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 (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

Ki'ama Bahamas is a best-in-class, sustainable resort community that at full buildout will achieve the following:

- Create the world's first **fully sustainable, zero carbon, solar-powered residence and yacht resort community**
    - **36 Acres on Elizabeth Island, a private island in Elizabeth Harbor**
        - Two-acre protected marina
        - Six private beaches
    - **Ki'ama** – shared and whole ownership of solar-powered residences & yachts
        - Twenty-eight residences
        - Eight solar-powered Silent-Yachts
        - Beach Club with oceanfront restaurant, fitness room, game room, and pool
        - Oceanfront Spa and spa pool
        - Electric day boats
- **Employment -** employ Exuma locals
    - **Employ 40 to 50 Bahamian construction workers for three to four years,**
    - **70 to 85 Bahamian resort employees at completion**

- **Lowest environmental impact** of any development in the Caribbean → Develops only 18% of its property
- **Contribute 1% of each sale to Silent Catch,** a local non-profit, to support sustainable fishing, local culture, reef restoration, and mangrove preservation

- 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.

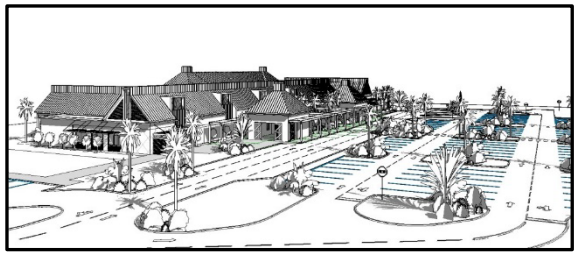
LOCATION – ISLAND ACCESS

Ki'ama 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

EXUMA AIRPORT EXPANSION

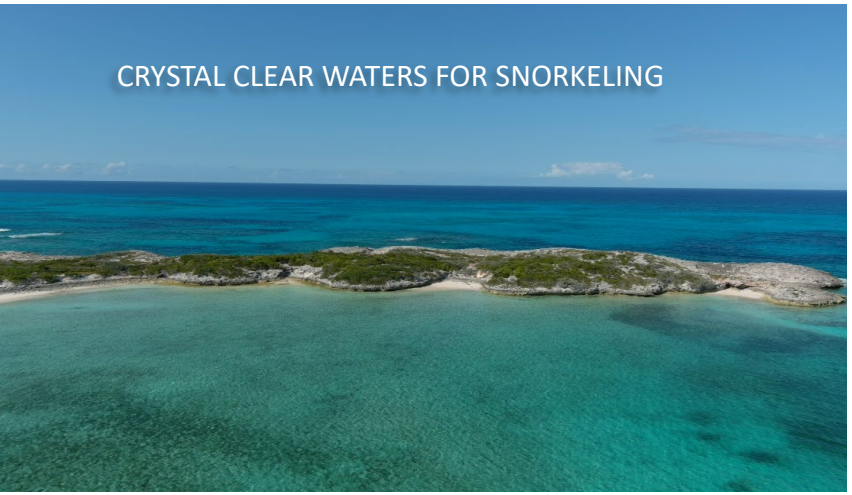


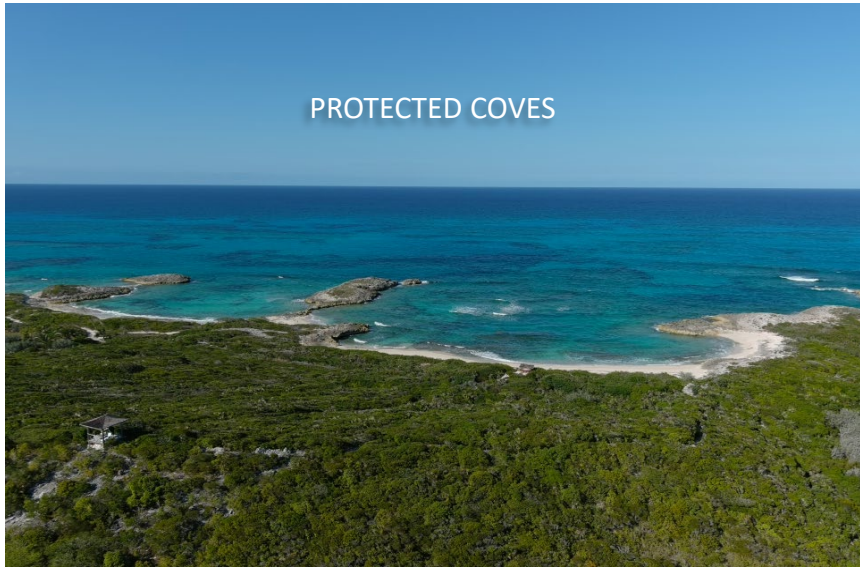
CHAT 'N CHILL

STOCKING ISLAND

GEORGE TOWN

LOCATION – ISLAND PHOTOS





LOCATION – ISLAND PHOTOS

LAND REQUIREMENTS AND MASTERPLAN

The Kiama Bahamas masterplan provides for a maximum of 28 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 140 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.

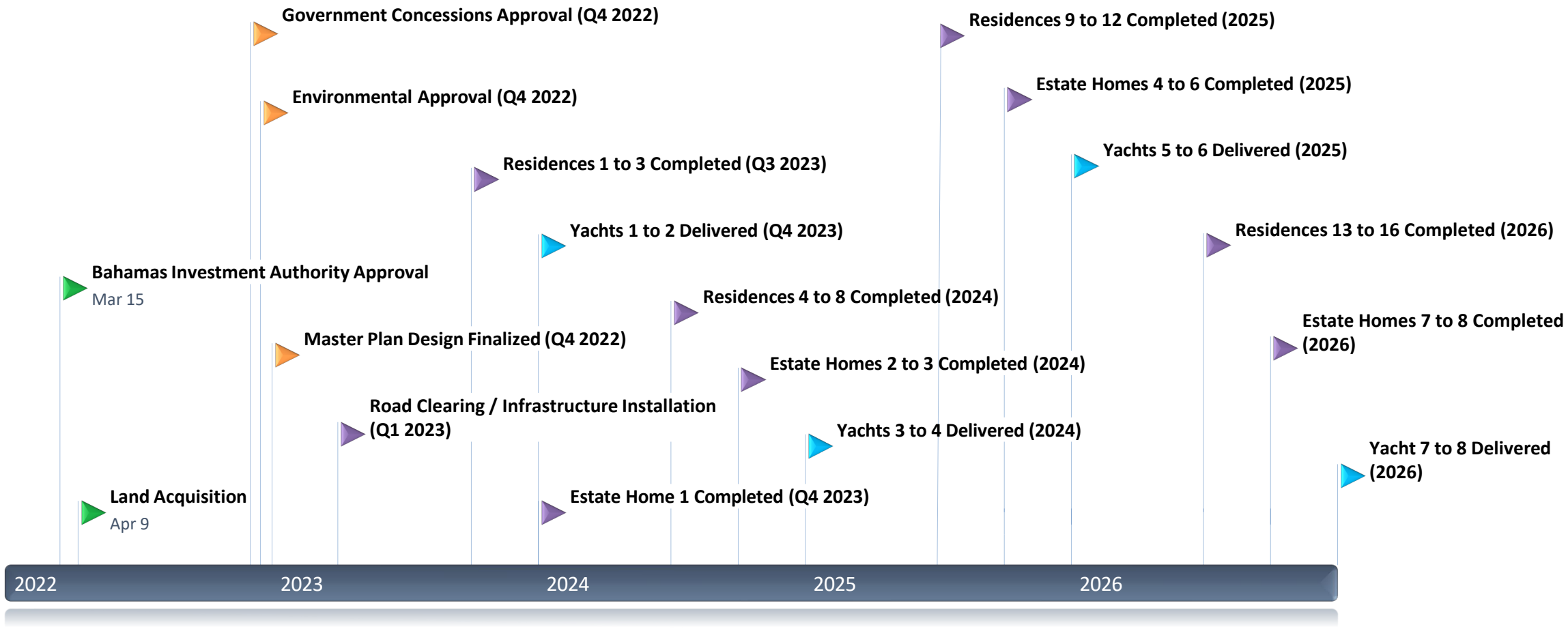
No excavation or filling of any areas is planned, and all natural drainage corridors and aquifer recharge areas will be left undisturbed. There is no construction activities of any kind within the coastal, beach, or mangrove zones.

