International Whaling Commission

1. Executive Summary

An Environmental and Social Impact Assessment (ESIA) has been undertaken for the proposed hotel development on Assomption Island by the Island Conservation Society (ICS), a Seychelles registered not-for-profit organisation. This report presents a description of the overall environment of Assomption Island and an assessment of the potential environmental and social impacts that would arise from the development. Furthermore, this report proposes measures to mitigate the effects of the construction and operation of the development.

The revised footprint of the proposed development is 61 ha, which includes landscaped areas represents around 5.2% of the island's area of 1,160 ha. Most of the development would be concentrated along the beach on the west coast of the island with some back-of-house facilities also situated on the eastern shore.

The resort will cater for high-end clientele. Due to the remote nature of Assomption, the airstrip on the island has been extended and will be able to accommodate larger aircraft including hangars for privately owned aircrafts. This will allow access to the island via multiple routes rather than having all clients having to first come to Mahe.

One of the primary attractions of Assomption is its proximity to the various islands in the Aldabra group, these include Aldabra, Cosmoledo and Astove that would all potentially be accessible from Assomption.

Aldabra atoll, which is a UNESCO World Heritage site, lies about 27 km due north of Assomption and the settlement on Ile Picard some 52km northwest of the settlement on Assomption. Aldabra Atoll is considered as one of the most unique and protected habitats in the world and travel and access to Aldabra can only be approved and arranged by the Seychelles Islands Foundation (SIF) which manage this world heritage site. Cosmoledo and Astove are located further but are still part of the Aldabra group of islands and are still readily accessible from Assomption by boat or aircraft. Both sites hold impressive diving and fishing sites that clients will be able to take advantage of.

Whilst the location of Assomption within such an important and biodiverse island group makes it attractive in terms of a potential tourism development, this development, if approved, would be the only significant tourism establishment located within this island group. Aldabra has no tourism establishment whilst Cosmoledo and Astove both have very small operations catering for about 11-12 guests primarily for fly fishing. As such, the scale of the Assomption development has the potential to cause adverse effects not only to Assomption, but to Aldabra and the other islands in the group if the proper mitigation measures are not implemented and adhered to.

Throughout this EIA process the consultants have met with various stakeholders and other concerned parties regarding concerns that the development may pose to the social, cultural, and environmental aspects of Seychelles. One of the primary risks identified would be in relation to the biosecurity risks that the development could pose to Aldabra if any invasive alien species (IAS) were to be introduced to Assomption due to its proximity to Aldabra. As such the developers would need to create and implement strict biosecurity measures that cover both the construction and operational phases of the development. The other main concerns were in relation to the potential impact of the development on the various sensitive habitats found on the island, primarily to the unique dune ecosystems and the significant population of green turtles that nest and forage on or around Assomption. These issues have been addressed by setting back all buildings at least 40m from the high-water mark and by cancelling all development on the dunes other than designated walkways installed to allow access to these sites whilst minimizing the risk of trampling and other disturbances.

The conflict of interest by having ICS conduct the EIA is another issue that was highlighted at multiple stages during the EIA process. Stakeholders indicated concerns that due to the relationship between ICS and IDC in its role as manager of the island and building contractor for the developer, ICS would not be able to produce an independent EIA and would prioritize the greenwashing of the proposed development to facilitate its approval rather than address environmental concerns. To addresses this concern ICS has been fully transparent with all stakeholders throughout the process. The scoping report was shared to all stakeholders and other parties that requested it. In both the scoping report and this subsequent EIA report, ICS has ensured that all stakeholders concerns have been highlighted and addressed and ICS has had significant involvement and discussion with both the developers and IDC to ensure that all the concerns are taken into consideration. In reviewing both these documents ICS has, in its role as the EIA consultant, provided a balanced overview of both the potential risk and benefits of the development and it is confident that the issues of conflict of interest have been suitably resolved. It will now be the responsibility of the Authorities to ensure that any requirements are properly defined and communicated to the developers and that the proper monitoring and penalties are enforced in the event of any deviations from the requirements.

2. Alternatives to the proposed development

2.1. Naval Base

Historically, there has been interest by foreign governments to establish a military naval base on Assomption. A proposal was made in 2017 involving the establishment of a full naval and air force base, including the construction of a military airport in a north-south alignment. The development of such a military installation would potentially have a larger negative environmental impact than the current development on Assomption. However, following large public outcry, amidst environmental concerns that such a development posed to neighbouring Aldabra atoll, the project was abandoned.

2.2 Tourism Resort

An expression of interest was launched in 2023 to invite potential investors to propose development for the island. It is understood that only the current proponents expressed interest and put forward a proposal and as such was selected.

Following the scoping surveys, it is evident that the flora, fauna, and geological features present on the island are of much higher uniqueness and important conservation value than described in reports and anecdotal observations. As such it would be of interest to the developers to showcase these features and attract new and continuing interests in maintaining the island eco-destination and highlighting its uniqueness.

3. Terms of Reference

This ESIA has been conducted in accordance with the requirements set forth in the Environmental Protection (Impact Assessment) Regulation 1996, under the Environmental Protection Act 1994. The Terms of Reference (TOR) and scoping response letter sent to the ESIA consultants on Tuesday 16th April by Ministry of Agriculture, Climate Change and Environment (MACCE) can be found in Annexes 1 & 2. Prior to the preparation of the TOR an extensive scoping exercise was conducted. Inception meetings with the MACCE took place on 26 January 2024. This was followed by a stakeholder scoping meeting on Monday 5th February 2024, and a site visit on Tuesday, 6th February 2024. The developers presented the masterplan and concept of the development to stakeholders and answered questions relating to the development.

A second scoping meeting was held on 15 February 2024 to hear the concerns expressed by the stakeholders of the Seychelles Marine Spatial Plan (SMSP) initiative. A scoping meeting of the public was held on 9 March 2024, during which an extensive public participation process was held

whereby stakeholders and members of the public were informed of and provided with the opportunity to express comments on the Assomption development. Advertisements on television, national newspapers, and radio were used to announce the project and advertise the venue and date for the public.

The Scoping Report was finalized and submitted to MACCE on the 6th April 2024 for preparation of the TOR. This present ESIA report aims to address all the issues raised in the various meetings, site visit and those set out in the official TOR from the MACCE (Annex 1 and Annex 2).

4. Description of the Proposal

The project is being promoted by International Design Consulting Company (IDCC), a Qatari based company that has experience in building numerous high-end luxury resorts as well as other developments all over the world. They had originally planned to obtain a 70-year lease from IDC for plots of land on Assomption Island with the goal of building a 42-villa resort with seven restaurants and other supporting facilities.

Following discussion with the ESIA consultants, and following the receipt of the TOR, the developers have made amendments to their original plans so as to address the requirements set forth in the TOR. As such, the current proposal is for the construction of a 37- villa resort with four restaurants and supporting facilities. Additionally, in line with the requirements of the TOR, all buildings will have a minimum 40-metre setback from the high-water mark and the proposed two jetties will be reduced to one only, that will involve the rebuilding of the historical jetty to its former size and adding a floating pontoon to the end.

Following these changes, the total building footprint has been reduced by 28.5%. Additionally, the staffing requirements for the operational phase has been reduced by 52.5% (Table 1). Moreover, the developers have made several other design proposals to their original development plans to ensure that the important natural features are preserved, and that rehabilitation and restoration work is undertaken to restore rare and important fauna and flora on the island.
The resort will be managed by the Rosewood Resorts group which operates several high-end exclusive resorts.

Table 1: Summary of changes to address reduction in size of the proposed hotel development on Assomption Island, Seychelles.

ASSOMPTION RESORT - SEYCHELLES - COMPARISON				
Description	**BEFORE** (Outline Planning Approval - 7th Jan. 2024)		**AFTER** (TOR - 15th April)	
No. of Keys	42 KEYS		37 KEYS	
Villa Mix	1 BEDROOM+SITTING	20	1 BEDROOM+SITTING	25
	2 BEDROOM	10	2 BEDROOM	6
	3 BEDROOM	9	3 BEDROOM	4
	4 BEDROOM	1	4 BEDROOM	1
	5 BEDROOM	1	5 BEDROOM	-
	2 BEDROOM (RESIDENCE)	1	2 BEDROOM (RESIDENCE)	1
Restaurants	SEAFOOD RESTAURANT	7	FRENCH RESTAURANT	4
	CHINESE RESTAURANT		CANCELLED	
	JAPANESE RESTAURANT		JAPANESE RESTAURANT	
	MIDDLE EASTERN RESTAURANT		CANCELLED	
	POP-UP RESTAURANT		CANCELLED	
	CLUB / ALL DAY DINING		CLUB / ALL DAY DINING	
	ORGANIC RESTAURANT		ORGANIC RESTAURANT	
BUA	TOTAL (SQMT)	71564 m2	TOTAL AREA	51160 m2
BUILDING SET BACK	30M		40M	
JETTY	2		1	
BOH ACCOMMODATION	MANNING REQUIRED	600 BED	MANNING REQUIRED	285 BED

4.1 Location of Proposal

4.1.1 Location and boundaries

See Newest Masterplan **(Annex 4.1)**.

4.1.2 Location of buffers

See Landscape environmental design approach **(Annex 5)**.

4.1.3 Location of Infrastructure

See Newest Masterplan + Landscape environmental design approach + Typical cart path cross-section. **(Annex's 4.1, 5 & 6)**

4.1.4 Location of natural features

See Landscape environmental design approach. **(Annex 5)**

4.1.5 Location of site offices and workers' accommodation

See temp staff & IDC BOH location **(Annex 7)**.

4.1.6 Location of stockpiling areas

All materials arriving on Assomption will be stockpiled in the holding area and sheds located adjacent to the jetty **(Figure 1**).

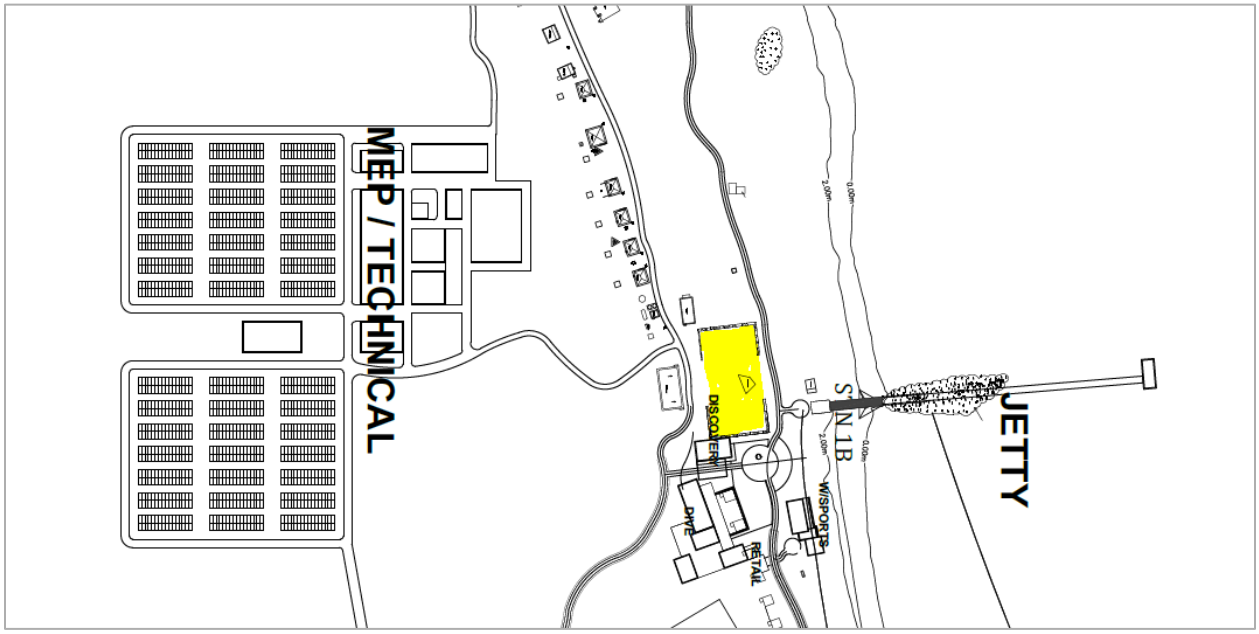

Figure 1: Map showing the stockpiling zone on Assomption Island

4.1.7 Location of scenic and aesthetic value

Refer to - Landscape environmental design approach **(Annex 5)**.

4.2 Details of the Development

4.2.1 Original masterplan and Updated version following scoping and TOR.

Refer to original submission Masterplan **(Annex 4.0)** and New Masterplan **(Annex 4.1)**

4.2.2 Proposed changes to masterplan to meet EIA requirements.

Refer to original submission Masterplan **(Annex 4.0)** and New Masterplan **(Annex 4.1)** and Landscape environmental design approach **(Annex 5).**

4.2.3 Detailed concept and staging proposal

Refer to section **4.1.5** and **4.1.6.**

4.2.4 Total land usage

In relation to the various landscaping and rehabilitation work expected to occur on the island a total area of 553,336 m^2 will provisionally be subject to various levels of landscaping (Table 2).

Table 2: Soft-scape landscaping area

grant associates

AIS 0692 Assomption Resort Seychelles

Estimated Planting Area & Tree Quantities: DRAFT

Date: 12 March 2024

SOFTSCAPE AREA CALCULATION

	Total Softscape Area (m^2)	Softscape Area				Trees and Palm Quantity				
		Zone 1: Lawn Planting (m^2)	Zone 2: Structured Planting (m^2)	Zone 3: Natural Planting (m^2)	Zone 4: Rehabilitation Planting (m^2)	Feature Tree		Tree		Palm
						Large	Small	Medium	Small	
Guest Villas	116867	8496	22763	12537	73071	69	138	897	2553	0
Private Retreat Villas	21674	4734	3701	1668	11571	12	24	156	444	0
Potential Coastal Spa Villas	39758	10463	8528	2303	18465	23	45	293	833	0
Public Areas	309763	17649	40693	88094	163327	165	234	1172	929	45
Buggy Path	65274	0	3264	6527	55483	0	0	0	0	0
Total		**41342**	**78948**	**111129**	**321917**	**269**	**441**	**2517**	**4758**	**45**

*These are initial estimates only

Additional buildings and roads will occupy another 58,000, refer to 2024-03-28_BUA Summary_R7 **(Annex 18)**.

