

Environmental Impact Assessment Report

TOURISM DEVELOPMENT

THE GRAND

KIRI PART SECTION 88E, LOT 2355 & 310.

TOKERAU, ARORANGI.

1. EXECUTIVE SUMMARY

This Environmental Impact Assessment (EIA) report is prepared for Mr and Mrs Brett Baudinet of Titikaveka to be presented to the National Environment Service (NES) for public consultation and for the approval of the Rarotonga Environment Authority. The applicants Mr and Mrs Brett Baudinet of Titikaveka are the owners and developers of this proposed Development

i. Name and title.

The proposal is a tourism hotel complex development to be aptly named The Grand, consisting of a 53 bedroom hotel with all the standard requirements of an upmarket 5 star hotel complex. The proposed development is located from the beach front towards the main road on the land section Kiri PT SEC 88E, Lot 2355 & 310, Tokerau, Arorangi.

ii. Contact details

The proposal proponent is Mr Brett Baudinet, Managing Director of Explore.com of Titikaveka
Contact: email:brett@explore.com, mobile: (682)70031

This is the first project of this kind that the proponent will undertake.

iii. Aims and Objectives of the Proposal

The aim of the proposal to invest in to the successful tourism industry in the Cook Islands and the prediction of this continuing led to the proponent to proceed with the proposal to build a medium size luxury tourist accommodation on the beach section Kiri PT SEC 88E, Lot 2355 & 310, Tokerau, Arorangi.

The objective of the proposal is to build the hotel with the environment and the impacts of climate change in mind.

iv. Legal framework

Legal Framework: The project is being designed within the parameters of the Building Control and Standards Act 1991 and Building Control Standards Regulations 1991. Complimentary to this are the requirements of the Environment Act 2003, Public Health Act 2004 and Energy Act 1998.

Construction project will follow the legal framework, whereby all construction works on the island require 3 permits to be obtained from the relevant authorities namely:

- I. NES which deals with environmental concerns
- II. MOH which deals with activities that may affect public health, namely wastewater and rubbish disposal.
- III. The Building Control Office (ICI), the authority which the issues building permits and monitors the building progress to ensure that the construction complies with the building electrical specifications.

v. Background and need for the proposal

Prior to the Covid 19 pandemic the Cook Islands tourism industry was booming contributing 65-70% to the GDP. This provided the incentive to invest in the tourism industry. Land was procured a concept plan was developed. Even at this time of Covid 19 impacting greatly on our tourism sector, the proponent is still adamant that this sector will bounce back once the vaccine is available. He has acquired a leasehold with an area of 4,237m² beach front section for this proposal.

The proposal is to provide revenue for the investor and in turn, will contribute to the economic development of our nation. This proposal is in line with our National Sustainable Development Plan (NSDP) Goal 2: "Expand economic opportunities, improve economic resilience and productive employment to ensure decent work for all".

The consequences of not proceeding with the proposal will be an investment/economic opportunity loss for the proponent and the island.

The proponent believes that there is still a need for upmarket tourism accommodation on Rarotonga. He has acquired a leasehold 4,237m² beach front section which also provided the incentive and drive to proceed with the proposal.

- vi. Alternative options considered and Reasons for the selection of the proposed development option.

No alternative options has been considered at this point of time. A premium location has been procured and finance I place and these factors has encouraged the proponent to proceed with this option.

- vii. Brief description of the proposal (pre-construction, construction and operational activities) and the existing environment, utilizing visual aids where appropriate.

The Project

The Grand Resort is set to be a 5 Star Resort consisting of 53 elegantly designed Suites.

The property is being designed with sustainability at the forefront of our company goals.

There will be a single shared laundry room available for all guests.

Restaurant on-site that will seat around 70 guests.

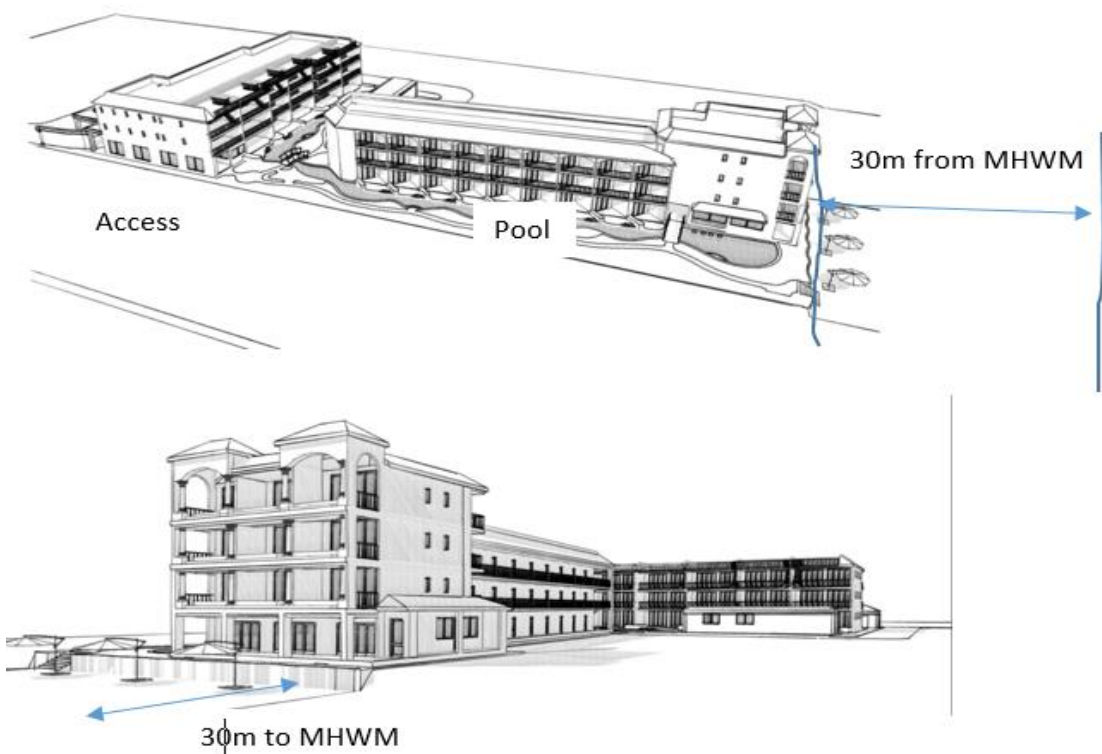
A small 2 person spa.

Swimming pool.

Backup generator.

Landscaping throughout.

EIA REPORT. TOURISM DEVELOPMENT THE GRAND HOTEL TOKERAU, ARORANGI.



Plan layout

The tourism market is at a virtual standstill at this point of time due to the world wide impact of the Covid 19 pandemic however the proponent is taking this Covid 19 downturn period as an opportunity to build this hotel in preparedness for the reopening of the travel bubbles between the Cook Islands and other countries.

Preconstruction

Construction Plans finalized

Contract builder/plumber/electrician

Procurement of relevant permits – NES, Public Health sewage construction permit, ICI Building permit. (NES which deals with environmental concerns, MOH which deals with activities that may affect public health, namely treatment and disposal of wastewater, The Building Control Office (ICI), the authority which the issues building permits and monitors the building progress to ensure that the construction complies with the building specifications.)

Construction

Construction will start as soon as the EIA and all other relevant permits are approved by the authorities.

The Contractor will be responsible for implementing the works in accordance to architects specifications and in compliance with the Cook Islands Building Standards and relevant Cook Island Acts/Regulations and AS/NZ building standards. The Contractor will also be guided by the terms and conditions imposed by the National Environment Services.

Clear site and install temporary electricity and water supply on site.

Set profiles and start construction to commissioning stage.

Ensure all safety requirements are in place to protect the public and workers on site.

Operational Activities

Typical management of hotels ensuring operations adhere to local Laws, Regulations and to company policies.

Environment

The section has been cleared of vegetation with the exception of a few palm trees.

The proposal section is surrounded by a hotel, rental premises and residential homes.

- viii. Principal environmental impacts predicted and the proposed environmental management strategies. (including waste minimization and management) and commitments to minimize the significance of these impacts;

The principal environment impacts predicted are:

Solid and liquid waste;

Solid waste – with no recycling system in place, general domestic waste and commercial waste ending up in the landfill quickly fills up the landfill opting government to look for another landfill.

Improper management of solid waste attracts vermin in to the area.

From a health point of view the unhygienic outcome of solid waste gives not properly stored for disposal gives rise to the population of flies, vermin and even mosquito on the premises. This will discourage potential clients to the hotel..

Liquid waste – untreated wastewater will pollute our groundwater and responsible for alga bloom in the lagoon. Eutrophication is a result of alga over growth in the water reducing dissolve oxygen in the water that keeps the organisms/fish alive.

Environmental Impacts and Management

Land impacts

Sand erosion

Development along beach fronts increases the potential for sand erosion, natural vegetation are usually removed to provide space for buildings, services etc and to maximise view of the lagoon. The removal of vegetation along the beach front exposes the area to sand erosion from the impacts of floodwaters, heavy sea surges and cyclones.

Mitigation measures:

Minimise removal of beach vegetation, trim trees if possible, Ensure planting appropriate foreshore plants at beach front boundary to minimise sand erosion. Seek permit approval to build any structures on the beach front.

Avoid building structures along the beach boundary, Retain the natural vegetation and replant where need. If really needed seek professional advice and design of foreshore protection units from experts and the relevant agencies eg ICI, NES,

Management to ensure monitoring systems are effective, and any possible signs of erosion are identified early, reported to relevant agencies and rectified

Climate impacts

Climate change - building structures are nowadays compromised as a result of climate change in terms of more intense and occurring tropical cyclones (damaging wind gusts and sea surges), prolonged drought or increased rainfall.

Mitigation measures:

Include climate change proofing in the design in order to minimise the impacts of cyclone winds, wave surges, fire and flooding.