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.

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%**

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.

ANTICIPATED DEVELOPMENT TIMELINE



LOW-DENSITY, LOW-PROFILE RESIDENCES SET IN THE NATURAL ENVIRONMENT

DESIGN THAT PROTECTS THE BLUFFS AND NATURAL BEAUTY

Silent Resorts' Environmental Impact Mitigation Plan for Ki'ama 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 its 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 structural timber 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 property 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

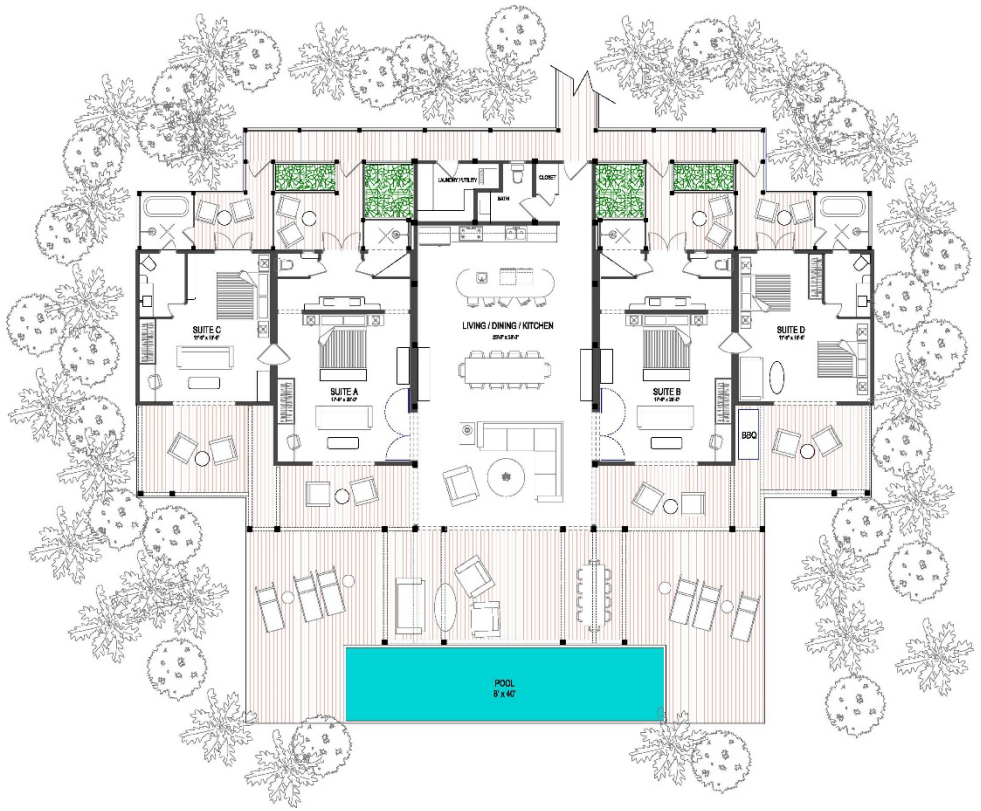
SAVE 2,000 Tons of Carbon Emissions per Year

SUSTAINABLE DESIGN

RESIDENCE DESIGN

The Club Ki'ama 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.



SUSTAINABLE DESIGN

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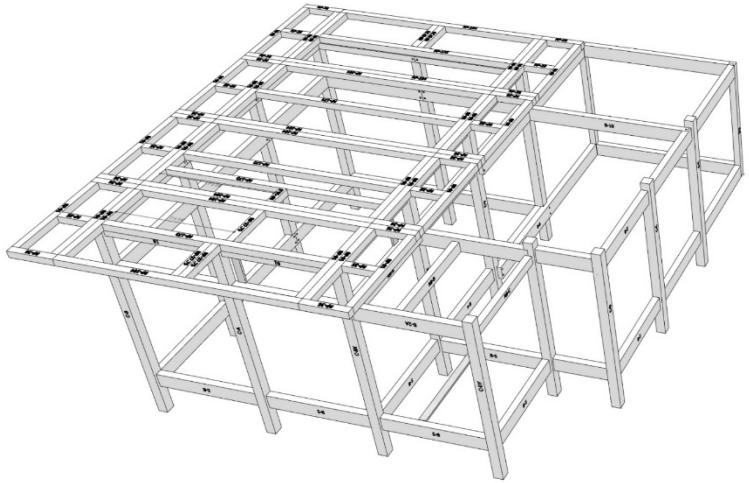
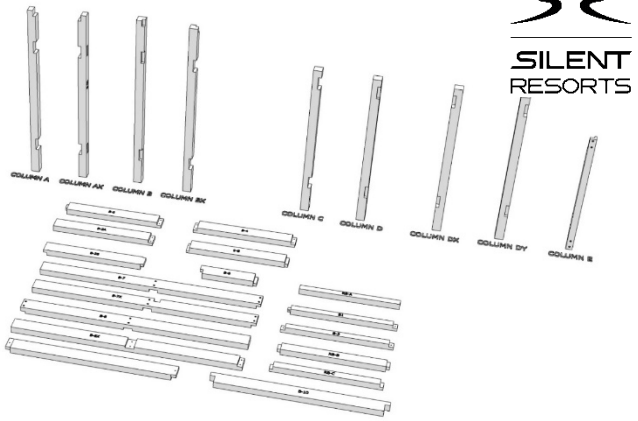
SUSTAINABLE DESIGN

SUSTAINABLE CONSTRUCTION & INFRASTRUCTURE





SUSTAINABLE HARVEST TROPICAL HARDWOOD HEAVY TIMBER CONSTRUCTION

Club Ki'ama residences and other structures will be built using Silent Resorts' unique pre-engineered modular system:

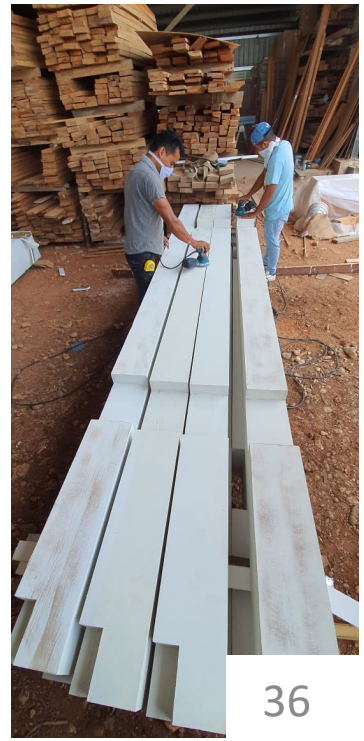
- Proven system utilizing sustainable harvest hardwood timber
- Near zero construction waste on site
- Controlled cost and build schedule
- Efficient use of skilled on-site labor
- Our structural timber residences store over 264,000 pounds (132 tons) of carbon each, the equivalent of what would be released by burning 46,200 litres of diesel.
- Upon completion, Ki'ama 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 Ki'ama 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 remove 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.