As such the total area of development will encompass 611,336 m^2 (61 hectares) which is equivalent to 5.2% of the total land area of Assomption.

4.2.5 Quantities, nature and sources of materials and method of material transport

Due to current shortages of materials on Mahe it is not known where and how material will be sourced. This information will be provided by IDC once it is available.

4.2.6 Equipment list (Construction phase)

Following consultation with IDC, the equipment list provided in Table 3 below will be utilised during the construction phase of the proposed hotel development on Assomption.

Table 3: List of equipment that will be utilised during the construction phase of the development, provided by IDC

IDC List of Equipment :		
Sr. No.	**Name**	**Qty**
1	Excavator	3
2	Dumper	5
3	Telehandler	3
4	Tipper Truck	3
5	Tractor	3
6	Conc. Car Mixer	9
7	Wheel Loader	1
8	Skid Loader	3
9	10 Ton Roller	1
10	5 Ton Roller	1
11	3 Tone Roller	1

4.2.7 Capacity of existing infrastructure to withstand development.

A comprehensive assessment of the various risks and proposed mitigations measures has been completed, refer to risk matrix under **section 6.0.**

4.2.8 Quantities/source of materials and transportation

Due to current shortages of materials on Mahe it is not known where and how material will be sourced. This information will be provided by IDC once it is available. Materials will be transported to Assomption by barge.

4.2.9 Landing areas for loading and unloading construction materials.

All loading of materials to Assomption will be from the IDC Jetty on Mahe. All material arriving on Assomption will be offloaded onto or adjacent to the jetty on Assomption. Materials and equipment will be stored in the designated storage facility identified in **section 4.1.6**.

4.2.10 Landing areas for loading and unloading waste materials.

The same off loading and loading sites as identified in **section 4.2.9** will be utilised.

4.2.11 Extent and methods of excavation

Due to the extensive guano extraction activities that occurred on Assomption, very little soil remains. Most of the development will occur on the karst platform and as such, very little excavation work is expected to occur.

4.2.12 Details of Site levelling, re profiling and backfilling.

As per the above only minimum backfilling will be required. Details of this activity can be found in Topography level study **(Annex 8)**.

4.2.13 Details on extension of jetty

The jetty will be reconstructed to its original length of 100 metres. An extension will be in the form of a floating pontoon that will be deployed from the end of the jetty. Plans for the jetty reconstruction have not yet been finalized but will be provided by IDC once they have been finalized.

4.2.14 Impacts of extraction and transportation of Materials

Refer to **section 4.2.5**.

4.2.15 Sand extraction.

Sand extraction will continue at the same areas of dunes as those used for the original construction of the runway and its subsequent extension work. Compared to the volumes extracted for these operations only minimal quantities will be required for the resort development. Only minimum backfilling will occur. Details of the expected backfilling work can be found in the Topography level study **(Annex 8)**.

Some sand may be required to surface the roads. If this was to occur sand would be extracted from the same site as during the airstrip construction. Currently discussions are still ongoing regarding the type of surfacing material to be used on paths.

4.2.16 Building Designs

See Topography level study **(Annex 8)**, Landscape environmental design approach **(Annex 5)** and Villa mock-up plans **(Annex 9.0 – 9.3)**.

4.2.17 Workforce Management Plan

This is not yet available and will be provided by IDC once available.

4.2.18 Airport Infrastructure requirements

This aspect will need to be developed in accordance with SCAA requirements and will be provided by IDC once available.

4.4 Details relevant to the proposed site and surrounding areas

4.4.1. Government planning controls, regulations, and policies applying to the development.

This section provides a brief overview of the acts and regulations that have direct relevance to the potential impacts that that may be created by the project. The proponent should review all relevant legal documents and adhere to these regulations during the construction and operational phases of the development.

The Environmental (Impact Assessment) Regulation, 1996
In schedule 1 of the Environmental (Impact Assessment) Regulation, 1996 of the Environmental Protection Act (1994), activities such as the construction of tourism establishments are required to conduct a class 1 EIA.

Environmental Protection (Noise Emission Standard and Regulations 1999)
The regulation sets out the limits of sound pressure in dB (A) that should be maintained in a residential, industrial, and pristine area. A limit of (L10) 75dB (A) is the maximum that should be reached on the boundary of an industrial area.

The Environmental Protection (Miscellaneous) Regulation, 1995
This act sets the standard for pollution control.

Occupational Safety and Health Decree 54/1978

The decree states the basic precautions that an employer must take to protect its employees. It mentions duties of the employer to ensure that the working environment is safe, and employees are well trained and informed about their safety. Employees should have regular medical

examinations before and throughout the period that they are employed in such environment. The decree also clearly states that dust and other dangerous gases should be controlled. It also mentions the fact that employees working in a hazardous area should not be exposed to factors that can put their health and safety at risk.

In the 1999 amended act, there are forms and the procedures that should be followed upon and injury or accident to an employee. The classes and particulars are given in part II and III. It is advisable that the proponent encourages its supervisors and workers to be familiar with the act.

The Public Health Ordinance Chapter 194

This act sets the framework for the highest standards of cleanliness, sanitation, disease prevention and maintenance and improvement of public health.

The Water Supply (Abstraction Licence) Regulations, 1984 and the Public Utilities Corporation (Miscellaneous)(Amendment) Regulations 1999

These regulations are specifically for the abstraction of surface, ground, and seawater for private use. The Rivers Committee that is chaired by the Water and Sewerage Division of the PUC is responsible for managing requests made for abstraction.

The town and Country Planning Act, 1972

This act provides the primary instrument for land, infrastructure, and physical development control. No person shall carry out any building operations without a planning permission issued by the Town and Country Planning Authority under the provisions of section 3. Building operations must comply with the rules and codes of practice laid out in sections 7 to 83 of the regulations.

The Pesticide Control Act, 1996

This act regulates the manufacturing, distribution, use, storage and disposal of pesticides for the protection of public health and the environment. This act makes provisions for the approval process for the use of new types of pesticides. A list of approved pesticide is available from the Pesticide Control Board.

Removal of Sand and Gravel Act

This act controls the extraction of sand and gravel. The current status is that it is prohibited to remove sand from the beaches and plateau areas.

Breadfruit and other Trees Protection Act

This Act prohibits the destroying or causing to destroy any tree specified in the Schedule without a written permission obtained from the Chief Agricultural Officer.

Wild Animals and Birds Protection Act

This Act grants regulation-making powers to the Minister for purposes of protection of wild animals and wild bird and prescribes penalties for offences against such Regulations.

Seychelles Marine Spatial Plan (SMSP) Initiative

This initiative, started in 2014, focusses on planning for and management of the sustainable and long-term use and health of the Seychelles' ocean.

Beach Control Act

Regulations for controlling use of the seashore and inshore waters.

Fisheries Act

This Act makes provision for the management, conservation and protection of fisheries and marine resources. Makes provision for the protection of several areas in Seychelles waters. Some of these areas are specifically designated to exclude certain types of fishing. Other areas are specifically designated to prevent damage to the benthos (i.e. Exclusion of certain gear types in specified areas). The Acts also provide for fishing agreements and license conditions as well as management of fisheries stocks.

Animal and Plant Biosecurity Act, 2014

This Act concerns the prevention of the importation into Seychelles of pests and diseases affecting animals and plants and more in general biosecurity.

4.4.2 Potential impacts to international environmental conventions

4.4.2.1. SMSP obligations

The waters surrounding Assomption island falls within Zone 1-High Biodiversity Protection, of the Seychelles Marine Spatial Planning (SMSP) framework (Figure 2). High biodiversity protection zones conserve and protect the top priority areas for marine and coastal biodiversity in Seychelles. These zones are designated for habitats and species that may be rare, endangered, unique or with narrow distribution ranges.

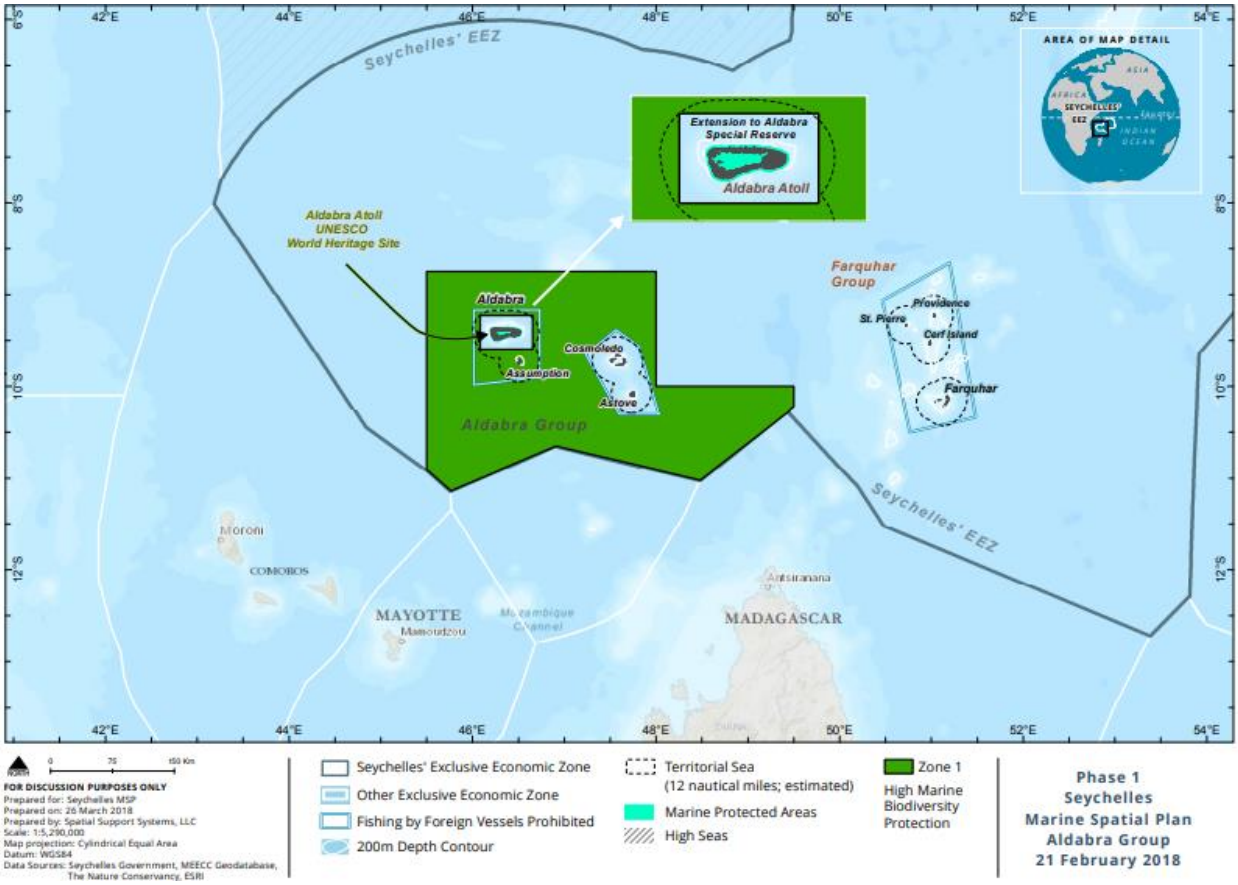

Figure 2: Map showing Assomption as a Zone 1- High Biodiversity Protection Zone (Seychelles Government, MEECC Geodatabase, The Nature Conservancy, ESR, 2019)

The marine spatial plan is an on-going process to not only identify marine zones, but also to determine allowable activities for all marine waters in Seychelles. Given its designation within Zone 1 of the SMSP, the proposed hotel development on Assomption is subject to the following restricted activities **(Annex 19)**.

Please note that the attached documents for allowable activities in a Zone 1- High Biodiversity Zone is in its final draft for approval. The final approved version will be included when the committee has approved the documents in a quorum.

By adhering to these restrictions and environmental safeguards, the hotel development aims to achieve sustainable coexistence with the natural environment and contribute to the long-term conservation and protection of Assomption Island's unique ecological heritage.

4.4.3 Required Approval process.

Refer to s**ection 4.4.1**.

4.4.4 Past and present usage of the site

Historically, since its more recent habitation by man in 1908, Assomption has been a heavily exploited island. The primary resources that were extracted on Assomption were accummulated bird droppings known as "guano", and sea turtles. Over 170,000 tonnes of guano were extracted from the island as well as hundred of thousands of green sea turtles were captured.

Due to the remoteness and relative isolation of the island, it has seen very little development or commercial activity apart from these extractive activities, and once the these principle resources had been exhausted or banned (as with sea turtles) these economic activities on the island ceased and the settlement largely abandoned.

Following the decision to transfer managmenet to IDC, an airstrip was built and a small human presence re-established, although the old settlement largely replaced by neww accommodation and infrastucture ensure general maintenance of the airstrip and access to Aldabra. Due to its proximity to Aldabra, Assomption plays an important role in ensuring access for SIF personel, scientists and other visitors going to and from Aldabra and without the airstrip on Assomption travel to Aldabra from Mahe would only be possible via a lenghtly boat journey lasting several days.

4.4.5 Exisiting infrastructure and facilities available on the site

Due to the lack of any economic activity on the island IDC has only had minimal facilities and infrastructure built on site principally for the management of the airstrip. A Seychelles Navy/coastguard presence to patrol our western borders remained established on the island until 2023 when they vacated the island and the accommodation and storage facilities were returned to IDC. Some military infrastructure such as radar comunication and monitoring equipement remain on the island but have fallen into disuse and disrepair and are no longer opearble.

5.Description of the Enviroment

5.1 Details on the immediate physical environment of the project site

5.1.1 Site features and description of the area surrounding the proposed site

The majority of the development will be situated along the western coast of Assomption where the 37 villas and 4 restaurants will be located. The back of house facilities and the spa and wellness centre will be located on the eastern coast. A detailed vegetation/habitat study identified several critical habitats of high conservation value. In order to minimise the impacts on these critical habitats the development masterplan has been overlaid with the habitat maps to better understand the development footprint and assess the impacts to these habitats. See Landscape environmental design approach for all information on buffer distances, aesthetic and landscape values and structures of social importance **(Annex 5)**.

