SANDALS ROYAL CARIBBBEAN

PROJECT BRIEF

FOR

12 ADDITIONAL OVER WATER ROOMS

SANDALS ROYAL CARIBBEAN
MAHOE DRIVE
MONTEGO BAY
ST. JAMES
JAMAICA

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1.0 INTRODUCTION

Sandals Royal Caribbean (SRC) was issued Licence L3165A by the National Environment and Protection Agency (NEPA) on 5th May 2015 for the placement, construction and maintenance of:

- One hundred and sixty-eight (168) Piles
- Five (5) Overwater Rooms
- A Boardwalk (Connecting Kokomo Island to the Rooms)

This project started in November 2015 and to date all the piles have been driven and the foundation for the rooms and boardwalk has been completed. The construction of the rooms and boardwalk are in progress.

Fig 1. Artist Rendition

Responding to market demand and recognizing the customer relations challenge of constructing any additional rooms once this project is completed, SRC has applied to NEPA for the placement, construction and maintenance of the following additional structures:

- One hundred and eight-six (186) Piles
- Twelve (12) Overwater Rooms (700 ft^2each)
- A 623 feet Boardwalk (Connecting these rooms to the boardwalk of the boardwalk of the existing project)

This brief will address the environmental management plan for these additional structures that will adjoin the current project.

2.0 PROJECT LOCATION

Fig 2, below shows the approximate location and area of impact of the 12 additional rooms.

Fig 2

A dive survey of the area conducted on 22nd Junerevealed that the seabed was dominated by a dense bed of *Thalassia testudinum* (turtle grass) interspersed with *Syringodium filiforme* (manatee grass). The seagrass bed is healthy and mature, with average blade lengths of 20-30cm. This bed was broken up by small sand patches/sediment mounds. In these areas, some green macroalgae was also observed. The dominant macroalgae is *Halimeda spp* however *Penicillus spp* was also observed.

A single individual of *Diadema antillarum* was observed, however no other sessile organism (including coral heads) was observed within the footprint.

Fig 3: Mixed bed of *Thalassia sp* and *Syringodium sp*

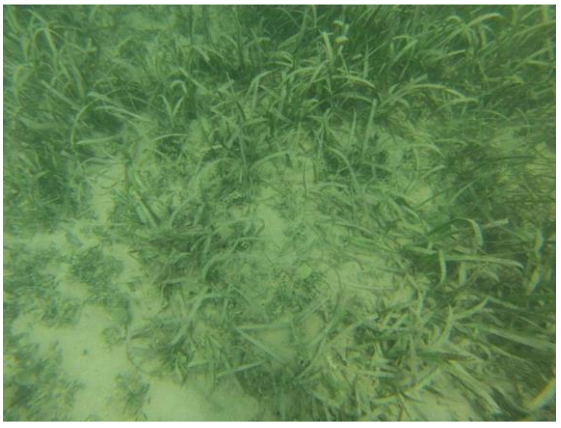

Fig 4. Showing green macroalgae (*Halimeda sp*)

Fig 5, below shows the location of the rooms in relation to Kokomo Island and the current project. The area of Phase 2 is 1758 m^2.

