Public Consultation Report for Ki'ama Bahamas Project

9th January 2023

Prepared by:

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Public Consultation In-house and Virtual (Zoom) Meetings for Ki'ama Bahamas Project

Date: Tuesday 29th November 2022

Time Start: 7:30pm

Venue (In-house): St. Andrews Anglican Church Community Center (Queens Highway, George Town, Exuma).

Prior to the Meeting, copies of the Environmental Impact Assessment (EIA) for the project were made publicly available at the Administrators Office in George Town, Exuma, the offices of the Department of Environmental Planning and Protection (DEPP), in Nassau, and at www.kiamabahamas.com/EIA.

Ms. Cristian Palacious (Exuma Island Administrator) served as Master of Ceremony (MC), (see ***Annex – I***, Meeting Agenda) and welcomed participants to the meeting, and to those participating via zoom (A list of participants is at ***Annex – II***).

A Prayer (blessing) for the meeting proceedings was given by Rev. Thompson of St. Andrews Anglican Church, Exuma

Mis Palacious, then Introduces Dr. Rhianna Neely, Director of the Department Environmental Planning and Protection, Mr. Arana Pyfrom, Assistant Director (DEPP), Mr. Victor Barrett, Developer (EcoIsland Development), John Long and Ms. Stacie Harrison (EcoIsland Development), and Mr. Christopher Russell, (Environmental Consultant – Russell Craig & Associates Ltd).

Mr. Barrett was then asked to give presentation, summarizing the Ki'ama Bahamas Project, its philosophy, technologies, architecture, and project masterplan (A copy of Presentation is attached as ***Annex – III***).

The project consists of the development:

- Modular 22 to 28 solar residences (shared and individual ownership) and solar powered, carbon negative home construction (use of hardwood timber and bamboo from sustainable resources)
- Beach Club (to include, restaurant/bar, and fitness centre)
- Protected Harbour (existing red mangrove lagoon), no dredging to the marine environment.
- Activities will be complementary to the goals and objectives for the management of the Mariah Harbour Cay National Park (MHCNP), under the stewardship of the Bahamas National Trust (BNT)
- Solar-powered yachts and electric day boats
- Low impact in the development of only 18% of property (more than 80% retention of existing natural vegetation).
- Employment of 45 to 60 Bahamian construction workers for 3 to 4 years
- Employ permanently 80 to 85 Bahamians.
- Contribute 1% of each sale to Silent Catch (a local non-profit to support sustainable fishing, local culture, reef restoration and mangrove preservation.

MC Administrator Palacious, invites, Dr. Neely, Director of DEPP to explain the purpose and format of the Meeting.

Director Neely then invited Christopher Russell (Environmental Consultant) of Russell Craig & Associates Ltd to give a presentation on the environmental Impacts of the Project and the mitigation measures prescribed (See copy of presentation as ***Annex – IV).***

Mr. Russell summarized the environmental baseline as follows:

- Four vegetative communities found namely, Coastal, Wetland, Interior Upland and Human Altered.
- Some ninety-four (94) vascular plants species were recorded, of which nineteen (19) are Protected Species.
- Additionally, two (2) invasive species were identified. (Casuarina sp. and Hawaiian Sea Lettuce)
- The largest percentage of the vegetation is of the Dry broadleaved evergreen formation (DBEF), followed by Rocky Shoreline Formation (RS), then Sandy (Beach) Shoreline (SS).
- A Red Mangrove (coastal Lagoon wetland) Formation is dominant on the Western portion of the property (existing marina site), followed by three distinct Silver Buttonwood Formations at the eastern portion of property; and lastly the Human Altered Community (with existing building structures), in the West.
- A total of nineteen (19) birds were recorded over two field surveys (June 2022 – summer session and September 2022 – winter session). Of the total birds recorded, one was endemic (Bahama woodstar).
- From the perspective of associated wildlife observed on property during field surveys, some ten (10) species of reptiles, insects and amphibians were recorded.

Summary of the Environmental Impacts were as follows:

- Some 4.5 acres of natural vegetation (12.6%) will require some form of removal to accommodate the infrastructural development (new roads, solar systems, wastewater treatment system, R/O facility, etc.) and the footprint for the 28 solar residential home constructions (with associated facilities – club house, etc.).
- no negative impact on the surrounding marine environment (no marina dredging activities in wetlands, no sediments and runoff, existing R/O and R/O staging sites will be used during construction phases of project, no development on beach and sand dunes).
- Project development and operational activities are designed to be complementary to the goals and objectives of the management of the MHCNP by the Bahamas National Trust (BNT).

Mitigation measures were prescribed as follows:

- The expansion of the size of existing nursery site on property, to accommodate additional protected plants and native flowering plant species, to be planted within the landscaped areas of residences and other buildings.

- Notable protected species that fall within the footprint of the road reservation will be removed and relocated to the nursery site temporarily and replanted in human altered areas once development commences.
- R/O plant will dramatically minimize the salinity of the brine by running on a lower recovery ratio. Brine effluence will be disposed of via deep well injection to best protect the surrounding marine environment.
- Although noise levels and air quality impacts were rated as High, due to the anticipated construction activities, these will be temporal in nature once construction activities are completed.
- Residences and other buildings will be constructed on point load-piers to minimize impacts on natural vegetation.
- Native and endemic plant species will be used in the landscaped areas to offset any losses of protected trees.
- Remove invasive *Casuarina equisetifolia* (Australian pine) and *Scaevola taccada* species (Hawaiian sea lettuce).

Mr. Russell concluded his presentation, and Director Neely then invited participants to ask any questions.

QUESTIONS AND ANSWERS.

Question: Ms. Rosemary Pintard – Bowe

Is the 1/3 property government owned land or is it government stipulated? There is the risk that the property ownership changes hands, which may result in a change in development land use.

Response: EcoIsland Development

The property is private property. The masterplan that will receive final planning approval, includes the low density on the 1/3 property on the Island, and 80% open space will run with the property. So, if we sell it, the new owner is bound to the plan. If they want more density, then the new owner would have to go through a new EIA and public approval process.

Comment: Ms. Rosemary Pintard – Bowe

I wish to commend and congratulate the developers for bringing this proposal and especially such a sustainable, environmentally friendly project to Exuma.

Question 2: Mr. Shawn Adams

What type of sewer system is being proposed and have in place, as development is within a national park, and what are the sanitization and mitigation measures?

Response: EcoIsland Development

Normally, a septic tanks system is the standard. However, with this development, we will be utilizing high technology, above ground system, comprising a two-stage treatment plant where raw material enters primary tank for pre-separation breakdown of organic solids. Wastewater then passes through an effluent filter before being discharge. It allows for 100% recycling of wastewater for irrigation purposes. The wastewater treatment is modular and fully redundant, and the highest treatment efficiency of any sewerage treatment.

The water system will involve an efficient R/O use of seawater producing some 44,000 liters/day (on-shore/land-based desalination and purification). Water generated is drinkable.

Question 3: Anastacia Armbrister

What are the main energy sources and sewer system for residential and commercial uses being proposed for the development?

Response: DEPP

The question regarding the sewer system was answered previously.

Response: EcoIsland Development

All energy will be generated via use of solar panels. Each home will have its own solar panel system on the roof, with solar batteries and inverter equipment located in 20-foot containers under each structure. There will be a central system housed at the existing boathouse for backup power.

Question: H. Knowles

Is Moriah Cay National Park the designated area for translocated trees?

Response: RCA

The intension is for the protected trees found in the footprint of buildings and road reservations to be removed will be Translocated trees and temporarily housed in the planned expanded nursery site on property, and will be replanted within the human impacted areas, side verges of roads reservations, and landscaped areas of each residence.

Answer clarification: Dr. Neely

So those trees that can be removed will be translocated within designated landscaped areas. No specifically known designated area for translocated trees in the Moriah Cay National Park.

Question: Mr. Adams

With the modular homes being constructed and being built, what type of material is being used for the construction of homes?

Response: EcoIsland Development

The homes structures will be raised above the ground level. We will do no excavations. Homes will be constructed on concrete piers, with galvanized steel beams (8' x 8' – 12' x 12'), fastened to the wood structures, which holds the hardwoods in place. Initial Noise on site will be from initial construction of concrete piers. Once building rise about Two to three weeks' time for concrete curing before hardwood structures installed. Deck of homes are of wood modular, prefabricated structures, pre-engineered using sustainably harvested hardwood, FSC (Forest Stewardship Council) hardwood, Basralocus (Dicorynia guianensis) and Santa Maria (Calophylum brasiliense) from Belize and addition to native Mahogany species from Central America. All insect resistant hardwood species.

Question: Ms. H. Knowles

As for the use of Gravel driveways, how will you prevent erosion and removal of substrate during heavy rains?

Response: EcoIsland Development

All roads within project will be 12 feet wide and referenced by Mr. Russell, and we will be using crushed rock/local stone and other natural materials for the base, and on the edges, we will be using concrete curbs to ensure stability of natural material. So, it is all permeable, which means for the rains, the rains will go through the gravels and follow the natural contours of the roads, so that it is not creating a washout of water and the natural materials.

Question: Mr. Adams

Follow up Question on the proximity of the sewerage System to the mangrove ecosystem?

Response: DEPP

No underground system, but above ground central sewer system

Response: EcoIsland Development

Basically, all sewer is distributed to each house, each house, will have its own system. Water is then treated and used in irrigation to water the grounds. But as part of the he R/O system will be drilling two wells; one well will be 100 feet to extract sea water for water treatment to freshwater. The second well will be very deep used for brine discharge by injection at 350 feet.

If we were to have any accidents since all sewerage treatment plants are self-contained and are above ground, any leakage of sewerage would be immediately identified and rectified and easily contained.

Closing remarks by DEPP

Dr. Neely then enquired from the audience is attendance and those on the Zoom link whether there were any further questions. She reiterated on numerous occasions, but there were no further questions or commentary from the attendees.

She then reminded the audience that they have from this date, 21 business days starting tomorrow to provide written questions and or comments to the DEPP or at EIAPublicComments2022@kiamabahamas.com or at inquiries@depp.gov.bs on the EIA. She further indicated that copies of the EIA are available for review at the Administrators Office in Georgetown, Exuma, and at the Office of the Department of Environmental Planning and Protection in Nassau, during normal business hours.