In order to minimise impacts a number of adjustments have been implemented so that any adverse impacts can be mitigated and that habitats are maintained and restored where possible. In addition the developers have also implemented a minimum 40m setback on all buildings as required in the TOR. Measures that will be implemented include, but are not limited to, the following:

- Final placement of buildings will be verified on site to ensure that adjustments are made to avoid critical habitats.
- Site clearing will be done by hand to minimise the risk of damaging any critical habitats.
- A landscaping/re-vegetation plan has been developed that ensures that the native vegetation is restored post construction.
- Roads/buggy paths will be constructed in a manner that ensures that they do not impede the movment of tortoises and other terrestrial fauna.

All of these and other mitigation measures are described in the Landscape environmental design approach **(Annex 5)**.

5.1.2 Biodiversity Assessments

A survey of the flora and vegetation zones of Assomption was conducted by Dr Bruno Senterre **(Annex 10)**. This survey shows that Assomption has numerous vegetation habitats. Some of these habitat zones are unique to Assomption and are summarized in Table 4 below. As described above, the masterplan has been overlaid with the vegetation maps and efforts are being made to reposition buildings so that there is minimum impact on habitats of high conservation value **(Annex 5)**.

Table 4: Coverage statistics (ha) and conservation value of the different ecosystem-types of Assomption based on the mapping of their distribution. (Senterre et al. 2023).

[#]	Class name	Area (ha)	Conservation value
1	Karst cliff-Rock	12.4	
2	Beach crest-sand	21.6	**High**: turtle nesting habitat
3	Front shore perched dune	10.2	Moderate: Portulaca mauritiensis var. aldabrensis (Kourpye)
4	Backshore pioneer dune	8.2	**Moderate**: Wollastonia biflora
5	Salt steppe-meadow	47.9	
6	Backshore progressive dune scrub	23.7	
7	Backshore old growth dune dwarf forest	2.9	**Very high**: Unique to Assomption; endemic day-flying moth Utetheisa lactea aldabrensis
8	Backshore beach dwarf forest	8.5	**High**: Best preserved stands for Seychelles, especially in the central part of the West coast. This ecosystem offers also several restoration opportunities for other areas of the West coast.
9	Backshore Pemphis scrub	8.2	Relatively rare on Assomption, but extensive on Aldabra.
10	Inland dune dwarf forest	1.2	**Very high**: Unique to Assomption
11	Inland dense scrub of the higher plateau and of solution holes	158.2	**High**: richest area of the mixed scrub
12	Inland open mixed scrub of the champignon	694.3	**Moderate**
13	Inland open mixed scrub of the platin and pavé	65.9	**High**: to be explored further
14	Inland Thespesia populneoides scrub	4.1	**High**: rare ecosystem with high scientific value in term of paleo-ecology
15	Inland meadow of the platin and pavé, incl. 16-ephemera wetland	39.2	**Very high**: endemic Panicum assumptionis, and other species of the Aldabra tortoise turf
17	Inland sinkhole pool	0.1	
18	Inland sinkhole mangrove	0.1	**Very high**: Unique to Assomption; rare ecosystem with high scientific value in term of paleo-ecology
20	Human settlements and other developments	33.4	
	Total	1140	

Mitigation

- Building locations should be pegged on site. These pegs should capture the full outline of the building and proposed swimming pool.
- A very careful approach to any clearing to access the building pegging points is needed. Minimal clearing should occur until the final building placements are confirmed.
- Once the building pegs are in place, a further review of the building locations should be undertaken by the design team to ascertain if further minor adjustment to the building footprint is required.
- Once the final building locations are agreed, a very careful approach to any clearing should be undertaken and a stringent level of construction stage conservation protection must be adhered to.
- The design of the landscape should include replacement or new plantings to help expand or regenerate the high ecological value habitat zones.

Karst structures

The geology of Assomption consist primarily of a raised coral island of karst nature. The terrain is dotted with numerous sinkholes and fissures. These sinkholes have formed numerous microhabitats on the island. Rapid exploration of some of these sinkholes suggest that depending on their characteristics they can hold varied ecosystems. ICS conducted several scoping trips to assess the various karst features of the island and document any unique flora and fauna.

The following subsections details the different types of Karst structures and their characteristics.

Inland paleo-lagoonal sinkhole mangrove

Three sinkholes hosting mangrove communities were observed during scoping surveys. These ecosystems are unique to Assomption and two species of mangroves were observed, namely *Bruguiera gymnorhiza* (Mangliye gro poumon|Mangliye lat) and *Ceriops tagal* (Mangliye zerof|Mangliye zonn). These features are unique to Assomption and are of important conservation value. Three of these features have been identified. All of them are found outside of the development and landscape footprint. Due to the immense beauty of these unique features the developers have proposed that they be incorporated as sights of interest and be preserved. Structures such as designated wooden walkways/trails will be investigated to provide clients with the ability to view these features without risk to the features while also ensuring their personal safety.

Inland freshwater sinkholes

Several sinkholes were observed that hold fresh water. These sinkholes have muddy bottoms with a thin algal film and are inhabited by an unidentified species of crab that could be observed feeding on the algal films.

These features are of important conservation value. All measures will need to be taken to protect and monitor these environments.

These features are found scattered throughout most of the island. Due to the beauty of these unique features the developers have proposed some of them be incorporated as sites of interest and be preserved. Structures such as designated wooden walkways/trails will be investigated to attempt to provide clients with the ability to view these features without risk to the features while also ensuring safety of the people visiting. Most of these features however will be found outside of the development area and due to the risk associated with falling into such features the developers will need to ensure that clients do not wander around the inside of the island unless they are using designated trails.

Many these sinkholes found near areas with human development, have been used as dumping sites. To rehabilitate them it is recommended that the developer conduct cleaning operations to remove waste from these features. There is also the potential that through revegetation with the appropriate mangrove species some of these structures can be transformed back into mangrove habitats and provide important nesting and foraging sites for the native fauna of the island.

Ephemeral wetlands

These temporary ponds form during the wet season. Observations indicate that they host numerous communities of invertebrates.

These features are well known to form on neighbouring Aldabra Island and form temporary pools of fresh water that are important for the larval and adult stages of multiple insects. These pools likely also serve as important drinking areas for tortoises and other animals on the island. A rare Madagascar Pond Heron was observed at these wetlands on multiple occasions. A number of these wetlands have been used as dumping site for waste from landscaping activities. This poses the risk of altering the function of these wetlands by creating areas that are more favourable for pests such as mosquitos to proliferate and reduce the attractiveness of these habitats for native invertebrates that have evolved to live in these pools. Additionally, the dumping of waste may impact the accessibility of these water sources to tortoises and the endangered Madagascar pond herons that have both been observed drinking and foraging around these features.

Cracks/fissures

These structures are common over most of the island. These cracks and fissures can run several meters deep and increase the 3-dimensional complexity of the island's habitats. These structures are sometimes viewed as non-important habitats; although, they could play important roles in providing refuge to multiple species; further time would be needed to fully assess.

All the above karst environments play an important hydrological role on the island. As such, any pollution or contamination of these habitats would potentially have significant environmental impacts. Filling of these structures during construction will reduce the 3D complexity of the islands habitats and could affect the islands hydrology. In order to minimize impacts of construction on these features the developers will need to reposition buildings so that as much as possible construction does not occur in areas with extensive cracks/fissures.

Dunes

Numerous dunes can be found along the eastern coast of Assomption.

Large Dunes – These dunes range from 3-30m in height and form several important microhabitats on the island. The size of these dunes is unique and no other islands in the Seychelles have such significant dunes. In order to minimize the impacts on the dunes the developers have agreed to move all planned hard infrastructure off the Dunes. A wellness centre originally proposed on the dunes has now been relocated to a more appropriate site. Designated paths will be created so that dunes can be visited to enjoy the view of the island without causing and adverse impacts to the vegetation, stability and fauna of the dunes.

Small dunes - These dunes range from 0-3m in height. These dunes are present along much of the perimeter of the eastern coast. Several Invertebrates were observed living in these habitats. These dunes are primarily located along the eastern coastline. As with other features they will only be accessible via use of designated pathways. All the dune habitats on the island hold important ecosystems and play ecological roles by acting as wind barriers and allowing for the accumulation of sand and nutrients from the sea.

Globally, dunes are listed as important habitats that are at high risk of being affected by climate change and human activities. The utmost care will be needed to preserve these habitats from any adverse effects of development.

Fauna of the Island

Crustaceans

Assomption has many terrestrial crustacean species including some rare and vulnerable species.

All terrestrial crab populations will be at risk of being impacted during construction. Future work will be needed to better understand the habitat needs of the various land crabs so that the necessary habitats can be conserved.

Insects

Compared to many of the other outer islands, Assomption appears to have a higher abundance and diversity of species of insects. Many different groups of insects were observed during scoping trips. The most common insects identified were; Butterflies, Dragonflies, Moths, Beetles, Grasshoppers, Wasps, Praying mantis and lace wigs

Use of pesticides, modification of the vegetation and light pollution on the island could have all have adverse impacts on the invertebrate communities of the island. Further work is needed to properly document the insect fauna on the island.

Bats

Three bats presumed to be Mauritian Tomb Bats (Figure 12) have been observed on the island. These bats have been observed roosting in an abandoned structure on the island. Aldabra, located close by, holds two endemic insectivore bats species. Due to the limited research conducted on bats on Assomption is it not possible to say if there are any other bats species on the island. The karst sinkholes could provide roosting areas for other bats. As these bats are insectivores improper use of pesticides and control of insect populations would have negative impacts on them.

Genetic samples from the bats that were observed on the island were obtained via a collection of faecal samples. Genetic analysis has indicated the only currently identified bats on the island are Mauritian Tomb bats which are widespread in the eastern Indian ocean and mainland Africa. It is recommended that additional monitoring continues during construction and operation phases of the development to identify if any other bat species are found on the island. With the vegetation rehabilitation works that are planned to occur there is the potential that an increase in fruiting trees such as Takamaka could increase the food availability for fruit bats and that the endemic Aldabra fruit bat could naturally recolonize the island once suitable food is available.

Reptiles

The reptile section has been further broken down to give specific information on Sea Turtles, Geckos, Skinks, and the Aldabra Giant Tortoises as these animals are of high importance both locally and internationally.

Sea turtles

Assomption Island is known for being a crucial nesting site for the *IUCN endangered* Green turtle (*Chelonia mydas*). It is speculated that Assomption could hold the second largest breeding population of green turtles in Seychelles. Due to limited data, the current breeding population on Assomption is unknown, however, a study conducted by Mortimer (1984), stated that there were at least 5,000-6,000 female green turtles nesting on the main beach at Assomption every year. The *IUCN critically endangered* Hawksbill turtle *(Eretmochelys imbricata)* is less populous on Assomption; however, they are encountered at Assomption, with up to 5 females believed to nest yearly (Mortimer 1984).

Further monitoring is needed to estimate the breeding population so that any impacts from the development can be properly assessed and monitored. All buildings must be set back adequately to ensure that they do not disturb turtle nesting habitats that are limited to the sand coastal plateau.

To minimize the negative impacts on sea turtle nesting habitats the developers have agreed to have all buildings set back a minimum of 40m from the high-water mark and most of the buildings will therefore be situated on the Karst habitat leaving ample nesting area for sea turtles. Other mitigation measures that the developers will be taking will be to ensure that only turtle friendly and dark sky lighting will be used, and that native beachfront vegetation will be maintained with only minimal trimming of plants to provide views on the ocean. The habitat between the high-water mark and the front of the buildings will be landscaped in accordance with their respective vegetation zones as identified during the vegetation study.

Geckos and skinks

The Assomption day gecko is a subspecies that is endemic to the island. These geckos were readily observed on vegetation around the island. To prevent genetic mixing, biosecurity measures will need to be implemented to ensure that other day geckos are not introduced to the island as they could potential outcompete and change the genetics of the current subspecies.

A small unidentified skink species was observed on the island. This skink looks similar to the Seychelles skink but was much smaller with the largest observed individuals being around 7cm only. It is likely that it is either *Cryptoblepharus boutonii* or *Cryptoblepharus aldabrae*

To minimize impacts on the native geckos and skinks of Assomption the developers will minimize the amount of vegetation that will be cleared around the construction site. Site clearing will need to be done manually so that any sensitive vegetation can be identified and if necessary, the positioning of buildings can be re-orientated so as to avoid disturbance of sensitive vegetation. Once construction is completed the developers will rehabilitate/landscape the surrounding area with native vegetation that is compatible with the original vegetation habitats identified by the vegetation survey.

Aldabra Giant Tortoise

The island holds a significant population of breeding giant tortoises *IUCN vulnerable* (*Aldabrachelis gigantea*) and all sizes were readily observed. There are currently no accurate estimates of the population, but it is likely from anecdotal observation that the island could currently have over a thousand tortoises.

Tortoises, especially smaller individuals, will be at risk of being crushed during land clearing and construction operations and this will need to be addressed. Additionally, the airstrip risks creating a physical barrier that would separate the island into 2 sections

Birds

White eyes, Souimanga sunbirds, Green backed herons, Fairy terns and White-tailed tropicbirds are currently confirmed to be breeding on Assomption. Other birds including Pied Crow, Cattle egrets and Madagascar pond herons have been observed on the island, but it is unknown if they are currently breeding on the island. A preliminary EIA on the impacts of the development on the Avian fauna of the island was also conducted (Annex 11).