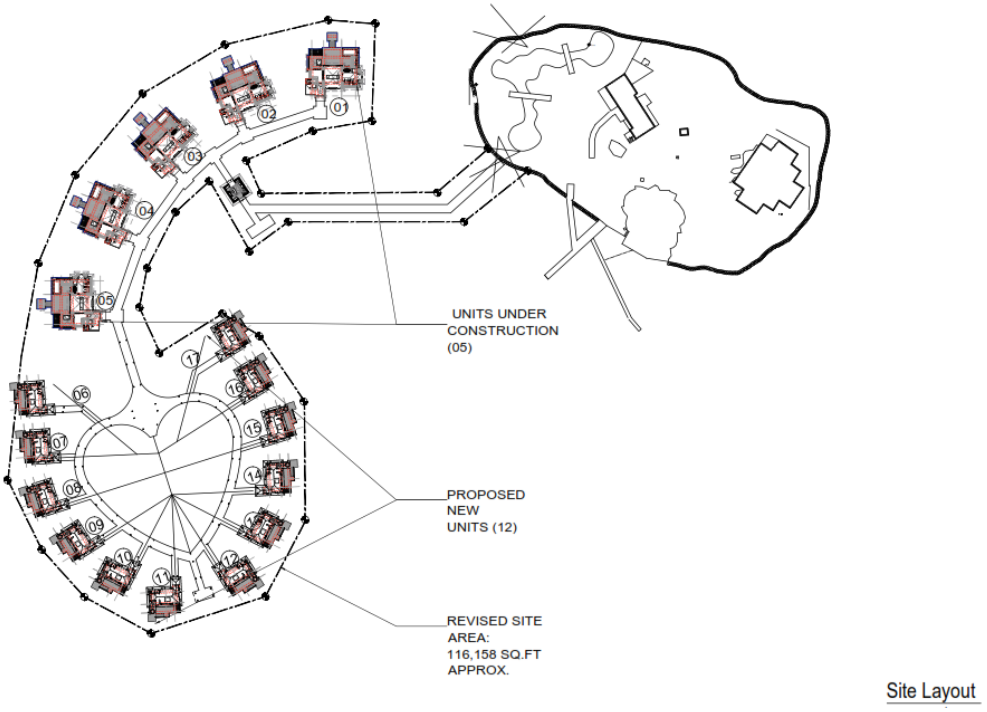

Fig 5: Site Location showing Area of construction

3.0 PROJECT PROPOSED ACTIVITIES

3.1 Staging Area

Sandals Resorts International was issued with an Environmental Permit on 9th July 2015 (Permit # 2015-0807-EP00111) to construct a Staging Area to support the first phase of the project. See area highlight in Fig 6 below

Fig 6: Staging Area Location

This staging area has been constructed for use in phase 1 and will continue to function in the same capacity for phase 2. Materials will be stored on this site and there will be a level of pre-construction where possible. See Fig 7 of present site below.

Fig 7: Staging Area

3.2 Piling plan

An experienced Marine surveyor will diligently identify and mark the exact position of each pile location. Stakes will be set in the floor of the seabed to identify where the pile will be driven. Below is the layout of the piles for phase 2