There being no further questions or comments from the audience the meeting was then adjoined by Director Neely at 8:49pm.

Written Questions and Comments

As of 3rd January 2023 (21 business days expiration date) no written questions or comments were received via inquiries@depp.gov.bs, or at EIAPublicComments2022@kiamabahamas.com.

ANNEX – I: Meeting Agenda

AGENDA

PUBLIC CONSULTATION VIRTUAL AND IN-HOUSE MEETING
KI'AMA BAHAMAS PROJECT EIA (ELIZABETH ISLAND – GT. EXUMA)

VENUE: **ST. ANDREWS ANGLICAN CHURCH COMMUNITY CENTER (QUEENS HIGHWAY, GEORGE TOWN, EXUMA)**

DATE: **TUESDAY 29TH NOVEMBER 2022**
TIME: **7:30 PM**

MC: Ms. Cristian Palacious (Island Administrator)

1. Welcome: Ms. Cristian Palacious (Island Administrator)

2. Prayer (Administrator to identify person)

3. Introduction to Department of Environmental Planning and Protection (DEPP) representatives (Director Dr. Rhianna Neely and Assistant Director Mr. Arana Pyfrom)

4. Introduce Purpose of Meeting (DEPP Director or Assistant Director)

5. Introduce Developer & Consultant (DEPP) *(Above will all require 10 minutes)*

6. Presentation by Developer Victor Barrett (EcoIsland Development) (15-20 minutes) (summary of development philosophy, technology, architecture & project masterplan)

7. Presentation by Environmental Consultant Christopher Russell (15-20 minutes) (summary of existing physical environment, environmental impacts & mitigation measures)

8. Public Q&A (facilitated by DEPP) (30-45 minutes)

9. Wrap-up and Confirmation of 21 days for Public Comment (DEPP)

10. Close Out Meeting (Ms. Cristian Palacious – Island Administrator)

(Total estimated time: 90 minutes)

LIGHT REFRESHMENTS SERVED

ANNEX – II: List of Participants

- ***Denotes participants via Zoom (virtual Link)***

1. Christopher Russell (RCA)	21. John Bowleg *
2. Dr. Rhianna Neely (DEPP)	22. Sherrel Mckenzie *
3. Arana Pyfrom (DEPP)	
4. Tamika McFall (DEPP)	
5. Victor Barrett (EcoIsland Development)	
6. John Long (EcoIsland Development)	
7. Stacie Harrison (EcoIsland Development)	
8. Cristian Palacious (Island Administrator)	
9. Kenneth McPhee (Chair, Town Planning Committee.	
10. Godfrey Gray (Chief Counselor)	
11. Mr. Adams (Chief Immigration Officer)	
12. Rev. Thompson (Anglican Priest)	
13. Rosemary Pintard	
14. Ann Gray	
15. Sheila Gray	
16. Don Jenike	
17. H. Knowles *	
18. Annastacia Armbrister *	
19. Eric Carey (Ex. Dir, BNT) *	
20. Catherine Booker (BNT) *	

Annex – III: Presentation by Victor Barrett – Developer (EcoIsland Development)

- Leave over 80% of the island undisturbed and reserved for natural habitats
- Remove invasive plants and fully preserve protected species
- Develop with zero foundation excavation or fill
- Build with "carbon negative", modular, all-natural heavy timber and near zero construction waste
- Deploy a decentralized, redundant, and zero-carbon island infrastructure
- Preserve all mangrove and shoreline habitats

Our philosophy is to employ the natural environment as the chief design director. We are eager to fully engage with the government of the Bahamas to create an island development that will serve as a global example for sustainable development.

"Live Fully" – in the world's most pristine places blessed by the most dazzling aquatic experiences.

"Tread Lightly" – to do no harm to the environment and leave the surroundings the way we found them or better.

"Powered by the Sun" – to experience nature undisturbed by the sounds of fossil fuel engines and generators, leaving the environment unpolluted by their exhaust for the benefit of humans, flora, and fauna.

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PROPOSED LOCATION – ISLAND ACCESS

Ecoisland Bahamas' location on Elizabeth Island is well-positioned to benefit from the expanded Exuma International Airport for convenient access via the newly paved road to George Town.

From George Town Dock, guests will take our all-electric water taxi to the island, a short 10-minute ride.

SUPPORTING GROWTH

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PROPOSED LOCATION – ISLAND PHOTOS

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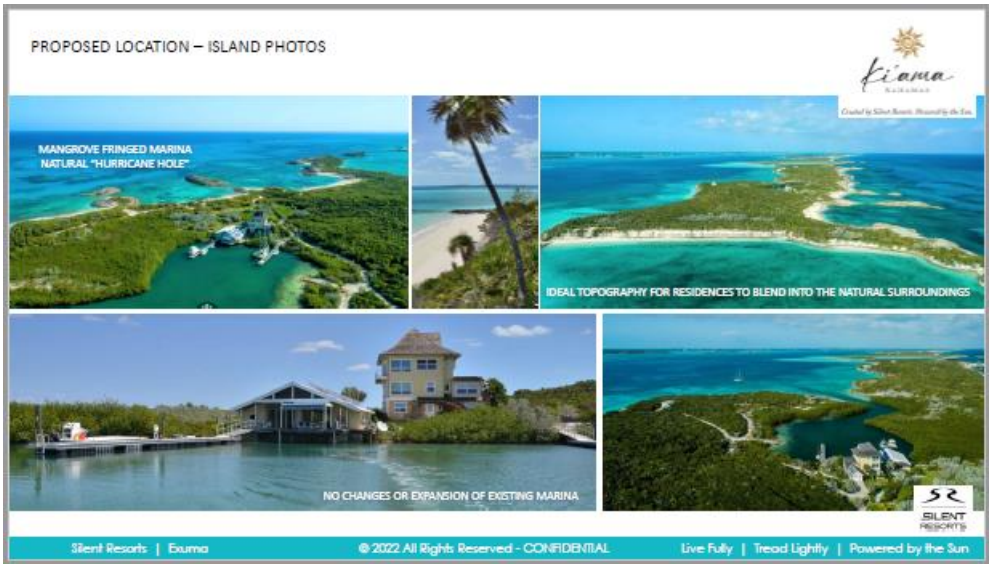
PROPOSED LOCATION – ISLAND PHOTOS
MANGROVE FRINGED MARINA
NATURAL "HURRICANE HOLE"
IDEAL TOPOGRAPHY FOR RESIDENCES TO BLEND INTO THE NATURAL SURROUNDINGS
NO CHANGES OR EXPANSION OF EXISTING MARINA
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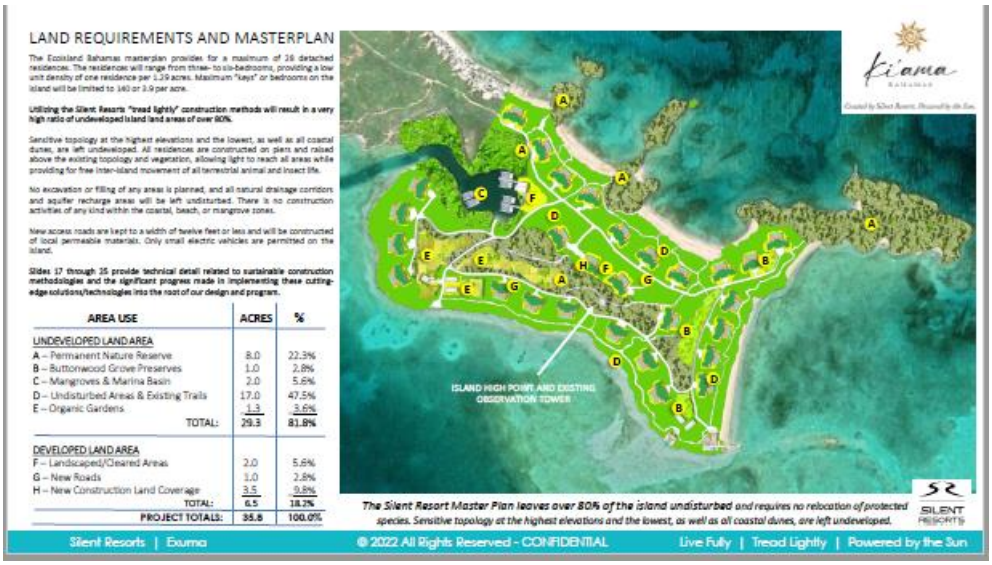
LAND REQUIREMENTS AND MASTERPLAN
The Ecoisland Bahamas masterplan provides for a maximum of 16 detached residences. The residences will range from three- to six-bedrooms, providing a low unit density of one residence per 1.29 acres. Maximum "keys" or bedrooms on the island will be limited to 160 or 3.9 per acre.
Utilizing the Silent Resorts "tread lightly" construction methods will result in a very high ratio of undeveloped island land areas of over 80%.
Sensitive topology at the highest elevations and the lowest, as well as all coastal dunes, are left undeveloped. All residences are constructed on piers and raised above the existing topology and vegetation, allowing light to reach all areas while providing for free inter-island movement of all terrestrial animal and insect life.
No excavation or filling of any areas is planned, and all natural drainage corridors and aquifer recharge areas will be left undisturbed. There is no construction activities of any kind within the coastal, beach, or mangrove zones.
New access roads are kept to a width of twelve feet or less and will be constructed of local permeable materials. Only small electric vehicles are permitted on the island.
Slides 17 through 25 provide technical detail related to sustainable construction methodologies and the significant progress made in implementing these cutting-edge solutions/technologies into the root of our design and program.
AREA USE | ACRES | %
UNDEVELOPED LAND AREA
A – Permanent Nature Reserve | 8.0 | 22.3%
B – Buttonwood Grove Preserves | 1.0 | 2.8%
C – Mangroves & Marina Basin | 2.0 | 5.6%
D – Undisturbed Areas & Existing Trails | 17.0 | 47.5%
E – Organic Gardens | 1.3 | 3.6%
TOTAL: | 29.3 | 81.8%
DEVELOPED LAND AREA
F – Landscaped/Cleared Areas | 2.0 | 5.6%
G – New Roads | 1.0 | 2.8%
H – New Construction Land Coverage | 3.5 | 9.8%
TOTAL: | 6.5 | 18.2%
PROJECT TOTALS: | 35.8 | 100.0%
ISLAND HIGH POINT AND EXISTING OBSERVATION TOWER
The Silent Resort Master Plan leaves over 80% of the island undisturbed and requires no relocation of protected species. Sensitive topology at the highest elevations and the lowest, as well as all coastal dunes, are left undeveloped.
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MANAGEMENT AND PERSONNEL REQUIREMENTS

While the Silent Resorts Project will primarily engage Bahamian professionals and employees, the Project will also require the experience and the expertise of non-Bahamians in both the construction and operational phases of the Project. In this regard, it is anticipated that no less than twenty work permits will be required over the construction and operation phases of the resort. These individuals will provide adequate training for advancement of local employees to managerial positions and skilled trades labor.