5.1.3 Description of the marine and coastal environment

Assomption has a rich marine environment. The west coast of the island where most of the development will occur holds one of the longest and most important green turtle nesting beaches in Seychelles. A shallow shelf 0-40m depth extends from the beach out to about 300-400 meters from shore beyond this the shelf ends and the seafloor slopes down to a depth of several hundred meters. The shallow shelf holds a few corals, algae and seagrass habitats as well as areas with sandy bottoms. Due to the tidal variation on Assomption an intertidal zone ranging from 50-200m wide is located directly adjacent to the beach along most of the western coast with a few deeper channels that remain submerged even at low tide. The only direct construction impact on the marine environment will involve the rebuilding of the old jetty. As the Jetty was originally placed in a channel area to facilitate the movements of vessels this area consists primarily of sandy seafloor. Only minimum disturbance is expected from the reconstruction of the jetty and the

presence of hard structure has the potential to increase the habitat availability for encrusting organisms such as corals and algae.

Assomption island serves as a crucial migratory pathway and calving area for humpback whales (*Megaptera novaeangliae*). This region is part of the larger Western Indian Ocean (WIO) population of humpback whales, which undertake extensive migrations between feeding and breeding grounds. During the austral winter months (June to September), humpback whales migrate from their feeding grounds in the Southern Ocean to the warmer waters around Assomption to breed and calve. The sheltered bay and deep waters surrounding the island provide ideal conditions for these reproductive activities. In 2022, Assomption and Aldabra were identified as being part of a humpback whale superhighway, specifically for the International Whaling Commission (IWC) Stock C (Johnson et al.2022).

The presence of humpback whales in these waters is of significant ecological importance, contributing to the biodiversity and cultural heritage of the area. The migration of humpback whales to Assomption underscores the need for careful consideration of their conservation within the framework of the Environmental Social Impact Assessment (ESIA) for the proposed hotel development.

Importance of Humpback Whale Migration

The migration of humpback whales to Assomption represents a natural phenomenon that supports the biological diversity and ecological balance of the marine environment. These majestic creatures play a crucial role in nutrient cycling, ecosystem dynamics, and the cultural heritage of the region. Furthermore, the presence of humpback whales attracts eco-tourism opportunities, contributing to the socio-economic well-being of local communities.

The presence of humpback whales in the waters surrounding Assomption is of significant ecological importance for several reasons:

- Reproductive Vitality: Assomption Island provides a critical habitat for humpback whales to give birth and nurse their calves. The sheltered and relatively undisturbed waters offer protection and security for these vulnerable young whales during their early stages of life.

- Behavioural Observation: The migratory behaviour and social interactions of humpback whales during their time in the waters around Assomption Island provide valuable insights into their reproductive biology, population dynamics, and behaviour patterns.

- Ecological Significance: Humpback whales plays key roles in marine ecosystems as nutrient recyclers. Their seasonal presence in the waters around Assomption contributes to the ecological balance and nutrient cycling processes of the marine environment.

Threats to Humpback Whales

Despite their ecological significance, humpback whales face various anthropogenic threats that may be exacerbated by the development of the hotel on Assomption. Potential threats include:

- Maritime Traffic and Collisions: The operation of vessels associated with the hotel, including tourist boats, recreational watercraft, and supply ships, can increase maritime traffic in the vicinity of humpback whale habitats. This heightened vessel activity raises the risk of collisions between whales and boats, leading to injuries or fatalities for humpback whales.

- Noise Pollution: Construction activities and increased vessel traffic could introduce underwater noise pollution. Humpback whales rely on sound for communication, navigation, and foraging, and excessive noise can disrupt their behavior and communication, potentially leading to displacement from critical feeding or breeding areas.

- Habitat Degradation: Habitat degradation resulting from coastal development and pollution may adversely affect humpback whale foraging and breeding habitats.

- Chemical Pollution: Runoff from construction sites, improper waste disposal, and sewage discharge from the hotel can introduce chemical pollutants into marine ecosystems. Contaminants such as heavy metals, pesticides, and petroleum products can accumulate in whale prey species, leading to bioaccumulation and bio magnification of toxins in humpback whales, with potential negative impacts on their health and reproductive success.

Mitigation Measures

Given the ecological significance of humpback whale migration to Assomption Island, it is imperative that the proposed development activities in the area consider and mitigate potential impacts on these marine mammals. Measures should be implemented to minimise disturbances to their breeding and calving behaviours, protect their habitat, and ensure the long-term conservation of this important migratory corridor.

To mitigate the potential impacts of the hotel development on humpback whales and their habitat, the following measures are recommended:

- Underwater Noise Monitoring: Conducting underwater noise monitoring during construction and operation phases to identify and mitigate sources of noise pollution.

- Speed Limits for Vessels: Enforce speed limits for vessels operating in areas frequented by humpback whales to reduce the risk of collisions and disturbance. Establish designated low-speed zones and ensure compliance through monitoring and enforcement mechanisms.

- Adequate waste management plan: Implementing best management practices for chemical management and waste disposal to prevent contamination of marine environments.

- Monitoring and Research: Implement a monitoring program to track humpback whale sightings, behavior, and population dynamics around Assomption Island. Collaborate with research institutions and conservation organizations to conduct scientific studies on humpback whales, including population surveys and acoustic monitoring.

- Establishment of a Whale Watching Code of Conduct: Develop and implement a comprehensive code of conduct for whale watching activities to minimize disturbance to humpback whales. Provide guidelines for boat operators, staff, and guests on responsible whale watching practices, including maintaining a safe distance from whales and minimizing vessel noise.

- Educational Outreach and Awareness Programs: Conduct educational programs and awareness campaigns to inform hotel staff and guests about humpback whale ecology, behaviour, and conservation. Provide interpretive materials, signage, and guided tours to promote responsible whale watching practices and foster appreciation for marine biodiversity.

By incorporating these mitigation measures into the planning and management of the hotel development, it is possible to minimize potential impacts on humpback whales and ensure the long-term conservation of this iconic species in the waters surrounding Assomption Island.

5.1.4 Wetland and Sinkholes

This section has been covered under **section 5.1.2**.

5.1.5 Geology

The geology of the island of has been poorly studied however more extensive studies have been conducted on Aldabra atoll which lies 34km away and it is presumed that Assomption and Aldabra were formed during the same period of volcanic activity some 20 million years ago. Over the years, erosion and subsidence lead to their submergence and the volcanic base of the islands is now estimated to lie some 500m below sea level. The geology and topology of the island was likely

formed during the last 2 million years. During this period the earth went through several climatic shifts with at least 5 major cycles of climatic cooling with increased ice caps that led to periods where the sea level was 150m lower than today.

During this period the islands were regularly submerged and exposed. As such the islands' stratigraphy is complex and numerous types of carbonate sediments and strata can be observed on the island derived from numerous sources (Corals, algae, shells). The extraction of guano in the 1900's has removed much of the island's topsoil, so the original soil/topographical complex of the island is hard to discern. However, based on the large volumes of guano extracted from the island it can be assumed that before guano mining there was a rich surface layer of mostly terrestrial sediments found on the island indicating that the island likely housed important numbers of seabirds and other terrestrial life. Evidence from fossils found on Aldabra indicate that during periods were the islands emerged from above sea level, terrestrial tortoises, birds and other reptiles inhabited the islands.

The currently observed layers of carbonate rocks on the island are the result of periods of carbonate production during periods of higher sea levels and the effects of erosion that were more prevalent during periods of lower water levels where stronger chemical, biological and mechanical process would have reacted with the various layers or rock each with its own resistance levels towards the erosion processes. This ongoing process and erosion and deposition have created the complex karst geology that now dominates Assomption. The arrangement of these various karst geological features and the present monsoon climate has played an important role in shaping Assomption's current distribution of fauna and flora and creating a number of unique ecosystems some of which are only found at a very small scale of only several square meters such as the inland paleo-mangrove sinkholes.
As a result of this complex system of microhabitats extra care will be needed to ensure that these features are adequately protected from the impacts of the development.

Geological Characteristics

Characteristics of the site has been assessed in the geophysical and geotechnical investigations. It was found that the island consisted of virtually no topsoil. Sparse areas with some topsoil exist in the southwest corner of the island's lobe. The island is primarily exposed to a limestone plateau, which is accentuated with karst features and caverns. The underlying rock of Assomption is essentially limestone, composed of calcium carbonate. However, it is necessary to note that two forms of limestone exist on the island. One form is 'coralline' limestone and the other being 'massive' limestone. The cause for the difference is believed to be the genesis process which initiated the limestone formation.

The coralline limestone is clearly the remnant of dead coral reef. The coral formations are vertical extrusions, which intermingle and form cavernous voids underneath the canopy, which gives rise to a ground level with significant voids in both frequency and magnitude. The massive limestone is believed to be the result of calcareous phytoplankton which would have been deposited within the coralline reef which would be the genesis of the island. As the plankton dies, it forms 'lime mud' which solidifies as a massive limestone structure, with very little voids or caves, like a cake being baked.

In terms of chronological formation, the island is believed to have formed in the Pleistocene epoch, when the glacial periods would have caused dramatic sea level drops around 20,000 to 26,000 years from present. Thus, the corals would become exposed and died, giving rise to a barrier reef. As waves lapped against the reef walls, the phytoplankton would be trapped within the reef annulus, thus starting the massive lime mud deposits. In the Holocene epoch, approximately 5,000 to 7,000 years, the water level would have risen again to approximately 5 meters Admiralty Chart Datum (ACD), thus allowing for sand deposition, forming the beaches and sand flats which now surround the current island as we know it. Evidence of the 5m ACD water level is visible on coralline cliffs around the island, by a distinctive discoloration line on the cliff vertical faces in the mid-western coast of the island.

5.1.6 Climate

The climate of Assomption can be divided into two main seasons. The Northwest Monsoon and the Southeast Trade winds separated by two relatively short inter-monsoon periods. These can be described as follows.

Southeast Trades - May to October: This is a relatively drier and cooler period with prevailing winds being consistent for 90% of this period. Precipitation during this period tends to be scarce with only a few light showers.

Pre-northwest Monsoon - November: This period is characterized by a shift in the prevailing wind direction. During this period there is often only minimal wind, and temperatures begin to rise.

Northwest Monsoon - December-March: This is the primary rainy season. This period is generally the peak of the cyclone season and Assomption can experience strong winds during these storms. Outside of the influence of these cyclones the wind generally blows from the west to northwest and tends to be lighter and less consistent than during the Southeast trade wind period.

Pre-southeast Trade - April: This is generally the calmest and warmest period of the year as the winds drop before shifting to the Southeast.

Due to its location in the middle of the ocean and lack of any major urban/developed areas in its vicinity, Assomption has good air quality.

5.1.7 Topography.

Lidar topographical studies were conducted for the island. The topographic map of the island can be found in **(Annex 4.1)**. See **section 6.6 Hydrology**, for comments on flood hazards, drainage pattern and effects of rainfall.

5.1.8 Hydrology

Due to its complex geological structure consisting of various strata of carbonated rock that originate from various sources each with its own porosity and erosion resistance levels, the hydrology of Assomption is complex. The area of the planned resort development consists mainly of a raised "pave" structure that is highly eroded with cavities and sinkholes that can be several meters deep and reach the natural water table. Sitting between the ocean and this raised pave structure we can find a sandy plateau. Water running along the surface of the pave will naturally drain to this sandy plateau - as it is considerably lower than the surrounding pave - before draining into the ocean. The natural groundwater level in the resort construction area is influenced by tidal regimes and the rising and falling of the tides can be observed in the various sinkholes.
Due to these characteristics, it can be summarized that the site naturally drains to two points: One is the geographically closest cave to the area being developed and the other being the natural slope towards the coastline of the island, since the central limestone plateaus tend to be raised by an average of 3-metres higher than the high-water mark.

It is important to understand that the site is in fact not a single super-site, but rather a set of singular and discrete micro-sites where physical construction work is executed. i.e. at the site of each villa. For safety around discrete positions where construction shall be executed, caves shall be cordoned off with warning tape. Part of the protection system shall include netting that extends to the ground, which will prevent non-natural sediment from entering the caves. Essentially, a fence-like structure with a netting to the bottom shall be implemented. Thus, potential for non-natural sediment flow into caves is mitigated. With regards to sediment flow into the ocean, temporary sand bagging shall be introduced along the frontal line of each discrete site as it is worked on, thus filtering, and blocking non-natural sediments as pluvial waters course naturally towards the coastline. The flow itself should not be arrested in totality as this would increase the risk of localized flooding around zones of construction activities.

On a final note, it is also important to appreciate that the island receives on average less than 400mm of rain per annum. The low rainfall values, with the localized sinks of the caves and the natural gradual slopes to the coastline, flooding is a mitigated risk.

5.2 Details on the social environment

Apart from a small workforce of IDC staff to ensure maintenance of the island including the airstrip, cemetery and buildings and until 2023, a small crew of military personnel from the coastguard, there has been no major habitation on Assomption for the past 50 years. The island was inhabited during the early 1900's when the principle activity was the large-scale extraction of guano and harvesting of green turtles. Currently there are no economic activities on the island and there is only a permanent population of about 5 IDC staff. In addition to ensuring that the airstrip is maintained the staff also conduct maintenance and cleaning in the old village and cemetery and the upkeep of the remaining buildings.