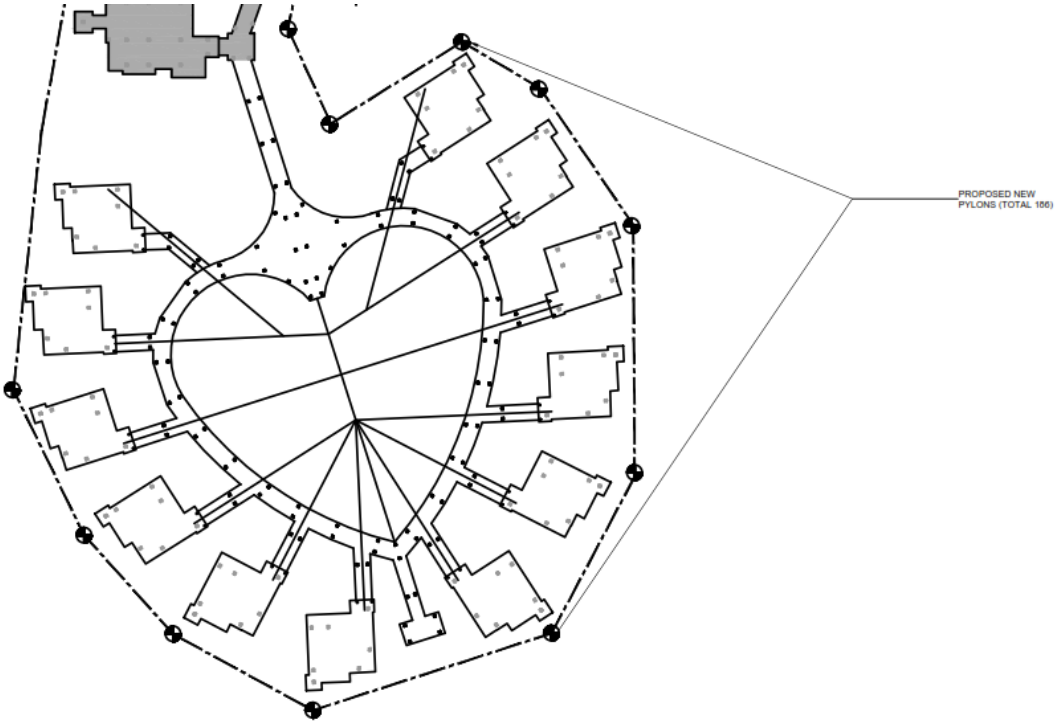

***Fig 8**: Piling Layout Plan*

3.3 Pile Driving

The driving methodology remains the same as the original 5 units. A series of H Beams will be used to set up a gate. A vibrating hammer on a crane will be used to vibrate the piles into the ground. In the event that the vibrating hammer is not able to drive the piles into the ground to the required depth, a single acting Diesel hammer will be used to further drive them into the ground.

Once the piles in each cluster are in place, the gate will be removed and the piles cut off to the correct elevation. A PVC sleeve will be installed over each pile and the required reinforcement welded into place.

3.4 Pile protection

Concrete will be placed in the PVC to provide corrosion resistance. Concrete will be poured into steel buckets into a suitable vessel on the mainland. The vessel will transport the concrete to the site, where the crane will lift the bucket and allow the concrete to be poured

3.5 Construction of Boardwalk

The deck of the boardwalk with be timber

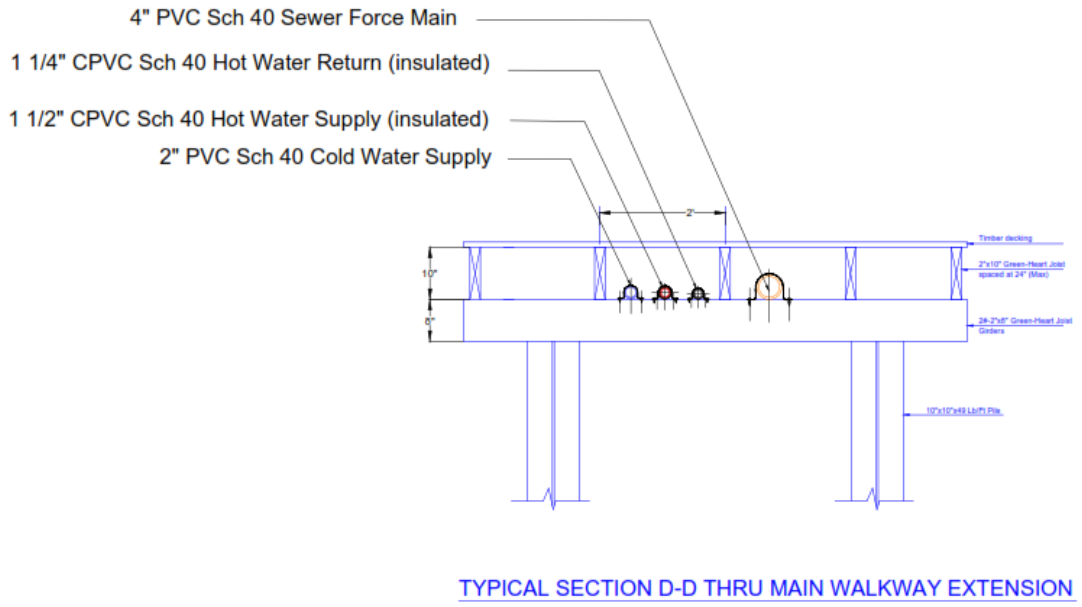

Fig 9: Showing cross-section of Boardwalk with some Utilities

Utilities will be connected to the Rooms under the walkway. Sewage and potable water pipes will have hurricane straps every 5 feet.