SUSTAINABLE CONSTRUCTION & INFRASTRUCTURE

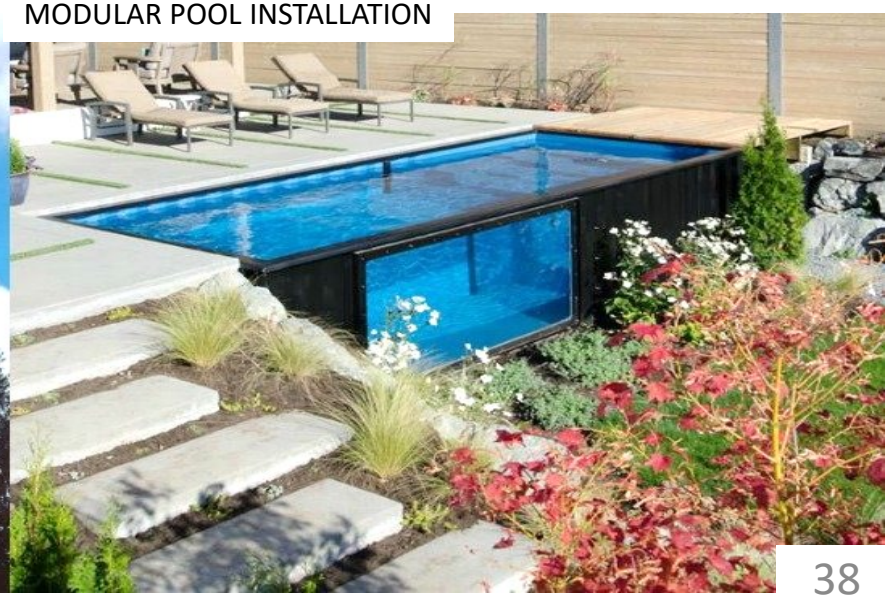
MINIMIZING THE USE OF CONCRETE

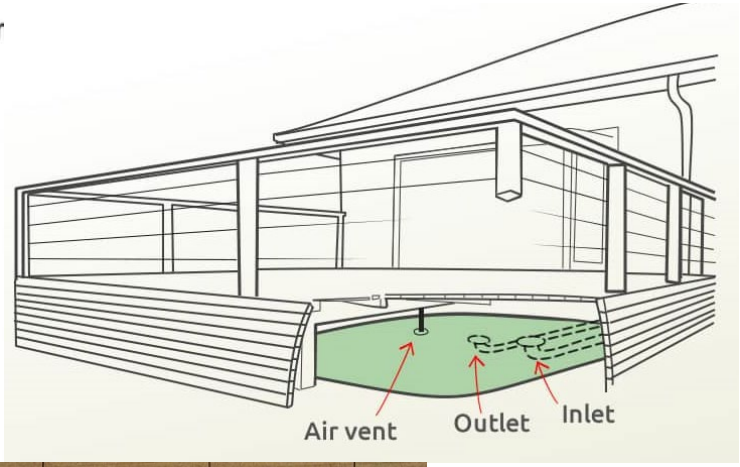
The traditional construction of pools uses lots of concrete; needs extensive foundations, excavation, and steel reinforcement; and produces lots of construction waste.

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





SUSTAINABLE CONSTRUCTION & INFRASTRUCTURE

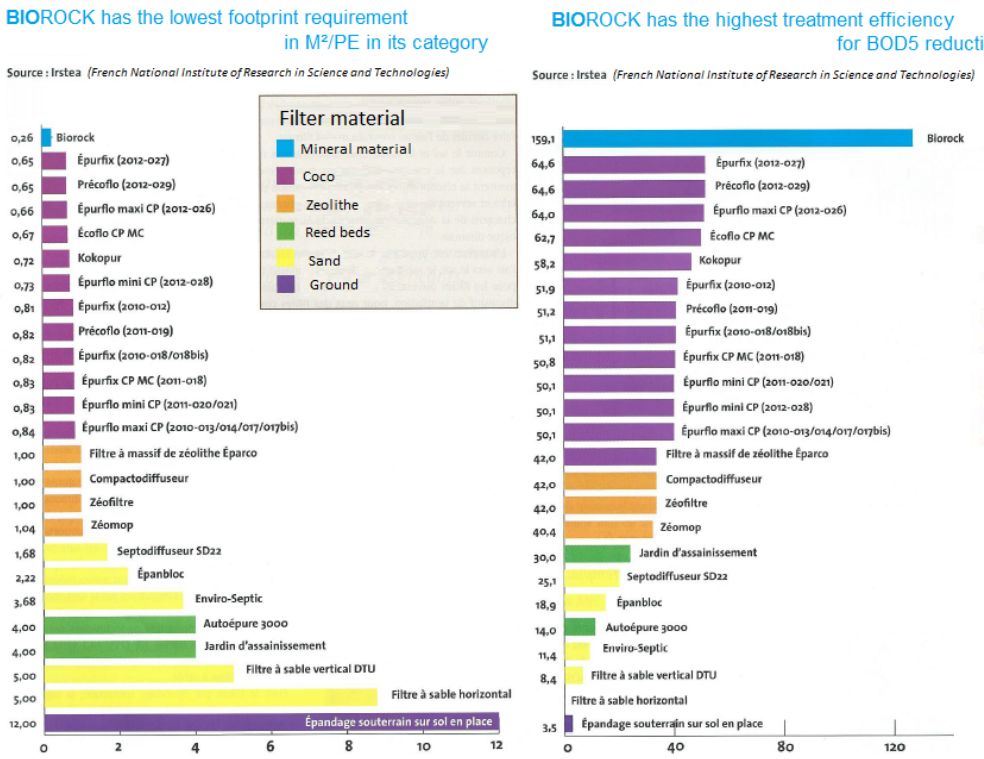
ZERO POWER ADVANCED WASTEWATER TREATMENT SYSTEM

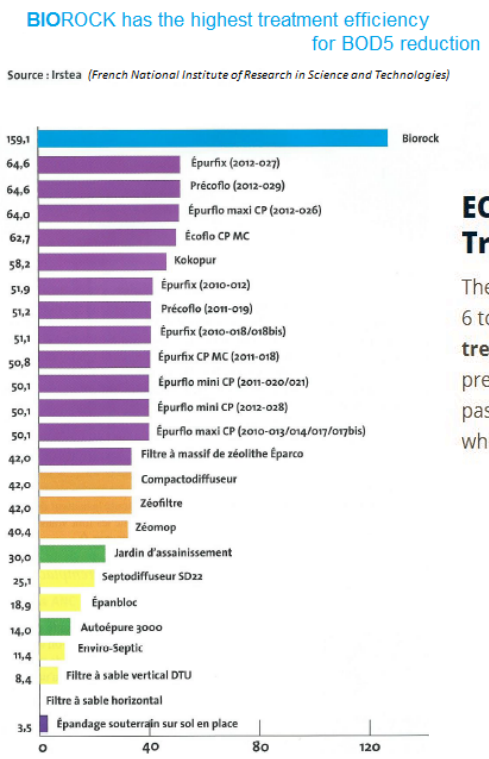
The BIOROCK system used throughout our development is totally silent and odorless, calls for minimal annual maintenance, and is barely visible. The resulting water is 100% recycled for irrigation of landscape and organic gardens.

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.



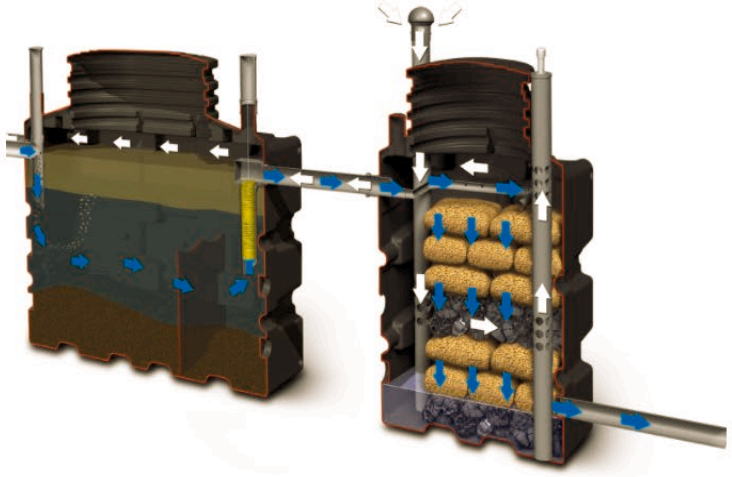


THE COST SAVING WASTEWATER TREATMENT SOLUTIONS

BIOROCK offers a unique, innovative solution to eco-friendly water treatment. With the industry's lowest operational costs and longest emptying intervals, BIOROCK is a valuable, worthwhile investment for your home or establishment.