Resources:

Water and Energy Resources

Often experienced today are water shortages during the dry months that sometimes extended in to the wet months of Nov – April.

The energy requirement for the proposal will be significant due to the size of the proposal.

Building materials

Most building materials are imported with the exception of sand and basalt aggregates which are mined locally.

Mitigation measures

Design to include rainwater harvesting and water saving devices in the buildings plumbing.

Management to introduce water conservation process in the operation.

Proponent to install solar panels for electricity supply. Be mindful of mining sand and basalt as not to cause soil erosion and conserve these resources.

Pollutants

Solid and Liquid Waste impacts

Solid and liquid waste generated during construction and operation.

Mitigation measures

Proper use of building materials to minimise waste during construction. Set up recycling and landfill bins during construction and increase that to re-use and compost bins during operation.

Wastewater design and installation to comply with the requirements of the Public Health Sanitation (Sewage) Code and Regulations 2014. Due to the close vicinity to the beach, high water table, soil type and size of the proposal it is recommended that an advance/tertiary treatment system for better effluent quality.

Health and Safety

Public and construction personnel injury during construction.

Mitigation measures

Contractor implements approved health and safety plans and monitored by Contractmanagement personnel. Temporary fencing of construction area with cautionary signs posted around the work perimeter.

Environmental Management Plan (EMP)

The proposed Environmental Management Plan (EMP) sets out the responsibilities of the respective parties in mitigating and monitoring potential impacts. The EMP includes the establishment of communication systems between, owner, contractor, building control, NES and Public Health and regular inspections during the construction works.

Remember there are multiple negative impacts tourism can have on the environment. These include putting a large demand on energy, resources and on the waste management system of the country you're in.

Refer to Section 10 of this report.

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3. GLOSSARY OF TERMS

Acronyms

REA	Rarotonga Environment Authority
EIA	Environmental Impact Assessment
TOR	Terms of Reference
EMP	Environment Management Plan
NES	National Environment Services
ICI	Infrastructure Cook Islands
NES	National Environment Services
NSDP	National Sustainable Development Plan
MOH	Ministry of Health
OSH	Occupational Safety & Health

Wastewater water spent or used water of residential, public or commercial origin.

Foreshore - in relation to Rarotonga –

- (i) all that area between the mean high water mark and a line connecting those points landward and measured at right angles to a distance 30 metres from the mean high water mark or to the edge of the vegetation, whichever shall be the greater distance; and

“Environment” –

- (a) Means the ecosystems and the quality of those ecosystems as well as the physical, biological, cultural, spiritual, social and historic processes and resources in those ecosystems; and
- (b) Includes –
 - (i) land, water, air, animals, plants and other features of the human habitat; and
 - (ii) those natural, physical, cultural, demographic, and social qualities and characteristics of an area that contribute to people's appreciation of its pleasantness, aesthetic coherence, and cultural and recreational attributes;

4. INTRODUCTION

4.1 Project name, background and general description

The Grand Resort is set to be a 5 Star Resort consisting of 53 elegantly designed Suites located on the beach section Kiri PT SEC 88E, Lot 2355 & 310, Tokerau, Arorangi.

The property is being designed with sustainability at the forefront of our company goals.

There will be a single shared laundry room available for all guests.

Restaurant on-site that will seat around 70 guests.

A small 2 person spa.

Swimming pool.

Backup generator.

Landscaping throughout.

This project has been in the planning for a few years and with a premium land site procured the planning for permit approvals are in progress. The proponent Mr and Mrs Brett Baudinet are seeking the full project approval from the National Environment Services (NES)

Environment Authority for the construction of the proposed tourist accommodation project in the Tapere of Tokerau, Arorangi.

Mr Baudinet is Founder and Managing Director of Explore.com and is expanding his business into the tourism sector.

This report will be available for public review and comment prior to final consideration by the Rarotonga Environment Authority.

4.2 Project purpose and objectives (including environmental performance objectives)

The success of the tourism industry Cook Islands and the prediction of this continuing led to the proponent to invest in a medium luxury tourist accommodation on the beach section Kiri PT SEC 88E, Lot 2355 & 310, Tokerau, Arorangi.

The proponent met with the architect for a concept plan, which after some gradual changes developed to a final plan. The luxury hotel is planned and designed with the environment and the impacts of climate change in the forefront. The economic benefits to the proponent, the community and nation as a whole was also assessed prior to finalising the proposal.

Alternatives to the overall designs and placing of buildings has been discussed in case there are neighbour/community issues. Relocation of the project is not an alternative as they have no other location suitable to successfully accommodate this proposal.

The consequences of not proceeding with the proposal will be an investment/economic opportunity loss for the proponent and the island.

This EIA report is prepared to assist in the facilitating the approval process for the proposed project construction works.

This report describes the project and the potential risks economically, socially, culturally and environmentally when implemented. The risks are identified and mitigation measures are proposed and put in place to reduce or eliminate potential impacts.

[4.3 Profile of project proponent](#)

Mr Brett Baudinet is Founder and Managing Director of Explore.com. and is diversing his business interest into the tourism sector.

Mr Brett Baudinet lives in Rarotonga with his wife and family.

[4.4 Contact details for the proponent/project manager](#)

PROJECT MANAGERS

Brett Baudinet and Dayle Jones

Ph: 70031

Email: brett@explore.com

5. POLICY AND LEGAL FRAMEWORK.

5.1 National, regional, customary, laws and related government approvals.

The project is being designed within the parameters of the Building Control and Standards Act 1991, Building Control Standards Regulations 1991 and the National Building Code and Manual 2019 and relevant AS/NZ Standards. Complimentary to this are the requirements of the Environment Act 2003, Public Health Act 2004 and Energy Act 1998.

Construction project will follow the legal framework, whereby all construction works on the island require 3 permits to be obtained from the relevant authorities namely:

- NES which deals with environmental concerns
- MOH which deals with activities that may affect public health, namely wastewater and rubbish disposal.
- The Building Control Office (ICI), the authority which issues building permits and monitors the building progress to ensure that the construction complies with the building electrical specifications.

The proponent believes that there is still a need for upmarket tourism accommodation on Rarotonga. He has acquired a leasehold 4,237m² beach front section which also provided the incentive and drive to proceed with the proposal.

5.2 Multilateral Environmental Agreements

Multilateral Environment Agreements	Status
1. Climate Change (UNFCC)	Ratified
2. Kyoto Protocol	Ratified
3. Ozone Layer Convention (Vienna)	Ratified
4. Montreal Protocol	Ratified
5. Copenhagen Amendment	Ratified
6. Basel Convention	Ratified
7. Waigani Convention	Ratified
8. POPs Convention (Stockholm)	Ratified
9. UNCLOS (Law of the Sea)	Ratified
10. SPREP Convention	Ratified

11. World Heritage Convention	Signed
12. Convention on Biological Diversity	Ratified
13. Biosafety Protocol	Signed
14. Desertification (CCD)	Ratified
15. Apia Convention	Ratified

5.3 Industry sector plans, policies or codes of practice

The National Sustainable Development Plans 2016/2020 – Development Goals 1, 2 and 15.

Goal 1: Improve welfare, reduce inequity and economic hardship

Goal 2: Expand economic opportunities, improve economic resilience and productive employment to ensure decent work for all

Goal 15: Ensure a sustainable population, engaged in development for Cook Islanders by Cook Islanders

5.4 Health, safety, hazard and risk management standards

During construction and operation the Contractor and Project Company will implement all reasonable precautions to protect the health and safety of its workers. Although this will primarily apply during the operations phase, the Project Company will also ensure that all contractors and sub-contractors employed at the Project site during the construction phase will put in place occupational health and safety and policies to protect their workers.

The emphasis should be placed on instituting preventive and protective measures in the following order of priority:

- i. Eliminating the hazard such as using less hazardous chemicals wherever possible
- ii. Controlling the hazard primarily through the use of engineering control measures
- iii. Minimizing the hazard through the design and use of safe work procedures, lock-out and tag-out
- iv. Providing appropriate personal protective equipment (“PPE”).

<https://www3.opic.gov/environment/eia/greenfields/Chapter%2010%20-%20Environmental%20Management%20Plan.pdf>

5.5 Current agreements between government and the proponent

At this point of time there has been no discussions on any agreements between government and the proponent in regards to this proposal.

5.6 Environmental policies of any financing organizations involved in the project

No financing organizations involved in the project.

5.7 The proponent's environmental management and compliance record.

This is the proponent's first project of this kind however the proponent is a believer in protecting the environment as seen in his proposals for green energy, rainwater supply and high level treatment of wastewater.

6 PROJECT DESCRIPTION AND JUSTIFICATION

Present a detailed description of the project and provide justification for its development, covering:

6.1 Project details

The project is on the land section Kiri Pt Sec 88E (4,237m²) in the village of Tokerau on the east end of Puaikura District on the beach front overlooking the lagoon/ocean.

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Topographical Map

As mentioned above the Grand Resort is set to be a 5 Star Resort consisting of 53 elegantly designed Suites located on the beach section Kiri PT SEC 88E, Lot 2355 & 310, Tokerau, Arorangi..

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PLAN VIEW



Google Earth - .

The proposal area is at the east end of Puaikura District. The area Tokerau is predominantly residential however there are a few commercial enterprises within the area, the Edgewater hotel, Sunset hotel, tourism rental bungalows/villas mainly located along the foreshore area, a few smaller commercial shops and restaurants located along the main road. There are two government Ministries located in the area.

The proposal site is about 100m off the main road towards the beach.

The section is vacant, cleared of vegetation and the land profile is flat with coarse coral soil.

Interior land area are mainly residential with scattered small agricultural farming plots.

There are no streams or water wells on or within the site nor are resource deposits apart from coral sand used for construction purposes

The hotel is designed with concrete block external walls and concrete floors. Roofing cladding is to be confirmed.

The hotel will be connected to the islands main electricity and water supply system supplemented with solar energy for electricity and rain water storage tanks for water supply. The hotel intends to employ local staff but may go overseas for positions that could not be fulfilled locally.