6. Assessment of environmental and social impacts.

Feature & importance	Impacts	Characterization of unmitigated impact on the feature	Effect without mitigation	Timescale	Mitigation	Significance of effects of residual impact after mitigation	Opportunity for enhancement	Comments
Construction Impacts - Site clearance and construction								
Dwarf coastal forest National Importance	Direct habitat loss	Loss of habitat through the clearance of dwarf forest for villas and associated landscaping	Major Adverse	Long term	1. Move villas and associated landscaping inland to less valuable habitats. 2.Reduce number of villas and associated landscaped area. 3.Landscaping only uses native dwarf forest vegetation. 4. Avoid any development on the sandy plateau.	1. Minor adverse 2. Moderate adverse 3. Moderate adverse 4.Negligible	Removal of road and revegetation along the current road track	

Karst ecosystem National Importance	Direct habitat loss	Loss of habitat through the backfilling and levelling of site for villas and associated landscaping	Major Adverse	Long term	1. Conduct full ground penetrating radar survey of site. Orientate villas and associated landscaping to avoid areas with important karst habitats. 2.Reduce number of villas and associated landscaped area. 3.Landscaping incorporates karst features into the design.	1. Minor adverse 2. Minor adverse 3. Minor adverse /Negligible (If combined with options 1 and 2)		

Inland Sinkhole Mangrove Global Importance	Habitat loss	Loss of habitat due to interruptions in hydrological processes caused by backfilling and levelling for villas & associated landscaping. The hydrology of the island is poorly known.	Major Adverse	Long Term	Carry out detailed assessment of the hydrological processes operating on Assomption and ensure that construction activities do not impact the hydrology of the island	Negligible		

Sea turtle nesting habitat Global importance	Direct habitat loss & Disturbance	Disturbance of nesting sea turtle	Major Adverse	Long term	1.Move villas and associated landscaping inland to less valuable habitats. 2.Construction activities to only occur during daytime hours. 3. Ensure minimum 25m setback from high water mark. 4. Ensure minimum set back to beyond maximum turtle nesting areas. 5. Avoid any development on the sandy plateau.	1. Minor adverse 2. Moderate adverse 3. Major adverse 4. Minor adverse 5. Negligible	Removal and revegetation along the current road track	With global sea level rise there is a rapid rate of coastal erosion occurring in Seychelles. To minimize future impacts ICS recommends that no construction takes place on the coastal sandy plateau north of the runway.
Dunes National Importance	Direct habitat loss & Disturbance	Disturbance of habitat and destabilization of dunes from increased human traffic (Dune adventure area)	Major Adverse	Long term	1. Creation of a designated timber pathway to access dune area	1.Minor adverse		Due to human nature, there is the risk that clients will not respect the trail and will trample important habitats

	Direct habitat loss & Disturbance	loss of habitat and stabilization of dunes through the clearance of vegetation and building of structures	Major Adverse	Long term	1.Move spa/wellness center and associated landscaping to area north of base of dunes. 2. Avoid any development on dunes.	1. Moderate adverse 2. Negligible		
Lizards/Geckos	Direct habitat loss & Disturbance	loss of habitat through the clearance of dwarf forest for villas and associated landscaping	Minor adverse	Short term	Reduce number of villas and associated landscaped area.	Minor adverse		
Tortoises	Direct habitat loss & Disturbance	Disturbance of resting tortoises during construction. Loss of shelter. Crushing of tortoises by machinery	Minor adverse	Short term	1. All clearing to be done by hand 2. Reduce number of villas and associated landscaped area.	1.Minor adverse 2. Minor adverse / Negligible (When combined with 1)	Vegetation restoration and creation of water sources	
Native Insects	Direct habitat loss & Disturbance	Loss of insect diversity and abundance due to loss of habitats	Major Adverse	long term	1.Use of only native/endemics plants for all landscaping	Minor adverse	Vegetation restoration.	

Bats	Direct habitat loss & Disturbance	Loss/Abandonment of roosts	Major Adverse	long term	1. Ascertain species of bats present on Assomption 2. Conduct full bat census to identify roosts and position buildings away from identified roosts. 3. Protect known roosts from disturbance	Data not available		Very little baseline data exists for the bat's species of Assomption additional surveys required
Marine environment	Direct habitat loss & Disturbance	Loss/modification of habitat	Minor Adverse	long term	1. Conduct marine survey of proposed jetty extension and relocate corals or other sensitive benthic habitats outside of the development footprint.	Negligible	Potential for coral rehabilitation	

Operational impacts								
Sea turtle	Disturbance	Disturbance of nesting sea turtle due to guest activities and lighting	Major Adverse	long term	1. Proper guidelines for turtle interactions. 2.Use of turtle friendly lighting. 3. Conduct monitoring and conservation activities	1. Minor adverse 2. Minor adverse 3. Positive (In combination with options 1 & 2)	removal and revegetation along the current road track	
Native Insects	Direct habitat loss & Disturbance	loss of insect diversity and abundance due to use of pesticides	Major Adverse	long term	1. No broadscale pesticide use 2. Ony use organic pesticides	Minor adverse	Vegetation restoration. Use of native/endemics for all landscaping	

Tortoises	Direct habitat loss & Disturbance	Restriction in movement of tortoises due to constructed buildings and infrastructure. Disturbance/destruction of nesting sites	Minor adverse	long term	1. Install tortoise underpass underneath runway to maintain connectivity between the south-west part of the island and the remainder 2. do not fence off the airstrip and implement mobile patrols to remove tortoises from runway and immediate surrounds prior to airport operations.	Negligible		
	Disturbance	Collisions with tortoises	Minor adverse	long term	1.Ensure speed limits are enforced for all vehicles 2. Ensure all guests and staff are warned of the collision hazards presented by giant tortoises, especially at night	Negligible		

lizards/Geckos	Disturbance	Competition due to increase in population of house geckos loss of food due to use of pesticides	Minor adverse	Short term	1.Reduce number of villas and associated landscaped area. 2.Eradicate introduced house geckos	1.Minor adverse 2 Positive		
Bats	Disturbance	loss off food source due to reduction of insect diversity and abundance due to use of pesticides	Major Adverse	long term	1. No broadscale pesticide use 2. Ony use organic pesticides	Minor adverse		
	Disturbance	Loss of foraging habitat due to light and noise disturbance	Major Adverse	long term	Use of best practice lighting and noise guidelines for bats	Minor adverse		
Marine environment	Disturbance	Impact of desalination and waste treatment discharges.	Major Adverse	long term	Proper survey and placement of discharge	Minor adverse		
	Disturbance	Disturbance of marine fauna due to increased vessel traffic	Major Adverse	long term	Navigation regulations / Fueling regulations	Major Adverse		Due to Assomption being situated on an important migratory route for marine mammals and its role as a nursery area for newborn humpback whale's

								additional vessel traffic could have unforeseen impacts
	Habitat loss	Anchor damage to sensitive habitats	Moderate Adverse	long term	Designated mooring / Anchor zones	Negligible	Potential for coral rehabilitation	
Biosecurity								
Assomption	Introduction of Invasive species	Multiple	Major Adverse	long term	1. Strict biosecurity measures for all movement of people and materials to and from Assomption	Major Adverse	Eradication of current nonendemic/invasive species on island	Due to proximity of UNESCO world heritage site classification introduction of any foreign species that could spread to Aldabra could have significant global impacts.

Aldabra	Introduction of Invasive species	Multiple	Major Adverse	long term	1. Strict biosecurity measures for all movements of people and materials to and from Assomption	Major Adverse	NA	Due to UNESCO world heritage site classification introduction of any foreign species to Aldabra could have significant global impacts.
Pollution								
Karst ecosystems and water table	Direct habitat loss & Disturbance	Siltation	Major Adverse	long term	Sedimentation pits / No disposal of dirty water into ground	Minor adverse / Negligible		
Whole Island Environment	Direct habitat loss & Disturbance	Oil Contamination	Major Adverse	long term	Designated workshops with waste control measures	Minor adverse / Negligible		
	Direct habitat loss & Disturbance	Construction Waste	Major Adverse	Short term	Designated storage area for all waste products	Minor adverse / Negligible		

Socio-cultural								
Ruins	Modification/ Demolition	Loss of historical buildings dating back to settlement of the island	Negligible					Most ruins have been reduced to foundations only. Construction technique is similar to other old structures found on Mahe. No architectural significance to these structures.
Cemetery	Modification/ Demolition	Loss of historical data	Major Adverse	long term	Preservation of cemeteries	Negligible		
Access	Restricted	Restricted access by Seychellois to certain areas of the island	Major Adverse	long term	Access to island will still be granted via requests through IDC. Developers will not have right to deny access	Positive		Creation of IDC guesthouse can facilitate Seychellois visiting the islands.

Paleo-historical specimens	Destroyed/ Lost	Loss of potentially important artefacts/fossils of important historical/evolutionary and geological importance.	Major Adverse	long term	Developers should assign a paleontologist to development team to ensure that any specimens found during construction are properly documented			
International Airport								

Native Fauna	Disturbance of fauna	Noise disturbance form increased aircraft traffic	Major Adverse	long term	Proper approach corridors need to be implemented that avoid flying over Aldabra and other important seabird breeding sites during landing/takeoff approaches	Minor adverse		
Biosecurity	Introduction of Invasive species	Multiple	Major Adverse	long term	Biosecurity measures on all flights prior to departure to Assomption and prior/during offloading	Major Adverse		
Horses								

Biosecurity	Introduction of exotic species Feeding	Multiple Multiple	Major Adverse Major adverse		Quarantine of horses on arrival in suitable facility. Verification of health by Biosecurity and veterinary agents prior to release from quarantine. Strict biosecurity for all imported feed. Importation of all feed subject to biosecurity measures	Major Adverse Moderate adverse		Introduction of horses possess risk of introduction of parasites. Imported feed could also host biological organism
Native Fauna	Disturbance of fauna	Risk of trampling of tortoise and turtle nests and hatchlings	Minor adverse		Horses will only use designated trails	Negligible		
Native Flora	Disturbance of flora	Risk of tramping of native flora	Minor adverse		Horses will only use designated trails	Negligible		

6.3 Biosecurity

Biosecurity can *be defined as "efforts to prevent the spread of invasive species to islands and sites that are currently free of them, and to reduce risks to the economy, environment and human health through measures that involve prevention, surveillance, exclusion, incursion response, mitigation, adaptation, control and eradication".*

Assomption island is characterized by its unique ecological diversity and important marine ecosystems. As part of the proposed development of a hotel on Assomption, it is imperative to assess and address potential biosecurity risks that may arise from construction activities, increased human presence, and associated infrastructure development. The development and operation of the hotel on Assomption present significant biosecurity risks that must be carefully managed to protect the island's unique ecosystems and biodiversity.

Additionally, Assomption island is situated at its closest point, only 27 km due south of the UNESCO World Heritage site of Aldabra. During the south-east trade wind season, from May to September consistent and strong winds, carrying low relative humidity, blow directly from Assomption to Aldabra. For this reason, Assomption needs to be kept "clean" because any toxic pollutants, and invasive plant and animal species (especially birds and insects) will be carried from Assomption to Aldabra by wind and surface currents.

By addressing biosecurity threats associated with the hotel development on Assomption Island, the EIA aims to safeguard the ecological integrity and biodiversity of both Assomption and nearby Aldabra Atoll, ensuring their long-term conservation and protection as globally significant natural heritage sites.

6.3.1. Biosecurity risks

This section of the ESIA report assesses the potential biosecurity risks associated with the construction, and operation of the proposed hotel development on Assomption island. In the case of Assomption, the transport of goods and stores are the main pathways for invasive species (see Table 1 below). However, accidental introduction by people carrying propagules (e.g. weed seeds), spontaneous colonization by wind, and other natural transportation may also occur.

Table 1: Main carriers and potential invasive alien species transported between islands (Calabrese et al., in prep).

Carriers	Potential invasive species transported
Fruits and vegetables	Invertebrates, seeds, fungi and bacteria
Shoes, socks and clothing	Seeds and soil containing microorganisms
Soil	Microorganisms and nematodes
Packages, boxes, field equipment, tents, backpacks and PVC piping	Invertebrates, rats, reptiles, amphibians, seeds and soil
Garbage	Every type of organism
Human and animal faeces	Seeds and bacteria
Construction material	Invertebrates (including eggs and larvae)
Supply boat (even if anchored offshore)	Swimming and flying pests (e.g. rats, flying ants etc.)

The following biosecurity risks have been further identified:

6.3.1.1. During Construction

- **Introduction of Invasive Species:** The construction and operation of the hotel on Assomption Island can increase the risk of introducing invasive plant and animal species to the island. Species such wind born insects could potentially spread to Aldabra, where they pose a severe threat to native flora and fauna, including endemic species found nowhere else on Earth. Introduction of new Invasive species to Assomption would pose additional biosecurity challenge for goods and passengers transiting from Assomption to Aldabra.

- **Habitat Fragmentation and Disturbance**: Construction activities such as land clearing, excavation and infrastructure development could fragment habitats and disturb wildlife populations. This disturbance may facilitate the spread of invasive species and disrupt breeding and nesting sites of native species.

- **Waste Management and Pollution:** Improper waste management practices during construction and operation, such as inadequate sewage treatment and waste disposal, may result in pollution of land and the marine environment. Pollution can have detrimental effects on native flora and fauna, including reefs. Additionally, the disposal of construction waste can attract pests and vectors, potentially facilitating the introduction and spread of diseases.

- **Spread of Pathogens and Diseases:** Increased human presence and activity associated with the construction of the hotel may elevate the risk of introducing pathogens and diseases to Assomption island's wildlife. This heightened risk could particularly impact vulnerable species and ecosystems.

- **Proliferation of invasive mammals:** The increase in number of people inhabiting Assomption, and associated activities may attract predatory species such as rats and cats. These invasive predators are already present on the island, however, increase in food availability to them due to increased human activities may cause these species to proliferate, posing a threat to native wildlife, particular birds and reptiles.

6.3.1.2 Post Construction

- **Transportation of Goods and People:** Increased human and cargo traffic associated with hotel operations can serve as pathways for the introduction of invasive species, pests, and diseases, especially if proper biosecurity measures are not implemented at the jetty and airstrip.

- **Wastewater Discharge:** Inadequate wastewater treatment and discharge practices may introduce pathogens, nutrients, and chemical contaminants into the surrounding marine environment, impacting water quality and marine biodiversity.

- **Solid Waste Management:** Poor waste management practices can attract pests and vermin, contributing to the spread of diseases and potentially facilitating the establishment of invasive species.

- **Landscaping and Green Spaces:** Introduction of exotic plant species for landscaping purposes may unintentionally escape cultivation and become invasive, outcompeting native vegetation and altering ecosystem dynamics.

6.3.1.3 During Operation of the hotel

- **Food and Beverage Services:** Improper handling and disposal of food waste can attract and cause increases in pest populations such as rodents.

- **Increased maritime traffic**: To support the hotel operations, marine traffic on Assomption will be increased, this includes for purposes such as transportation of goods, waste disposal, and recreational activities, raises the risk of marine pollution. This pollution could

negatively impact marine ecosystems and species, including those found in the waters surrounding Aldabra Atoll. Fouling organisms on vessel hulls, ballast water, and cargo shipments represent potential pathways for the introduction of invasive species to Aldabra's fragile marine and terrestrial ecosystems.