ECOROCK, A Non-Electric Two Stages Wastewater Treatment Plant

The ECOROCK unit is a small-sized wastewater treatment plant that caters from 6 to 30 persons application. The ECOROCK-system functions **as a two-stages treatment plant**. The raw sewage first enters a Primary tank to provide preseparation and initial breakdown of organic solids. The wastewater then passes through an effluent filter before discharging into the BIOROCK unit itself which incorporates the aerobic filtration process.

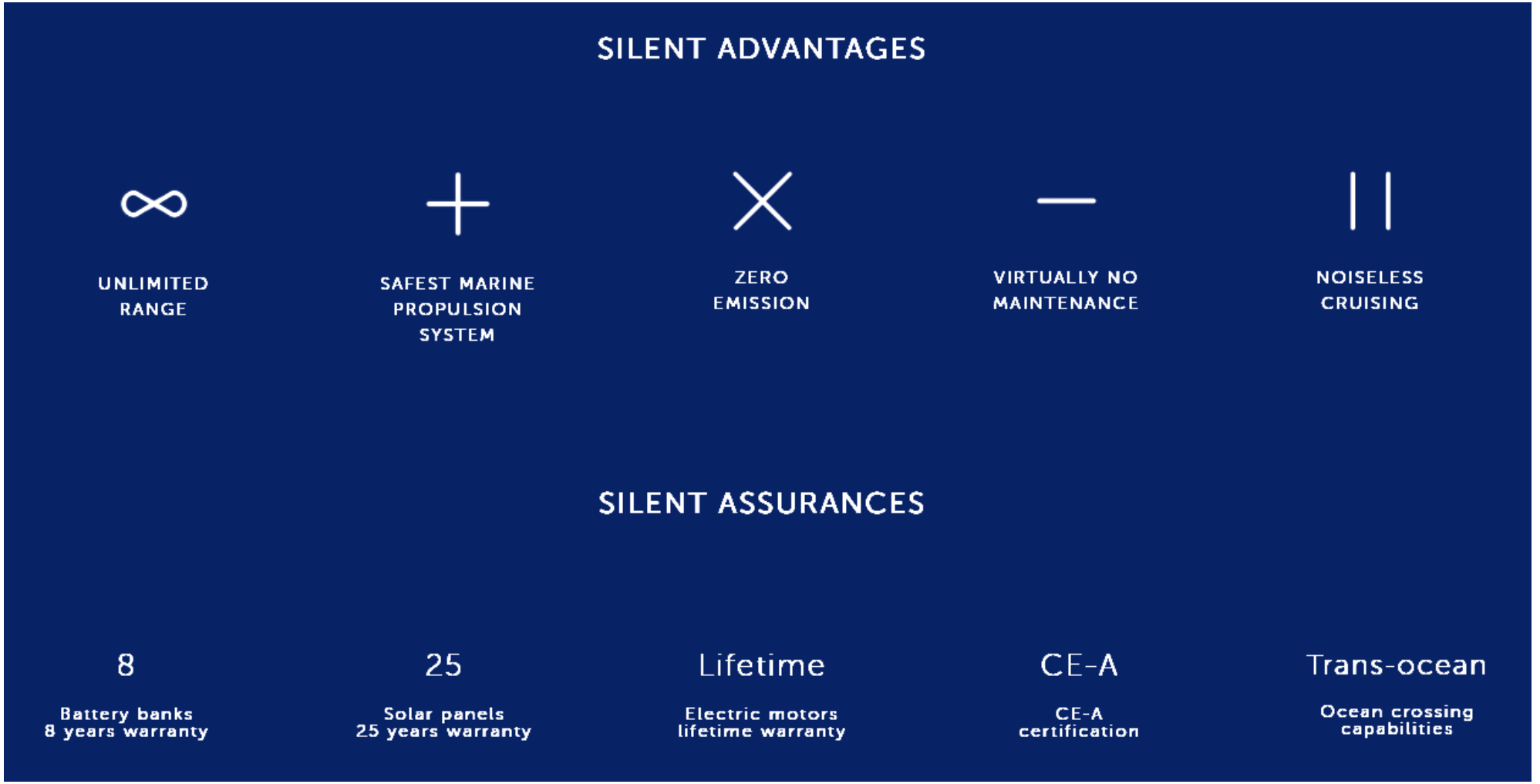


ZERO EMISSIONS LUXURY YACHTING

Club Ki'ama 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.

Club Ki'ama owners and guests will be able to explore the Bahamian waters in silence, luxury, and completely fossil fuel free.

Club Ki'ama will have an international fleet of eight to ten Silent-Yachts, both 60- and 80-foot models, for charter use in the Bahamas.



THE SILENT 60 LUXURY SOLAR CRUISER

SILENT-YACHTS AND ELECTRIC BOATS

THE SILENT 80 SUPER YACHT SOLAR CRUISER

SILENT-YACHTS AND ELECTRIC BOATS

THE X SHORE ALL-ELECTRIC DAYBOAT

Club Ki'ama's first X Shore is the first all-electric boat in the Bahamas. 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 Club Ki'ama 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 Silent Resorts' 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.

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.

Preliminary assessment of the Coral Reefs off Elizabeth Island, Exuma islands, Bahamas

A report for *Silent Resorts*, Elizabeth Island

Research and Report

Sophie Schönherr, BSc. Maastricht University
contact: sophie.schoenherr97@gmail.com

Supporting Images

Andy Lange, Founder OCEANS Project
contact: andy@oceansproject.net

May 2021

Figure 1. Satellite imaging of Elizabeth island and location of study sites, *i.e.* leeward patch reefs (LP1-2) and windward patch reefs (WP1-4). Map copyrights owned by *Google Maps*.