It is estimated to be about 23.3m³ of wastewater per day. Solid waste will consist mainly of organic and food related waste. E-waste will be properly disposed through the relevant agencies. Recycling system will be set up to reduce waste to landfill. It is estimated that tourists generates up to 1kg of waste per day.

The implementation of the project will start as soon as project permits are approved.

Project construction planned to take about 4 months to complete.

Building manager will come from New Zealand. Labour will all be locals.

6.2 Analysis of alternatives

There is no alternative site to the current proposal site, the location and size of the current proposal site is perfect for achieving the project goals.

Advantage over alternatives:

1. Location on the beach overlooking the lagoon and ocean.
2. The section area of 4,000m² provides sufficient space for the proposal.
3. Located within an area where tourism is already growing.
4. Land profile is flat

5. No endangered animal or plant species

6. Services are available for connection on to site.

Disadvantage of alternative sites

1. The availability of land with the same location and site is very scarce and hard to find.

6.3 Project benefits

Tourism allows wealth to be injected into a community in a variety of ways. Tourism provides foreign exchange and employment in many small island developing states.

The great benefit of this industry is that it's extremely labour intensive, and many of the businesses that operate within it are only small businesses and micro operators. This means that every dollar coming into the industry is felt quickly by business owners and staff, and is directly related to a boost in local spending. Benefit of employment, suppliers (fisheries, farmers, and services). As a renowned tourist destination country there are a huge range of benefits. Tourism contributes about 65% to 70% towards our GDP. It's also great for individual travelers, because with a booming tourism industry here in the Cook Islands there is lots to do, plenty of places to stay. However lessons must be learnt by putting all our eggs in one basket as tourism is a fragile industry prone. The Covid 19 world pandemic has put the world tourism industry to a halt impacting on the economy.

<https://blog.udemy.com/advantages-of-tourism>

As mentioned above this project is designed with the environment and impacts of climate change in mind.

6.4 Cost-benefit analysis

Identification, valuation and comparison of the costs (disadvantages) and benefits (advantages) of the project, from a whole-of-society perspective (i.e. including the perspectives of the proponent, government and stakeholders)

In the case of tourism, a list of the elements involved would include the following:

Benefits

- Employment opportunities-skilled and unskilled because it is a labour intensive industry

- Increase incomes to the proponent and the national economy
- There is existing infrastructure however not fully developed.
- Helps to develop new infrastructure that stimulates local commerce and industry eg wastewater treatment.
- Helps to diversify the economy – helps encourage growth in agriculture, fisheries, construction, domestic industries and services.
- Spreads development
- Has a high multiplier impact – each dollar received from tourists goes to the hotelier, to supplier, to employer, to local shops etc...
- Increases governmental revenues – through taxes
- Broadens educational and cultural horizons
- Reinforces preservation of heritage and traditions
- Justifies environmental protection and improvement, that is, a dirty and polluted environment will not attract tourists.
- Provides employment for artists, musicians and performing artists, enhancing cultural heritage
- Provides tourist and recreational facilities that may also be used by the local population
- Helps to break down barriers: socio-cultural-class-racial-political, and religious
- Creates a favourable world-wide image for the destination

Costs:

- Develops excess demand for resources eg water and energy
- Creates difficulties associated with seasonality-
- Causes inflation
- Can result in unbalanced economic development-some communities versus others
- Creates social problems
- Degrades the natural physical environment and creates pollution

- Degrades the cultural environment
- Increases the incidence of crime,
- Increase vulnerability to economic and political changes
- Commercializes culture, religion and the arts
- Creates conflicts within the host communities
- Contributes to disease, economic fluctuant and transportation problems

As with all change, tourism exacts a price. However, it is here, it is growing, and it needs to be planned and managed. Our local Tourism is charged with the responsibility of the challenge to get the right balance, which is to have the benefits outweigh the costs, and to take the necessary steps to lessen the unfavourable impacts, that are a part of change. Tourism development must be a part of overall economic development, and must be done in a manner that is sustainable. *Tourism-*

Cost/Benefit Analysis, March 4, 2019, Susan Steger : By Malcolm Noden

7. DESCRIPTION OF THE BASELINE ENVIRONMENT

7.1 Climate (e.g. temperature, rainfall/evaporation, flooding, drought, winds, extreme weather events, climate change projections and climate change elements likely to affect the project)

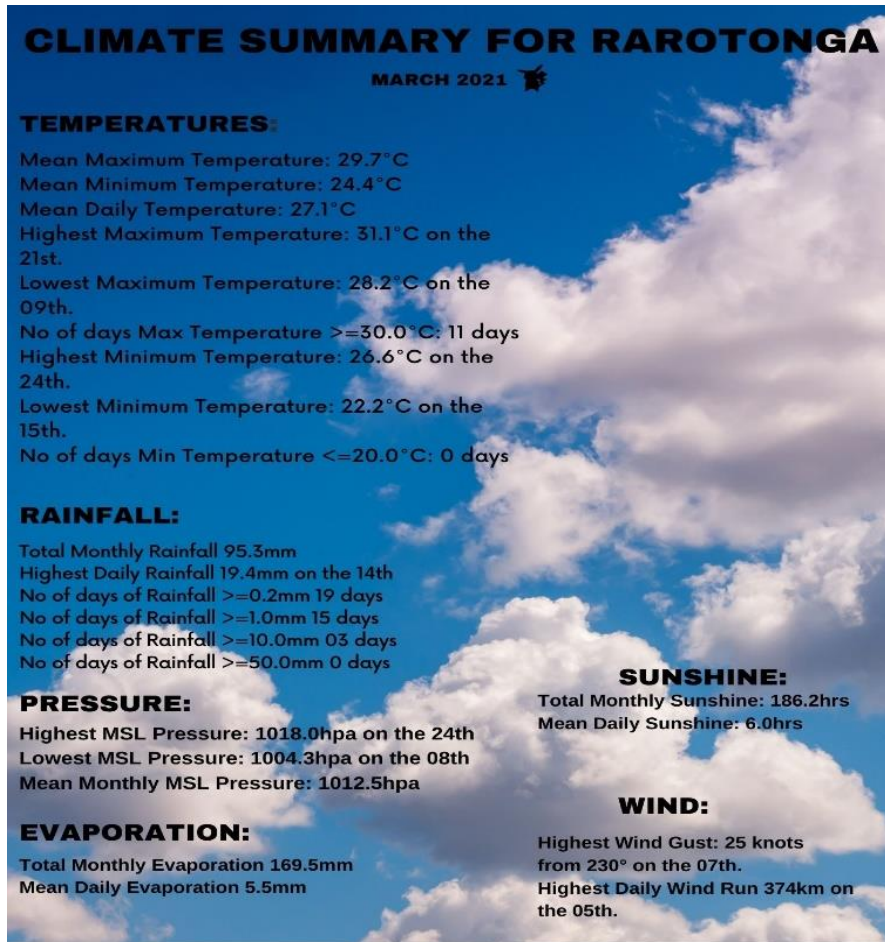
The climate is generally marked by distinctive wet season (warmer months of Nov - April) and dry season (cooler months of May - Oct). Today rainfall is likely in all months with the heaviest from Jan to March (267mm) to as little as (102mm) in drier season May to Nov.

The day temperature varies between 29° Cels in Feb/March to 25° Cels in July /Aug and night temperatures varies from 23°Cels Feb/March to 19°Cels July/August but temperatures has plummeted. to as low as 15°Celsl. Sea temperature varies from 27° Cels in summer to around 24°Cels in the cooler months. Trade wind is south easterly which provides comfortable cool breezes to the area throughout day and night.

It is predicted that as a result of global warming, there will be more frequent and more intensified cyclones which could adversely impact the area and the development.

Sea level rise due to global warming.

Climate Summary for March 2021



COOK ISLANDS METEOROLOGICAL SERVICE

P O BOX 127, Avarua, Rarotonga, Cook Islands
Phone: (682) 20603; Fax: (682) 21603

7.2 Topography, geology and soils

The land topography is fairly flat with gentle slope towards the beach. The area is prone to soil erosion by the actions of heavy sea surges. The land is cleared of vegetation and temporary sand erosion protection methods are required to prevent exposed soil from erosion.

Refer to geotechnical report in Appendices

7.3 Land tenure, zoning and use, underlying and surrounding the project (e.g. community food gardens, agriculture, national park, sensitive habitat, community reserve, village settlement, cemetery, manufacturing industry)



Development within the foreshore area, most vacant sections are vegetable gardens of sorts inland of the main road.

The land area was generally residential but land along the foreshore became available for tourist accommodation, tourism started to grow in the area in the 1980's to the 20's and with it commercial enterprises in the area. There are the Sunset Motels, Serenity Villas, the Edgewater hotel, the Steak house restaurant, the Bakery, Road house, Timberland, Tumunu, Vonnias to name a few. These enterprises are located within the foreshore area and along the main road. This has benefited the national economy, service and building suppliers/contractors, agricultural farmers, fish suppliers and provided employment to the area.

Residential homes are scattered around the foreshore, and more concentrated between the main road and back road and inland of the back road.

Located between the main road and back road are small agricultural farms mainly for the local market.