- **Introduction of exotic species:** Imported goods, including food and merchandise, may harbour exotic pests or diseases that could establish and spread on the island.

- **Landscaping and green spaces:** Introduction of exotic plant species for landscaping purposes may unintentionally escape cultivation and become invasive, outcompeting native vegetation and altering ecosystem dynamics.

These risks highlight the importance of implanting robust biosecurity measures throughout the different stages of the hotel development project to minimize potential impacts on the biodiversity of Assomption, especially considering its proximity to the ecologically sensitive Aldabra atoll.

6.3.2. Biosecurity management plan

6.3.2.1. Biosecurity protocol

A biosecurity protocol, for the transportation of vessels, cargo and people between islands was produced under the Outer Island Project (OIP) in 2015 (Annex 12). This protocol provides general information and guidelines for the transportation of vessels, people, goods, equipment, material, vegetal and animal creatures (including parts of them or propagules) and any kind of cargo between islands. It focuses on protocols that have been tested (or partly tested) in Seychelles and in other parts of the world, so that they can be adapted and integrated into the management plans of islands within the Seychelles. This includes:

i. Establishing preventive or 'abatement' measures and 'quarantine' protocols to reduce the risk of invasion;
ii. Maintaining surveillance for Invasive Alien Species (IAS) that may succeed in by passing the above;
iii. Initiating emergency procedures to prevent their establishment and colonisation in case of IAS incursion.

6.3.2.2. Developers Biosecurity risk mitigation

No soil can be imported onto Assomption, no exotic plants will be used in landscaping, a nursery will be constructed on the island that will provide plants, that are native to the island. **Refer to Biosecurity Environmental Management Plan section 8**.

6.3.3. Biosecurity Infrastructures

To mitigate the biosecurity risks associated with the proposed development of the hotel on Assomption Island and to protect both Aldabra's and Assomption's unique biodiversity, the following biosecurity infrastructures are proposed:

i. **Quarantine Facilities:** Establishing quarantine facilities at the entry points of Assomption Island, such as the jetty and airstrip, to inspect all incoming materials, equipment, and goods for potential invasive species. Quarantine facilities should include designated areas for inspection, holding, and treatment of imported items as necessary.

ii. **Invasive Species Monitoring and Control:** Deploying monitoring systems and trained personnel to detect and control invasive species throughout the construction and operational phases of the hotel. This may include regular surveys of vegetation, soil, and water bodies to identify and manage invasive species populations effectively.

iii. **Waste Management Facilities:** Establishing waste management facilities equipped with proper containment, treatment, and disposal systems to manage construction waste, solid waste generated by hotel operations, and hazardous materials safely. Adequate waste management practices will help minimize the risk of attracting pests and spreading invasive species.

By implementing these biosecurity infrastructures as part of the proposed hotel development project on Assomption, potential risks associated with the introduction and spread of invasive species can be effectively mitigated, safeguarding the island's delicate ecosystems and biodiversity.

6.3.4. Biosecurity Responsible Parties

The implementation of biosecurity measures is paramount to mitigate potential risks to the island's biodiversity and ecosystems. This section delineates the responsibilities for biosecurity management during and post construction phase.

6.3.4.1. During Construction

During the construction phase, IDC shall bear the responsibility for implementing biosecurity measures concerning materials, equipment, and activities associated with construction. IDC will be tasked with:

- Conducting thorough inspections of all construction materials, equipment, and machinery imported to Assomption Island to prevent the inadvertent introduction of invasive species.

- Implementing quarantine protocols and monitoring procedures at the point of entry to ensure compliance with biosecurity standards.

- Collaborating with relevant authorities and stakeholders to establish best practices for biosecurity management during construction activities.

6.3.4.2. Post Construction

Following the completion of construction, the Seychelles Islands Foundation (SIF) and ICS shall assume responsibility for ongoing biosecurity management on Assomption Island. Their roles will include:

- Monitoring and managing the introduction of non-native species through ongoing landscaping, waste management, and operational activities associated with the hotel (ICS, IDC, developers).

- Conducting regular inspections and surveillance to detect and respond to any biosecurity threats or incidents (ICS, IDC, developers).

- Implementing measures to control and eradicate invasive species, in collaboration with IDC and other relevant stakeholders (ICS, SIF when necessary).

- Providing training and capacity-building initiatives for staff and contractors involved in hotel operations to promote awareness and compliance with biosecurity protocols (ICS).

- Conducting biosecurity checks on staff and guests going to Assomption (SIF, with the assistance from ICS).

By delineating clear responsibilities for biosecurity management among IDC, SIF, ICS and the developers, this approach aims to strengthen the resilience of Assomption Island's ecosystems and safeguard its unique biodiversity in the face of development pressures associated with the proposed hotel project.

Mitigation

- Biosecurity Protocols: Develop and implement biosecurity protocols to minimize the introduction and spread of pests, diseases, and invasive species during construction, operation, and ongoing maintenance activities.

- Biosecurity Screening: Implement rigorous biosecurity screening protocols for all materials, equipment, and personnel transported to the island to prevent the introduction of invasive species, pathogens, and diseases.

- Quarantine and Monitoring: Establish quarantine facilities and monitoring programs to detect and respond to any potential introductions of invasive species, pathogens, or diseases promptly.

- Training and Awareness: Provide training for staff and contractors on biosecurity measures and the importance of adhering to guidelines to prevent the introduction and spread of pests and diseases.

- Quarantine and Inspection: Establish quarantine and inspection procedures for incoming goods, equipment, and vehicles to prevent the inadvertent introduction of pests, diseases, and invasive species.

- Waste Management: Implement proper waste management practices to minimize the attraction of pests and vermin, including secure storage, regular removal, and disposal of waste in accordance with local regulations.

- Vegetation Management: Use native plant species for landscaping to minimize the risk of introducing invasive species and implement monitoring and control measures to prevent the establishment and spread of invasive plants. This has already been accepted by the developers.

- Monitoring and Reporting: Establish monitoring programs to assess the effectiveness of biosecurity measures and promptly report any incidents of pest or disease outbreaks for immediate response and containment.

- Education and Awareness: Provide training and awareness programs for construction workers, hotel staff, and visitors on the importance of biosecurity and responsible environmental stewardship to minimize the risk of introducing harmful species and contaminants to Assomption Island.

Effective biosecurity management is essential to mitigate the potential risks associated with the development and operation of the hotel on Assomption Island. By implementing comprehensive biosecurity measures and monitoring protocols, the project can minimize adverse impacts on human health, the environment, and the economy while promoting sustainable development and conservation of the island's unique biodiversity.

6.4 Aldabra Atoll

The proposed hotel development on Assomption Island has the potential to impact the nearby UNESCO World Heritage and RAMSAR site of Aldabra Atoll, a globally significant marine and terrestrial ecosystem renowned for its unique biodiversity and ecological importance. The proximity of Aldabra which is situated only 27 km from Assomption, means that additional measures will need to be undertaken to ensure that there are no negative impacts that would affect the ecosystems and biodiversity of Aldabra.

The most direct potential negative impacts as a result of the development on Assomption are directly linked to biosecurity. The increased movement of people and goods to Assomption has the potential to introduce Invasive Alien Species (IAS) to the island which could then potentially spread to Aldabra. This risk will be further elevated if there are movements of goods and people between Assomption and Aldabra.

SIF is responsible for the management of Aldabra, and currently implement the highest levels of biosecurity controls for any vessel, equipment and personnel that are destined to Aldabra (SIF, 2016). In the past, Aldabra has spent considerable time and resources in ensuring that the risk of introduction of IAS through migration from on Assomption to Aldabra is minimal. A key example was the successful eradication of the Red whiskered bulbul and the Madagascar Fody from both Aldabra and Assomption (in collaboration with IDC), which took place from early 2012 to early 2015 (SIF, 2017, p.1-2). As such, strict biosecurity procedures need to be put in place to minimise the risk of IAS.

Other potential impacts have been assessed, however, this is beyond the control of the developers, as they have no authority or control over the determination of visitor limits or vessel access to the atoll. It is solely within the jurisdiction of SIF to regulate and manage the influx of tourists and vessels, ensuring the preservation of Aldabra's pristine environment and biodiversity. SIF has an Aldabra Tourism Regulation document that all visitors must adhere to **(Annex 14)**.

6.4.1. Risks of increased flights to Assomption

The operation of the hotel on Assomption may lead to increased air traffic and flights to and from the island, posing risks of air pollution, noise disturbance, and potential risks of IAS introduction. However, it must be noted that an increase in airplane traffic, will have minimal impact on seabirds and other wildlife, due to the height of the planes. Nonetheless, implementing flight restrictions and air traffic management protocols to minimise noise pollution and disturbance over Aldabra Atoll must be considered by the relevant authority, which is the Seychelles Civil Aviation Authority (SCAA).

6.4.2. Biosecurity protocol to prevent impacts on the biodiversity of Aldabra

Section 6.3 of this ESIA addresses the biosecurity risks and mitigation measures to be put in place to minimise the risk of introduction of IAS.

6.4.3. Role of SIF in biosecurity procedures

The Seychelles Islands Foundation currently implement the highest levels of biosecurity controls for any vessel, equipment and personnel that are destined to Aldabra. They have a biosecurity protocol, which their staff implements to assure that the risk of IAS is reduced. SIF will continue to implement these procedures.

Refer to **section 6.3**. for more details on Biosecurity.

6.4.4. Effects on helicopters accessing Aldabra

There are no designated SCAA licensed helicopter landing sites on the atoll. As such, any potential helicopter access to Aldabra would need to be carefully evaluated by SIF, and planned with the utmost consideration for the unique ecological characteristics of the area.

6.4.5. Effects of increased visitors to Aldabra

The development of the hotel on Assomption Island may attract an influx of tourists seeking to explore nearby attractions, including Aldabra atoll, leading to increased visitor numbers and potential impacts on the atoll's natural resources and ecological integrity.

The potential impacts of increased visitors to Aldabra recognised are as follows:

6.4.5.1. Ecological Impact

- Increased foot traffic and human presence may disturb nesting sites and foraging habitats of resident fauna.
- Higher levels of noise pollution from tourist activities could disrupt breeding behavior and communication patterns of terrestrial and marine fauna.
- Introduction of invasive species through tourism-related activities poses a risk to the island's endemic flora and fauna.
- Damage to coral reefs and marine habitats through snorkelling and diving,

6.4.5.2. Impact on the Cultural, Social and Scientific Value of Aldabra

- Intensified tourism may place additional strain on limited resources, such as freshwater supplies and waste management systems, affecting the livelihoods and well-being of the small community on Aldabra. Cultural heritage sites may be compromised due to increased tourist presence.
- The influx of tourists and increased human activities associated with the hotel development may compromise the cultural and scientific value of Aldabra Atoll as a pristine and remote natural heritage site.
- Cultural heritage sites, archaeological sites, and the scientific research stations on Aldabra may be subject to increased visitation pressure, jeopardizing their preservation and research objectives.

It is imperative to recognise that the number of tourists and vessel permitted to visit Aldabra in a given year is determined by SIF. The developers involved in the proposed hotel development on Assomption have no authority or control over the determination of visitor limits or vessel access to the atoll. It is solely within the jurisdiction of SIF to regulate and manage the influx of tourists and vessels, ensuring the preservation of Aldabra's pristine environment and biodiversity.

6.5 Climate Risks

6.5.1 Risk Assessment of changing climate patterns

Both sea level rise and the potential increased frequency of major storm events will pose potential risks to the development and the environment of the island. Both the rising sea level and storm surges pose large risks that the sandy plateau on the island will be increasingly inundated by seawater and that erosion will progressively reduce the width of this habitat. Understanding these risks, the developers will be taking several measures to address these long-term risk.

6.5.2 Adaptation Strategies

All buildings will be set back a minimum of 40 metres from the current high tide mark. The majority of the infrastructures will be built on the karst platform, that is on average 4-5m higher than the current high tide mark. All buildings will be constructed so that they are cyclone proof.

Landscaping will incorporate only native vegetation and important beach crest vegetation will be maintained and enhanced via rehabilitation works along the current track that encompasses most of this zone.

For detailed information please refer to the Landscape environmental design approach **(Annex5)**.

6.5.3 Commitments a cooperative approach to adaptation

The developer is fully committed to following adaptation recommendations of MACCE and all other authorities to test and implement strategies towards mitigation of any adverse effects of climate change that may pose a risk to the Environment of Assomption.

6.5.4 Energy sources and substitutes

The utilities including electricity and water will be provided by IDC. IDC will be building a 750 KW PV farm on the island that will be able to meet all of the island's electricity needs.

6.6 Hydrology

Refer to **section 5.1.8**.

6.7 Marine and coastal environment

6.7.1 Coastal Management Plan

See **EMP section**

6.7.2 Identify areas of coastal erosion.

On account of climate change and rising sea level all coastal areas are at risk of erosion. The entire sandy plateau and the beaches are the area's most prone to erosion. As a result, the consultants have recommended that construction does not occur on the sand plateau. Per the TOR issued by MACCE all building should be set back by at least 40-metres from the high-water mark.

6.7.3 Potential impacts on beach dynamics

Due to the 40-metre required setback, the development is unlikely to have any effects on beach dynamics. Proposed mitigation measures to maintain vegetation along the beach will help mitigate the rate of coastal erosion. Rebuilding of the jetty is unlikely to have any additional impacts if no dredging activity occurs to deepen access channels.

6.7.4 Beach Safety

See **EMP section**.

6.7.5 Sand extraction and impacts on sand dunes

Minimum sand will be extracted for the development of the resort. Most sand extraction was undertaken during the construction of the new runway. Approval for this activity was granted by MACCE on 5/11/2023 (Annex).

6.7.6 Impact of proposed dune activities

The wellness spa that was originally planned to be built on the dunes has been moved. As such no construction will occur on the dunes. A wooden boardwalk will be built on the dune to allow for access to the top. No other dune activities will be permitted.