For yacht operations, it is anticipated that both foreign and domestic captains and crew will be employed initially, with the long-term goal for a majority of permanent crew to be Bahamian. In addition, Silent Resorts anticipates the creation of several spin-off and subsidiary businesses in the building technology sector, as well as the maintenance and repair for solar electric systems on land and our yachts that could be managed and owned by Bahamian entrepreneurs. Please see the 'Economic Impact and Business Plan' section for an expanded narrative regarding entrepreneurial opportunities. All staffing projections are derived from assumptions relying upon current market conditions and are subject to variation.

CAPITAL INVESTMENT

Capital Investment Category	Amount (USD)
Land Acquisition	12,200,000
Predevelopment Expense (Start-Up Costs)	350,000
Construction Costs (Residences and Amenities)	25,350,000
Solar/Water/General Infrastructure/Logistics	9,000,000
Amenities Construction	1,400,000
Soft Costs (Legal/Engineering/Permitting/Design/Tariffs)	8,200,000
TOTAL	56,500,000

*Construction costs presented above assume full buildout and are derived from recent estimates. These projected figures are subject to variation relative to changing market conditions.

FINANCIAL ARRANGEMENTS

Ecoisland Bahamas will be funded by an initial equity investment of $19,000,000 upon the approval of the Bahamas Investment Authority and the closing on the island parcel. All equity and required initial financing to commence the first phase of development has been secured and is ready to be deployed.

EMPLOYMENT PROJECTION

During the construction phase, Ecoisland Bahamas will employ a local Bahamian Project Manager who will hire subcontractors and tradespeople to perform all construction activities. In addition, during certain phases of the Project, non-Bahamian senior management will be required on a non-permanent basis. It is estimated that during the construction phases an average of approximately 40 to 50 Bahamian skilled tradespeople will be required to be working on the Project full-time during the five-year anticipated buildout of the Project. The fully-completed and operational resort will require a permanent staff of approximately 70 to 75 personnel.

Employment Projections by Category	2022	2023	2024	2025	2026
Construction Workers	25	45	55	45	25
Construction Management	1	2	2	2	1
Operations General Manager		1	1	1	1
Assistant Managers / Reception	1	2	2	2	3
Housekeeping	1	4	8	8	10
Chef & Kitchen Staff	2	3	4	6	6
Wait Staff	1	2	4	6	6
Concierge & Valet	1	1	1	2	2
Marina Operations & Water Sports	1	2	2	2	2
Building Maintenance		2	2	4	6
Yacht & Boat Maintenance	1	2	3	3	3
Yacht and Boat Crew	2	6	10	14	20
Security	1	1	1	2	2
Local Sales Representative	2	2	2	2	2
Landscaping/Organic Farm Staff	2	4	6	6	6
TOTALS	41	79	103	105	95

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ENVIRONMENTAL IMPACT – OVERVIEW

Silent Resorts' Environmental Impact Mitigation Plan for EcoIsland Bahamas is rooted in its Carbon Negative Construction, Zero Emissions Resort Operations, and Ultra-Low Emissions Yachting. The following detail provides technical insight into each of these key initiatives:

Carbon Negative Construction

Silent Resorts residences and other structures are built using our unique pre-engineered modular system:

- Proven system utilizing sustainable harvest hardwood timber
- Near zero construction waste on site
- Controlled cost and build schedule
- On-site labor reduced to a minimum
- Our 4,000 square foot structural timber Silent Residences store over 264,000 pounds (132 tons) of carbon each, the equivalent of what would be released by burning 46,200 litres of diesel
- A completed Silent Resort can potentially sequester over 5,000,000 pounds of carbon, the equivalent of 875,000 litres of diesel

SEQUESTER 2,500 Tons of Carbon

Zero Emissions Resort Operations

Silent Resorts Islands operate on 100% solar energy:

- Conventional island resorts depend on diesel fueled generators for power
- Silent Resorts uses a proprietary "Silent Solar Grid" that integrates the solar systems on the island with the solar systems on the yachts.
- This yacht/island power-sharing and balancing eliminates the need for back-up diesel generators
- Fuel Cell back-up power
- A diesel generator emits 2.5 pounds of carbon per kWh
- A Silent Resort will use an average of 750,000kWh of power per year, saving over 1,875,000 pounds of carbon, the equivalent to 330,000 litres of diesel

ELIMINATE 930 Tons of Carbon Emissions per Year

Ultra-Low Emissions Yachting

Silent Resorts Yachts are 100% solar powered:

- Silent Resorts yacht fleet is 100% solar/electric
- The yachts carry an emergency diesel generator to charge the batteries while at sea in the event of an extended period of low sun conditions or the need for extended high-speed cruising
- A 60- to 80-foot motor yacht running an average of 1,000 hours per year can burn 100,000 litres of diesel
- Assuming a 95% diesel savings per yacht, a Silent Resort average fleet of 8 yachts can save up to 720,000 litres of diesel per year, or the equivalent of 4,000,000 pounds of carbon

SAVE 2,000 Tons of Carbon Emissions per Year

ENVIRONMENTAL IMPACT – MITIGATION, SUPPORT, AND BUILDING TECHNOLOGIES

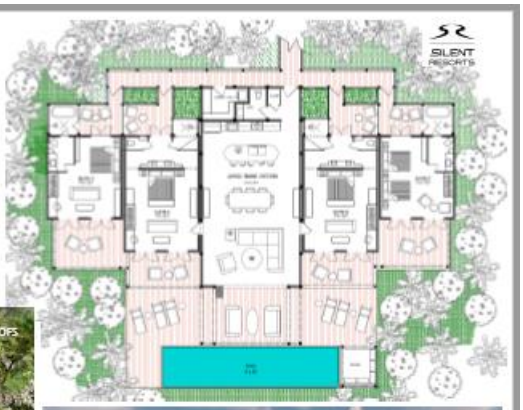
- **Removal, cutting, and clearing of native vegetation that affect wildlife habitats**
  - All structures will be built on point-load piers which will be anchored to the natural rock of the island with minimal excavation for setting of piers.
  - The trees and plants under the new structures will be trimmed down and left in place. Only selected areas for the installation of water storage and utilities under the structure will be leveled and covered. This coverage amounts to just over 9% of the total site land area.
- **Excavation and filling that will alter the current run-off and stormwater drainage**
  - No change to the island topography is required. All new construction will be elevated, and the current drainage and runoff characteristics will not be materially changed.
- **Roadwork that will create impervious surfaces, increased run off**
  - All new access roads will be private and limited to twelve feet in width. Material will be local stone. For shaping and contouring required, the stone will be covered with a permeable, local sand/gravel mix. No concrete or asphalt will be used.
- **Retaining walls, large foundations structures, and raised roadways that will impede the free movement of ground dwelling animals**
  - No area of the island will be blocked or made impassable to the native ground dwelling animals on the island.
- **Overwater docks and structures that will shade and disturb the seabed**
  - No new overwater docks, piers, or pilings will be constructed.
- **Clearing of mangroves**
  - No clearing of mangroves will be conducted. All existing mangrove areas will be preserved as natural habitat.
- **Reshaping beaches or the construction of rock jetties and breakwaters**
  - No construction activity of any kind, temporary or permanent, will be conducted on any beaches. No breakwaters, jetties, or rock abutments will be constructed into the surrounding waters.
- **Insensitive multi-story construction that will be visually intrusive**
  - All construction will be limited to one story and placed within the landscape and topology to respect the views to and from the island.
- **Construction on top of dunes, hilltops, or in wetlands**
  - No construction will take place on dunes, or over wetlands. All buildings will be located below the highest elevations on the island as to not break the natural top ridge of the island. An existing observation tower/platform will be repaired and will not exceed a size of twenty feet by twenty feet nor a height of twenty feet above the island's highest natural elevation.
- **Protected and invasive plant species**
  - A full island inventory of the existing trees and plants will be conducted, and the masterplan adjusted as required. Initial surveys have found Buttonwood groves on the island, and these will be preserved as indicated on the master plan.

SUSTAINABLE DESIGN

RESIDENCE DESIGN

The EcoIsland Bahamas residences will range from three to six bedrooms. The design incorporates the following key features:

- To better respect the island topology, our residence designs are linear to allow the construction to follow the natural contours of the sloping land
- The residences are one-story, and the ceiling heights are ten- to twelve-feet to provide for enhanced ventilation and light
- All bedrooms are ensuite with private work desks and ample closets
- Utilities and storage will be in twenty-foot shipping containers that will be located below the residence and not visible. These steel containers provide secure storage and shelter during any storm event.
- The structural timber frame and opening protection will be designed to withstand a CAT 4 hurricane, and heavy timber is naturally insect and fire resistant.
- Solar panels will be located on the flat roof areas and shielded from view.
- Roof areas that do not have solar panels will be fitted with a "living roof" system
- All lighting is controlled by a Silent Residence Smart House App. Only warm white color LED lighting is used. Exterior lighting will be "Dark Sky" compliant.