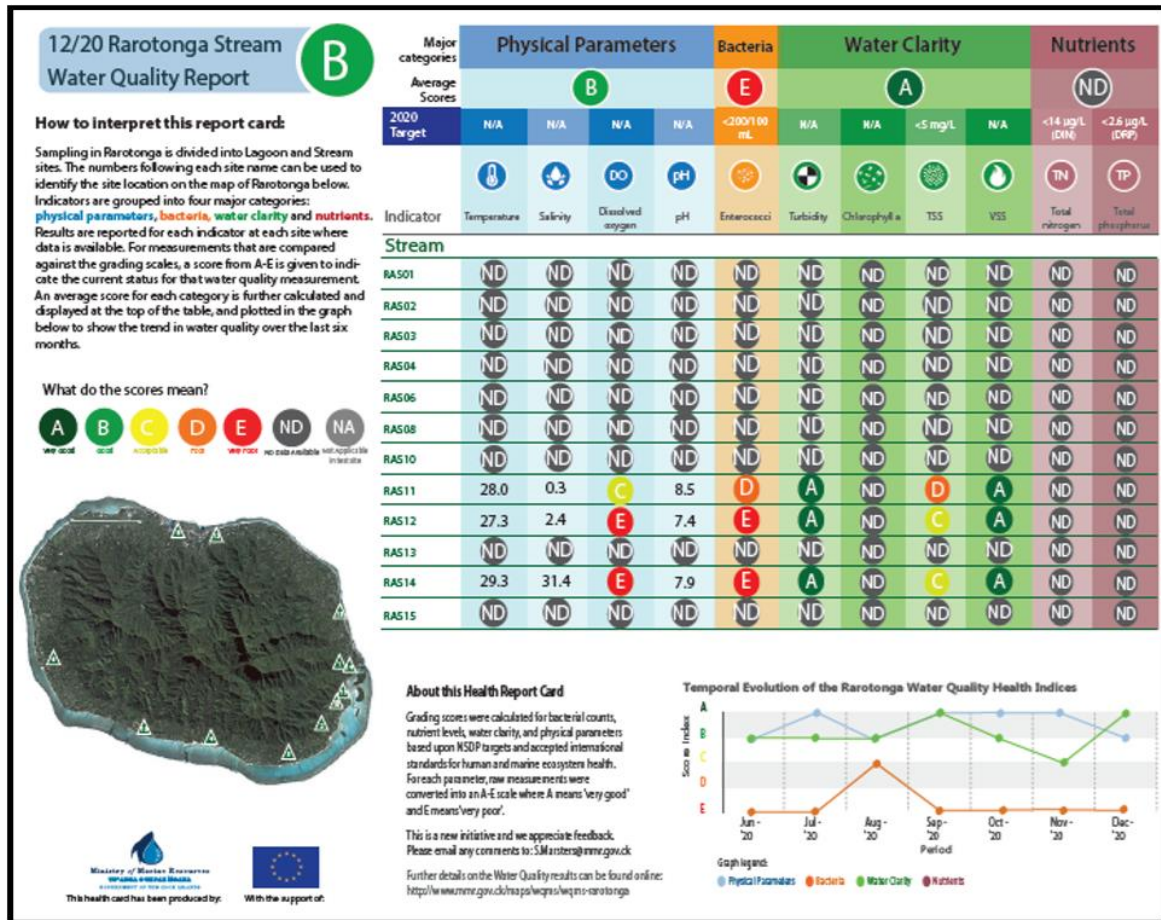
The prison is inland and the Waste Facility also located inland.

The government Ministry of Agriculture and Infrastructure Cook Islands (ICI) are also located in the area.

There are two main family cemeteries located west of Sunset Motels and inland side of Edgewater Hotel. Graves are also located at homesteads.

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7.4 Water (e.g. surface and groundwater quantity and quality; site hydrology; local catchment area; upstream and downstream water uses/users; areas vulnerable to flooding, inundation or storm surges)



Results from streams around Rarotonga.

Of the streams tested in the chart above, the three are not too healthy due to low count of dissolved oxygen in the water and the high count bacteria presence in the stream. This could be a result of animal waste and organic waste washed in to the streams by surface water during heavy rainfall. Data provided by MMR shows that the streams tested, all have Enterococci bacteria levels poor and extremely poor producing high results.

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Stream runs from the quarry to the beach. The stream is seasonal and flows when there is heavy rain. Flooding in the area is concentrated along the main road from the Edgewater to the ICI complex. This surface water will disappear within two days.

There is concern of landfill pollutants transported to the lagoon during heavy rainfall.

No data was available for the ground water quality in the area.

7.5 Marine (e.g. coastal hydrology, tides, waves, currents, storm surge, salinity, sea water temperature, suspended load, seabed bathymetry)

AVERAGE TEMPERATURE & RAINFALL – RAROTONGA – Degrees Celcius (°C) & Millimetres (mm)

Month	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20
Lagoon Temperature (°C)	27.5	26.7	27.3	27.2	27.3	27.0	24.8	23.2	24.4	24.8	23.1	29.0	28.7
Stream Temperature (°C)	24.0	24.7	25.6	25.2	25.0	25.3	23.2	20.8	22.6	22.2	20.6	23.5	28.2
Nikao Rainfall (mm)	4.7	8.0	10.0	11.0	7.6	4.9	0.7	5.8	6.7	3.6	3.4	2.6	NA
Nikao NO RAINFALL (total days)	9	7	4	13	11	17	15	13	12	9	16	12	NA
Tikioki Rainfall (mm)	6.2	8.8	12.5	13.9	6.1	7.0	0.4	5.1	9.3	4.8	2.9	2.7	NA
Tikioki NO RAINFALL (total days)	14	10	2	10	15	11	18	15	13	13	16	9	NA

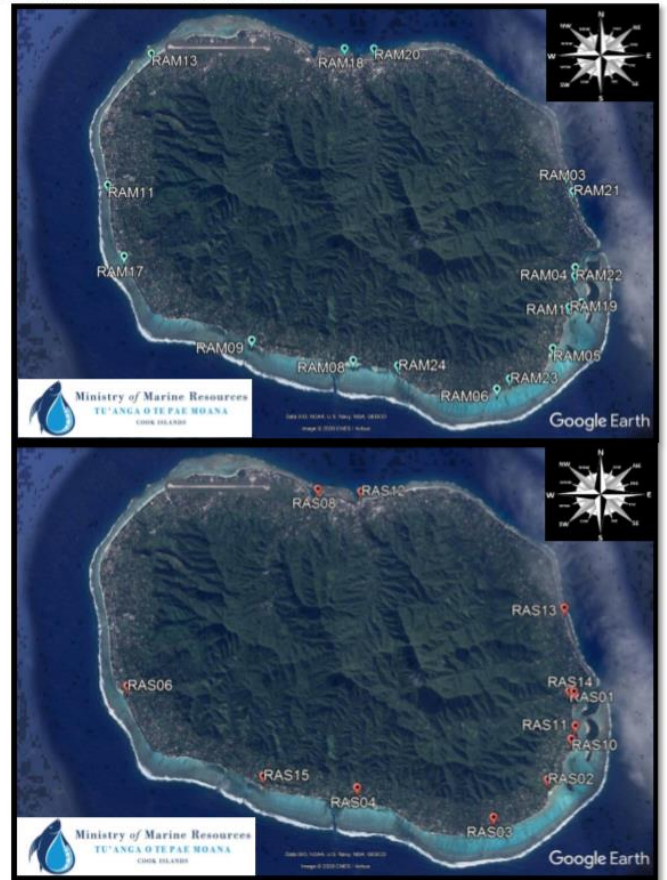
Average lagoon temperature is around 26°C.

West side of the island is prone to storm surges. For suspended solid load in the lagoon refer to Rarotonga Monthly Water Quality Chart below.

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RAROTONGA MONTHLY WATER QUALITY REPORT – DECEMBER 2020

Site Name	Site ID	Dissolved Oxygen (%)	Enterococci (MPN per 100ml)	Suspended Solids (mg/L)
LAGOON SITES				
Pouara Raii	RAM03	126	<1	1.1
Avana Mudflats	RAM04	111	<1	1.1
Paringaru	RAM05	112	<1	3.3
Tikioki Packing Shed	RAM06	118	<1	5.6
Totokoitu Station	RAM08	137	<1	2.2
Papua	RAM09	123	<1	0.3
Arorangi School	RAM11	127	20	2.3
Social Centre	RAM13	111	<1	6.1
Muri Buoy	RAM16	113	<1	2.3
Betela Beach	RAM17	123	<1	3.4
Avatiu	RAM18	113	<1	1.0
Muri Koka	RAM19	90	<1	2.2
Ngatipa	RAM20	114	<1	4.1
Matavera Outfall	RAM21	145	<1	1.0
Muri Aroko	RAM22	112	<1	2.1
Tikioki	RAM23	106	<1	3.2
Papaaroa	RAM24	115	<1	3.3
STREAM SITES				
Avana	RAS01	NW	NW	NW
Paringaru	RAS02	NW	NW	NW
Akapuao	RAS03	NW	NW	NW
Totokoitu	RAS04	NW	NW	NW
Betela	RAS06	NW	NW	NW
Avatiu	RAS08	NW	NW	NW
Valterenga	RAS10	NW	NW	NW
Areiti	RAS11	66	358	9.1
Takuvaine	RAS12	ND	649	3.3
Pouara	RAS13	NW	NW	NW
Avana Mouth	RAS14	ND	>2420	5.8
Papua	RAS15	NW	NW	NW