3.6 Construction of Rooms

The rooms will be constructed with timber that mainly will be prepared at the staging area and on floating platforms. The roofs are insulated with thatch finish. See Fig 10 -13 below.

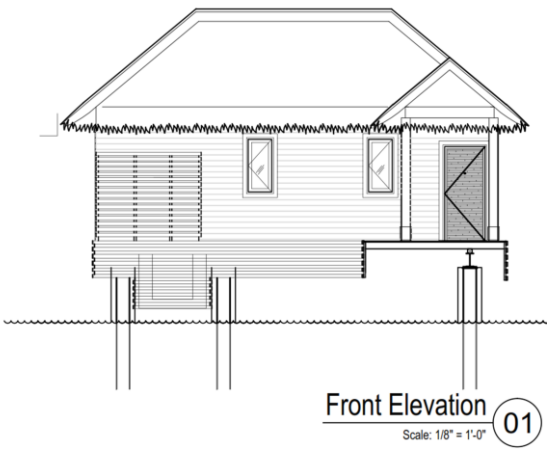

Fig 10

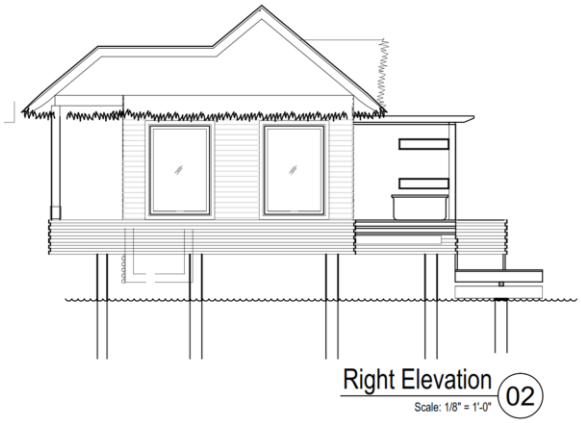

Fig 11

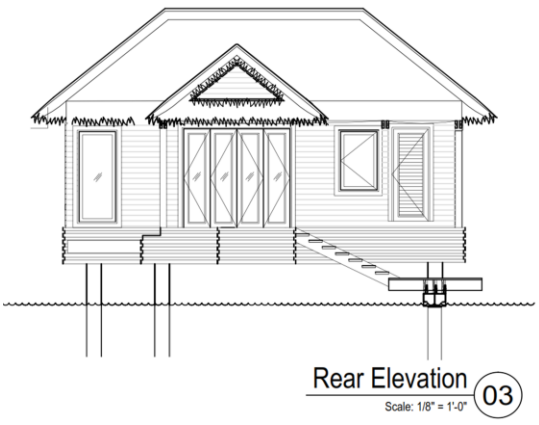

Fig 12

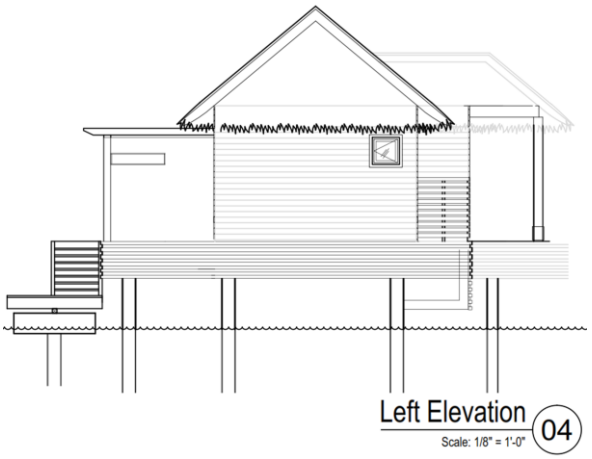

Fig 13

3.7 Utilities

Currently the island has a Restaurant that is supported by the following utilities:

- 1 – 3" Potable PVC Potable water
- 1 – 3" PVC Sewage Pipeline
- 2 Marine grade power cable
- 100 lb LPG tanks transported to the Island.
- 1 LPG Water heater

These installations have been in place for over 10 years and provided no challenges within that time. The utilities run along the seabed, held in place with concrete blocks. The marine grade cables are buried.