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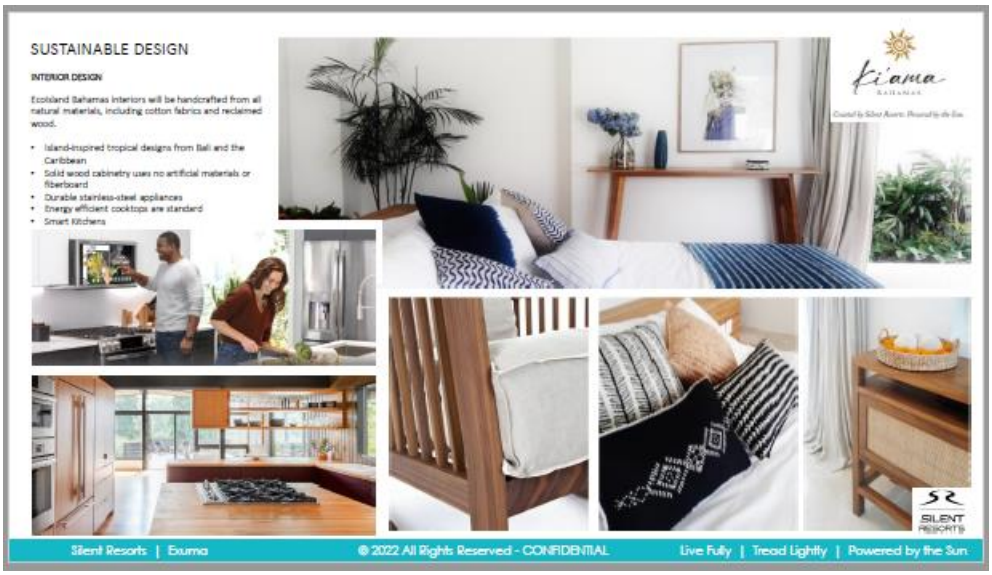
SUSTAINABLE DESIGN
INTERIOR DESIGN
Ecoisland Bahamas interiors will be handcrafted from all natural materials, including cotton fabrics and reclaimed wood.
Island-inspired tropical designs from Bali and the Caribbean
Solid wood cabinetry uses no artificial materials or fiberboard
Durable stainless-steel appliances
Energy efficient cooktops are standard
Smart Kitchens
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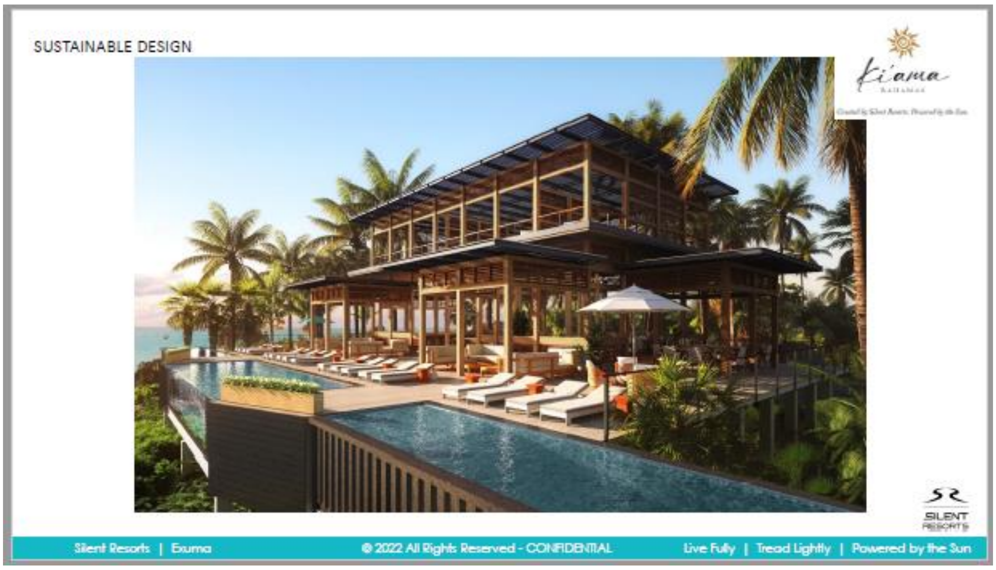
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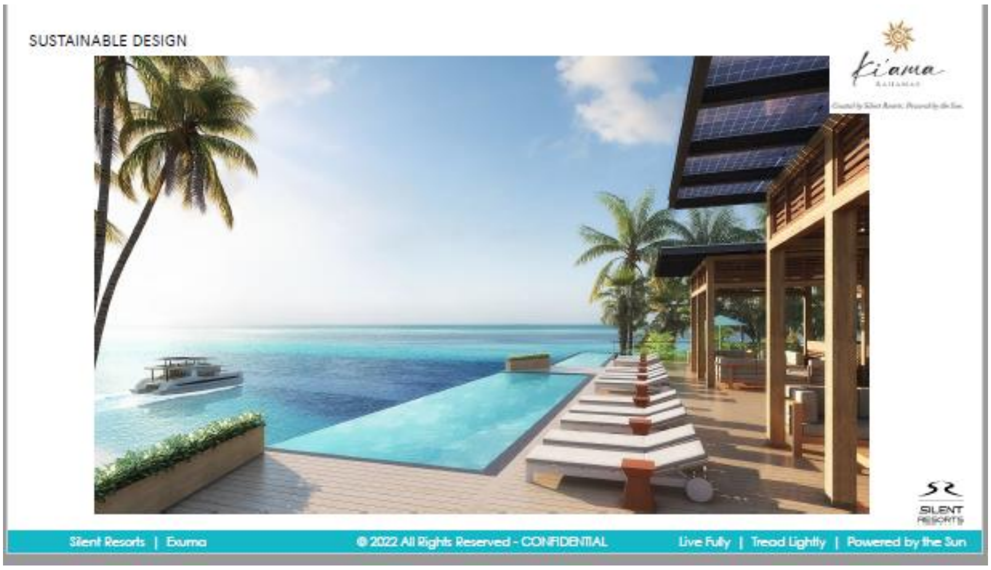
SUSTAINABLE DESIGN
Ki'ama
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SUSTAINABLE CONSTRUCTION & INFRASTRUCTURE
SUSTAINABLE HARVEST TROPICAL HARDWOOD HEAVY TIMBER CONSTRUCTION
Ecoisland Bahamas residences and other structures will be built using our unique pre-engineered modular system:
Proven system utilizing sustainable harvest hardwood timber
Near zero construction waste on site
Controlled cost and build schedule
Efficient use of skilled on-site labor
Our 4,000 square foot structural timber Silent Residences store over 264,000 pounds (132 tons) of carbon each, the equivalent of what would be released by burning 46,200 litres of diesel.
Upon completion, Ecoisland Bahamas can sequester over 10,000,000 pounds of carbon, the equivalent of 1,750,000 litres of diesel.
QUALITY EMPLOYMENT, NEW SKILLS, AND NEW OPPORTUNITIES
Silent Resorts is committed to building in the most ecologically sensitive and efficient way possible. During the construction of Ecoisland Bahamas, Silent Resorts and our building technology partners will be looking to create long term relationships with local Bahamian companies and entrepreneurs to bring these technologies and methods to the greater Bahamas market.
CARBON NEGATIVE CONSTRUCTION
As opposed to concrete, steel, and aluminum, which are all extremely energy intensive and are among the biggest contributors to greenhouse gas emissions and global warming, heavy timber is actually "carbon negative". Trees removes carbon dioxide from the air and for as long as those trees are not burned or decay on the forest floor, they hold that carbon forever. As the numbers above to the left illustrate, our sustainably harvested timber takes carbon out of the air and allows for new trees to grow and absorb more carbon, reducing atmospheric carbon dioxide.
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SUSTAINABLE CONSTRUCTION & INFRASTRUCTURE
"TREAD LIGHTLY" AMENITY DESIGN
The Ecoisland Bahamas Beach Club, Spa, and Restaurant amenities will be uniquely constructed in our signature "Tent & Timber" buildings.
Made of the highest quality natural fabrics, bamboo, and timber, these structures are very light in their impact to the environment yet engineered to withstand the tropical environment.
Built to withstand tropical storm winds, and with a twenty-year canvas guarantee, in the event of a hurricane, fabrics and furnishings can be removed, and the steel frame structure is designed to withstand the strongest of gales.
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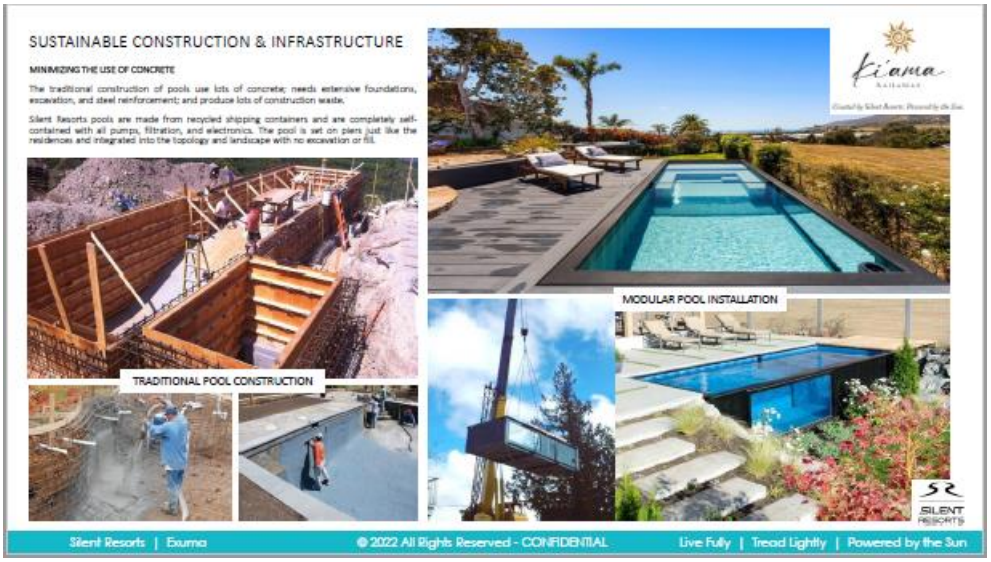
SUSTAINABLE CONSTRUCTION & INFRASTRUCTURE
MINIMIZING THE USE OF CONCRETE
The traditional construction of pools use lots of concrete; needs extensive foundations, excavation, and steel reinforcement; and produce lots of construction waste.
Silent Resorts pools are made from recycled shipping containers and are completely self-contained with all pumps, filtration, and electronics. The pool is set on piers just like the residences and integrated into the topology and landscape with no excavation or fill.
TRADITIONAL POOL CONSTRUCTION
MODULAR POOL INSTALLATION
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SUSTAINABLE CONSTRUCTION & INFRASTRUCTURE
INTEGRATED HIGH OUTPUT SOLAR ELECTRIC SYSTEMS
Ecoisland Bahamas residences, marina, and island infrastructure will be fully powered by the same technology used on its fleet of Silent Yachts.
All residences and yachts will be connected to the Silent Island Grid, and yachts will share power with the island and visa versa as needed.
THE FIRST RESIDENTIAL HYDROGEN BATTERY BACK-UP SYSTEM
Silent Resorts has partnered with LAVO Systems, a patented safe, clean, hydrogen battery backup system, eliminating the need for any fossil fuel powered back-up generators.
LAVO converts the energy from the solar panels into hydrogen, and stores it in a revolutionary low-pressure system, which safely & reliably produces 40KWh of back up power if needed.
The LAVO™ Energy Storage System
The Hydrogen Hybride
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SUSTAINABLE CONSTRUCTION & INFRASTRUCTURE
Solar panels & frame
Clean water storage
Post-treatment
Pre-treatment
Automated fresh flush
Intake pump
Reverse osmosis incl. energy recovery
Remote monitoring & control
Power electronics
Energy storage
Container
Air vent
Outlet
Inlet
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SUSTAINABLE CONSTRUCTION & INFRASTRUCTURE
ZERO POWER ADVANCED WASTEWATER TREATMENT SYSTEM
The BIOROCK system used throughout our development is totally silent and odorless, calls for minimal annual maintenance, and is barely visible. The resulting water is 100% recycled for irrigation of landscape and organic gardens.
Again, in keeping with our methodology of no excavation or filling on the island, the wastewater treatment systems will be located under the raised structures. There are no in-ground septic systems that can leak into and pollute ground water.
Like our solar electric and water purification systems, the wastewater treatment is modular and fully redundant, while fully scalable to provide service for the entire resort as it is fully built out.
As indicated in the chart below, BIOROCK has the smallest footprint, and highest treatment efficiency of any sewerage treatment system.
THE COST SAVING WASTEWATER TREATMENT SOLUTIONS
NON-ELECTRIC
ODOURLESS
100% SILENT
SUSTAINABLE
100%
ECOROCK, A Non-Electric Two Stages Wastewater Treatment Plant
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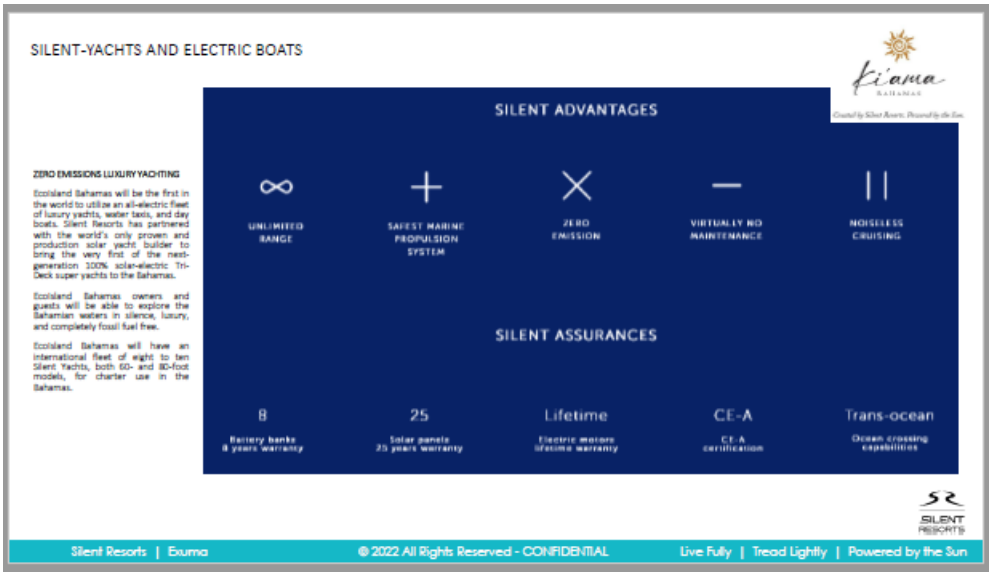
SILENT-YACHTS AND ELECTRIC BOATS
ZERO EMISSIONS LUXURY YACHTING
Ecoisland Bahamas will be the first in the world to utilize an all-electric fleet of luxury yachts, water taxis, and day boats. Silent Resorts has partnered with the world's only proven and production solar yacht builder to bring the very first of the next-generation 100% solar-electric Tri-Deck super yachts to the Bahamas.
Ecoisland Bahamas owners and guests will be able to explore the Bahamian waters in silence, luxury, and completely fossil fuel free.