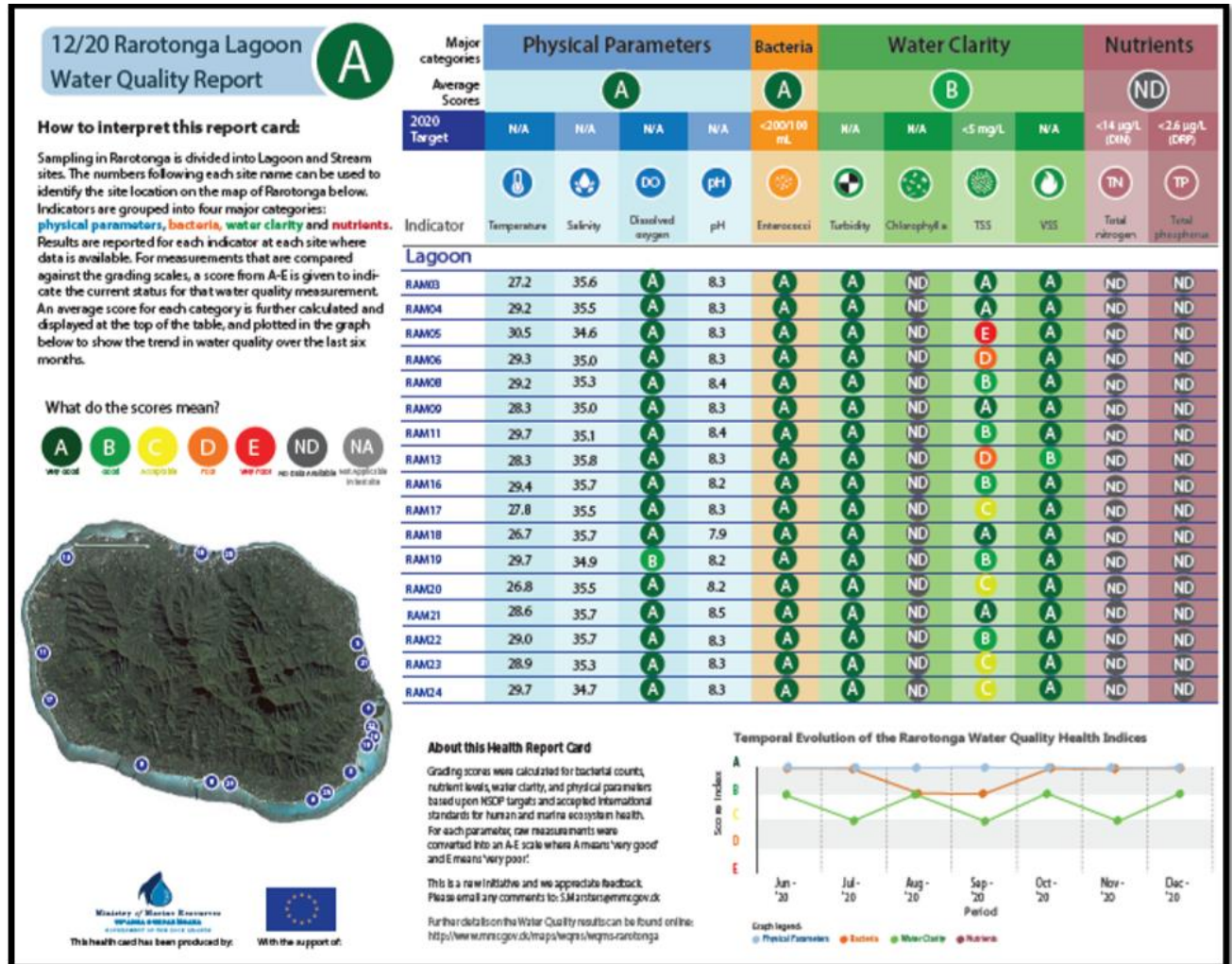
Lagoon results indicates that lagoon around the island is pretty healthy with the high DO levels.

LEVEL		RECOMMENDED STANDARDS USED		
		Dissolved Oxygen (%)	Enterococci (MPN/100mL)	Suspended Solids (mg/L)
Excellent	A	> 95	< 41	< 1.0
Very Good	B	90 ≥ 95	41 ≥ 100	1.0 ≥ 2.5
Good	C	80 ≥ 90	100 ≥ 200	2.5 ≥ 5.0
Poor	D	60 ≥ 80	200 ≥ 350	5 ≥ 10
Very Poor	E	40 ≥ 60	350 ≥ 500	10 ≥ 20
Extremely Poor	F	< 40	> 500	> 20

REFERENCES:	Department of Health, Clean Water Branch Hawaii 1994: Dissolved oxygen recommended limit is 275% saturation for oceanic waters, embayments, open coastal waters & estuaries; 280% saturation for streams	WHO 2001, Enterococci bacteria standards for bathing water quality	Bell 1992, total suspended solids recommended limit is 55mg/L for healthy coral reef
	<p>Dissolved Oxygen (DO): DO levels indicate how much oxygen is in the water. Low DO levels indicate an abnormal disturbance in the ecosystem such as an algal bloom. DO is measured in percentage (%).</p> <p>Faecal Pollution (Bacteria): The presence of bacteria Enterococci sp is monitored as an indicator of human and animal waste pollution. The higher the numbers of Enterococci bacteria present in a sample, the greater the amount of faecal pollution in the water. Bacteria count is measured in Most Probable Number of Enterococci cells per 100mL of sample (MPN/100mL).</p> <p>Total Suspended Solids (TSS): TSS are non-living (inorganic) such as silt and mud and organic matter such as animal and plant material found in the water. The presence of large amounts of particles are responsible for creating the murky appearance of dirty water and can quickly kill coral reefs. TSS is measured in milligrams per litre (mg/L).</p> <p>Temperature: Measure of warmth and coldness. In this report it is reported as an average. Temperature is measured in degrees celcius (°C).</p> <p>Rainfall: Daily rainfall data is provided by the Cook Islands Meteorological Service. In this report it is reported as an average per month, measured in millimetres (mm) and total number of days that had no rainfall.</p> <p>NA – Not Available, however data will be available at a later date.</p> <p>ND – No Data collected due to field or lab equipment failure/logistics problems/time delay/methodology problem/combination of all/sites sampled every two months.</p> <p>NW – No Water/stream dry/water stagnant/water level too low for sample collection/water dirty/murky.</p>		

Meaning of water testing terms

EIA REPORT. TOURISM DEVELOPMENT THE GRAND HOTEL TOKERAU, ARORANGI.



Lagoon Water quality Report

7.6 Air (e.g. existing sources of air emissions; ambient air quality parameters such as nitrogen dioxide, sulphur dioxide, carbon monoxide, lead, PM₁₀ particles; location of nearest sensitive receptor)

The air quality in the area was not tested. No data available at time of this report. Home burning of rubbish is a normal activity to locals and smoke from this activity do impact the air quality within the area and do annoy neighbours. Vehicles run on fossil fuel emits carbon monoxide in to the air and the island has an increase in the number of vehicles on the island.

7.7 Noise (e.g. baseline noise levels and noise pollution; location of nearest sensitive receptors)

Construction sites usually emits out about 100db noise.

With noise, OSHA's permissible exposure limit (PEL) is 90 dBA for all workers for an 8 hour day. The OSHA standard uses a 5 dBA exchange rate. This means that when the **noise level** is increased by 5 dBA, the amount of time a person can be exposed to a certain **noise level** to receive the same dose is cut in half.

There are residential homes and a hotel close to the site. Limit the use mechanical equipment and machinery between 9am to 5pm and not be used for more than 2hours at one time.

Mitigation:

- Management of equipment and machinery - Use machinery and equipment with minimal noise output levels.
- Check and fit all machinery with appropriate noise reduction equipment
- Plan to limit the hours of machinery usage on site
- Restrict time of work hours Mon – Fri 8am -5pm, Sat 8am – 12noon, no work on Sunday
- Restrict access to the site during works which cause high level noise impact.
- Prepare a noise and vibration hazard plan

7.8 Plant life (e.g. plant species and communities within the project and surrounding area; native)

The site has been cleared of vegetation. Garden plants from outside the area will be brought in. plants around the area either are imported or local. Plants for erosion control are being looked at for the area.



South end of section – entrance from main road



North end of section – beach end

7.9 Animal life (e.g. animal species and communities within the project and surrounding area; native, endemic, threatened, migratory, invasive or culturally-significant species; habitat within and adjacent to the project area suitable for species of conservation significance; species, animal communities or habitat vulnerable to environmental hazards and environmental change)

No animal life on section. No threatened migratory, invasive or culturally significance animals.

7.10 Human communities (e.g. towns/villages/settlements; population)

The project is in the district of Puaikura, Tokerau village. Available data Stat. Office –Puaikura population 2016 with tourists 3745, local population 2701.

On the beach side of the main road are the tourist bungalows, motels, hotels, restaurants and residential homes. Between the main road and the back road are predominantly residential and small vegetable gardens scattered around the area and small shops located along the main road. Inland of the back road are residential homes and small agricultural farming.

Water is supplied through a main supply system from water intakes around the island via a reticulated system

8. IMPACT ASSESSMENT

8.1 Assess and describe potential impacts of the project on the environment.

The environment is the surrounding atmosphere or condition for existence. The impact of tourism on the environment is both positive and negative.

Positive Impact:

In order to attract more tourism, particular emphasis has given to the overall beautification of the surroundings; regular planting of trees and landscaping are done to enhance aesthetics. Massive investment is made to improve the facilities in areas like sitting areas, shades, proper sanitation, drinking water, etc. More emphasis is given to preserve the monuments, heritage structures to attract more tourists.

Negative Impact:

Any development requires some interference with nature. Overdevelopment comes at the cost of nature. There may be damage to the natural flora and fauna. Local people have displaced for want of coastal area development. With more people in the area, more natural resources may require, which leads to the depletion of natural resources. Waste disposal problems crop up, and without proper measures to handle this problem, it may worsen the situation. Due to more footfall, more transport, more noise, improper waste disposal, pollution increases in the area and disturbs the ecological balance of the region.-

The potential impacts on the environment (water, lagoon, air and soil):

1. Water

Ground water – release of untreated waste and hazardous chemicals in to the soil will pollute the ground water. This could affect ground water quality and render it unsafe for drinking especially in times of severe drought.

This is a long term impact. If wastewater and hazardous chemicals are not treated and disposed properly in accordance with the Public Health Sewage Regulations 2014 and in compliance with

relevant ASNZ Standards, this would have a negative impact on the ground and lagoon water quality in the area.

Islands Water supply – more tourists will increase demand in water consumption on the island eg showers and pools. The island supply may not be able to sustain supply in near future especially with the impacts of climate change in mind. This a long term impact.

Lagoon – an example is Muri lagoon – alga bloom is a result of excess nutrients in the lagoon in the form of nitrogen and phosphorous from inadequate waste water treatment and solid waste management.