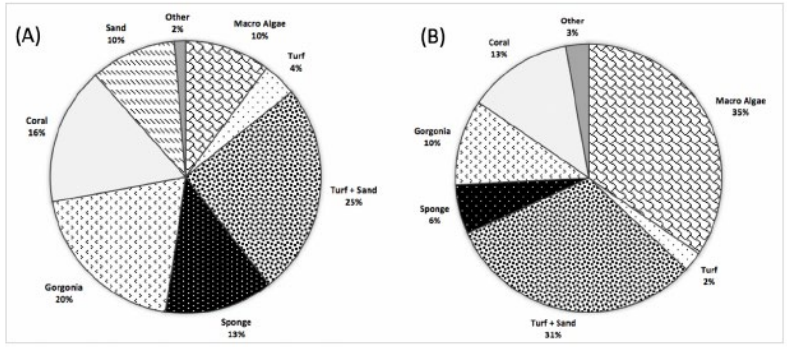
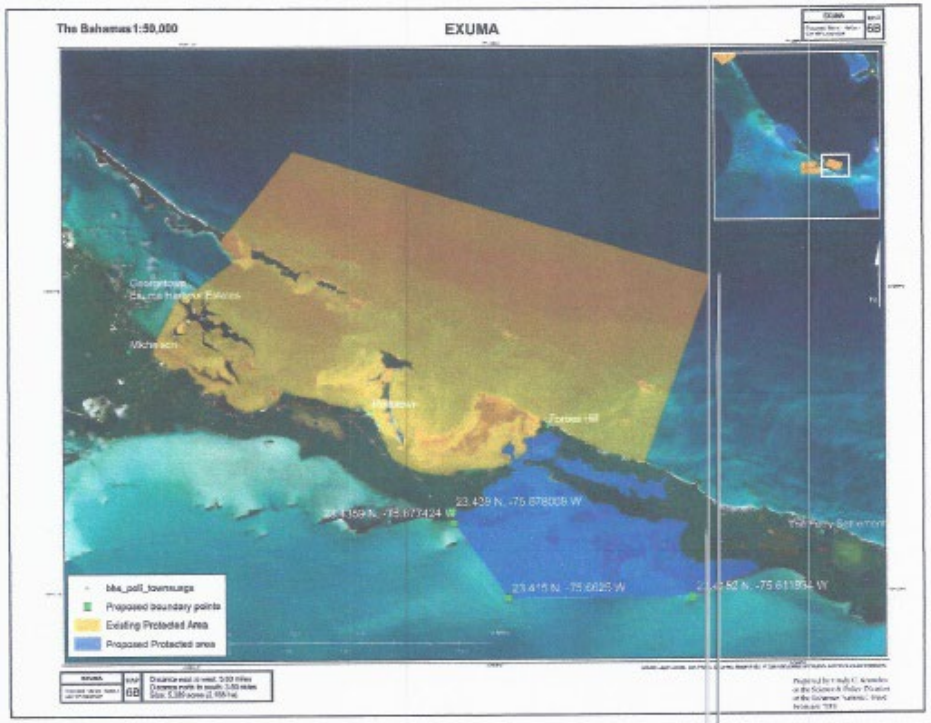


Figure 2. Benthic composition of (A) LP (n = 147) and (B) WP (n = 252).

Size: 5,349 acres (2,165 ha)
Conservation targets and other resources: mangroves, tidal creeks, sand/mud, 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 2015, the Government of The Bahamas expanded the park from 16,800 acres to 27,286 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, rocky and sandy shorelines, sand dunes, blue holes, and coastal plant communities; and important areas for spawning, nursery, nesting, and migration of marine and terrestrial species. Community members on Exuma requested that sensitive creek and mangrove system and nurs

A FRESH APPROACH TO SUPPORT THE WORLD'S OCEANS

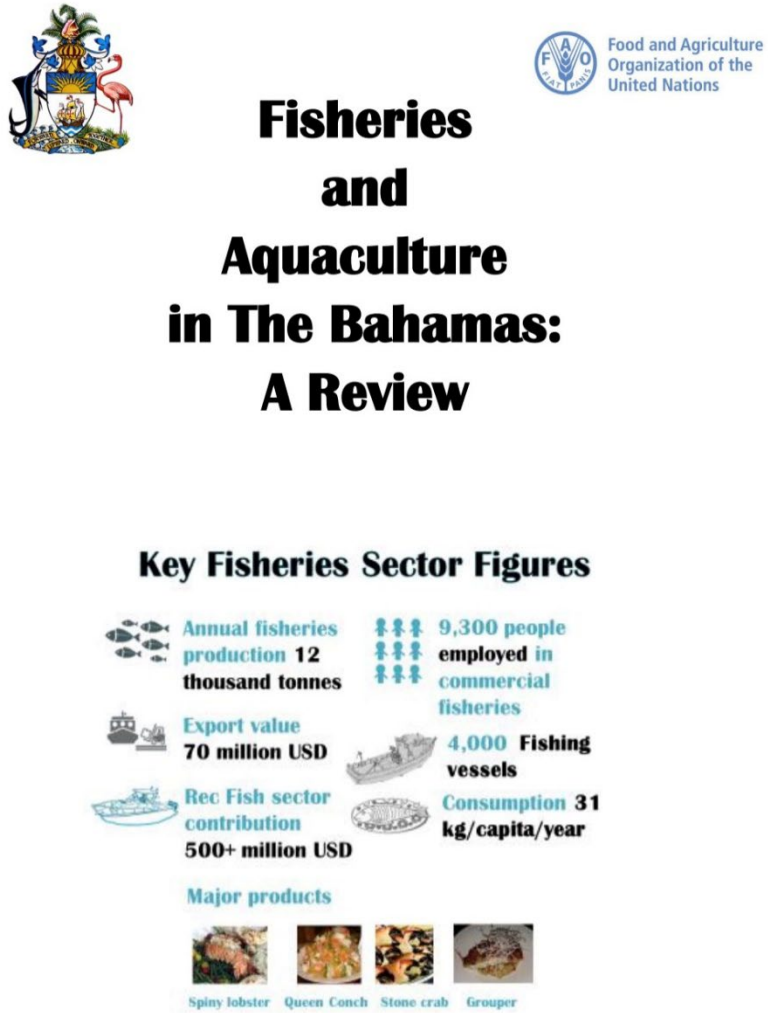
The development team will contribute 1% of all Club Ki'ama sales revenues to a newly formed local division for Silent Catch, the global non-profit initiative of Silent Resorts. The Silent Catch mission is to deliver innovative, scalable solutions with environmental, economic, and equitable impact in the world's fishing communities.

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, the development team 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 Club, 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



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SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