Ecoisland Bahamas will have an international fleet of eight to ten Silent Yachts, both 60- and 80-foot models, for charter use in the Bahamas.
SILENT ADVANTAGES
UNLIMITED RANGE
SAFEST MARINE PROPULSION SYSTEM
ZERO EMISSION
VIRTUALLY NO MAINTENANCE
NOISELESS CRUISING
SILENT ASSURANCES
8
Battery banks
8 years warranty
25
Solar panels
25 years warranty
Lifetime
Electric motors
lifetime warranty
CE-A
CE-A certification
Trans-ocean
Ocean crossing capabilities
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SILENT-YACHTS AND ELECTRIC BOATS
THE SILENT 60 LUXURY SOLAR CRUISER
SILENT 60 – Tri-Deck
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SILENT-YACHTS AND ELECTRIC BOATS
THE SILENT 80 SUPER YACHT SOLAR CRUISER
SILENT 80 – Tri-Deck
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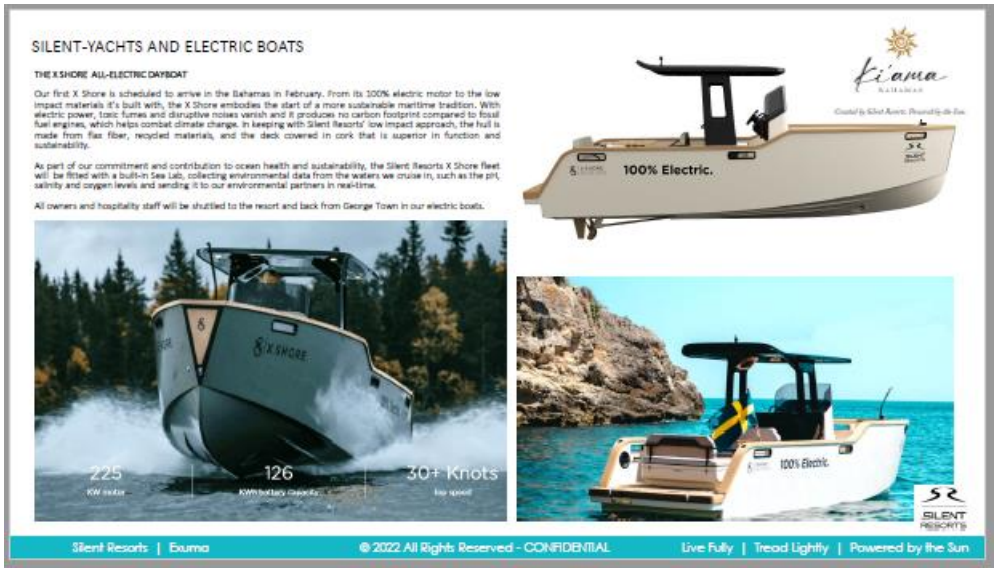
SILENT-YACHTS AND ELECTRIC BOATS
THE X SHORE ALL-ELECTRIC DAYBOAT
Our first X Shore is scheduled to arrive in the Bahamas in February. From its 100% electric motor to the low impact materials it's built with, the X Shore embodies the start of a more sustainable maritime tradition. With electric power, toxic fumes and disruptive noises vanish and it produces no carbon footprint compared to fossil fuel engines, which helps combat climate change. In keeping with Silent Resorts' low impact approach, the hull is made from flax fiber, recycled materials, and the deck covered in cork that is superior in function and sustainability.
As part of our commitment and contribution to ocean health and sustainability, the Silent Resorts X Shore fleet will be fitted with a built-in Sea Lab, collecting environmental data from the waters we cruise in, such as the pH, salinity and oxygen levels and sending it to our environmental partners in real-time.
All owners and hospitality staff will be shuttled to the resort and back from George Town in our electric boats.
100% Electric.
225
126
30+ Knots
100% Electric.
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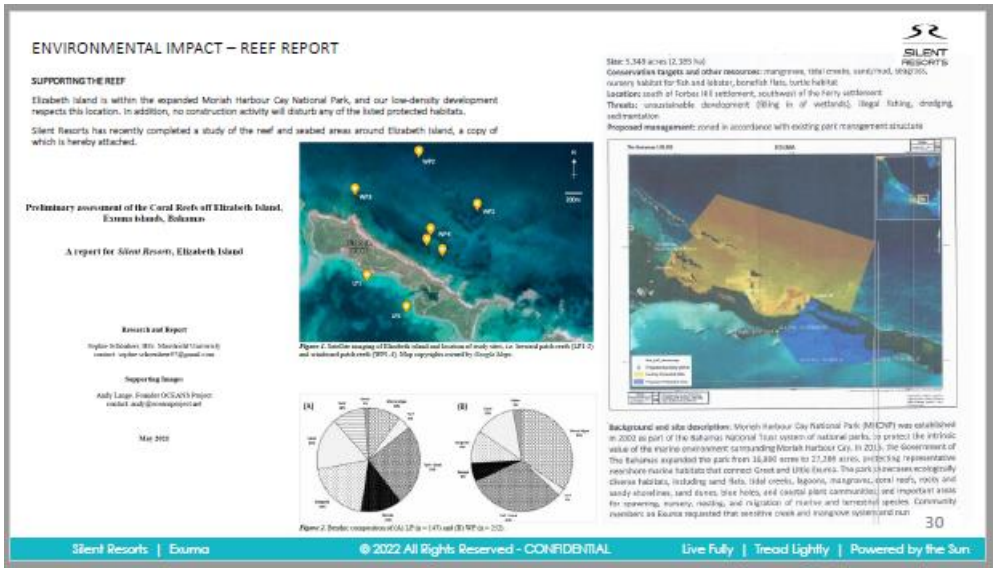
ENVIRONMENTAL IMPACT – REEF REPORT
SUPPORTING THE REEF
Elizabeth Island is within the expanded Moriah Harbour Cay National Park, and our low-density development respects this location. In addition, no construction activity will disturb any of the listed protected habitats.
Silent Resorts has recently completed a study of the reef and seabed areas around Elizabeth Island, a copy of which is hereby attached.
Preliminary assessment of the Coral Reefs off Elizabeth Island, Exuma Islands, Bahamas
A report for Silent Resorts, Elizabeth Island
Research and Report
Supporting Images
Andy Lange, Founder OCEANS Project
May 2022
Conservation targets and other resources: mangroves, tidal creeks, sandy/mud, seagrass, nursery habitat for fish and lobster, bonefish flats, turtle habitat
Location: south of Forbes Hill settlement, southwest of the Ferry settlement
Threats: unsustainable development (filling in of wetlands), illegal fishing, dredging, sedimentation
Proposed management: zoned in accordance with existing park management structure
Background and site description: Moriah Harbour Cay National Park (MHCNP) was established in 2002 as part of the Bahamas National Trust system of national parks, to protect the intrinsic value of the marine environment surrounding Moriah Harbour Cay. In 2013, the Government of The Bahamas expanded the park from 16,880 acres to 27,288 acres, protecting representative nearshore marine habitats that connect Great and Little Exuma. The park showcases ecologically diverse habitats, including sand flats, tidal creeks, lagoons, mangroves, coral reefs, rocks and sandy shorelines, sand dunes, blue holes, and coastal plant communities, and important areas for spawning, nursery, feeding, and migration of marine and terrestrial species. Community members in Exuma requested that sensitive creek and mangrove systems and man
30
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ENVIRONMENTAL IMPACT – SILENT CATCH
A FRESH APPROACH TO SUPPORT THE WORLD'S OCEANS
Silent Resorts will contribute 1% of all Ecoisland Bahamas sales revenues, plus an annual on-going contribution from resort operations to a newly formed local division for Silent Catch, the global non-profit initiative of Silent Resorts. The Silent Catch mission is to deliver innovative, scalable solutions with environmental, economic, and equitable impact in the world's fishing communities. The five-year sales projection for the Project would indicate a contribution of over $1,500,000, plus additional donations and funding from partners and international organizations.
Silent Catch will establish a dockside facility at George Town, with the goal of supporting the following activities:
• Mangrove Preservation & Education – Protect the mangroves of the Exumas and educate the public and developers of the importance of protecting existing mangroves and the benefits of enhancing their presence.
• Reef Protection and Restoration – Partner with organizations and government agencies dedicated to preserving Bahamas endangered reefs and fund the creation of new artificial reefs using the latest technology and techniques. To this end, Silent Resorts has already funded a study of the reef, seabed, and water conditions around Elizabeth Island, which can be seen on the previous slide.
• Local Fishing Fleet Electrification – The number one cost of going out to catch local fish is fuel and followed then only by the cost of maintaining gas and diesel engine in the harsh seaside environment. Silent Catch technology and infrastructure will support the electrification of the local and artisanal fishing fleet, for healthier, more sustainable, and more profitable fishing, and create a global example of excellence.
• Sport Fly Fishing Fleet Electrification – Silent Catch, in collaboration with International Fly-Fishing Associations and Clubs, will help fund and implement the use of all-electric boats for sport fly-fishing, to protect the pristine waters of the Bahamas.
• Silent Caught Premium Fish Marketing – Silent Catch will encourage the local fishing community and entrepreneurs to develop a local and international market for fish caught and processed using the all-electric artisanal fleet, and create a premium brand, "Silent Caught Bahamas" that will provide enhanced income for the local community.
The Silent Catch dockside facility at George Town is designed to fund the employment of the local team to manage the above services and provide free solar powered charging of the electrified fleet, and refrigeration to keep the catch fresh.
SILENT CATCH
Fisheries and Aquaculture in The Bahamas: A Review
Key Fisheries Sector Figures
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Annex – IV: Presentation by Christopher Russell (Russell Craig & Associates Ltd)

SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

ki'ama BAHAMAS

KI'AMA BAHAMAS PROJECT (EIA)
Elizabeth Island.
Gt. Exuma, The Bahamas

Presenter: *Christopher Russell - B.Sc. (Hons), MRRP, MBSE, FIMMM*

Environmental Consultant – Russell Craig & Associates Ltd

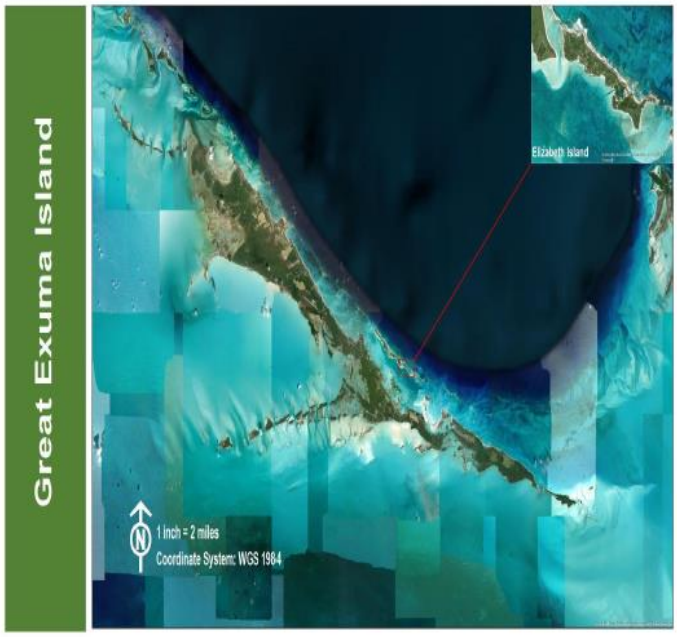
Date: *Tuesday, 29th November 2022*

Gt. EXUMA ISLAND & CAYS

(inset – Elizabeth Island)

Location:

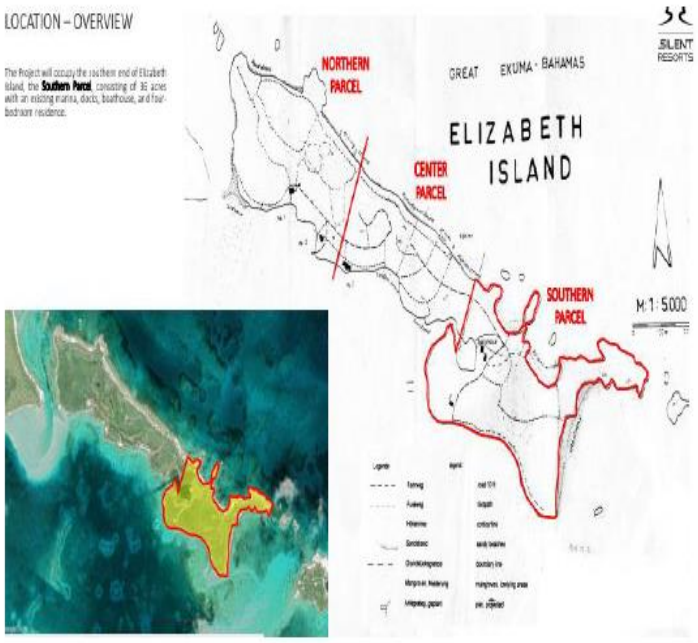
- NW of Guana Cay
- SW of Stocking Island
- E of Crab Cay
- 3 Miles due East of Georgetown Settlement.



Ki'ama Project Site

Location Overview

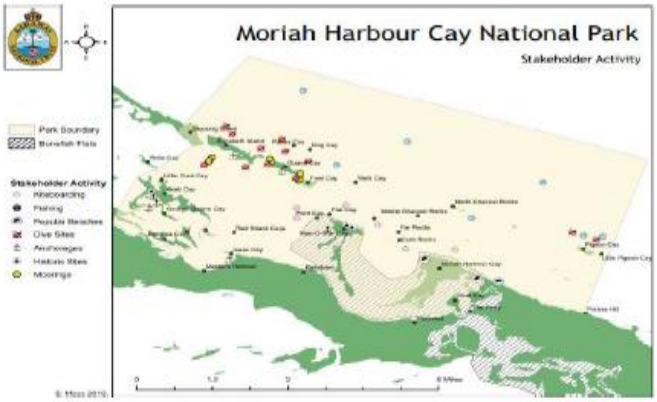
- Occupation of the Southern most Parcel – 36 acres



Ki'ama Project Site Elizabeth Island Location within MHCNP; (27,286 acres -2015) and associated stakeholder activities

Positioned: NW Corner MHCNP

- Dive Sites
- Moorings
- Anchorage
- Popular beaches
- Fishing
- Kiteboarding
- Historic Sites



Ki'ama Project Site – Elizabeth Island

PHYSICAL FEATURES

- Size – 36 acres
- Coordinates: Longitude: 75° 72'00' N, Latitude: 23° 30' 00 W
- Vegetative coverage (80 %) dominant Dry Broadleaved Evergreen species (DBEF)

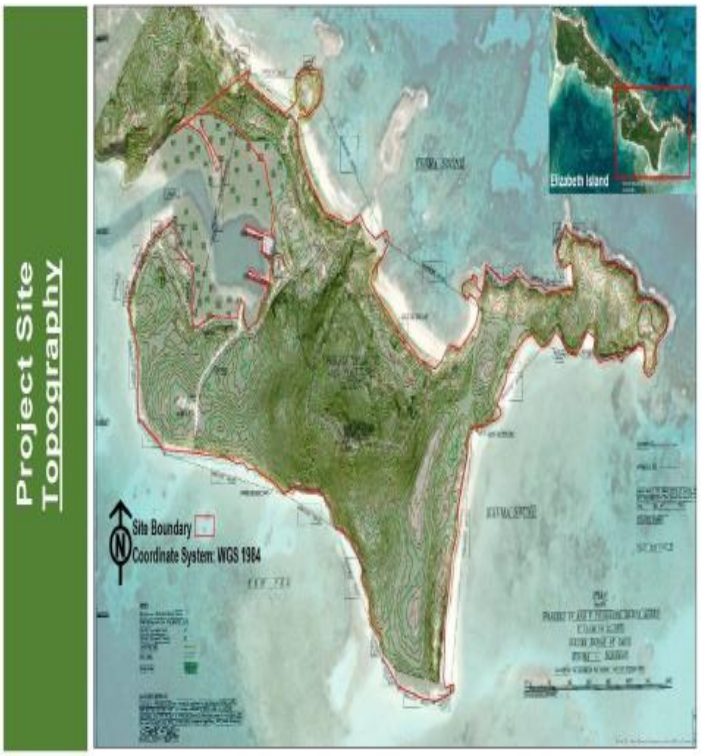
LAND USE DEVELOPMENT

- Undeveloped Land – 29.3 acres (81.8%)
- Developed Land – 6.6 acres (18.2%)