Air – it is anticipated that this proposal will have minimal impact to the air quality. The air quality is usually good however may be affected by household rubbish burning. The proponent intends to introduce a policy to encourage his clients to use hybrid or electrical vehicles.

Scientific data

No tests of air quality parameters (nitrogen dioxide, sulphur dioxide, carbon monoxide, lead, PM₁₀ particles) undertaken and have not seen any test data for the area.

Noise –It is anticipated that there will be noise and vibration generated during the construction phase of this project from heavy machinery, transport trucks and carpentry tools. This could impact on neighbouring residents and more so with the Edgewater hotel tenants.

Generally, **noise** can be defined as any unwanted sound. **Noise** could occur unexpectedly, or be too loud or repetitive. At certain decibels, it can be hazardous to health, with low frequency **noise** as damaging as loud **noise**. The process of determining what level of **noise constitutes** a **nuisance** can be quite subjective. OSHA's permissible exposure limit (PEL) is 90 dBA for all workers for an 8

hour day. The OSHA standard uses a 5 dBA exchange rate. Construction sites usually emits out about 100db noise.

Mitigation measures.

The prohibited times apply when the noise can be heard from inside a habitable room of another residential premises:

During Construction

- Monday to Friday: before **9am** and after **5 pm**.
- Weekends and public holidays: before **9 am** and after **5 pm**.
- Management of equipment and machinery - Use machinery and equipment with minimal noise output levels.
- Check and fit all machinery with appropriate noise reduction equipment
- Plan to limit the hours of machinery usage on site
- Restrict time of work hours Mon – Fri 8am -5pm, Sat 8am – 12noon, no work on Sunday
- Restrict access to the site during works which cause high level noise impact.
- Prepare a noise and vibration hazard plan
- Maintain levels of noise and vibration to a level of acceptance

Any residential noise can still be considered unreasonable outside the prohibited times.

Soil –
Impact

Removal or loss of topsoil associated with project site preparation;

Erosion; and

Soil contamination due to oil spills or small leaks of dangerous or hazardous materials (chemicals, fuel, etc.).

Mitigation measures

Land clearing will be conducted in a way that limits topsoil disturbances,

Topsoil will be replaced on cleared areas. In addition, reclaimed lands will be scarified to address compaction and reduce erosion, fertilizer and mulch will be added if necessary and in some cases the area may be seeded

Avoid cleaning machinery on site

Hotel Wastewater and hazardous chemicals.

A high level wastewater treatment system with disinfection dosing is required. Designer and installers must be experienced, competent and are registered designers/installers with Public Health Cook Islands. The wastewater treatment system will have been independently tested, and have been successfully operating in similar environment. Timely servicing and monitoring of the treatment system is important. This will reduce the negative impacts to the ground water and lagoon ecosystem.

Restrict the use of hazardous chemicals on site and if required on site, use and dispose as per manufacturer's instructions and disposed in compliance with Public Health Act 2004 and Environment Act 2003.

Water supply

Install water tanks to supplement the island main water supply from roof catchment. This would ease burden on the main water supply and will minimize surface water accumulation and soil erosion on site during heavy rainfall.

Energy

As global warming increases it is anticipated that the demand for air conditions will increase. Our energy is generated by burning fossil fuel (diesel). This is a costly operation economically and environmentally.

Mitigation

The hotel to supplement at least third of energy supply with green solar energy and slowly upgrade to 100% solar energy supply to the hotel.

8.2 Assess and describe potential impacts of the environment on the project.

The potential impacts the environment will have on the project due to;

Weather related hazards;

Heavy sea surges during a cyclone, severe cyclone winds could damage the building structure. Sea spray if not washed with fresh water would rust components of the building materials.

Climate change;

Drought – may result in shortage of water supply - danger of fire,

Sea level rise – project section approximately up to 2 metres above sea level,

Expected frequent cyclones with more intensity.

Global warming will increase demand in energy eg air conditioners.

Nature;

Tsunami could destroy houses within the foreshore area,
sea spray – impact on building materials

Impacts

Impacts of Climate Change - a more frequent and intense tropical cyclones (damaging wind gusts), flooding and drought (water shortage and fire).

Mitigation

Building: Building structure and materials designed and selected to withstand cyclone winds and to withstand the sea spray impact on building materials. The design is selected and applied to provide proofing against the impacts of climate change - tropical cyclones, drought and floods.

Design to include the use of natural ventilation complimented by mechanical cooling systems. Install solar panels to supply most of the hotel energy needs.

The development plumbing is design to include all water saving fixtures to conserve water.

9. CUMULATIVE IMPACTS

Cumulative impact assessment can include an evaluation of changes in:

9.1 Land and seascape processes and functions (e.g. landscape hydrology, coastal stability)

The landscape along the beach is slowly changing as the demand for tourist accommodation increase and land becomes available. Decking's replace the natural beach vegetation exposing structures to damaging cyclone winds and heavy sea surges. This would also impact on the coastal stability as sand erosion increase. At this point of time the natural beach profile is dominant however further developments may slowly change this.

9.2 Natural resource quality and availability

Tourism can often cause environmental damage with risks like erosion, pollution, the loss of natural habitats, and forest fires. Reefs and other natural tourist attractions can suffer permanent damage. The habitat for important beach plant will slowly disappear if not replant as part of the development landscape.

The Kuriri bird habitat may also be affected as demand for big hotel developments along the beach area increases.

Demand for water and energy is anticipated to increase as tourism numbers increase. This would a great strain on the island water and energy supply.

9.3 Social and community dynamics

Tourism may have different effects on the social and cultural aspects of life in a particular region depending on the strengths of the region. The effect can be positive or negative.

Positive Impact:

Tourism money is invested in:

Preserving the local heritage,

Improving infrastructure,

Providing better local facilities which in turn creates better education,

Better leisure facilities,

Organizing frequent social events and thus a better lifestyle for the local people.

Interact with the tourists, mix with people from diverse backgrounds, which creates a cosmopolitan culture in the region. Due to the demand for better services, varied employment opportunities have created within the region, and therefore, people do not feel the need to migrate to other cities to earn their living.

Negative Impact:

Infrastructure may not be able to cope up the increased rush thus leading to overcrowding, poor sanitation which may further lead to diseases bot to the tourists as well as local people.

The intrusion of outsiders in the area may disturb the local culture and create unrest among the people. The local people may copy the lifestyles of tourists through the demonstration effect, and the result could be the loss of native customs and traditions.

Some people may enter into criminal activities to fetch easy money from tourists, which leads to increased crime and anti-social activities and loss of moral and religious values.

<https://www.linkedin.com/pulse/positive-negative-effects-tourism-social-cultural..>

9.4 Economic conditions (e.g. industry development, job opportunities, cost of living)

The tourism industry has contributed to the economic growth through Tourists contribute to sales, profits, jobs, tax revenues, and income in an area. Through secondary effects, tourism affects most sectors of the economy. Economic impact analysis of tourism activity normally focuses on changes in sales, income, and employment in a region resulting from tourism activity. Improvements in education, advanced technology, a higher number of qualified professionals, opening up of foreign markets and better advertising and strategic marketing.

The above factors collectively boost the economic reserves of the region, thus leading to a rise in job opportunities, income and better disposable income. Tourism can also benefit economies at

regional and local levels, as money comes into urban and rural areas, which stimulates new business enterprises and higher markets and promotes a more positive image of the site. The income generated helps the national balance of payments, earning revenue through direct taxation and indirect taxes on goods and services purchased by the tourists. 65%-70% of National GDP from Tourism Sector.

Although the economic impacts of tourism development are usually held to balance **tourism economic** benefits.

However, **negative economic effects** are also apparent and significant, which cannot be ignored, particularly, a likely increase in demand for imported goods once **tourists** begin to appear, revenue leakages out.

Political effects

Whereas the virtues of international tourism have been extolled as a significant force for peace and understanding between nations, the reality is often far removed from his perfect image. Long-haul travel between developed and developing countries is increasing annually and is bringing them into direct contact with each other. People come from widely different background and with every contrasting lifestyles and level of income. Where these disparities are very high, the political as well as socio-cultural consequences may be severe. <https://www.linkedin.com/pulse/positive-negative-effects-tourism-social-cultural/>.

10. ENVIRONMENTAL MANAGEMENT

10.1 Environmental performance objectives

Statutory Requirements:

The Environmental performance objectives for the project includes compliance to local laws and regulations and relevant Standards below:

National Environment Act 2003, Section 36 (5) and 50 (8)

Ministry of Health Act 2013, Section 16, National Sanitation Policy

Public Health Sewage (Wastewater Treatment and Disposal) Regulations 2014.

Building Act 2003

Cook Island Building Regulation and Code, AS/NZ building standard 1991

ASNZS 1547-2012

Employment Relations Act 2012 - Part 7 Health, Welfare and Safety in Employment

The primary environment objects are to

- design construct and operate its facilities in a manner that protects human health and minimizes the impact of its operations on the environment
- Strive for an injury-free work force and minimize environmental impact through implementation of programs in its facilities and the surrounding communities that reduce risks to employees, neighbours, the public at large and the environment
- The Project Company and Construction Contractor will encourage and promote waste minimization, the sustainable use of natural resources recycling, energy efficiency, resource conservation and resource recovery
- The Project Company will actively participate with the national governmental agencies to ensure that the development and implementation of policies, laws, regulations and practices serve the public interest and are based on sound scientific judgment
- All employees are expected to work in a safe manner and comply with the company's Environmental policies and procedures.