3.8 Utility Upgrades for Phase 1 & 2 of Project.

- Six (6) additional 3" PVC Schedule 40 pipes will be installed from the mainland to the Island along the sea floor, held in place with concrete blocks.. The pipes are continuous without any joints. See Fig x

  PVC Pipe additions

  - 1 – For Sewage
  - Potable Water
  - 2 – LPG
  - 2 – Communication

Fig 14: Continuous PVC Pipe to

Fig 15: PVC Pipe on the sea bead

- 4 Marine Cables will be added, using the same specification that has been successfully employed in the pass. They will be buried as per current cables.
- 2 – 100 gallon LPG Water Heaters
- 20 – Solar Water Heater Panels (total capacity of 1000 gallons)

All safety and industry standards will be used during the installation of utilities.

3.9 Fire Equipment

The following fire prevention and detection will be in place:

- Central Fire panel with 24 hour monitoring
- Mobile sea water pump
- Wired smoke detectors in room
- Fire extinguishers
- Pull Station, Fire Alarms and strobe lights

4.0 PROJECT EQUIPMENT

- Deck Barge 135 feet x 50 feet x 9 feet
- Link Belt LS 518 lattice boom crawler crane (140 Ton Capacity)
- Clam shell bucket (2 Cubic Yard Capacity)
- ICE Variable moment vibrating piling hammer
- APE Diesel D 19 Piling hammer (only used if piles do not reach required penetration using the vibrating hammer) (42,000-pound capacity)
- 73’ Landing craft (55 Ton Capacity)
- Komatsu 380 front end loader
- Komatsu PC 300 excavator
- 1 small work / push boat
- 2 small pontoon barges (12 feet x 12 feet)
- 2 Welding plants
- 2 Cutting torches
- Miscellaneous tools

5.0 HAULAGE ROUTES AND VEHICLES

5.1 Transportation Material to the site

All materials to be used on the project will be transported and stored to the staging site prior to being transported to the development site.

Construction materials will be transported to the work area on boats from the Staging Area. Safety measures will be put in place mitigate against any accidents or environmental incidence.

5.2 Parking area for vehicles of site operative

Parking will be provided at the Staging site and at Sandals Royal Caribbean car park house vehicle of staff and visitors to the project. The use of these locations will not result in any traffic management issues as there is adequate space.

6.0 STORAGE AND SECURITY

The storage area is designed in an orderly fashion to allow easy access to material. There is phase storage to minimise movement of material on site.

Chemicals and oil will be stored separately in well ventilated areas away from any combustible material. Appropriate signage will be installed and all health and safety requirements observed.

The staging area is fence with 24 hours security to protect material and equipment. There is also 24 hours security on Kokomo Island.

7.0 Health and Safety

Properly maintained sanitary facilities will be put in place. All workers will need to observe safety measures on the worksite, including the use of appropriate safety equipment at all times.

8.0 MANAGING ENVIRONMENTAL IMPACTS OF PHASE 2 OF PROJECT ACTIVITIES

Significant Differences between Phase 1 and Phase 2

8.1 Turbidity

While phase 1 of the project included dredging creating turbidity, phase 2 will not have any dredging taking place. A turbidity curtain is in use in phase 1 and will continue to be in place. See specification below.

Type 2 Heavy Duty Silt Barrier: 100 feet in Length x 6 feet in Depth Fabric: 22 oz PVC (Impermeable) Color: Yellow Flotation: 6 inch Square Closed Cell Floats Ballast: 5/16 inch Hot Dipped Galvanized Chain Connection: Universal Bulk Connectors at floats. Shackle connection at bottom stress plate. Curtain skirts connect with grommets placed every 12 inch on center. Poly rope reinforced ends. Tension member: single 5/16 inch Galvanized Steel

8.2 Obstacle Barrier

An Obstacle / Debris Barrier will be installed around Phase 2 to mitigate against accidental loss of materials from the area. The Barrier will allow debris to be retrieved on a daily basis / as needed.