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

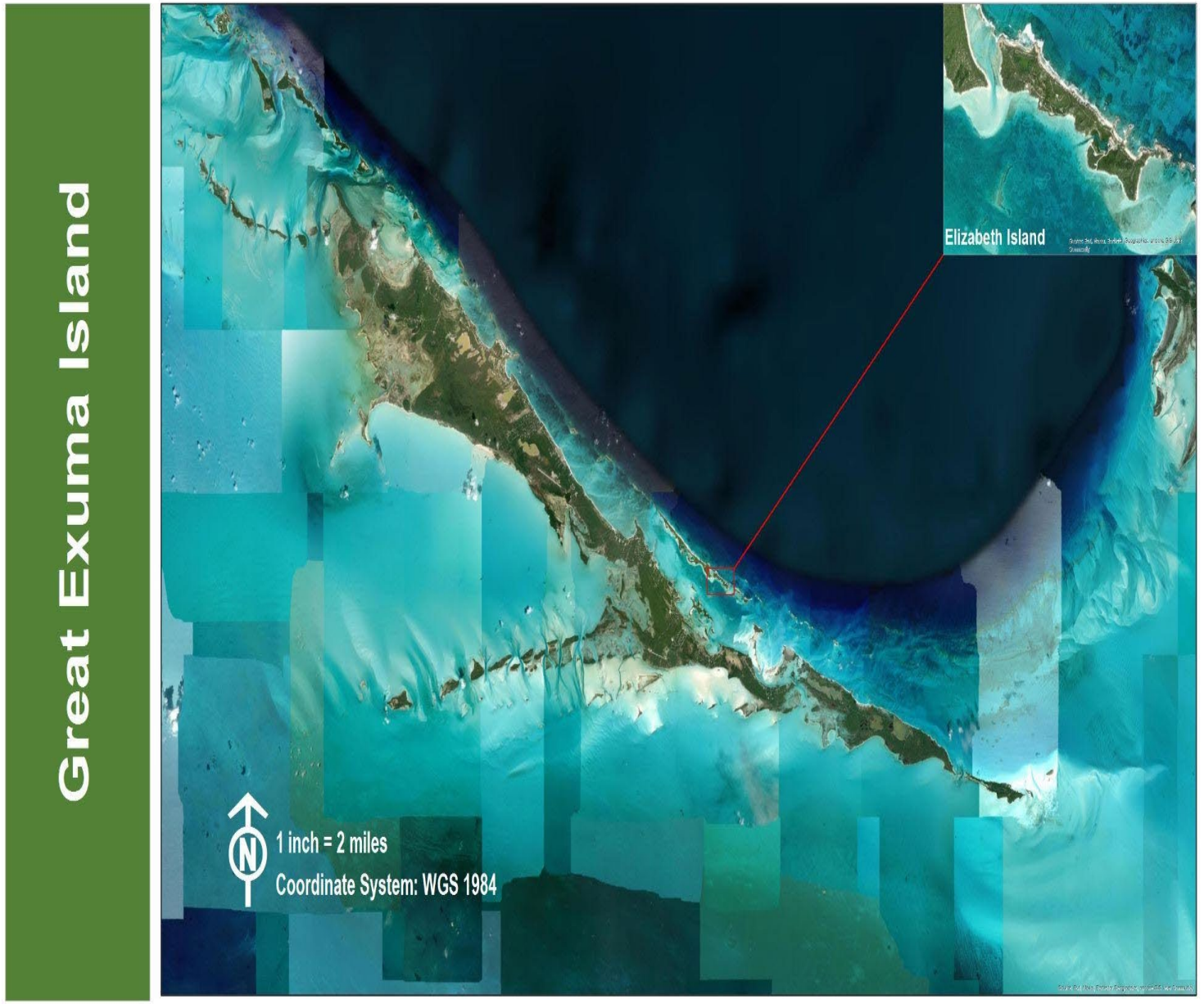
Date: ***Tuesday, 29th November 2022***

Gt. EXUMA ISLAND & CAYS

(inset – Elizabeth Island)

Location:

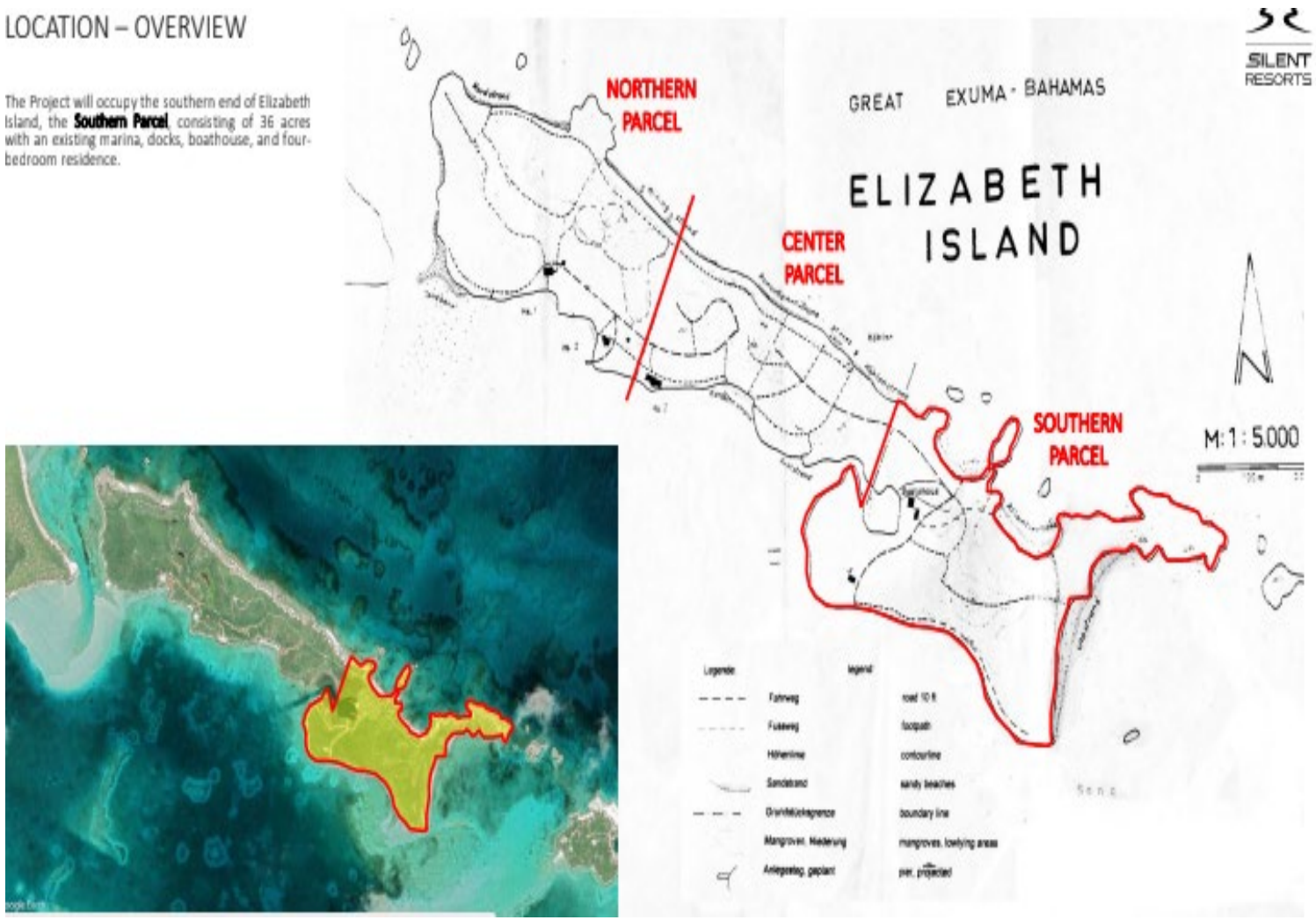
- NW of Guana Cay
- SW of Stocking Island
- E of Crab Cay
- 3 Miles due East of Georgetown Settlement.