- The Project Company should promote a culture that encourages each employee to be environmentally responsible

10.2 The proponent's environmental management framework

Environmental Management Roles

NAME	COMPANY	POSITION	RESPONSIBILITIES
Brett Baudinet	The Grand	Managing Director	Overall responsibility for the project and the project team
	TBC	Engineer to the Contract	Responsible for overall construction and for ensuring all activities comply with resource consent conditions.
	TBC	Project Manager	Ensuring contractor compliance with the contract documents, which will include requirement for carrying out the works in accordance with the relevant resource consent conditions. Maintains register of documents and plans
TBC	TBC	Contract Supervisor	Reporting to Project Manager and Engineer to the Contract on construction progress and compliance, undertakes daily site inspections with the Site Manager. Inspections of works to ensure compliance with EMPC and CMP
TBC	TBC	Site Manager	Overall responsibility for environmental management compliance and contract compliance onsite: Reviewing environmental performance; On-site compliance with consent conditions;

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			<p>Adherence to EMPC and CMP;</p> <p>Daily Inspections and monthly reporting;</p> <p>Receives complaints for inclusion in the public feedback record and responds;</p> <p>Ensuring training is undertaken;</p>
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10.3 Specialised management plans

MANAGEMENT PLAN	ACTIVITY	IMPACT	CONTROL MEASURE	RESPONSIBLE
WASTE	wastewater solid waste	contaminate ground water health hazard	compliant design and install recycling, proper storage and disposal	Services Supervisor
WATER	Water supply Surface water	Water shortage Soil erosion	Conservation measures	Services supervisor/grounds supervisor
EROSION/SEDIMENT CONTROL	flood	Soil erosion	Vegetation planting	Grounds supervisor
DISASTER	Cyclone, fire	Damage to structure/neighbouring premises	Evacuation plan, building protection plan	Hotel management.

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CLIMATE ADAPTATION	frequent cyclones, drought	Water shortage, soil erosion, structure damage	Contract Environment Consultant	Hotel management/Environment consultant
NOISE	Construction/operation	Social impact	Log noise complaints and address problem asap	Hotel management
AIR	Construction dust	disturbance	Noise monitor	management

10.4 Evidence that environmental mitigation measures

Hotels like the Rarotongan Beach Hotel, Edgewater Hotel, Pacific Resort all have Environmental Management Plans and this has minimized damages to their premises and surrounding environment from impacts of nature.

10.5 A detailed monitoring plan

EVENT MONITORING	RESPONSIBLE	CONTACT	MONITORING RESPONSIBILITY	PROJECT	ENVIRONMENT
Soil/beach erosion	TBC	TBC	Monitor after heavy sea surge/rainfall	Loss of beach	Loss of beach sand
Water	TBC	TBC	Water shortage	Impact to clients	Impact to supply
waste	TBC	TBC	Operating properly, servicing	Impact to clients	Pollutants to ground water/lagoon
noise	TBC	TBC	Noise during construction hours, frequency of disturbance to neighbours, portable noise monitors	Loss of work hours	Social impact
air	TBC	TBC	Monitor Quantity of dust in air	Complaints from neighbours	Air pollution

10.6 Environmental management expectations and requirements placed on Contractors

Contractors to have:

- i. An Environmental Management Plan that includes: an Environmental Health and Safety Policy, Worker code of Conduct, EMP organization Structure and Responsibilities
- ii. A Waste Management Plan.
- iii. Effective monitoring procedures,
- iv. Emergency response procedures
- v. Ensure Contractor have consistent and capable environmental expertise and oversight to educate and train employees/contractors and to ensure that the EMP is being properly implemented

10.7 Provisions for independent auditing (especially in the case of high-risk projects)

The proponent will set an independent auditing process for this project in regards to wastewater treatment, ground water and lagoon water degradation, noise complaints and beach erosion.

10.8 The names of the government agencies the proponent will report their project activity outcomes and monitoring results to:

- National Environment Services for environmental issues
- Te Marae Ora- for wastewater treatment systems and health issues
- Infrastructure Cook Islands – building permits
- Te Aponga Uvira – energy supply
- To Tatou Vai- water supply

10.9 Staffing and equipment requirements, to ensure successful EMP implementation

The proponent is in progress of designing staffing, training and equipment requirements to ensure that the Hotel have consistent and capable environmental expertise and oversight to educate and train employees and to ensure that the EMP is being properly implemented

10.10 A process for responding to unanticipated or emergency incidents

A process for responding to unanticipated or emergency incidents

Emergency incident	Reported by	Time	Responsible Agencies	Emergency Contact number/mobile
	TBC		Ambulance	911
	TBC		Police	911
	TBC		Plumber	
	TBC		Electrician	
	TBC		To Tatou Vai	

10.11 A process for managing and responding to stakeholder concerns or complaints

Complaint Matrix

Complaint	From	Received and logged by	Time	Date	Reported to	Attended by	Date	Resolved YES/NO/Report

10.12 Compensation measures for affected parties for impacts that cannot be mitigated or adequately managed.

No compensation measures put in place yet, measures to be in place prior to commencement of construction.

11. LOCAL COMMUNITY, LAND/RESOURCE OWNER AND WIDER STAKEHOLDER CONSULTATION

Supply details of consultation activities, including:

11.1 How the local community, land/resource owners and other stakeholders have been identified.

These were identified by talking to community leaders, Pu Tapere, neighbours/resort owners/managers, Member of Parliament.

11.2 Meetings, workshops or other forms of consultation held to date, or to be organized in the future.

No workshops or meetings held to date however meetings will be organized in very near future.

11.3 The outcomes of consultation, including issues and concerns raised by different groups or affected parties

No consultations to date in regards to issues and concerns raised (no concerns/issues raised)

12. CONCLUSIONS AND RECOMMENDATIONS

Present the main conclusions of the EIA report and the proponent's suggested recommendations for progressing their project, including key environmental management and mitigation measures that should be undertaken.

This is a big project and the proponent is well aware of the adverse impact the development may impose on to the environment and he agrees to undertake mitigation measures to minimise these risk of these happening.

With the potential impacts and mitigation measures identified and addressed in this report the developer and contractor are required to monitor and implement these to protect our environment, our health and to help the economy.

It is anticipated that potential adverse impact to the environment and the community will not be significant, however the proponent must ensure that careful monitoring is ongoing. This proposal is expected to be beneficial to the proponent and the local economy. Relevant Authorities like NES and Public Health are expected to play their part in monitoring or corresponding to developer/contractor for complaints from the public. The proponent seeks full EIA approval from the Rarotonga Environment Authority

13. DISCLOSURE OF CONSULTANTS

State the names and contact details of all consultants responsible for preparing the EIA report, and the services or work they completed.

Brett Baudinet – Project Owner

Tai Nooapii – EIA preparation

Paul Maoate – Geotech Engineer

14. REFERENCES

Appropriately reference all information sources that have been used or consulted during EIA report preparation. Information sources may include studies or surveys undertaken by the proponent, their consultant, or third party researchers.

Ministry of Marine Resources – lagoon water and stream water quality reports

Meteorological Office – Rainfall and temperature charts

Google Earth

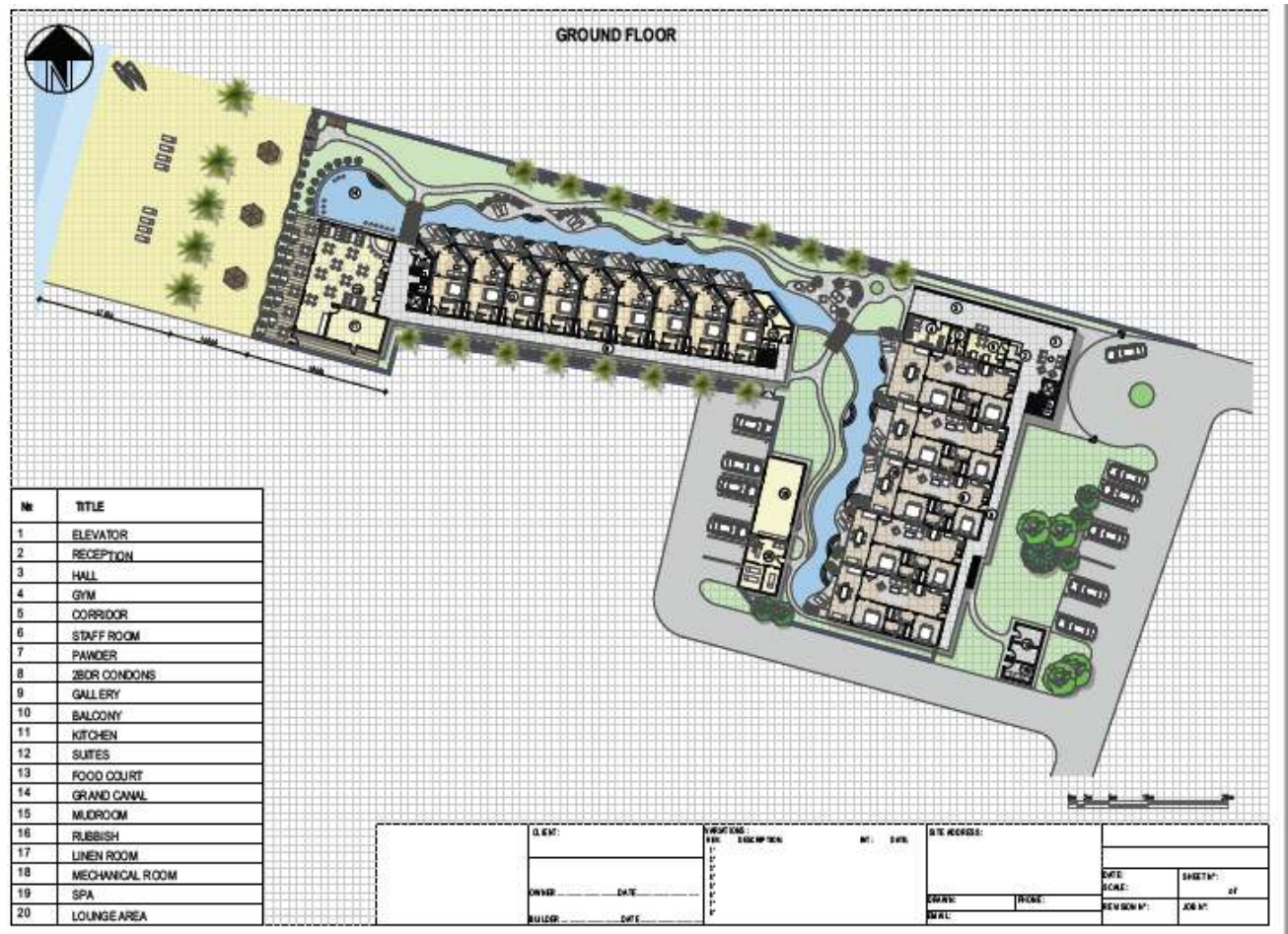
15. APPENDICES

Include appendices that support the main text and that do not contain unnecessary information.