8.3 Noise Pollution Control Measures

There will be no noise from the site different to regular construction. The distance from the site to the mainland prevents any noise from carrying this distance. The closest neighbour to the site is Kokomo Island under the control of Sandals No complaints have been received from our guests or any neighbouring property about noise. In the event there is any complaint, we would make adjustment necessary with regards to the time of construction operation.

8.4 Waste Management

There will be four sources of waste generated by the project, namely:

- Waste generated by workers – Food waste, wrappers, pip bottles etc
- Waste generated by Office work – paper, cardboard, plastic
- Waste from Construction - Concrete fragments, timber off cuts, packaging, steel off cuts, defective building materials such as bricks and blocks, used formwork

Waste receptacles, lined with plastic bags, are placed in designated location at the staging area and construction site to capture all waste generated by workers and from office work. These receptacles will be cleared daily and the refuse taken to the skip designated for such waste.

Construction waste from the development site will be collected in drums and ferried to the staging area to be placed in skips. A reputable waste management company is contracted to remove and dispose of all waste generated in accordance with legislation and best practices.

Once the rooms become operational, the SRC waste management program will apply. Waste types expected to be generated are paper, plastic, glass, aluminium etc, which would be removed daily by Room Attendants that service the rooms and be brought to the Mainland by boat.

Personnel on the boat will be responsible pick up anything that is accidentally dropped in the water.

8.5 Transporting material for the project

There are no anticipated traffic management issues with material and equipment arriving at the staging site. All delivery vehicles need to observe local traffic laws and safety regulations.

The risk of an accident while transferring material from the staging area to the development site is minimal due to the excellent visibility in the area and the fact that only a few water crafts are usually in the area. The transferring craft will have look out personnel and give priority to any other craft in the area.

8.6 Material on the Ocean Floor

Any material that accidentally litter the sea floor is removed on a daily basis. This will continue to be the case during Phase 2 of the project. When operational, the SRC Watersports department will be responsible on a daily basis to remove any litter.

8.7 Oil Spill

The only fuel within the project area that can cause a spill is fuel store to refuel the Crawler crane. We have mitigated against potential spill by placing the storage container in a steel container. Any spill will be contained within the Obstacle barrier. Absorbent material such as sand/sawdust is stored at the staging site to clean up any possible spill that occur on land. The company will invest in a spill kit to contain any spillage that occurs at the development site.

8.8 Sewage

Both the Staging ground and Kokomo island have toilet facilities for staff to use during construction..

The sewer pipe that runs from the mainland is a continuous pipe with no intermediate connections to prevent leakage. The pipes that run under the boardwalk from Kokomo to the rooms, are protected under the floor joist of the boardwalk to prevent damage.

Each Villa has an individual tank with two (2) grinder pumps, (one primary and one secondary / back up pump) that operates with a level switch. These tanks are sealed with any back-up sewage being expel through the toilet only. an alarm sounds should there be a failure of either pump. Maintenance will be on duty 24 hours on the island to address any potential challenges.

The grinder pumps will macerate the sewage in the villa tanks and then pump to the lift Station on the island. The lift station has 2 pumps working on an automatic level float to pump to the sewage station on the Mainland. The current sewage line that is in use at the moment, will be kept and maintained as a redundant line that can be employed if there is any blockage in the main line that is being installed.

8.9 Seagrass

The additional rooms do not require dredging or removal of seagrass, as such there will not be any adverse effect on the seagrass.

9.0 NEIGHBOUR NOTIFICATION & COMMUNITY CONSULTATION

Community interfaces with the construction process is an important part of the process of stakeholder interaction. The following processes has been undertaken by Sandals Royal Caribbean to inform neighbours and the surrounding community of the work as well as provide a contact point:

- Notice has been erected giving contact details of the site manager to be contacted for any concerns/queries regarding the construction works
- Letters were sent to immediate neighbours with SRC informing them of the project.
- Public Notice has been published in the National newspapers informing the public about the application for the additional 12 rooms

10.0 COMPLAINTS HANDLING

Although every effort is made to ensure that there is no adverse impacts on neighbours and the surrounding community, SRC has in place a procedure for recording and managing complaints.