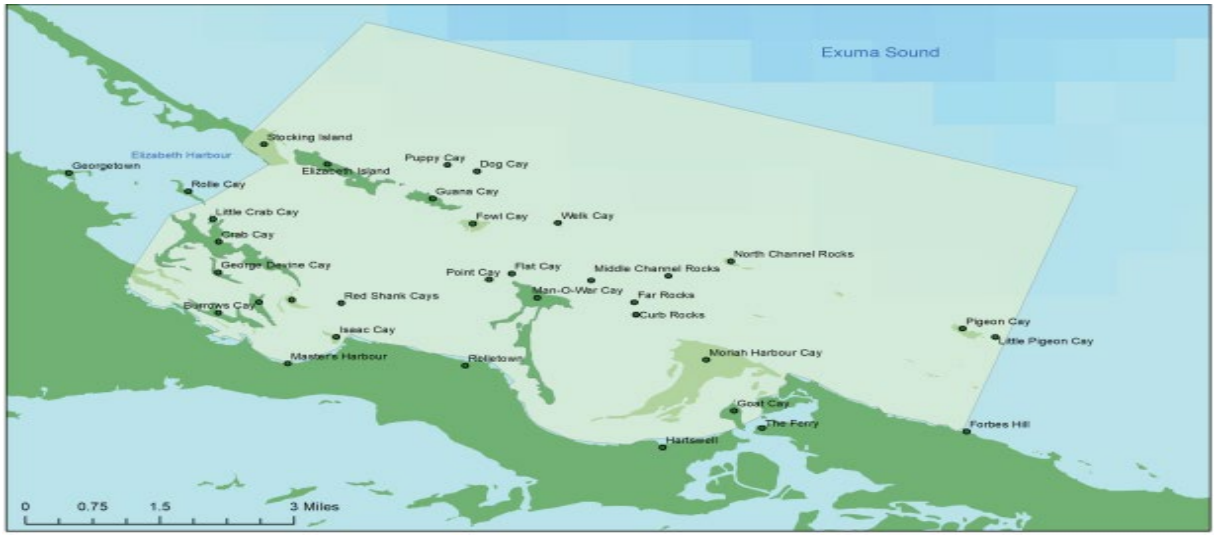
Ki’ama Project Site

Location Overview

- Occupation of the Southern most Parcel – 36 acres

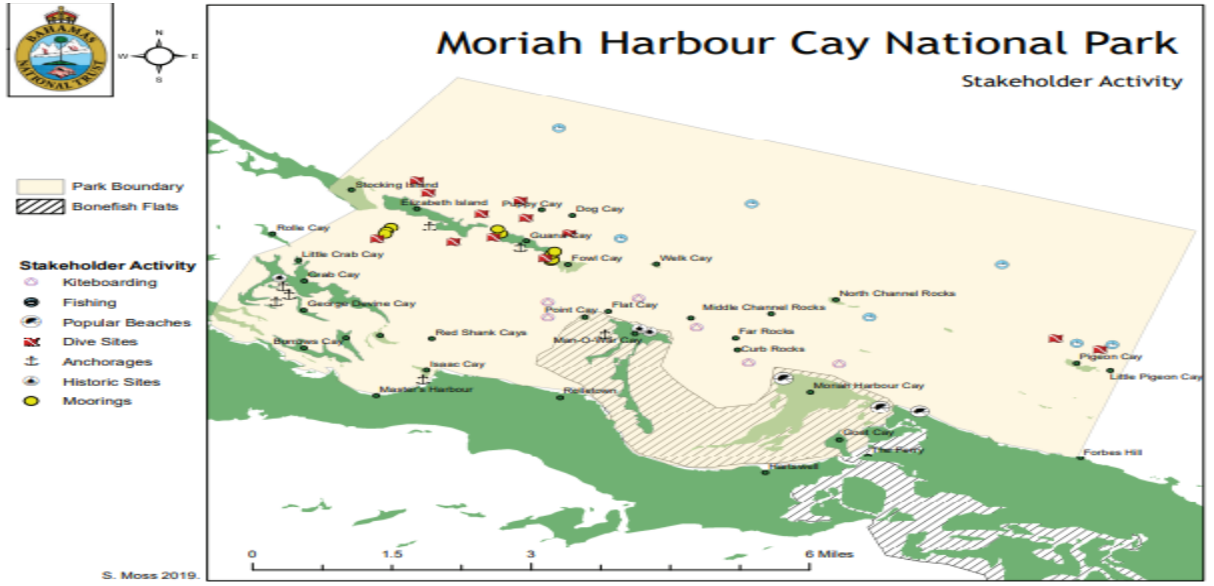


Ki'ama Project Site Elizabeth Island Location within MHCNP; (27,286 acres -2015) and associated stakeholder activities



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)

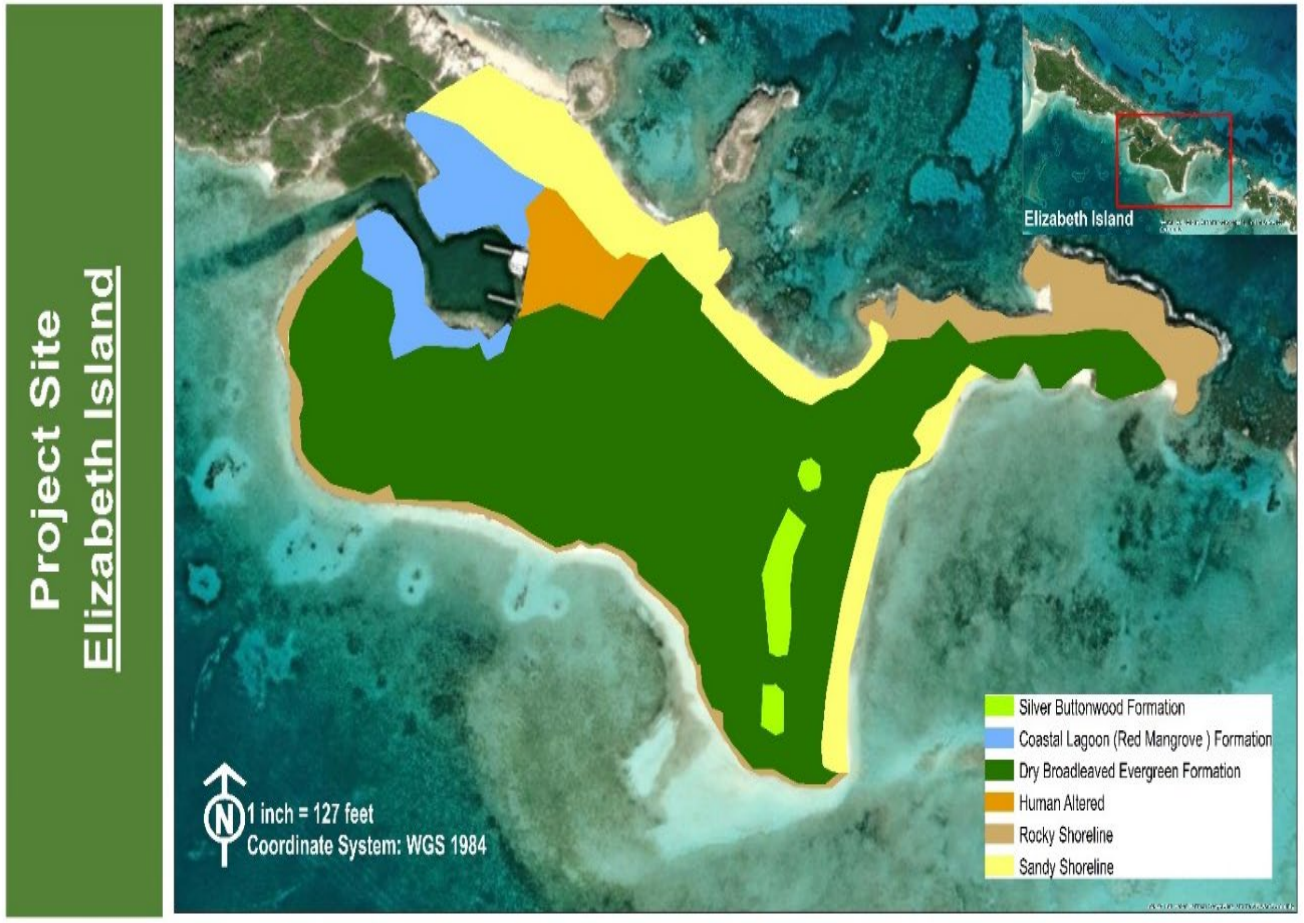
- Limited fresh to brackish water exist, but not suitable for proposed development
- Groundwater onsite salinity range 1,500- mg/L (fresh) based on WHO Drinking water guidelines
- Rainfall – natural means of recharge of freshwater.

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

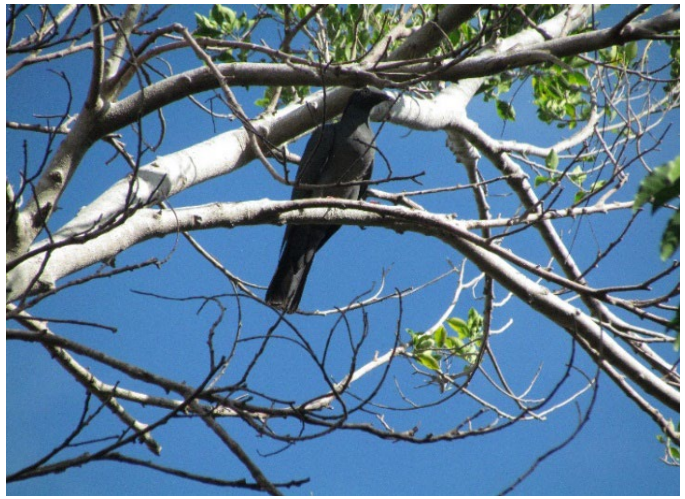
- Ninety-four (94) species of vascular plants identified – a fair representation of the species diversity of project site.
- Nineteen (19) vascular plants were identified as Protected, under the Forestry (Declaration of Protected Trees) Order, 2021
- Two Invasive Species identified (Australian pine and 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 - June 2022)	Habitat (Summer Session - June 2022)	Observation (Winter Session - Sept. 2022)	Habitat (Winter Session - Sept. 2022)
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