6.8 Wetland and Sinkhole habitats

These features fall outside of the development area and as such will not be impacted by construction. Due to their aesthetic value the developers may build paths to these features so that guests can view them. Due to their unique status the developers will need to put proper signage to warn clients that they may not enter these habitats(Annex 5).

6.9 Geology

Refer to **section 5.1.5**.

6.10. Visual impact

Landscaping and setbacks will ensure that the visual impacts of the resort from the sea will be minimum. Buildings will be screened by vegetation and cladding using natural carbonate rock from the island will be used to further blend the development to match the island's unique features. Refer to Landscape environmental design approach (Annex 5).

6.11. Generator/Fuel

The island will be powered by solar energy that will cover 95% of the energy needs. The remaining energy supply/backup generators are already operating on the island and are not covered by this report.

6.12. Energy Consumption

For information on PV farm location Refer to temp staff & IDC BOH location (Annex 7). For information regarding electricity and water usage refer to Total MEP_v5.6 (Annex 15).

6.13 Water Supply

For information on desalination Refer to temp staff & IDC BOH location (Annex 7). Placement of the beach wells for the extraction and outfall points have not yet been finalized but they will both be situated in beach wells located at the bottom of the beach. This will ensure that they do not interfere with turtle nesting habitat and will not have direct impact on the groundwater table located under the island. Additionally, the release of water back into the beach wells will allow for a slower dispersal of brine water back into the marine environment to mitigate any risk to marine life. Desalination plants will not use any chemicals to improve extraction rates and as such no chemicals or flocculants will be released into the environment.

6.14 Wastewater Management

For details on the STP refer to Assomption-STP details (Annex 16). This STP will cater for the operational phase of the development.
During construction septic tanks and soak way pits will be constructed to cater for waste. Information relating to desludging and securing waste from the STP have not yet been finalized. IDC will provide this information once it has finalized designs and processes as required once development has been approved and the construction labor needs have been finalized.

6.15 Solid waste management.

Organic waste will be composted on site for use in landscaping (Annex5)
Non compostable materials will be shipped back to Mahe or will be burned in an incinerator. The specification relating to the incinerator can be found in V220 Standalone Incinerator (Annex 17)

6.16. Transportation.

Materials will primarily be transported to and from the island via barge with some smaller loads potentially being transported by air. Biosecurity measures will be implemented to ensure that risks associated with these activities are addressed and have been covered in section 6.3.

6.17. Health and Safety

6.17.1. Procedures for expatriates

All expatriate staff will need to obtain health checks and screening as set forth in the GOP application process and through the occupational safety and health decree.

6.17.2. Health and Safety Measures

IDC will follow the same procedures it has in place during all construction activities on the outer islands.

6.17.3. Hazard Preparedness and Emergency Evacuation Plan

IDC will follow the same procedures it has in place on all the outer islands.

6.18 Air and Noise

6.18.1 Areas of impact

IDC will follow the ambient noise guidelines as set forth in the regulations.

6.18.2 Noise level Measure and Mitigation

See EMP

6.18.3 Current Air Quality and Impacts

Assomption currently has very good air quality and this is unlikely to be impacted by the construction and operation of the development.

6.18.4 Air Quality Proposed Mitigation

comment on methods of measuring impacts

6.19. Socio-Economic impacts

6.19.1 Impacts to Individuals and Social groups

The only people on Assomption are IDC staff and the development is not expected to impact them. Access to island will remain the same for Seychellois and fisherman will continue to be restricted from the area due to the classification as zone1.

6.19.2 Socio-Economic Impacts

The proposed development will lead to investment of US$ 300 million into Seychelles during construction. During operational the resort will employ around 285 staff and will provide earnings to government in the form of taxes and environment levies as well as added value through purchasing of goods and services from the various providers in Seychelles.

6.19.3 Effects on Employment

The resort will need to employ a workforce of 285 staff. As the development will only encompass about 5% of the land area of Assomption there remains ample space for other developments to occur on the island.

6.19.4 Impact on Island Residents

None

6.19.5 Visual Impacts

By incorporating natural materials into the design of the development and with proper landscaping and the usage of wildlife friendly and dark sky lighting procedures there will be minimal visual impacts from the development.

6.19.6 Demographics of Workforce

This is dependent on the availability and willingness of Seychellois staff to work at the finished development and cannot be assessed by the consultant.

6.19.7 Economic Impacts on local communities

This will be dependent on the requirements set forth by the government regarding sourcing of provisions for the development and cannot be assessed by the consultant. Currently the government does not have any procedures, regulation, or policies to address this issue.

6.19.8 Public Access to Beaches

Per Seychelles law beaches up to the high-water mark are public domain and as such access cannot be denied.

6.19.9 Sites of Important Heritage Value

Following consultations with the Seychelles heritage foundation they have indicated that the proposal to refurbish some of the existing ruins into a craft village that will display local art is highly favorable. Additionally, a cemetery that was identified during scoping and all other existing infrastructure has been highlighted on the development masterplan and the historic village found within the current IDC village will not be impacted other than refurbishing of some of the existing infrastructure as storage facilities. (Annex 4.1).

6.19.10 Preservation of Historic Sites

The consultant has provided information regarding the existing ruins to the Seychelles Heritage foundation so that they can assess and document these ruins.

6.19.11.

See 6.19.9

6.19.12 Increasing Access of Seychellois to the Island

IDC will build and operate guest houses on the island that will allow Seychellois to access and visit them at an affordable rate.

7. Stakeholder Engagement

Inception meetings with the MACCE took place on 26 January 2024. This was followed by a stakeholder scoping meeting on Monday, 5th February 2024, and the site visit on Tuesday, 6th February 2024. The developers presented the masterplan and concept of the development to stakeholders and answered questions relating to the development. A second scoping meeting was held on 15 February 2024 to hear the concerns expressed by the stakeholders of the Seychelles Marine Spatial Plan (SMSP) initiative.

A scoping meeting of the public was held on 9 March 2024, during which an extensive public participation process was held whereby stakeholders and members of the public were informed of and provided with the opportunity to express comments on the Assomption development. Advertisements on television, national newspapers, and radio were used to announce the project and advertise the venue and date for the public. Since receiving the TOR of reference ICS has held further consultation with SIF and the National Heritage Foundation.

8. Environmental Management

This section constitutes the Environmental Management Plan (EMP) for the proposed resort development of Assomption. Per the EIA the consultant feels that the development is feasible and that the expected negative impacts of the development can be reasonably mitigated if the guidelines set forth in the EIA are adhered to.

This EMP will detail the various management approaches that should be implemented to mitigate the risk identified throughout the EIA process. The EMP also outlines the means for monitoring and auditing compliance to these identified risks.

The Developer will be responsible for the implementation of this plan and ensuring that the project complies with the conditions during both construction and operational phases of the development. MACCE will be responsible for improving updating the plans in consultation with the developers to address the requirements set forth with the issuance of the environmental authorization.

The developer will need to appoint and Environmental Officer (EO) for the duration of the construction period. An EO will also be required for the operational phases. The EO will be responsible for inspection of the construction and/or operational activities and ensure compliance with the EMP. The EO will have overall environmental management responsibilities on the site. The EO will be responsible for ensuring that all mitigation measures contained in the EIA are fully adhered to by the main contractor, subcontractors, and management bodies. The EO will be responsible for liaising with all relevant authorities.

To ensure effective monitoring throughout construction and operational phases arrangements will need to be made with the relevant parties in relation to conducting of monitoring an auditing of compliance of the requirements. The main responsible authorities are:

- MACCE
- Seychelles Planning Authority
- Department of Health
- IDC

Regular monitoring reports should be conducted that cover:

- Any deviations from the development plans.
- Records of any noncompliance and how it was addressed.
- Any newly identified issues that may pose a risk to the environment that were not identified during the EIA process.

- An overview and assessment of the work completed so far.

The frequency of these reports will be decided by the relevant authorities.

On completion of the construction the authorities may require for submission of a completion audit report. This report will assess the overall compliance to the requirements and address any required actions that may be needed to rectify and repair any negative impacts to the environment, cultural/social aspects and human health and any preventive measures to stop these impacts.

Environmental Management Plan (EMP) for the construction phase of the proposed development.

Proposal name	Assomption Resort Development
Proponent name	IDCC
Subject	**Preservation of Landscape and vegetation**
Objective	Minimise the loss of vegetation and preserve important habitat types and endemic/indigenous plants
Potential impacts	Degradation of the environment
Duration of Impacts	Medium-Long term
Impact ratting	High
Purpose of the EMP	Minimise impacts of construction on Flora
Plan	• Building locations should be pegged on site. These pegs should capture the full outline of the building and proposed pool. • A very careful approach to any clearing to access the building pegging points is need. Minimal clearing should occur until the final building placements are confirmed. • Once the building pegs are in place, a further review of the building locations should be undertaken by the design team to ascertain if further minor adjustment to the building footprint is required. • Once the final building locations are agreed, a very careful approach to any clearing should be undertaken and a stringent level of construction stage conservation protection must be adhered to. • The design of the landscape should include replacement new planting to help expand or regenerate the high ecological value habitat zones. • Nursery should be established for propagation of native/endemic vegetation. • If practical rare endemic trees/shrubs should be relocated to nursery for subsequent replanting as part of landscaping. • Paths and tracks should be designed to avoid felling of vegetation of high conservation value. • All cleared vegetation should be composted for use in landscaping.

	• Invasive species should be removed whenever they are identified and disposed.
Additional notes	Permission to lop, trim or fell protected trees must be obtained from the Forestry Section of MACCE. Sisal can be used for composting other invasive species should be incinerated to avoid the risk of seeds spreading via compost.
Responsible party	Developer
Monitoring party	MACCE/EO
Method of record	Observation. notes
Audit technique	Site inspection

Proposal name	Assomption Resort Development
Proponent name	Assets Development
Subject	**Prevention of IAS incursions**
Objective	Minimise the risk of introduction of IAS
Potential impacts	Degradation of the environment
Duration of Impacts	Medium-Long term
Impact ratting	High
Purpose of the EMP	Minimise impacts of IAS
Plan	• Strict biosecurity measures should be implemented and adhered to. • Establishing preventive or 'abatement' measures and 'quarantine' protocols to reduce the risk of invasion. • Maintaining surveillance for Invasive Alien Species (IAS) that may succeed in by passing the above; • Initiating emergency procedures to prevent their establishment and colonisation in case of IAS incursion.

Additional notes	Introductions of IAS possess a risk not only to assumption but in some cases to Aldabra. Introduction of insects such as the Yellow Crazy Ant has the potential to not only cause Major adverse impacts on native fauna and flora but also possess a highly risk of affecting client satisfaction and the operations of the resort.
Responsible party	Developer
Monitoring party	MACCE/EO
Method of record	Observation. notes
Audit technique	Site inspection

Proposal name	Assomption Resort Development
Proponent name	Assets Development
Subject	**Preservation of turtle nesting habitat**
Objective	Minimise the impacts of the development on turtle nesting habitats
Potential impacts	Degradation of the environment
Duration of Impacts	Medium-Long term
Impact ratting	High
Plan	• No construction to occur within 40m of high-water mark. • No construction equipment to be used with 20m of the high-water mark. • No construction to occur after daylight. • No indiscriminate clearing of beach crest vegetation. Only trimming of vegetation to enhance views and the creation of designated pathways to occur in the turtle nesting zones. • Positioning of all paths/trail to be discussed with EO and EIA consultant prior to work beginning. • No lighting to be used on construction after daylight hours.

Additional notes	
Responsible party	Developer
Monitoring party	MACCE/EO
Method of record	Observation. notes
Audit technique	Site inspection

Proposal name	Assomption Resort Development
Proponent name	Assets Development
Subject	**Preservation of Karst ecosystem**
Objective	Minimise the impacts of the Karst ecosystem
Potential impacts	Degradation of the environment
Duration of Impacts	Long term
Impact ratting	High
Plan	• Building locations should be pegged on site. These pegs should capture the full outline of the building and proposed pool. • Once the building pegs are in place, a further review of the building locations should be undertaken by the design team to ascertain if further minor adjustment to the building footprint is required to avoid any major karst features. • The design of the landscape should include incorporation of these features when possible. • Paths and tracks should be designed to avoid filling of any major Karst features. • Sedimentation/runoff control measures to be implanted around each construction site to prevent runoff into karst

	habitats. • Maintenance and refuelling to be conducted at designated sites with the proper spill contingencies in place.
Additional notes	
Responsible party	Developer
Monitoring party	MACCE/EO
Method of record	Observation. Notes. Water quality testing (Turbidity and petroleum contamination)
Audit technique	Site inspection

Proposal name	Assomption Resort Development
Proponent name	Assets Development
Subject	**Preservation of Dune ecosystem**
Objective	Minimise the impacts on Dunes
Potential impacts	Degradation of the environment
Duration of Impacts	Long term
Impact ratting	High
Plan	• No construction to be undertaken on the Dunes. • No construction equipment or machinery should be used on the Dunes. • Workers should not be allowed to access dunes.

Additional notes	
Responsible party	Developer
Monitoring party	MACCE/EO
Method of record	Observation. notes
Audit technique	Site inspection

Proposal name	Assomption Resort Development
Proponent name	Assets Development
Subject	**Preservation of terrestrial fauna**
Objective	Minimise the unnecessary killing on terrestrial fauna
Potential impacts	Degradation of the environment
Duration of Impacts	Medium-Long term
Impact ratting	High
Purpose of the EMP	Minimise impacts of construction on Flora
Plan	• A very careful approach to any clearing to access the building pegging points is need. Minimal clearing should occur until the final building placements are confirmed. • Once the building pegs are in place, a further review of the building locations should be undertaken by the design team to ascertain if further minor adjustment to the building footprint is required to avoid destruction of critical habitats.