When a member of the community lodges a complaint, the issue shall be dealt with as soon as possible after being reported. If it cannot be rectified or resolved immediately, then a solution will be implemented as soon as practicable. At a minimum, temporary control measures will be put in place to prevent any adverse consequences until such time that the issue can be satisfactorily resolved.

All complaints will be referred to the Environment Health and Safety Manager who will work with the Site personnel to mitigate the challenge.

11.0 ENVIRONMENTAL TRAINING

All workers have received suitable environmental induction / training to ensure they are aware of their responsibilities and are competent to work in the Site. Environmental requirements are explained to all personnel during site induction and on-going training.

12.0 MANAGEMENT RESPONSIBILITIES

This section will highlight the role and responsibilities of key personal as it relates to the EMP.

13.1 Environment Manager

Responsibilities and Authorities

- Inform and instruct site workers in the application of the
  - Environmental Management Plan
- Ensure all aspects of the Environmental Management Plan are in place as required and to resolve any issue that arise
- Be available for all personnel to come and confirm procedures or ask questions on any aspect of the Environment Management Plan
- Provide advice on compliance with standards, codes of practice, etc.
- Conduct internal audits of the Environmental Management Plan
- Ensure site environmental inspections are conducted weekly and monthly
- Disseminate environmental management information to personnel
- Identify and assess environmental aspects and impacts and determine action to alleviate or control
- Review and evaluate environmental incidents and ensure that incidents are reported and appropriate action taken
- Advise the Site Manager / Foreman on areas of concern
- Quarantine unsafe work areas, materials, plant and equipment
- Identify and report potential environmental impacts and risks
- Assume the role of company Representative for the Environment on site

13.2 Project Manager/Site Manager

Responsibilities and Authorities

- Authorise subcontract and establish an administrative system to monitor the subcontracts and the payment of subcontractors in relation to their environmental responsibilities
- Implement and ensure adherence to Project Plan and all associated sub-plans
- Implement all environmental plans and procedures as required
- Co-ordination of all on site activities including trade interface
- Organisation of all deliveries and managing materials handling
- Establish and maintain site environmental measures
- Review all Subcontractor Management Plans and waste management plans submitted and obtain approval from Project Manager before allowing work to commence on site

13.0 SITE EMERGENCY RESPONSE PLANS

13.1 Emergency Response Plan

In the event of any emergency the Site Manager must be contacted to ensure the appropriate action is taken.

POTENTIAL EMERGENCY	ACTION (WHAT TO DO)	RELEVANT AUTHORITIES & PERSONS
Injury caused by: - Fire - Explosion - Machinery accidents - Minor injuries	For serious injuries immediately contact nurse on site or performed any warranted first aid treatment. Call an ambulance service and let person be taken to the appropriate medical facility. Follow the procedures as detailed in the SRC incident procedure. Inform ESH Manager, Site and Project Manager	Nurse at SRC EHS Manager SRC Project Manager Site Manager Medical Centre
Fire	Follow the procedures as detailed in the SRC Fire Policy, inclusive of; Alarm-Evacuate-Assembly-Head Count. The assembly point for the Overwater Rooms and the Island is the extended pier. The water sports department will assist by transporting persons from the assembly point to the main land. The water sports department will provide a stand-by vessel for the fire department and(EMS)	Emergency Services Site Manager Project Manager Adjacent residents EHS Manager General Manager SRC

Spills Management & Contaminated Soils	Spill on land will be cleaned up with absorbent material such as sand/sawdust. Spill kit would be used for any minor spill on development site NEPA and the Fire Brigade would be immediately informed to provide any necessary assistance	Site Manager Project Manager NEPA Fire Brigade EHS Manager
Hurricane and Tropical Storm	All equipment will removed from development site All material that cannot be adequately secured will be removed from the site SRC hurricane plan will be implemented	Site Manager Project Manager EHS Manager General Manager SRC