Project Site
Final Site Plan With Roads

Qualitative Criteria	Choices	Description
Nature	Direct	➢ Direct impact on 1.0 acre for new road infrastruct areas. Roads will be of local stone construction ar permeable local sand/gravel mix. No concrete will be
TYPE	Positive	➢ With loss of some protected species (broadleaved), c site preparation will be positive.
		➢ Protected species will be relocated where fea preserve areas, and within landscaped area, which will improve wildlife habitat. Application 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 lo construction.
Likelihood	Certainty	➢ Impacts and benefits will be the result once actio completed
Scale	Habitat – broadleaved evergreen forest.	➢ Positive impacts and better health of upland vegetati
	Island Environs	➢ Coastal strand and dune communities are not impact
		➢ Removal of Invasive Species (Australian Pine – Hawaiian scaevola), will reduce seed sources on the i
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. Sit 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. Island Environs	➢ Upland broadleaved species (inclusive of select protected species) will be loss. Relocation of protected species is recommended where practicable. ➢ 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)

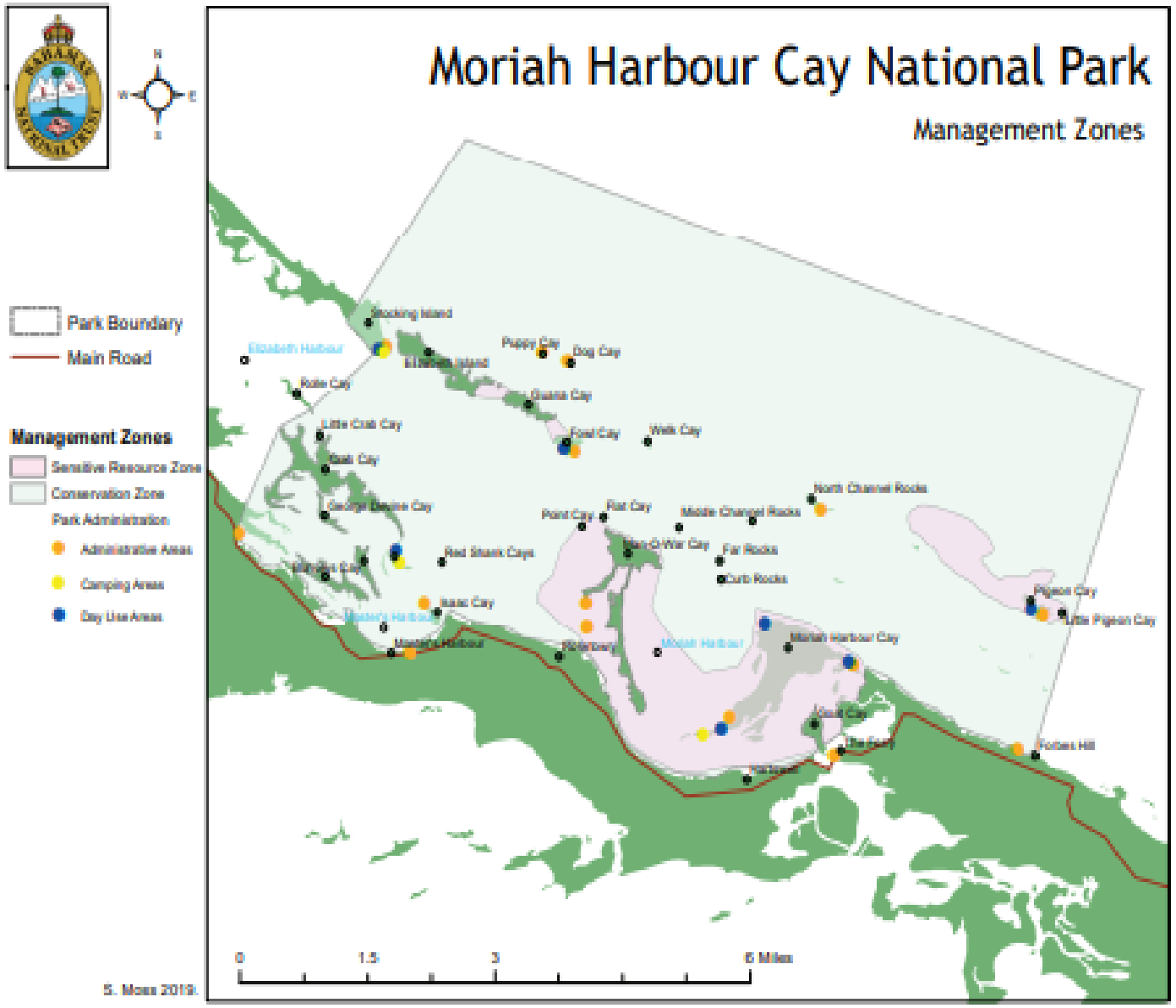
Occupational Health and Safety	5	➢ Risks of workers not wearing protective personal equipment (PPE). ➢ Risk is high for the improper use of equipment and materials and non-compliance to standard safety protocols and procedures. ➢ Physically damages and potential loss of human lives. ➢ Risk of workers 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



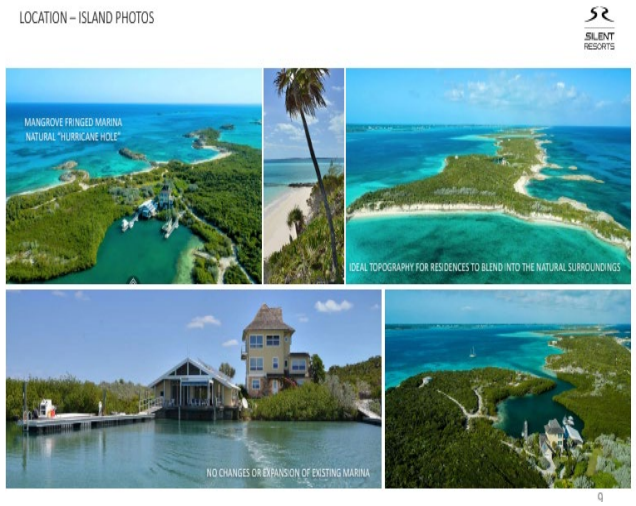
Ki’ama Project Site

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

Master Plan

Master Plan

A – Arrival Dock & Marina

B – Beach Club / Health & Wellness

C – Club Ki'ama Shared-Ownership Residences

D – Solar Residences Whole-Ownership

E – Organic Gardens, Back of House, and Utilities

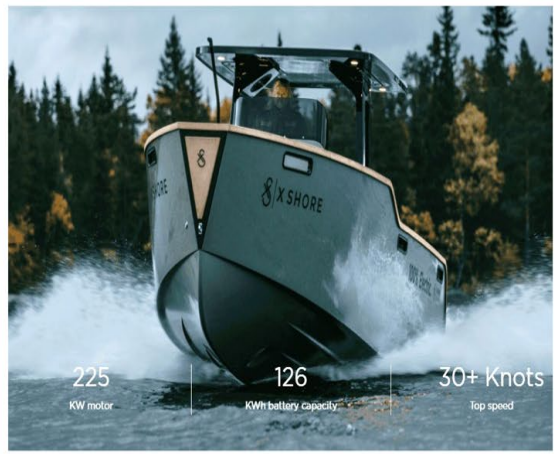
F – Future Development

SILENT-YACHTS AND ELECTRIC BOATS

THE X SHORE ALL-ELECTRIC DAYBOAT

Our first X Shore is in the Bahamas and cruising the waters of Exuma. 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 Ki'ama Bahamas' 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 Ki'ama Bahamas 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.



Thank you for your participation!

The public has 21 days following this meeting to submit comments questions via:

inquiries@depp.gov.bs

EIAPublicComments2022@kiamabahamas.com