Ki'ama Project Site

Topography

- Maximum Terrain Height (asl – 70 feet)
- Low elevation Areas of depression – 3 areas at Eastern end (dominant Silver Buttonwood formation)
- Rocky shoreline (Northeastern, Southern and Southwestern portions of property boundary)
- Sandy Beach Strand Dunes (North & Eastern portion of property)
- Red Mangrove Formation (Natural coastal lagoon Northwestern portion of property)



Ki'ama Project Site

Existing Structures

(Western Portion of site)

- A Club House
- 4-bedroom Residence
- 2 Floating Dock
- A Diesel Generator House

Ki'ama Project Site

Hydrogeology and Soils





(GEOLOGY AND SOILS)

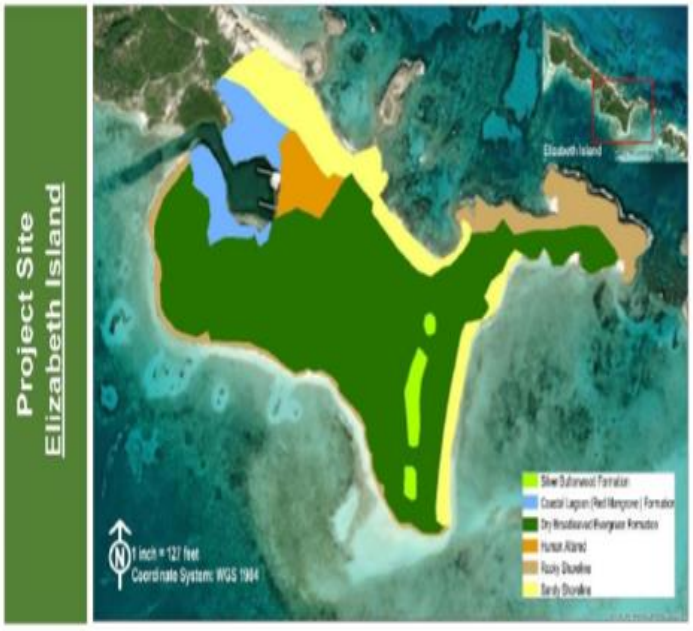
- Typical surface limestone solution feature
- Typical fractured (Suture) limestone rock
- Sand coastal dune ridge situated on fractured limestone base
- Foreshore outcrop of coral-limestone rock
- Oolitic sand coastal dune ridge situated over limestone base.

(WATER Resources)

- Limited fresh to brackish water exist, but not suitable for proposed development
- Groundwater onsite salinity range 1,500-mg/L (fresh) based on WHO Drinking water guidelines
- Rainfall – natural means of recharge of freshwater.

Ki'ama Project Site

Natural Environment (Terrestrial Ecosystems)



- **Vegetation Types**
  - Coastal Lagoon (Red Mangrove) Formation (Coastal Wetland)
  - Silver Buttonwood Formation (interior Wetlands - seasonal)
  - Dry Broadleaved Evergreen Formation (Interior Upland)
  - Rocky Shoreline
  - Sandy (Beach Strand) Shoreline
  - Human Altered

Ki'ama Project Site

Terrestrial Ecosystems cont'd

- Rocky outcrops (Sandy Bush, Mosquito bush) – facing East (N – end)
- Sandy Beach Strand (Bay cedar, Sea purslane species) – East end, facing North
- Sand dune ridge vegetation (sea oats and sea grape species – facing East;
- Sand dune ridge (Bay Geranium and Bay lavender species), facing West

Ki'ama Project Site

Terrestrial Ecosystem cont'd

- **Wetland Formations**
  - Coastal (Red Mangrove) Lagoon Formation – facing East on Entrance to lagoon.
  - Red Mangrove Formation, facing South (part of Coastal Lagoon system).
  - Silver Buttonwood Formation in background (seasonal wetland), extending to the Coastal sand dune (Seagrape Species), facing South.

Ki'ama Project Site

Terrestrial Ecosystem cont'd

- Dry Broadleaved Evergreen Formation (DBEF) (Interior Upland)
  - Dominant Species: Joewood, Gum Elemi, Lignum Vitae, Bahama sagebush, Touch-me-not, Silver thatch palm, seven-year apple, strong back, pigeon plum, buttonwood,, Longleaf blolly.

Ki'ama Project Site

Summary of Botanical Survey and Findings

- Ninety-four (94) species of vascular plants identified – a fair representation of the species diversity of project site.
- Nineteen (19) vascular plants were identified as Protected, under the Forestry (Declaration of Protected Trees) Order, 2021
- Two Invasive Species identified (Australian pine and Hawaiian sea lettuce).
- Status:
  - EET – Endemic, Endangered or Threatened
  - CHE – Cultural, Historical and Economic

Botanical Name	Common Name	Status
Agave millspaughii	No known common name	EET
Bursera simaruba	Gum Elemi	CHE
Cocothrinax argentata	Silver top palm	CHE
Conocarpus erectus	Silver Buttonwood	CHE
Guaiacum sanctum	Lignum vitae	CHE
Guapira discolor	Beefwood	CHE
Ipomea-pes-caprae	Railroad vine	CHE
Jacquinia keyensis	Joewood	EET
Lantana demutata	Bahama sagebrush	CHE
Lysiloma latisiliquum	Wild Tamarind	CHE
Peltophorum adnatum	Sarah's Toe	CHE
Pseudophoenix sargentii	Buccaneer palm	CHE
Scaevola mangle	Inkberry	CHE
Senna chapmanii	Stinking pea	CHE
Turnera ulmifolia	Bahamian buttercup	CHE
Uniola paniculate	Sea oats	CHE
Avicennia germinans	Black Mangrove	CHE
Laguncularia racemose	White Mangrove	CHE
Rhizophora mangle	Red Mangrove	CHE

Ki'ama Project Site

Summary of Avian survey and Findings

- All birds are protected under the Wild Birds Protection Act, 1952
- Classification using IUCN categories
- Nine (9) species recorded during summer survey
- Eleven (11) species recorded during winter survey.
- One Endemic species (Bahama woodstar)
- Birds were mostly Permanent Resident Breeding (PRB) – nine (9) species
- Winter resident Non-breeding (WRN) – one species (Belted King Fisher)
- Summer Resident Breeding (SRB) – one species (Antillean nighthawk)

Ki'ama PROJECT Site

Avian Survey findings

- Endemic Bahama Woodstar

TABLE KEY		
Range	Status	Habitat
PRB = Permanent Resident Breeding	LC = Least Concern (Conservation – IUCN)	FW = Freshwater
WRN = Winter Resident Non-Breeding	NT = Near Threatened (Conservation – IUCN)	IU = Interior Upland
SRB = Summer Resident Breeding	E = Endemic	HA = Human Altered
	I = Introduced	FO = Fly Over
		CS = Coastal Shore
		RS = Rocky Shore
		SS = Sandy Shore
		TF = Tidal Flats
		W = Wetlands
		S = Saline

Scientific Name	Common Name	Range	Status	Observation (Summer Session - 2022)	Habitat 2022	Observation (Winter Session - 2022)	Habitat 2022 Observation
West Indian whistling duck	Dendrocygna arborea	PRB*	NT	F	W	-	-
White-crowned pigeon	Patagioenas leucocephala	PRB	NT	M	FO/IU	F	FO
Common ground dove	Colombina passerine	PRB	LC	M	HA/IU	M	HA/IU
Antillean nighthawk	Chordeiles gundlachii	SRB	LC	F	HA/SS	S	HA/SS
Bahama woodstar	Nesophlox evelynae	PRB/E	LC	S	IU	S	IU
Laughing gull	Leucophqeus atricilla	PRB	LC	M	HA/FO	M	FO
Bananaquit	Coereba flaveola bahamensis	PRB/e	LC	F	IU/HA	F	IU/HA
Bahama Mockingbird	Mimus gundlachii	PRB	LC	.	-	S	IU
Black Crown Night Heron	Nyctocorax nyctocorax	PRB	LC	-	-	F	W
Belted King Fisher	Megaceryle alcyon	WRN	LC	-	-	F	W
Thick-billed vireo	Vireo crassirostris	PRB/e	LC	F	IU/HA	F	IU/HA
Roseate tern	Sterna dougallii	PRB	LC	M	FO	M	FO
TOTAL SPECIES				9		11	

Ki'ama Project Site

Biodiversity Assessment

Abundance: *S – Single; F - Few; M - Many*

Common Name	Scientific Name	Abundance
Yellow Butterfly	Colias sp.	M
Monarch Butterfly	Danaus phexippus	M
Black Dragon Fly	Trames sp.	M
Lion Lizard	Leiocephalus sp.	M
Bark anole	Anolis distichus	M
Brown Moth	Cissusa asp.	F
Golden silk spider	Trichonephila clavipes	F
Soldier Crabs	Mictyris sp.	M
Money Bats (Black witch moth)	Ascalapha odorata	S
White Land Crabs	Cardisoma guanhumi	M

Ki'ama Project Site

Environmental Impacts (Qualitative Criteria)

Site Preparation and Infrastructure Development

Qualitative Criteria	Choices	Description
Nature	Direct	➢ Direct impact on 1.0 acre for new road infrastruc areas. Roads will be of local stone construction a permeable local sand/gravel mix. No concrete will be
TYPE	Positive	➢ With loss of some protected species (broadleaved), site preparation will be positive.
		➢ Protected species will be relocated where fea preserve areas, and within landscaped area, which will improve wildlife habitat. Applicatio harvest protected trees will be made to the Forest of the Environment and Natural Resources.
	Negative	➢ Only 1.0 Acre of upland vegetation will be l construction.
Likelihood	Certainty	➢ Impacts and benefits will be the result once acti completed
Scale	Habitat – broadleaved evergreen forest.	➢ Positive impacts and better health of upland vegetat
	Island Environs	➢ Coastal strand and dune communities are not impact
		➢ Removal of Invasive Species (Australian Pine – Hawaiian scaevola), will reduce seed sources on the
Duration	Long Term	➢ It is anticipated native plant communities will be upland area of impact
Reversibility	Irreversible	➢ Natural ecological processes will be restored.
Overall Significance	Negligible	➢ Impact barely visible in context. No dredging environment. Existing stage areas will be used fo offloading of materials, equipment, and supplies. Si not altered to any significant extent.