Appendices may present:

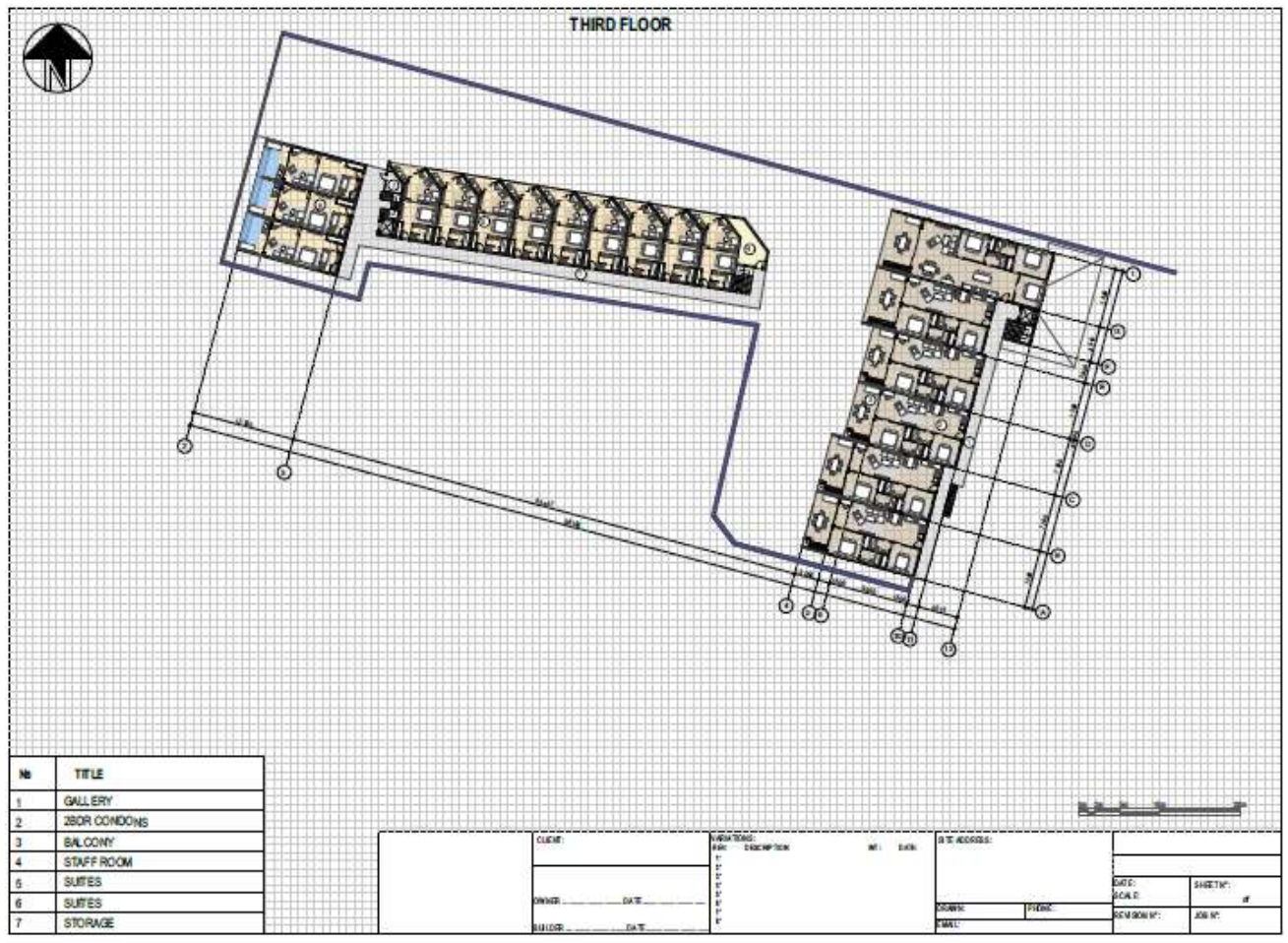
- Relevant environmental studies and reports done on the project site, if any;
- Detailed technical information
Geotec report.
- Draft management plans

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GROUND FLOOR

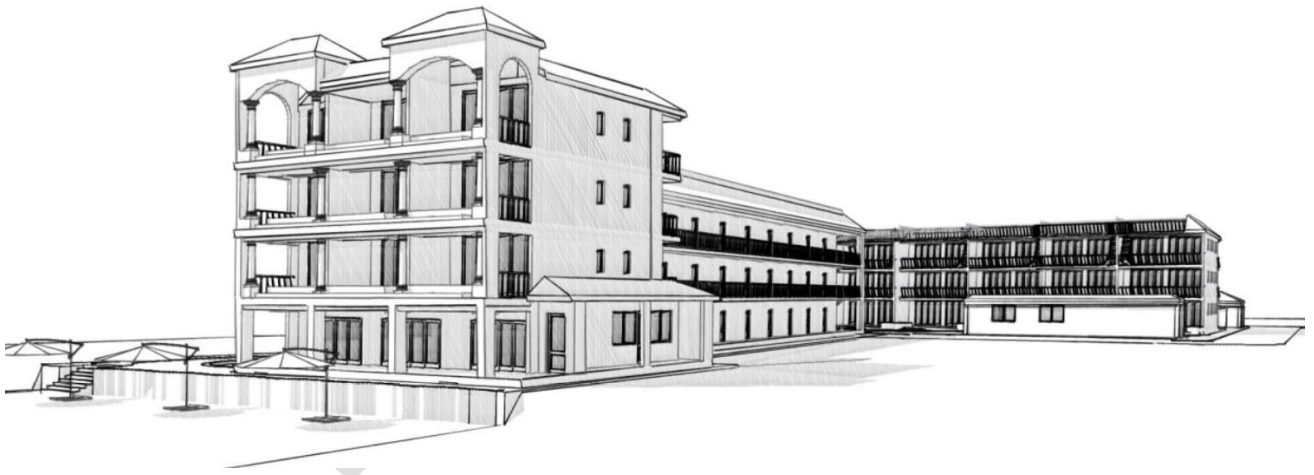
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3rd FLOOR

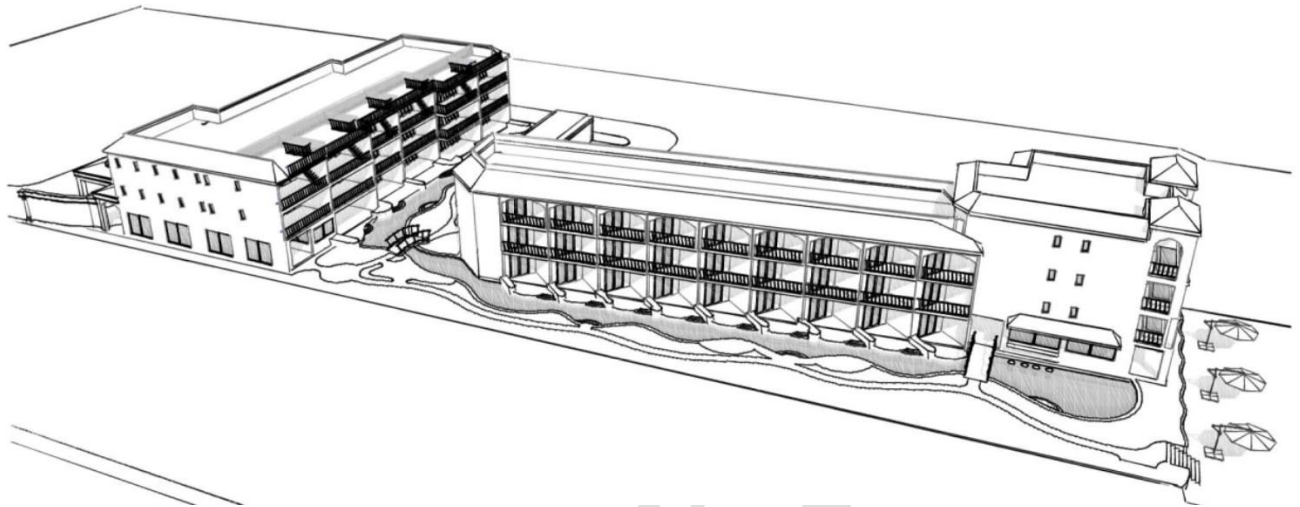


West Elevation



South Elevation

**EIA REPORT. TOURISM DEVELOPMENT THE GRAND HOTEL TOKERAU,
ARORANGI.**



North Elevation



East Elevation - Entrance

A table listing how the TOR have been addressed, cross-referenced to relevant sections of the EIA report

A table listing environmental mitigation/management commitments made by the proponent

List of environmental mitigation/management commitments to be actioned by proponent

IMPACT	MITIGATION MEASURE
Energy	Solar energy supply
Water	Water reduction fixtures in plumbing Water tanks
Waste (liquid and solid)	Liquid - Advance wastewater treatment, servicing contract, monitoring. Solid – secure storage, recycling
Soil erosion	Grass seeding, Monitoring, check after heavy rainfall, sea surges, backfill if erosion occurs.
Noise	Monitor, complaint log, attend to noise complaint asap, reduce construction noise.
Air	Monitor dust level during construction

Evidence of project support from stakeholders