	• Once the final building locations are agreed, a very careful approach to any clearing should be undertaken and a stringent level of construction stage conservation protection must be adhered to. • The design of the landscape should include replacement new planting to help expand or regenerate the high ecological value habitat zones. • Nursery should be established for propagation of native/endemic vegetation. • If practical certain species should be translocated to similar habitats on assumption outside of the construction zone • Barriers should be installed around construction site to prevent incursions by native fauna. • Machinery and Equipment should only be utilised during daylight hours when terrestrial organisms are easily visible. • Prior to the filling of any karst structures inspection and removal of all native fauna should occur. Vegetation and Karst ecosystems would appear to be the primary drivers behind the distribution of Fauna on the island as such it is essential that the original vegetation zones of the island are sufficiently protected and restored. Especially critical important ecosystems and those that only occupy smaller areas on the island.
Additional notes	Permission to lop, trim or fell protected trees must be obtained from the Forestry Section of MACCE. Sisal can be used for composting other invasive species should be incinerated to avoid the risk of seeds spreading via compost.
Responsible party	Developer
Monitoring party	MACCE/EO
Method of record	Observation. notes
Audit technique	Site inspection

Proposal name	Assomption Resort Development
Proponent name	Assets Development
Subject	**Preservation of the marine environment**

Objective	Minimise the impacts on the marine environment
Potential impacts	Degradation of the environment
Duration of Impacts	Medium-Long term
Impact ratting	High
Purpose of the EMP	Minimise impacts of construction on the marine environment
Plan	• Sediment control measures to be implemented around each construction site to mitigate the risk of runoff into the marine environment. (Sedimentation pools, sedimentation screens) • Control measures to be implemented for all equipment maintenance activities and refuelling to avoid spills and contamination risks.
Additional notes	
Responsible party	Developer
Monitoring party	MACCE/EO
Method of record	Observation. notes
Audit technique	Site inspection

Proposal name	Assomption Resort Development
Proponent name	Assets Development
Subject	**Prevention of pollution**
Objective	Prevention of pollution in the natural environment.
Potential impacts	Degradation of the environment

Duration of Impacts	Medium-Long term
Impact ratting	High
Purpose of the EMP	Minimise impacts of pollution during construction
Plan	• All maintenance and refuelling activities to occur only in designated maintenance areas that have proper contingencies in place for spills. • All debris from construction material to be stored in designated areas. • All debris from vegetation clearing to be composted at designated sites or incinerated in the case of potential invasive plants with seeds.
Additional notes	Permission to lop, trim or fell protected trees must be obtained from the Forestry Section of MACCE. Sisal can be used for composting other invasive species should be incinerated to avoid the risk of seeds spreading via compost.
Responsible party	Developer
Monitoring party	MACCE/EO
Method of record	Observation. notes
Audit technique	Site inspection

Proposal name	Assomption Resort Development
Proponent name	Assets Development
Subject	**Beach safety**
Objective	Safety of workers.
Potential impacts	Injury/Death
Duration of Impacts	

Impact ratting	High
Purpose of the EMP	Minimise the risk of accidents on the beach.
Plan	• All staff to be informed of the dangers in the waters around assumption. • No staff to be allowed to go into water unless under provided permission by of the IDC island manger. • If permission is granted IDC manger will be responsible to ensure that proper surveillance and safety measures are in place in case of an emergency
Additional notes	Due to the presence of large shark water activities are highly discouraged.
Responsible party	Developer
Monitoring party	IDC
Method of record	Observation. notes
Audit technique	Site inspection

Environmental Management Plan (EMP) for the operational phase of the proposed development.

Proposal name	Assomption Resort Development
Proponent name	Assets Development
Subject	**Preservation of Landscape and vegetation**
Objective	Minimise the loss of vegetation and preserve important habitat types and endemic/indigenous plants
Potential impacts	Degradation of the environment
Duration of Impacts	Medium-Long term
Impact ratting	High
Purpose of the EMP	

Plan	• All landscaping will only use native and endemic flora. • No use of herbicides. • Vegetation in front of building should not be cleared. Only trimming activities are to occur so that views can be provided. • Designated pathways are to be created to avoid trampling of vegetation. No offroad exploration is to occur.
Additional notes	Permission to lop, trim or fell protected trees must be obtained from the Forestry Section of MACCE. Sisal can be used for composting other invasive species should be incinerated to avoid the risk of seeds spreading via compost.
Responsible party	Developer
Monitoring party	MACCE/EO
Method of record	Observation. notes
Audit technique	Site inspection

Proposal name	Assomption Resort Development
Proponent name	Assets Development
Subject	**Prevention of IAS incursions**
Objective	Minimise the risk of introduction of IAS
Potential impacts	Degradation of the environment
Duration of Impacts	Medium-Long term
Impact ratting	High
Purpose of the EMP	Minimise impacts of IAS
Plan	• Strict biosecurity measures should be implemented and adhered to. • • Establishing preventive or 'abatement' measures and 'quarantine' protocols to reduce the risk of invasion;

	• Maintaining surveillance for Invasive Alien Species (IAS) that may succeed in by passing the above; • Initiating emergency procedures to prevent their establishment and colonisation in case of IAS incursion.
Additional notes	Introductions of IAS possess a risk not only to assumption but in some cases to Aldabra. Introduction of insects such as the Yellow Crazy Ant has the potential to not only cause Major adverse impacts on native fauna and flora but also possess a highly risk of affecting client satisfaction and the operations of the resort.
Responsible party	Developer
Monitoring party	MACCE/EO
Method of record	Observation. notes
Audit technique	Site inspection

Proposal name	Assomption Resort Development
Proponent name	Assets Development
Subject	**Preservation of Landscape and vegetation**
Objective	Minimise the loss of vegetation and preserve important habitat types and endemic/indigenous plants
Potential impacts	Degradation of the environment
Duration of Impacts	Medium-Long term
Impact ratting	High
Purpose of the EMP	Minimise impacts of construction on Flora

Plan	• All landscaping will only use native and endemic flora. • No use of herbicides. • Vegetation in front of building should not be cleared. Only trimming activities are to occur so that views can be provided. • Designated pathways are to be created to avoid trampling of vegetation. No offroad exploration is to occur.
Additional notes	Permission to lop, trim or fell protected trees must be obtained from the Forestry Section of MACCE. Sisal can be used for composting other invasive species should be incinerated to avoid the risk of seeds spreading via compost.
Responsible party	Developer
Monitoring party	MACCE/EO
Method of record	Observation. notes
Audit technique	Site inspection

Proposal name	Assomption Resort Development
Proponent name	Assets Development
Subject	**Preservation of Humpback whales**
Objective	Minimise the impacts of resort activities on Humpback whales
Potential impacts	Degradation of the environment
Duration of Impacts	Medium-Long term
Impact ratting	High
Purpose of the EMP	
Plan	○ Underwater Noise Monitoring: Conducting underwater noise monitoring during construction and operation phases to identify and mitigate sources of noise pollution.

	○ Speed Limits for Vessels: Enforce speed limits for vessels operating in areas frequented by humpback whales to reduce the risk of collisions and disturbance. Establish designated low-speed zones and ensure compliance through monitoring and enforcement mechanisms. ○ Adequate waste management plan: Implementing best management practices for chemical management and waste disposal to prevent contamination of marine environments. ○ Monitoring and Research: Implement a monitoring program to track humpback whale sightings, behaviour, and population dynamics around Assomption Island. Collaborate with research institutions and conservation organizations to conduct scientific studies on humpback whales, including population surveys and acoustic monitoring. ○ Establishment of a Whale Watching Code of Conduct: Develop and implement a comprehensive code of conduct for whale watching activities to minimize disturbance to humpback whales. Provide guidelines for boat operators, staff, and guests on responsible whale watching practices, including maintaining a safe distance from whales and minimizing vessel noise. ○ Educational Outreach and Awareness Programs: Conduct educational programs and awareness campaigns to inform hotel staff and guests about humpback whale ecology, behavior, and conservation. Provide interpretive materials, signage, and guided tours to promote responsible whale watching practices and foster appreciation for marine biodiversity.
Additional notes	
Responsible party	Developer

Monitoring party	MACCE/EO
Method of record	Observation. notes
Audit technique	Site inspection

Proposal name	Assomption Resort Development
Proponent name	Assets Development
Subject	**Preservation of turtle nesting habitat**
Objective	Minimise the impacts of the resort activities on turtle nesting habitats
Potential impacts	Disturbance of nesting turtles
Duration of Impacts	Medium-Long term
Impact ratting	High
Plan	• All staff and clients must follow best practices follow guidelines on turtle interactions. • No vehicles to be used except on designated pathways. • Outdoor lighting should be minimum and follow wildlife friendly and dark sky best practices
Additional notes	
Responsible party	Developer
Monitoring party	MACCE/EO
Method of record	Observation. notes
Audit technique	Site inspection

9. Conclusions and recommendations

One of the biggest threats to Seychelles generally, and Assomption and the outer islands in particular, is that of climate change and rising sea levels. Rising sea levels and the increased frequency of major weather events such as cyclones and storm surges as a result of climate change have the potential to create major negative impacts on the coastal environment and specifically to sea turtle nesting zones. The effects of rising sea levels are already visible along the coasts of the islands with increasing rates of erosion and intrusion of saltwater. Whilst it is difficult for the development to directly address this issue the presence of such a development on the island of Assomption will facilitate the ability to monitor such events and fund mitigation measures to try and address these issues on the island as they inevitably occur.

Based on the current proposal ICS feels that the developers have made considerable changes to their original submission plans to accommodate the requirements set forth in the TOR. Issues relating to the provision of utilities and construction services that will be offered to the developers will need to be addressed by MACCE and IDC. Similarly, some of the requirements related to the operations of the airstrip will need to be addressed by the SCAA while employment requirements for expatriate staff fall under the purview of the employment department and GOP application requirements, matters which are outside of the scope of this EIA.

Following EIA approval, it is normal procedure for the developers to appoint an environmental Officer (EO). In view that ICS are the consultants conducting the EIA, it will be preferable for an independent appointment of an EO be made by the developers in order prevent any perception of a direct conflict of interest. ICS will have a permanent presence on the island once construction starts, however, this will be in the role of conservationists carrying out monitoring and conservation activities. As such, ICS will observe and report any apparent breaches to the EO who will then need to address this with the developers and MACCE.

As ICS is not responsible for the final requirements that will need to be implemented, MACCE will need to ensure that they provide clear guidance in their response to the developers on which measures will need to be implemented and adhered to and indicate the penalties for any breaches from the agreed upon conditions set forth by MACCE in the eventual granting of environmental approval.

Based on the proposition covered in this EIA report ICS feels that this development has made sufficient provisions that would mitigate most of the adverse risks to the environment if they were properly implemented and adhered to in their fullest throughout all phases of the development.

As recommended by the developers' consultants, final positioning of all the buildings would need to be verified again on site prior to the commencement of construction. This would ensure that impacts to sensitive and critical habitats are fully addressed. Currently, the only condition that was established in the TOR was to ensure that a setback of 40m on all buildings is adhered to and this has been incorporated into the latest master plans. However, this does not fully reflect the propositions by the landscape architects to mitigate the impacts on sensitive habitats. These final adjustments will need to be made on site when setting out the final building positions so that sensitive habitats can be properly identified and changes to the final layouts can incorporate these features.

The developers will need to ensure that these final adjustments are made accordingly and verified prior to construction begins as outlined in the Landscape Environmental Design Approach (Annex 5).

In addition to the measures set out to minimize the direct impacts of the construction the developers will also be conducting a full eradication of invasive mammals on the island (rats and cats). Landscaping will only incorporate the use of native plants and efforts will be made to revegetate areas in relation to their identified vegetation/habitat zones as identified in the vegetation survey. Invasive plants have also been identified and they will be progressively removed during both the construction and operational phases with the goal of eliminating problematic vegetation such as sisal.

As result of the vegetation survey the developers, IDC, ICS and MACCE have all been alerted that the vegetation on Assumption is one of the most pristine in the Seychelles both in terms of native vegetation coverage and the presence of native and endemic species and this will need to be preserved throughout all phases of the development. Additionally, the island holds several rare and endemic terrestrial species that would directly benefit from these activities.

Due to the realization of its uniqueness ICS and the developers both feel that if the proper measures are implemented during the development and subsequent operational phases there is the potential to improve and enhance the native ecological habitats on the island and by ensuring the highest levels of biosecurity are implemented there is the potential to work towards having Assomption classified as a UNESCO World Heritage Site.

The pristine marine ecosystem surrounding the island, its current level of native vegetation, the presence of unique fauna and flora, and the paleo historical importance of the island are all categories that could be used to potentially work towards achieving this goal. Such a designation would not only benefit Assomption but also has the potential to benefit Aldabra as these measures would directly decrease the risk of spread of any potential IAS between these two closely situated islands. This would be similar to the situation on the Galapagos Island where the whole group is

designated as a UNESCO world heritage site. This would also directly benefit the resort by allowing it to offer itself as a more prestigious destination rather than rely on its proximity to the Aldabra UNESCO world heritage site. Furthermore, following discussions with both the developers and IDC there is the potential to also fund eradication, revegetation and reintroduction work on Astove and Cosmoledo. This has the potential that the whole group could be eventually be designated as one large UNESCO work heritage site which would have huge environmental and economic benefits where tourism would continue to be allowed on Assomption, Astove and Cosmoledo allowing the world to have greater access into a rare glimpse of ecosystems that are similar to Aldabra whilst mitigating any adverse risk to Aldabra.

As the UNESCO world heritage site status is periodically reviewed measures such as biosecurity and proper environmental guidelines for the island would need to be consistently adhered to, failing which the status could be revoked. This will provide additional incentives for all parties to ensure that only the highest levels of biosecurity measures and environmental best practices are enforced consistently on the islands.

This approach would require the corporation of all parties involved and highest levels of oversight. To ensure that this can be achieved the appointed Environmental Officer will need to ensure that all the requirements stipulated in the EIA and the requirements set forth by MACCE in its environmental authorization process are adhered too in its fullest. As part of its mandate to preserve and conserve the outer islands of Seychelles ICS will have a permanent team on the island to conduct further monitoring and conservation work on the island in parallel to the development to ensure that there is continues work to identify important areas of conservation value and advise the developers on the appropriate measures for conservation. ICS however will not be able to take on the role of the EO. ICS would suggest that the Developers appoint their contracted landscape Architects (Grant Associates) for this role as their experience in the required fields of construction, architectural design and environmental rehabilitation work would make them the ideal candidate for this role.

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