Ki'ama Project Site

Environmental Impacts (Qualitative Criteria)

Solar residences, Club House & Swimming Pools

Qualitative Criteria	Choices	Description
Nature	Direct	➢ Direct impact on 4.5 (9.8%) acres on upland vegetation (inclusive of select protected species) and wildlife habitat.
		➢ Indirect impact on adjacent marine environment avoided due to intact coastal strand and dune communities.
TYPE	Negative	➢ Loss of some protected species (broadleaved) and potential loss of habitat for wildlife species
Likelihood	Certainty	➢ Impacts will occur
Scale	Habitat – broadleaved evergreen forest.	➢ Upland broadleaved species (inclusive of select protected species) will be loss. Relocation of protected species is recommended where practicable.
	Island Environs	➢ Removal of Invasive Species (Australian pine – casuarina), and (Hawaiian sea lettuce), will reduce seed sources on the island
Duration	Temporary	➢ If relocation plan for selected protected species is implemented
Reversibility	Irreversible	➢ If site allowed to sit, and soil erosion occurs, the risks of invasive species being established is increased.
Overall Significance	Negligible	➢ Impact barely visible in larger context of total area of project.

Ki'ama Project Site

Environmental Impacts (Severity of Impact Criteria)

Factor	Severity of Impact	Impact Description
Terrestrial	1	➢ Removal of vegetation (i.e., dry broadleaved evergreen species, including selected protected trees species) ➢ Road infrastructure (1.0 acre) (limited to 12 feet in width) and ➢ Solar residences - resulting in the loss of vegetation (4.5 acres in total – 12.6% of total area of project).
Biodiversity (wildlife)	1	➢ footprint of the project development (6.5 acres – 18.2% of total – one residence per 1.28 acres – 28 residences in total), ➢ Associated biodiversity (i.e., land animals, birds nesting sites) displacement impact is very low
Avifuana	1	➢ Noise levels generated by project activities may deter birds from utilizing sites temporarily.
Visual and Aesthetics	3	➢ Construction of residences, etc. will enhance the visual and aesthetics of project, given the low density of the residences and their locations.
Coastal	1	➢ The coastal environment (beach strand vegetation and sand dune formations) will not be impacted by project activities ➢ No construction will occur on dunes or wetlands. ➢ No dredging of marine environment. ➢ Existing staging areas (RO/RO) and floating marinas will be used.

Ki'ama Project Site

Environmental Impacts (Severity of Impact Criteria)

Hydrological	1	➢ Improper use of hazardous waste on project site can pollute groundwater resources. ➢ Ground aquifers will not be used as a source of potable water ➢ Use of R/O facility for project, the likelihood of saltwater intrusion from over-extraction will not arise.
Erosion/Sedimentation	1	➢ Road construction, and drilling of foundational footing (point-load piers) for residences, can potentially cause some soil erosion and sedimentation at these footings. ➢ Buildings being elevated from ground level the risk of higher levels of erosion is minimized, as such, the current drainage and runoff characteristics will not be changed.
Air Quality	3	➢ Construction and associated equipment use can generate significant volumes of dust that impair the air quality, and impact human health. ➢ Appropriate and adequate management techniques to reduce impact to human health.
Noise	3	➢ Noise levels tend to rise during construction activities, that disturb birds and animal species. ➢ Birds are likely to be displaced and leave the area, particularly where there nesting sites are disturbed. ➢ Human health is impacted by elevated noise levels. According to the CDC (2019), prolonged loud noise level exposure above 70dB may cause hearing damages.
Solid & Hazardous Waste	1	➢ Solid waste that is not adequately disposed of can be an eyesore. ➢ Hazardous waste can pose a threat to wildlife, and human health through attracting pests which are disease vectors. ➢ Hazardous waste not properly managed can also result in penetration into the soil, groundwater resources and marine environment (pollution).

Ki'ama Project Site

Environmental Impacts (Severity of Impact Criteria)

Occupational Health and Safety	5	➢ Risks of workers not wearing protective personal equipment (PPE). ➢ Risk is high for the improper use of equipment and materials and non-compliance to standard safety protocols and procedures. ➢ Physically damages and potential loss of human lives. ➢ Risk of workers contracting covid-19 is high where workers are in close proximately to each other.
Fire & Hurricane	5	➢ Existing site consists of dry broadleaved evergreen formations, and silver thatch palms, with leaf litter and provide fuel in the event of a fire. ➢ Risk for fires is likely to increase, especially when fires are intentionally lit, not controlled, or managed properly. ➢ The risk of the project site being affected by a hurricane during hurricane season in any given year is relatively high. Hence the need for a Hurricane Preparedness and Recovery Plan.
Land Use	1	➢ Existing land use for the project site is residential. ➢ Project will require limited land use and removal of minimal natural vegetation. ➢ The project will afford the increase from one existing residence to a maximum of 28. Hence a low density of one residence for every 1.28 acres.

Ki'ama Project Site

Environmental Impacts (MHCNP – BNT Management)

- No NEGATIVE IMPACT of Project activities on the MHCNP
  - No dredging of marine environment
  - Use of 2 existing floating docks for electric & silent yachts berthing
  - No sedimentation and soil erosion or runoff
- BNT Management Objectives
  - Conservation Zone
    - Administration
    - Camping
    - Day Use Areas
  - Sensitive Resources Zone (marine area between Elizabeth Island and Guana Cay
- Project activities complement BNT management objectives for the MHCNP, and not adverse

Ki'ama Project Site

Mitigation Measures

Factor	Mitigation Measures
Terrestrial	➢ Relocation of protected species identified within the footprint of the new road reservations and residences prior to construction activities. ➢ Expansion of existing nursery site to accommodate staged removed protected trees, and for propagation of additional protected trees and native flowering plants. ➢ Removal of invasive casuarina species Australian Pine (Casuarina equisetifolia) and Hawaiian sea lettuce (Scaevola taccada) from Human altered area and along the coastal areas. ➢ Plant native, flowering plants, and endemic species in human impacted areas ➢ Maintain the existing vegetation (80% plus coverage) to function as wildlife corridors.
Biodiversity	➢ The proposed footprint for the new road reservation is estimated at ½ acre in total area. The replanting of impacted flora and fauna habitats with native flowering and protected species within landscaped areas, and the avoidance of mangrove removals (particularly along the Red Mangrove Lagoon Formation area) by realignment of road reservation away from wetlands would offset any flora associated with the new access roads. ➢ Selective clearing of vegetation for road construction and building footprint (footing piers), rather than use of bulldozers. ➢ The expanded nursery will propagate the four protected mangrove species (red, white, black and buttonwood), should the need arise to reestablish any areas of mangroves impacted, along any coastal wetland suitable for mangrove restoration
Avifuana	➢ Replanting of indigenous plants (protected species, native flowering plants, and fruit trees) used by fauna as food sources, within landscape areas for residences. ➢ Existing natural vegetation corridors along road reservations will be maintained with the intention to attract resident and migratory birds' species. ➢ Adequate natural vegetation areas exist (80 plus % of total landscape) and adequately supports the avian life on project site, whereby birds can forage and roast. ➢ Protected trees identified along areas subject to construction activities will be flagged for removal and replanting within landscape areas (Obtain permit from the Forestry Unit),

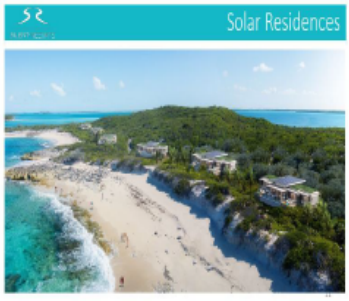
Ki'ama Project Site

Mitigation Measures

Factor	Mitigation Measures
Visual and Aesthetics	➢ Proper management and timely disposal of solid waste. ➢ Ensure land clearing is keep to a minimum (footprint of buildings). ➢ Use only native and endemic plant and tree species within landscaped areas of the development.
Coastal	➢ Regularly maintain existing beach stand and dune vegetation along beaches and rocky coastline. ➢ Timely removal of invasive Australian pine and Hawaiian sea lettuce plants
Hydrological	➢ The use of appropriately design R/O facility would avert any possible contamination of existing groundwater resources. ➢ R/O plant being proposed is an innovation, in minimizing the salinity of the brine by running on a lower recovery ratio. Brine effluence will be disposed of via deep well injection ➢ Adequate fuel and chemical management practices on site would ensure ground water resources are not negatively impacted.
Erosion/Sedimentation	➢ Manual land clearing of building and roads footprints limiting the solid waste generation ➢ Existing footpaths will be enhanced and properly graveled. ➢ Protective handrails will be erected in areas of steep incline, to ensure safety of residents and visitors when navigating the landscape, reducing likelihood of soil and sediment erosion.
Air Quality	➢ Employment of best management practices with regards to construction methods, to minimize emission of dust that can impair air quality. ➢ Maintain construction equipment to ensure air quality is not impaired.

Ki'ama Project Site

Mitigation Measures



Factor	Mitigation Measures
Noise	➢ Workers will wear appropriate PPE (i.e., earplugs or earmuffs). ➢ High Noise levels will cause animals and birds to migrate elsewhere, however once construction activities are completed the animals and birds will return.
Solid and Hazardous Waste	➢ Solid and any hazardous waste will be placed in containers for proper disposal to mainland landfill. (DEHS standards) ➢ Vegetation removed will be reused/mulched for landscaping purposes ➢ Invasive species removed to avoid inadvertent spread to other parts of the Island.
Fire and Hurricane	➢ Fire Control and Prevention Plan will detail steps to contain and control the outbreak of fires during construction and operations (including use of fire breaks). ➢ All residences will follow fire requirements of the Building code ➢ Hurricane preparedness and Contingency Plan will be developed to include evacuation protocols, emergency and health provisions and recovery strategies.
Occupational Health and Safety	➢ Workers to wear appropriate PPE and provided proper training in handling of equipment ➢ Regular (weekly) enforcement of occupational health safety protocols. ➢ Adherence to current covid-19 protocols

Ki'ama Project Site

Mitigation Measures

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THANK YOU!!